

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

N616941226

<b>FACILITY:</b> PIONEER METAL FINISHING		<b>SRN / ID:</b> N6169
<b>LOCATION:</b> 525 TERNES DR, MONROE		<b>DISTRICT:</b> Jackson
<b>CITY:</b> MONROE		<b>COUNTY:</b> MONROE
<b>CONTACT:</b> Paul Roznowski , Quality Assurance Supervisor		<b>ACTIVITY DATE:</b> 08/24/2017
<b>STAFF:</b> Mike Kovalchick	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> MINOR
<b>SUBJECT:</b> Inspection showed that process has built does not match original permit application.		
<b>RESOLVED COMPLAINTS:</b>		

**Minor Source****Facility Contact**

Paul Roznowski- Process Control Manager

proznowski@pioneermetal.com

<http://www.pioneermetal.com>**Purpose**

On August 24, 2017, I conducted an unannounced compliance inspection of Pioneer Metal Finishing (Company) located in Monroe, Michigan in Monroe County. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules.

**Facility Location**

The facility is in a commercial area of Monroe. See attached aerial photo dated April 2016.

**Facility Background**

The facility was last inspected on March 3, 2011 and was found to be in compliance. The facility has one Permit To Install (PTI) No. 543-96 issued January 10, 1997 for an aluminum anodizing process.

From 3/5/1998 inspection report: (Note reference to 3 scrubbers.)

"explained that their facility is a state of the art anodizing plant that began operations in September 1997. The anodizing process is covered under PTI #543-96....The parts are placed on a rack and carried by overhead crane to a staging area. The entire system is computerized, therefore the overhead crane picks which rack of parts is to go through the system next and places it in the appropriate tank for the specified amount of time. This allows for a rack of parts with a higher priority or that can be processed faster to be put into the system ahead of other racks.

The racked parts first pass through the etch cleaning process, which removes any unwanted surface oxides. The rack is first submerged into a diluted sodium hydroxide bath (pretreatment) . After this, the rack goes into a water rinse an acid dip, another water rinse and then a hot (130 degrees Fahrenheit) caustic soda bath which etches the parts.

There are then several more water and acid rinses and then the parts are dipped into a 32 degrees Fahrenheit sulfuric acid bath which is where the anodizing takes place. After the sulfuric acid, parts pass through a nitric acid (Activator) bath are water rinsed and then if required are dipped into dye baths. After the parts are dyed they can be placed into either: a nickel solution, a hot water bath or allowed to air dry. Both the nickel solution and hot water bath are used to seal the dye into the part, with the nickel solution being more permanent than the hot water bath.

The anodize process is set up in a "U"-shaped configuration and can be observed from an elevated platform. Below the platform is an approximately four feet deep pit to hold the contents of the tanks in the case of an accidental release.

On the opposite side of the wall from the anodizing process is a heated acid strip tank, which contains 28% sulfuric acid, 50% nitric acid and 22% phosphoric acid. This tank is used to strip the anodizing off defective parts and the racks.

In a room on the north side of the building are two small and one large wet scrubbers for the acid fume emissions from the anodizing process. The waste water generated by the scrubbers is neutralized and sent to the Monroe Waste Water Treatment Plant. Also in this room are the acid bulk storage tanks."

### **Regulatory Applicability**

PTI 543-96 applies to whole facility.

60 KW(80 hp) natural gas fired SI emergency generator used as back for some of the process equipment is subject to 40 CFR 63 ZZZZ (RICE MACT).

The two 3.6 million BTU/hour natural gas fired boilers are not subject to the Boiler MACT 40 CFR 63 JJJJJJ.

### **Arrival & Facility Contact**

Visible emissions or odors were not observed upon my approach to the Company's facility. I arrived at 9:15 am, proceeded to the facility office to request access for an inspection, provided my identification and spoke with Paul Roznowski (PR)-Process Control Manager. I informed him of my intent to conduct a facility inspection and to review the various records as necessary.

PR extended his full cooperation during my visit and fully addressed my questions.

### **Pre-Inspection Meeting**

PR outlined that the facility is operating 24 hours a day, 5 to 6 days a week. SR indicated that most of their business is the anodizing of aluminum parts. They currently have 150 employees.

PR indicated the only change to the facility since it opened back in the 1990's was the addition of wastewater treatment plant to treat acidic wastewater.

