

M4407  
MAWILL

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection

M440756901

FACILITY: R J MARSHALL CO		SRN / ID: M4407
LOCATION: 21220 HURON RIVER DR, ROCKWOOD		DISTRICT: Detroit
CITY: ROCKWOOD		COUNTY: WAYNE
CONTACT: Stephanie Nichols , Technical Administrator		ACTIVITY DATE: 01/27/2021
STAFF: Todd Zynda	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: January 27, 2021 Inspection		
RESOLVED COMPLAINTS:		

REASON FOR INSPECTION: Targeted Inspection

INSPECTED BY: Todd Zynda, AQD

PERSONNEL PRESENT: Stephanie Nichols, Technical Service/Compliance Manager; Rick Marshall, Operational Manager; Dan Zur, Assistant Plant Manager

FACILITY PHONE NUMBER: 734-379-4044

FACILITY FAX NUMBER: 734-379-2804

FACILITY WEBSITE: www.rjmarshall.com

**FACILITY BACKGROUND**

R.J. Marshall Company (R.J. Marshall) Rockwood Division operates a mixing operation, blending non-metallic minerals and plastics into specific formulations. The blended materials are sold to third parties for the production of solid surface countertops. The facility is located at 21220 North Huron River Drive, Rockwood, Michigan and currently operates from 6:00 AM to 4:30 PM, Monday through Friday, and Saturdays depending on customer demand. The facility currently has 12 employees. Property boundaries are as follows: commercial/industrial property is located to immediately adjacent to the east; residential property is located to the south; vacant land is located to the west and north. A railway line is located immediately adjacent to the facility on the west side of the property. The facility utilizes a rail spur that is located on the east side of the facility for material shipment received by rail. The nearest residential property is located approximately 400 feet south of the facility.

On July 29, 2020, a fire occurred at the facility (see attached articles). During the fire, the "expancel line", storage area, and office space were destroyed.

**PROCESS OVERVIEW**

The facility operates the following equipment.

- FG-PROCESS (PTI 284-06A) – "expancel line", expansion of polystyrene spheres, dust collector control, this process was destroyed in the fire on July 29, 2020;
- EU-CHIPPER (PTI 284-06A) – "granule line", breaking of surface slabs, Wheelabrator Ultrajet dust collector control;
- FGSTORAGE (PTI 284-06A) – four outdoor dry material storage silos, passive bin vent control;
- Ribbon Blender Mixing Line (Rule 290) – Dry material blending, Wheelabrator Ultrajet dust collector control;
- P-K Mixers Line (Rule 290) – dry material mixing, Wheelabrator Ultrajet dust collector control

The main production area contains the mixing operations which are made up of two processes (the "Ribbon Blender" process and the "PK Mixer" process). During the Ribbon

Blender process, polystyrene spheres, calcium sulphate dihydrate (gypsum) and aluminum trihydrate

are mixed in a ribbon blender. Following the ribbon blender, the material drops through a shaker screen to the "Nauta" mixer, which terminates at the packaging equipment. The facility packages the processed material in bulk pallet sized containers and fifty pound bags. The additives and calcium carbonate are received in four large outdoor storage tanks (FGSTORAGE). Each outdoor silo is equipped with a bin vent (a passive baghouse that keeps dust in the silo). The ribbon blender line has a production capacity of approximately 60,000 pounds per day. Emissions from the ribbon blender and "Nauta" mixer are control by the Wheelabrator Ultrajet dust collector.

The P-K Mixer line contains three Patterson-Kelly (P-K) mixers to blend aluminum trihydrate with granules from the granule line (EUCHIPPER) to create varying colors and patterns to simulate granite. The mixes have a capacity of five, thirty, and two hundred cubic feet (300, 3,000 and 9,000 pounds respectively). Emissions from the P-K Mixers are controlled by the Wheelabrator Ultrajet dust collector.