At the meeting, we were joined by April Neff who is a chemist for the Company. She provided usage records that are required by the PTI for sulfuric acid, sodium hydroxide and other chemicals for 2016.

I indicated that I wanted to see the 2 natural gas boilers, the emergency generator, the wet scrubbers and associated processes.

PR talked about the various emission points and noted that there are 5 general roof vents in addition to the scrubber and boiler stacks. (The emergency generator vents internally.)

### **Onsite Inspection**

PR gave me a tour of the facility accompanied at times by other plant personal. See attached photo that shows the facility layout.

Overall, the facility appeared to be clean and well maintained. Odors were minimal. Hoods/ventilation ducts etc. all appeared to be in good shape.

We first visited the emergency generator that was accessed via ladder. See attached photos. PR indicated that it is tested about 30 minutes each week. It has been operated for 930 hours since it was installed back in the 1990's. I informed PR that this generator is subject to the RICE MACT.

Next, we visited two identical natural gas fired boilers. See attached pictures. No findings.

Next, we visited the wet scrubbers located on an elevated platform.

I observed 3 different wet scrubbers. They are referred to as the etch scrubber, the hardcoat scrubber and the anodize scrubber. (Note: Original permit application only references 2 scrubbers and 2 exhaust stacks.) All 3 scrubbers were good shape including 3 exhausts that went to the roof. See attached photos.

The etch scrubber controls emission from the etch (sodium hydroxide) tanks. It also controls the acid strip tank. The hardcoat scrubber controls 2 sulfuric acid anodizing tanks. The anodize scrubber controls 3 sulfuric acid anodizing tanks.

I verified that all 3 wet scrubbers were operating. The etch scrubber pressure drop gauge was not working with a reading of zero. (Proper range is less than 2".) I was able to verify waterflow looking into a transparent side port. It had a make up water flow rate of 5 gpm.

The hardcoat scrubber had a pressure drop reading of 1.7" and water flow rate of more than 40 gpm. (Proper range is less than 2".)

The anodizing scrubber had a pressure drop reading of 1.5" and water flow rate of more than 25 gpm. (Proper range is less than 2".) The gauge itself had to be accessed via standing on a ladder.

Next, we observed the process tanks that are controlled by the wet scrubbers. See attached photos. Fumes from the acid strip tank were obvious and were fully captured by a side ventilation hood.

PR showed me where a paint booth use to be but had been removed a number of years ago.

### **Recordkeeping/Permit Requirements Review**

Attachment (1) is an inventory of chemical usage for 2016. Showed that 314,000 pounds of 67% concentration Nitric acid was being used along with 169,921 pounds of HCL and lesser amounts of sodium hydroxide.

Attachment (2) is the facility diagram dated 6/25/1998 that shows all 3 scrubbers. (A blue print submitted with the original permit shows 2 anodizing tanks and the hardcoat scrubber as a "future" install.)

Attachment (3) shows the total acid usage in the strip tanks. (There are no limits on usage.)

Attachment (4) is a preventative maintenance inspection check sheet for the boilers, the scrubbers and for other process equipment. (Looks good and consistent with inspection observations.)

### **PTI Special Conditions:**

1. The sulfuric acid emission from the anodizing process shall not exceed 0.8 milligrams per cubic meter, corrected to 70 F and 29.92 inches HG nor shall exceed 0.06 pounds per hour.

Finding – Limits are defined in terms of stack test analysis of emissions. It is not possible to determine the actual emissions without requiring testing.

2. The sodium hydroxide emission from the etch cleaning process shall not exceed 1.10 milligrams per cubic meter, corrected to 70 F and 29.92 inches HG nor shall exceed 0.18 pounds per hour.

Finding – Limits are defined in terms of stack test analysis of emissions. It is not possible to determine the actual emissions without requiring testing.

3. There shall be no visible emissions, except for uncombined water vapor from both the etch cleaning and anodizing process, hereinafter "processes".

Finding – There were no visible emissions on day of my inspection.

4. Testing requirement upon request.

Finding – Testing to determine the actual emissions is not required unless the inspector identifies a problem that may indicate failure of the control device. Such failures could include visible emissions, odors or complaints from neighbors. There were no problems noted during the inspection. No testing is required at this time.

5. Monthly usage rates of sulfuric acid and sodium hydroxide shall be kept on file for a period of at least two years and made available to the Air Quality Division upon request.

Finding – The company is keeping required usage records. See attachments.

6. Applicant shall not operate either process unless its respective wet scrubber is installed and operating

properly.

Finding – The scrubbers are attached and appeared to be operating properly. The equipment looked well maintained and in good operating order.

7. The exhaust gases from the anodizing and etch cleaning process shall be discharged unobstructed vertically upwards to the ambient air from two (2) stacks with maximum diameters of 48 and 58 inches respectively at exit points not less than 38 feet above ground level.

Finding - The required 2 stacks are in place and appeared in good repair. I saw the stacks from outside the facility on the roof. However, the 3<sup>rd</sup> stack associated with the hardcoat scrubber was not in the original permit application. It appears to the same height as the other 2 stacks at 38 feet above ground levels and the same width as the anodize stack.

Because of the additional stack, I reviewed the original permit application. The stack was not included to be part of the original installation nor were the 2 sulfuric acid anodizing tanks and the associated wet scrubber. As such, this additional process was not reviewed by Permits and was not included in the PTI.

Emissions from the process lines are expected to be less than 1 ton of HAPS per year.

### **Post-Inspection Meeting**

I held a post-inspection meeting with PR and April Neff. I indicated that I was puzzled the presence of 3 wet scrubbers instead of the 2 described in the permit. I requested that I wanted to go outside the facility to see the stacks on the roof. (Access to roof wasn't easy so it wasn't attempted.) I could see the 3 stacks and observe that all 3 stacks were the same height with the etch stack wider than the other 2. We then went back into the building to further discuss the matter. PR reiterated that the facility processes have not changed since it was built and didn't understand why it wasn't included in the PTI. PR further indicated that he had working at the facility since installation. I indicated to him that I would review the original permit application when I got back to the office to sort it all out.

I discussed the federal RICE MACT requirements for their emergency generator and what will need to be done to get back into compliance with that. PR indicated that they had never heard of this requirement.

I noted the broken pressure drop gauge on the etch scrubber. PR indicated that they were already working on getting it fixed. Since it isn't a permit requirement to have the gauge, it was an area of concern only.

I requested that April Neff forward some additional acid records for the strip tank which she did later in the day. I originally thought that the additional process was the strip tank but later discovered it was 2 acid anodizing tanks.

I thanked them for their time and cooperation, and I departed the facility at approximately 11:15 am.

### **Compliance Summary**

The Company is out of compliance with the following:

Rule 201-No Permit to Install for 2 acid anodizing tanks and an associated scrubber.

40 CFR Part 63 Subpart ZZZZ (RICE MACT) for 60 kw natural gas fired generator.

A Violation Notice (VN) will be sent to the Company that outlines these violations. The Company will have 21 days to respond.

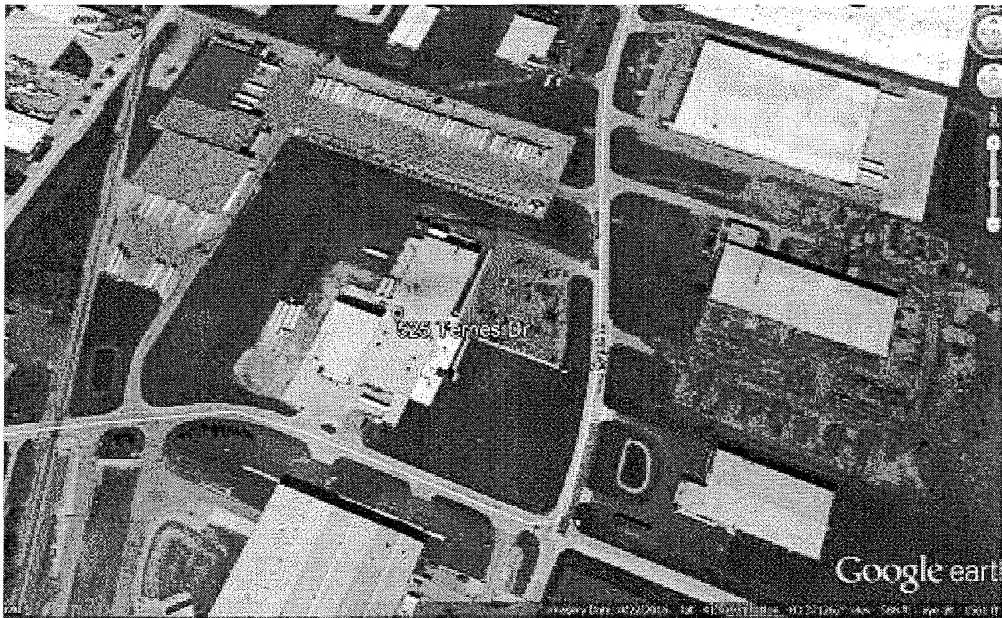


Image 1(Aerial photo) : Aerial photo.