The granule line (EUCHIPPER) breaks surface slabs (consisting of alumina trihydrate, unsaturated polyester resin, and pigments) into fine chips using a flake breaker, a hammer mill, screw conveyors, and vibratory screens. Emissions are controlled by the Wheelabrator Ultrajet dust collector.

The emissions from the ribbon blender line, P-K Mixer line, and the granule line are ducted to a common baghouse dust collector (Wheelabrator Ultrajet), which discharges to an exhaust stack through the roof of the ribbon blender production area.

The former expancel line, destroyed in the fire on July 29, 2020, expanded polystyrene spheres. The facility will be submitting a PTI application for installation of an expansion of polystyrene spheres line. The following description is for historical purposes only. Within the expancel line, tiny, dense polystyrene spheres were heated on a belt conveyor. The heating caused entrained isobutene and isopentane gases to expand, puffing the spheres into a fluffy material. A pallet box of unexpanded beads weighs approximately 1,100 pounds, while the equivalent volume of expanded beads weighs only 60 pounds. Expanded beads are vacuumed to outdoor silos for temporary storage or packaged for sale. The expancel line was controlled by its own baghouse dust collector.

## **COMPLAINT/COMPLIANCE HISTORY**

The most recent complaint for this facility occurred on October 9, 1991. The anonymous complaint alleged that the facility was improperly storing hazardous waste and was exceeding the air quality permit. An investigation was conducted, and the company was determined to be in compliance.

On April 17, 2014, an inspection of the facility was conducted. At that time, the company was determined to be in compliance.

On April 2, 2008, an inspection of the facility was conducted. At that time the company was determined to be in noncompliance with Special Condition (SC) 1.3 of Permit to Install (PTI) 284-06 (failure to track particulate matter [PM] emissions). A violation notice was issued on May 14, 2008. The VN was resolved on June 4, 2008, when the company began to maintain the appropriate PM emission records.

**OUTSTANDING CONSENT ORDERS**

None

**OUTSTANDING VIOLATION NOTICES**

None

**INSPECTION NARRATIVE**

On January 27, 2021 the Michigan Department of Environment, Great Lakes, and Environment (EGLE) Air Quality Division (AQD) inspector, Mr. Todd Zynda, conducted an inspection of R.J. Marshall. During the inspection, Ms. Stephanie Nichols, Technical Service/Compliance Manager, Rick Marshall, Operational Manager, and Dan Zur, Assistant Plant Manager provided information and a tour of facility operations relating to air quality permits and regulations. The inspection was conducted to determine the facility's compliance with the Natural Resources and Environmental Protection Act (NREPA), Act 451, Part 55 and PTI 284-06A.

At 1:00 PM, AQD staff arrived onsite and performed outside observations. Visible emissions were not observed at the time of the inspection. Upon entering the facility, Mr. Zynda entered the facility, stated the purpose for the inspection, and was greeted by Ms. Nichols.

During the opening meeting, the facility operations, the July 29, 2020 fire, Rule 290 subject equipment, and PTI requirements were discussed.

Following an introductory meeting, a tour of the facility was conducted. The tour began with observation of the former expancel line building, which included storage, and office space. The building has been demolished and is currently a concrete slab where the building once stood.

The tour continued with observation of the main production area. The ribbon blender line and P-K Mixers appeared to be appropriately equipped with hoods/intakes for particulate control. The duct work to the Wheelabrator dust collector servicing the ribbon blender line, P-K Mixers, and granule line (EUCHIPPER) appeared to be good operating condition. During the inspection, the Wheelabrator dust collector pressure drop gauge, was "pegged out" at over 10 inches water column. According to Mr. Marshall, the pressure drop gauge has consistently been over 9 inches since using a new vendor for bags. However, the facility did not know the pressure drop operating range for the Wheelabrator. The facility agreed to obtain that pressure drop operating range from the manufacturer and get back to the AQD. As discussion was held that PTI 284-06A, EUCHIPPER, SC IV. 1 requires that the "permittee shall not operate EUCHIPPER unless the baghouse dust collector is installed, maintained, and operating in a satisfactory manner." Similarly, if using Rule 290 for the ribbon blender line and P-K Mixers, Rule 290 requires the following: "An air cleaning device for particulate matter shall be installed, maintained, and operated in accordance with the manufacturer's specifications or the owner or operator shall develop a plan that provides to the extent practicable for the maintenance and operation of the equipment in the manner consistent with good air pollution control practices for minimizing emissions. It shall also be equipped to monitor appropriate indicators of performance, for example, static pressure drop, water pressure, and water flow rate."