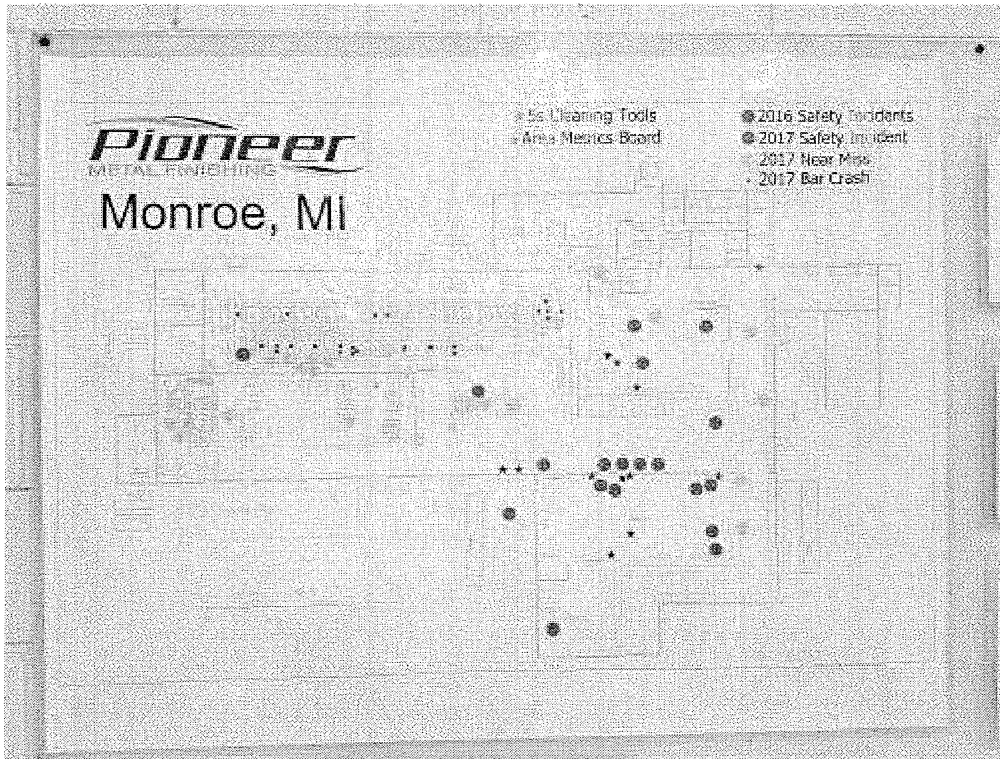
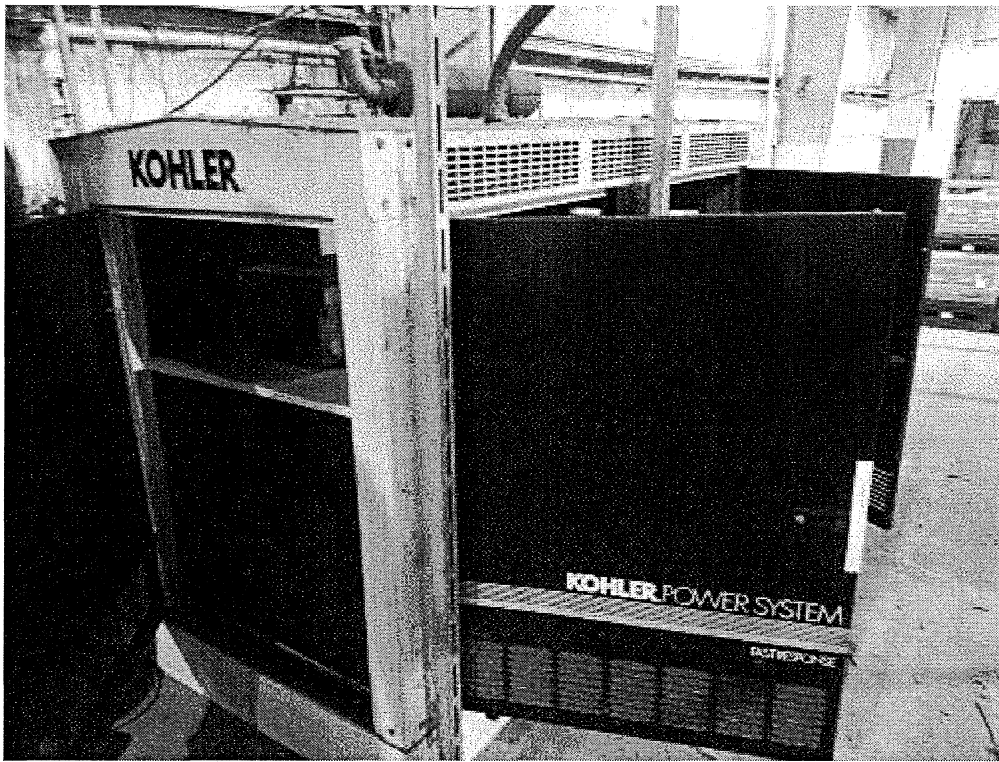
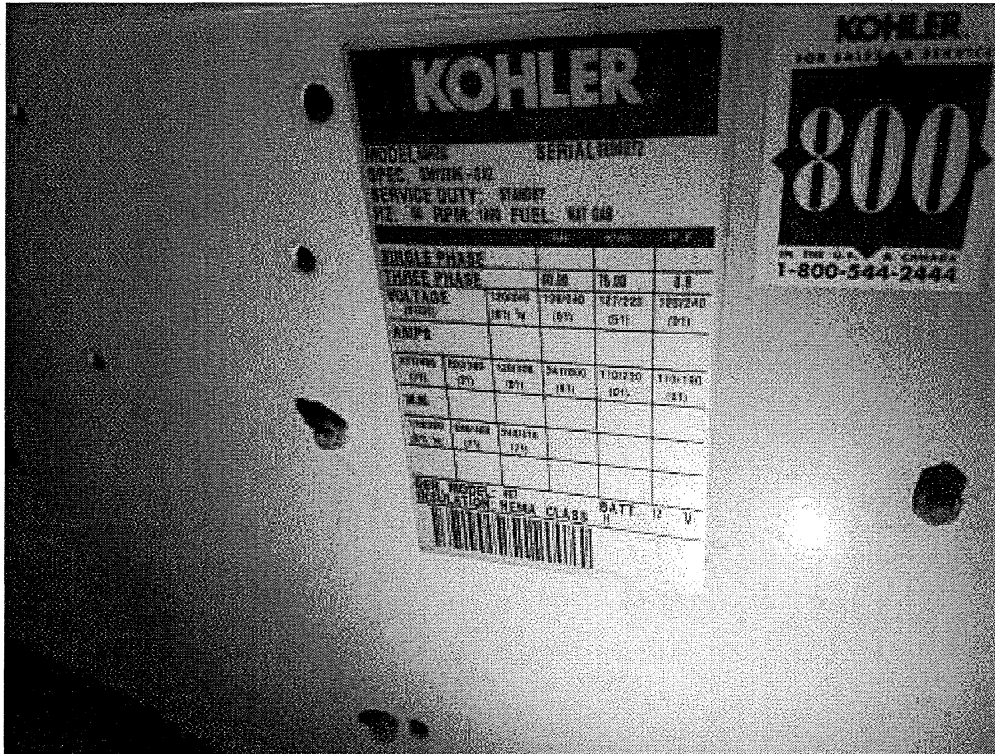


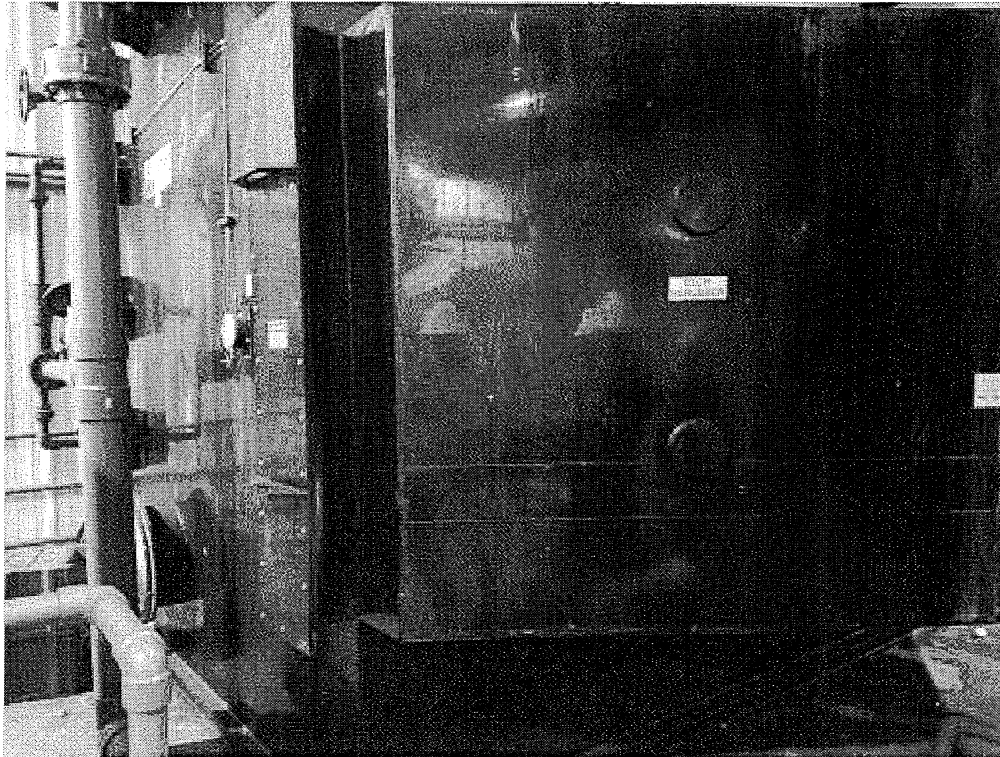
Image 2(Facility Diagram) : Facility diagram.