The tour continued with observation of the granule line (EUCHIPPER). During the inspection the flake breaker, hammer mill, and screening process were observed. The granule line appeared to be appropriately equipped with hoods/intakes for particulate control. The duct work to the Wheelabrator dust collector appeared to be in good condition.

The tour continued with observation of the four outdoor storage silos and associated bin vents (passive baghouses). During the inspection, it was requested that the facility provide any maintenance activities/inspections performed on the bin vents to demonstrate that the bin vents are installed, maintained, and operated in a satisfactory manner. The facility stated that these records were previously maintained as hard copy records and were likely destroyed in the July 29, 2020 fire. The facility has agreed to maintain such records going forward in the future. PM was not observed anywhere outside the facility building indicating proper operation of baghouses and bin vents.

### **APPLICABLE RULES/PERMIT CONDITIONS**

For brevity, permit conditions and the language of federal and state rules have been paraphrased.

#### **PTI 284-06A**

**GC 11. COMPLIANCE.** Opacity limited to a six-minute average of 20 percent (%), except for one six-minute average or not more than 27% opacity. Visible emissions were not observed during the inspection.

#### **EUCHIPPER**

**SC I.1 and GC 13. COMPLIANCE.** PM emissions not to exceed 0.01 lbs PM/1,000 lbs exhaust gas. The emission rate of PM has not been tested. At this time, the AQD has not requested the testing of PM emissions.

**SC II.1, SC VI.1 and SC VI.2. COMPLIANCE.** The throughput for EUCHIPPER shall not exceed 5,200 tons of material per 12-month rolling time period. Monthly and 12-month rolling records to be maintained and in an acceptable format. The facility provided 12-month rolling records for 2020. The highest 12-month rolling throughput occurred at the end of December 2019 at 1191 tons.

**SC IV.1. COMPLIANCE.** The permittee shall not operate EUCHIPPER unless the baghouse dust collector is installed, maintained, and operated in a satisfactory manner. During the inspection, the Wheelabrator dust collector pressure drop gauge, was "pegged out" at over 10 inches water column. The facility has provided correspondence indicating that the typical operating range is 6 to 8 inches and that the pressure drop gauge is likely broken. On March 11, 2021 the facility provided correspondence that the duct work leading to the dust collector was cleaned out and the pressure drop reading is now within the specified operating range (6 to 8 inches). On March 16, 2021, a conference call was held with Mr. Marshall and Ms. Nichols regarding the pressure drop gauge and duct cleaning. According to Mr. Marshall, during recent maintenance activities at the plant, a lift hit the duct leading to the dust collector. The duct work needed repair and prior to the repair, the duct work was cleaned out using a vacuum truck as there was considerable material built up in the duct work. It is unknown when the ducts were last cleaned, but Mr. Marshall suspects it may be 20 years or more. Following the cleaning, and repairing the ductwork, the

pressure drop gauge now reads within 6 and 8 inches (see attached photos provided by the facility). At this time, the AQD considers the facility in compliance with SC IV.1 as repairs have been made and the pressure drop appears to be within the specified operating range.

SC VIII.1. **COMPLIANCE.** Exhaust gases shall be discharged unobstructed, vertically upwards to the ambient air. The exhaust diameter not to exceed 28 inches and a minimum of 70 feet above ground surface. During the inspection, the stack appeared to meet the requirements. Measurements were not collected.