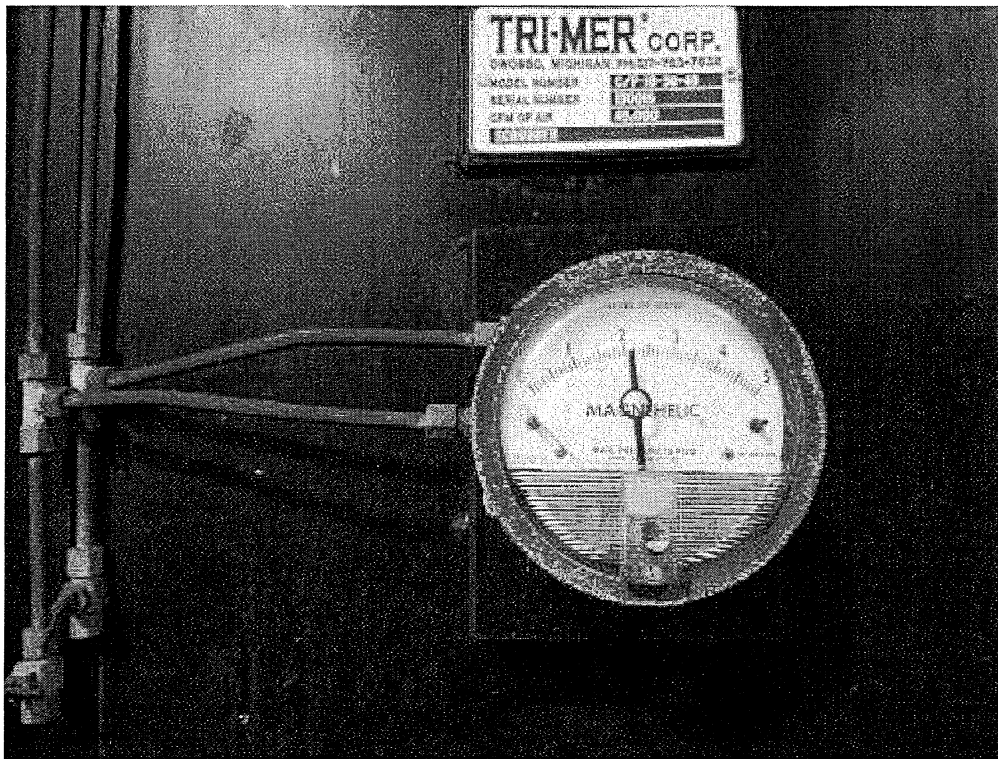
**Image 3(Emergency generator) :** Natural gas fired emergency generator.