### FGSTORAGE

SC I.1, SC I.2, GC 13. **COMPLIANCE.** PM emissions shall not exceed 0.01 lbs PM/1,000 lbs exhaust gas and 2.05 pounds per hour (pph). The emission rate of PM has not been tested. At this time, the AQD has not requested the testing of PM emissions.

SC I.3 and SC VI.1, SC VI.2. **COMPLIANCE.** 12-month rolling PM emissions shall not exceed 2.4 tons per year (tpy). Records shall be kept in a satisfactory manner. It should be noted that the PTI 284-06A lists six silos. However, there are only four outdoor silos (each equipped with bin-vents) on the property. According to Mr. Marshall, only one of the four silos has been in use. Previously the facility used the four outdoor silos for storage of calcined alumina that was received by railcar. The company no longer uses calcined alumina. Currently one silo is used for the storage of calcium carbonate. The facility provided 12-month rolling records for 2019 and 2020. The highest 12-month rolling PM emissions was 0.39 tons and occurred at the end of December 2019 and January 2020. The facility calculates monthly emissions using the throughput for each silo and the bin-vent control efficiency. According to the records provided only silo 1 has been in use to store calcium carbonate.

SC IV.1. **COMPLIANCE.** Shall not operate FGSTORAGE unless the bin-vent dust collector is installed, maintained, and operated in a satisfactory manner. The passive baghouses (bin vents) used to control emission on storage silos appeared to be operating satisfactorily. As described above, the facility believes any records of inspections or maintenance activities performed on the bin vents were destroyed in the July 29, 2020 fire. The facility has agreed to maintain such records going forward in the future.

### FGPROCESS

The facility provided records through July 2020 after which FGPROCESS has not operated due to the fire on July 29, 2020.

SC I.1 and I.2, SC VI.1, and SC VI.2. **COMPLIANCE.** 12-month rolling isobutane and isopentane emissions shall each not exceed 5 tpy. The highest 12-month rolling isobutane emissions for 2019 and 2020 was 0.27148 tons and occurred at the end of December 2019. The facility calculates isobutane emissions using 0.44 pph (from permit application 284-06) and the number of hours in operation. Product number 091/092 that contains isopentane has not been used during the last few years. Isopentane emissions have been zero.

SC I.3 and GC 13. **COMPLIANCE.** Acrylonitrile emissions shall not exceed 0.0054 pph. On October 13, 2000, a stack test was conducted to determine emissions from the expancel line. Average acrylonitrile emissions were determined to be 0.0032 pph. At this time, the AQD has not required additional testing.



SC I.4, SC VI.1 and SC VI.2. **COMPLIANCE.** 12-month rolling acrylonitrile emissions shall not exceed 47 pound per year. The highest 12-month rolling acrylonitrile emissions for 2019 and 2020 occurred at the end of December 2019 at 3.949 pounds.

SC I.5 and GC 13. **COMPLIANCE.** Vinylidene chloride emissions shall not exceed 10 pph. On October 13, 2000, a stack test was conducted to determine emissions from the expancel line. Average vinylidene chloride emissions were determined to be 0.162 pph. At this time, the AQD has not required additional testing.

SC I.6, SC VI.1, and SC VI.2. **COMPLIANCE.** 12-month rolling volatile organic compound (VOC) emissions shall not exceed 10 tpy. The highest 12-month rolling VOC emissions for 2019 and 2020 occurred at the end of December 2019 at 0.372 tons.

SC I.7 and GC 13. **COMPLIANCE.** PM emissions shall not exceed 0.01 lbs PM/1,000 lbs exhaust gas. The emission rate of PM has not been tested. At this time, the AQD has not requested the testing of PM emissions.

SC II.1, SC VI.1, and SC VI.3. **COMPLIANCE.** Shall not exceed a throughput of more than 350 tons of expanded product per 12-month rolling time period. The highest 12-month rolling product throughput for 2019 and 2020 occurred at the end of January 2020 at 58.1605 tons.