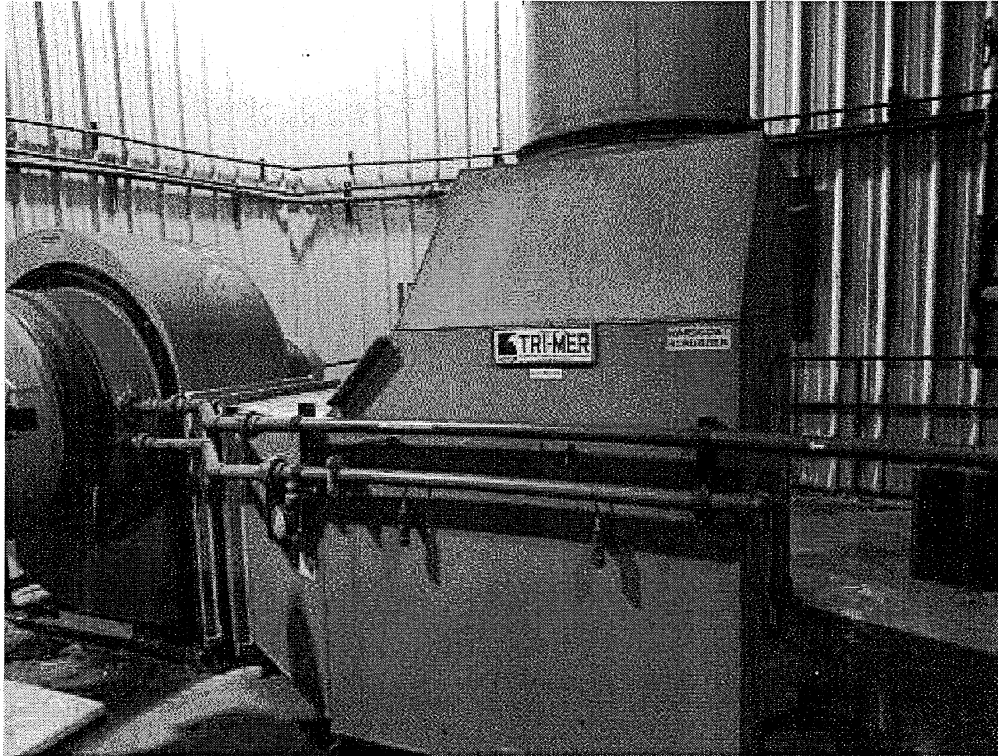
**Image 4(Emergency generator) :** Emergency generator-name plate.



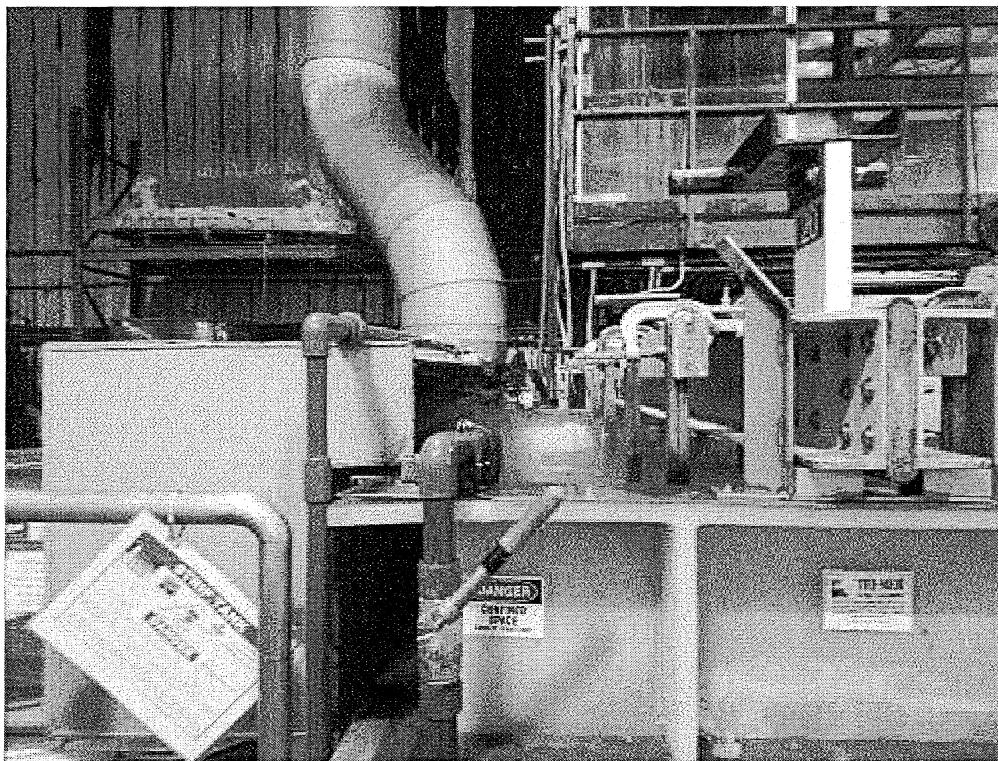
**Image 5(Etch Scrubber)** : Etch Scrubber.