SC IV.1. **UNKNOWN.** Shall not operate FGPROCESS unless the baghouse control is installed, maintained, and operated in a satisfactory manner. During the site inspection it was observed that the expancel line and associated baghouse have been removed completely following the fire that occurred on July 29, 2020.

SC VIII.1. **COMPLIANCE.** Exhaust gases shall be discharged unobstructed, vertically upwards to the ambient air. The exhaust diameter not to exceed 24 inches and a minimum of 65.5 feet above ground surface. While the fire destroyed the former expancel line and associated dust collector, the stack appeared intact. During the inspection, the stack appeared to meet the requirements. Measurements were not collected.

### **Permit to Install Exempt Equipment**

#### **P-K Mixers Line and Ribbon Blender Line**

The P-K Mixers Line and Ribbon Blender Line appear to be exempt under Rule 290. Particulate matter emission limited to emissions of 0.01 lbs. particulate per 1000 lbs. gas, controlled by dust collector or equivalent installed and maintained, 5% opacity limit and monthly visible emission observation; description on file and records maintained. P-K Mixers blend aluminum trihydrate with granules from the granule line (EUCHIPPER) to create varying colors and patterns to simulate granite. The ribbon blender line mixes polystyrene spheres, calcium sulphate dihydrate (gypsum), and aluminum trihydrate. There is no initial threshold screening level (ITSL) for polystyrene, calcium sulphate dihydrate (gypsum), or aluminum trihydrate, therefore Rule 290 ITSL thresholds for particulate are not applicable.

Because of the age of the Wheelabrator dust collector servicing emissions for the P-K Mixers and Ribbon Blender Line is 40+ years, it is unknown if the unit meets the 0.1 lbs

particulate per 1,000 lb gas. During the inspection there was no opacity observed from the dust collector stack.

The facility provided monthly particulate matter emissions for the Ribbon Blender and the P-K Mixers. The facility calculates particulate emissions using the monthly material throughput and control efficiency of dust collector (99.99%). For 2019 and 2020 the monthly emissions are less than 5 lbs for each individual P-K Mixer and the Ribbon Blender Line.

Rule 290 requires the following: "An air cleaning device for particulate matter shall be installed, maintained, and operated in accordance with the manufacturer's specifications or the owner or operator shall develop a plan that provides to the extent practicable for the maintenance and operation of the equipment in the manner consistent with good air pollution control practices for minimizing emissions. It shall also be equipped to monitor appropriate indicators of performance, for example, static pressure drop, water pressure, and water flow rate."

During the inspection, the Wheelabrator dust collector pressure drop gauge, was "pegged out" at over 10 inches water column. The facility has provided correspondence indicating that the typical operating range is 6 to 8 inches and that the pressure drop gauge is likely broken. On March 11, 2021 the facility provided correspondence that the duct work leading to the dust collector was cleaned out and the pressure drop reading is now within the specified operating range (6 to 8 inches). On March 16, 2021, a conference call was held with Mr. Marshall and Ms. Nichols regarding the pressure drop gauge and duct cleaning. According to Mr. Marshall, during recent maintenance activities at the plant, a lift hit the duct leading to the dust collector. The duct work needed repair and prior to the repair, the duct work was cleaned out using a vacuum truck as there was considerable material built up in the duct work. It is unknown when the ducts were last cleaned, but Mr. Marshall suspects it may be 20 years or more. Following the cleaning, and repairing the ductwork, the pressure drop gauge now reads within 6 and 8 inches (see attached photos provided by the facility). At this time, the AQD considers the facility in compliance with Rule 290 dust collector requirements as repairs have been made and the pressure drop appears to be within the specified operating range.

#### **APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:**

Not applicable.

#### **MAERS REPORT REVIEW:**

The facility is not required to submit Michigan Air Emissions Reporting System (MAERS).