**Image 6(Etch scrubber)** : Etch scrubber-broken pressure gauge.



**Image 7(Hardcoat scrubber)** : Hardcoat scrubber-not in original permit.



**Image 8(Strip tank)** : Strip tank and associated hood.



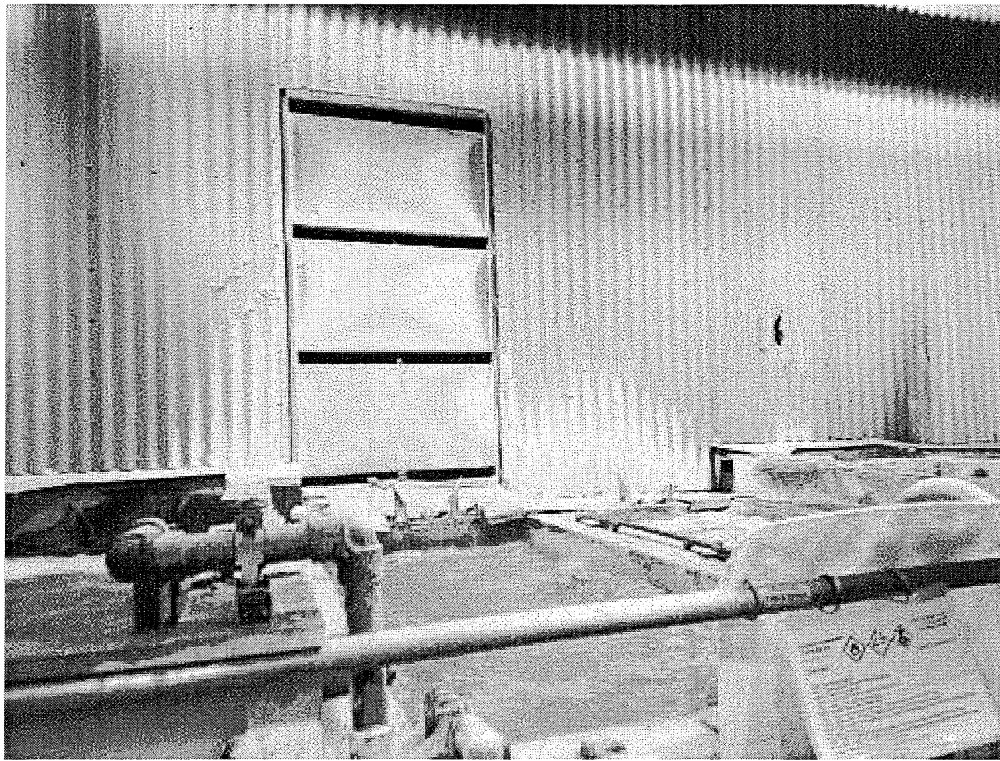


Image 9(Etch tanks) : Etch tanks.



**Image 10(Roof stacks) :** Roof stacks just barely visible above roof line.(3 on right.)

NAME M. Kozalchuk

DATE 8/28/2017

SUPERVISOR [Signature]