#### **FINAL COMPLIANCE DETERMINATION:**

At the time of the inspection, the facility was in compliance with current federal and state air quality regulations and PTI 284-06A. The facility has stated that a PTI application will be submitted for the new microsphere expansion line (formerly expancel line that was destroyed in the fire). The facility anticipates getting the new microsphere operation installed sometime after August 2021.

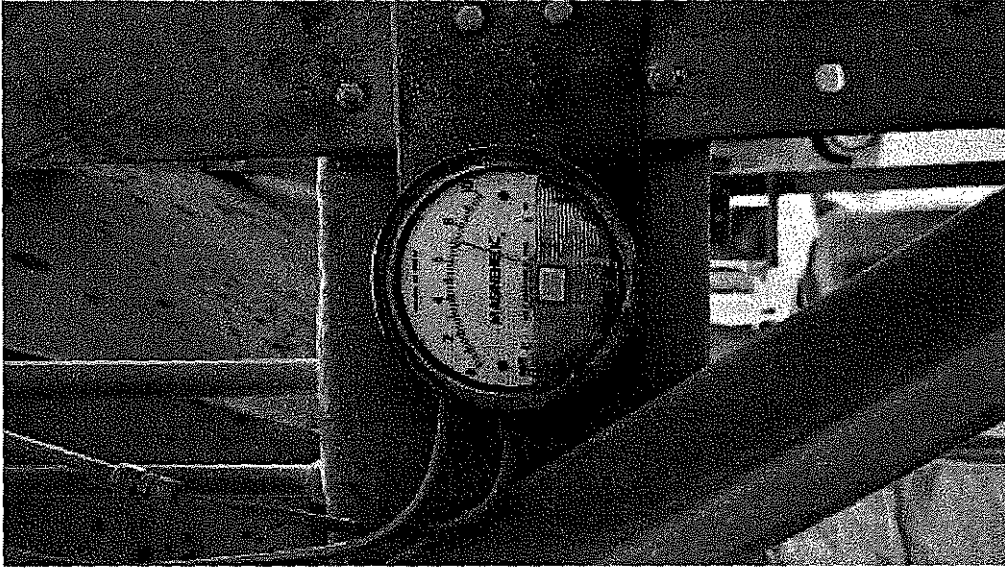


Image 1(Pressure Drop Gauge) : March 11, 2021



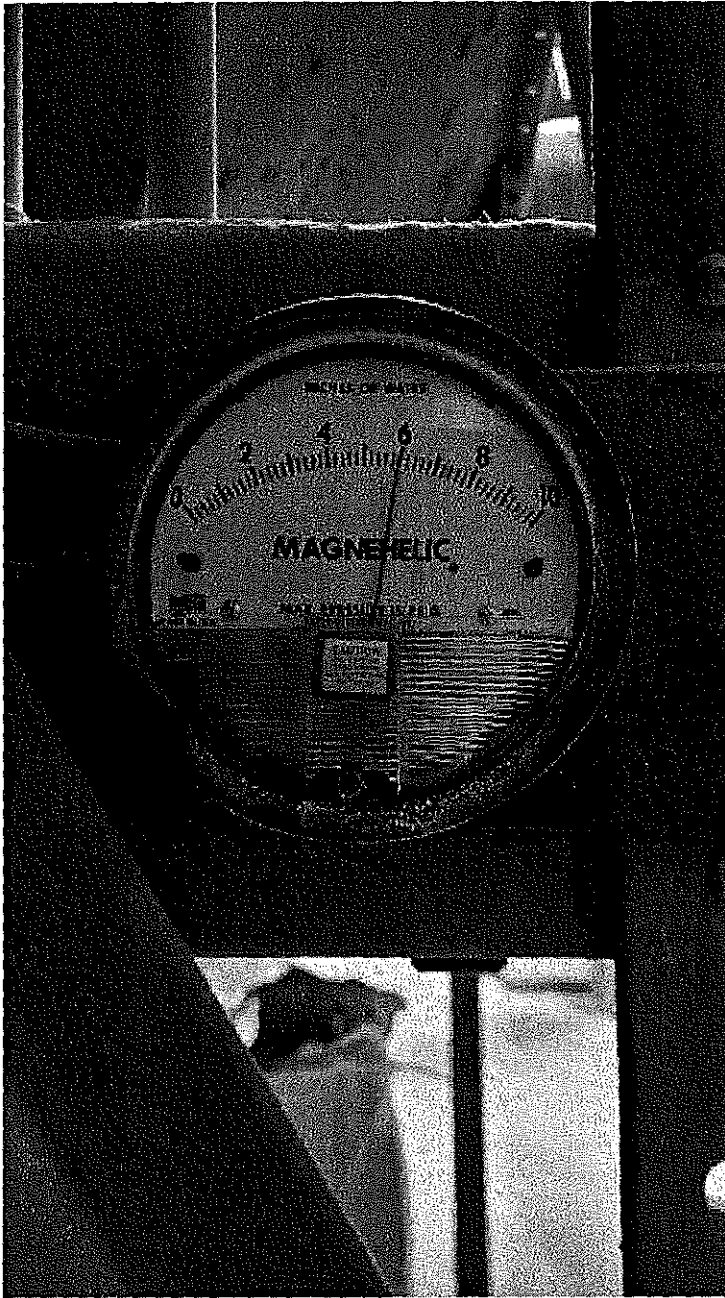
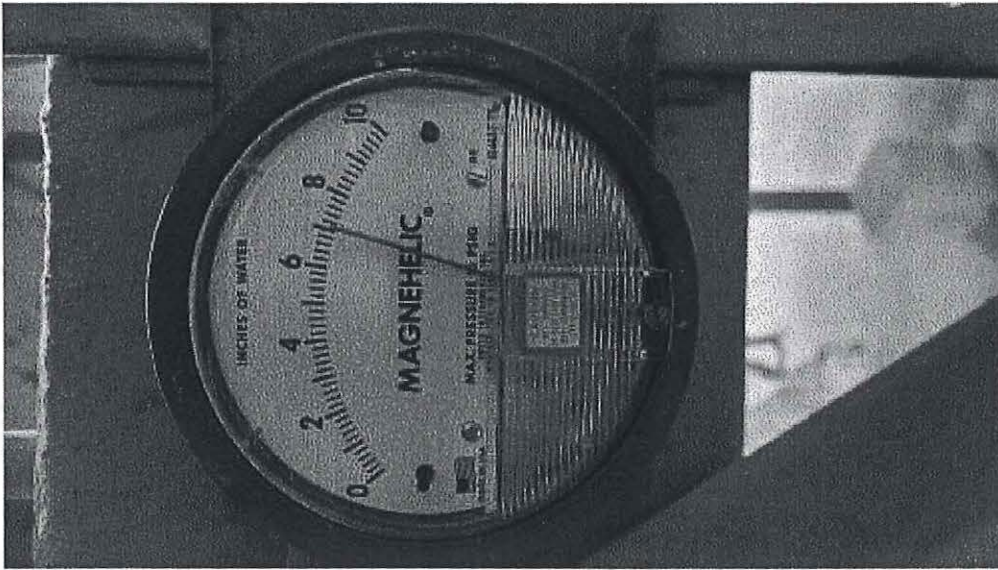
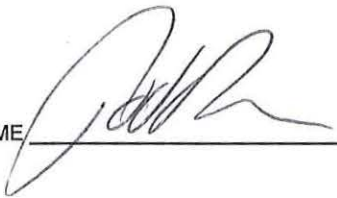


Image 2(Pressure Drop Gauge) : March 16, 2021



**Image 3(New Pressure Drop Ga)** : New Pressure Drop Gauge - March 17, 2021

NAME 

DATE 4/16/21 SUPERVISOR JK