

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Self Initiated Inspection**

N078645169

FACILITY: HMI Hardwoods, LLC		SRN / ID: N0786
LOCATION: 430 Division Street, CLINTON		DISTRICT: Jackson
CITY: CLINTON		COUNTY: LENAWEE
CONTACT: Ronald Steele , Maintenance Manager		ACTIVITY DATE: 07/10/2018
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Potential T5 source of CO from excess emissions from wood fired boiler.		
RESOLVED COMPLAINTS:		

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

Ron Steele-Purchasing Manager

ph 517-456-7431 ext 347.

Email: [rsteale@hmilumber.com](mailto:rsteale@hmilumber.com)Website: <http://www.hmilumber.com/>**Purpose**

On July 10, 2018, I conducted an unannounced compliance inspection of HMI Hardwoods of Michigan, Inc. (Company) located in Clinton, Michigan. 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 and conditions of Permit to Install (PTI) 460-85.

**Facility Location**

The facility is located in the town of Clinton with residential areas just to the North and East of the facility. See attached aerial photo. See also Attachment (1) which is the most recent facility diagram.

**Facility Background**

The facility was last inspected on 9/16/2013 and found to be in compliance.

**Regulatory Applicability**

PTI 460-85 covers a natural gas/wood fired boiler with multi-clone collector. It also covers the associated fuel handling system and all sources of fugitive dust at the facility.

Natural gas fired boiler is exempt per Rule 282(2)(b)(i).

Wood fired boiler is subject to the BOILER MACT (40 CFR Part 63 Subpart JJJJJ).

**Arrival & Facility Contact**

Visible emissions were observed upon my approach to the Company's facility. I arrived at approximately 1:45 pm and observed some white smoke coming from the wood fired boiler stack. I then proceeded to the facility office and met with Ron Steele (RS) who is the purchasing manager/facility manager at the plant. I informed RS of my intent to conduct a facility inspection and to review the various records as necessary.

**Pre-Inspection Meeting**

He said that there haven't been any major changes at the facility over the last 5 years although the boiler room operations are now done separately from the facility operations and he is no longer aware on exactly how they operate or keep records to show compliance.

He said calcium chloride was applied about a month ago and it is regularly applied as needed. In addition, all the

wood that is stored outside is watered from giant sprinklers placed all around the facility yard.

He said he was unaware of it. I showed him a copy of the Boiler MACT template table for boilers. (See Attachment (2)). I explained to him that this particular regulatory program is administered by the U.S. EPA and that compliance deadlines are long since past.

### **Onsite Inspection**

RS first walked me through a pre-dryer warehouse with lumber stacked to the ceiling that lead into another warehouse that housed 7 large kilns. Lumber is placed into the kilns at approximately 180 degrees F and left to cure for 18 hours. The kilns are heated with steam from the wood fired boiler.

Directly adjacent to the kilns is the boiler room. The boiler room contained a natural gas fired boiler and a wood fired boiler. The name plate on the natural gas fired boiler showed a capacity of 26.8 Million BTUs/hour and was installed in 1969. From the permit file, the wood fired boiler was rated at 28 Million BTUs/hour and also contained a 31 Million BTUs/hour auxiliary natural gas fired burner inside the wood boiler. See attached photo of the natural gas boiler.

The wood fired boiler was in operating and the natural gas fired boiler was not. The boiler operator indicated that they try to only use the wood boiler if possible. He estimated that the natural gas fired boiler had been operated about 15 days in 2018 and no days in June.

The wood fired boiler was equipped with a multi-clone control device. See attached photo. All of the ash is conveyed through a closed auger to a three-sided shed. From the shed it is put into a roll off dumpster and kept wet until it is picked up. See attached photo. The ash is nonhazardous and is disposed offsite. I noted some spillage of the ash on the ground but was contained within the 3-sided shed.

The operator showed me the opacity monitor display. It was reading 88%. The operator said that lenses was dirty and that it was operating correctly earlier in the day. He showed me paper chart recordings of the opacity for 2018 of which I requested a copy. It wasn't clear when the opacity monitor was last calibrated although apparently the lenses are cleaned once a week. (Note: Upon further review, the paper charts didn't actually have opacity recorded on them.)

The operator showed me another digital display for percent oxygen and carbon monoxide emissions in ppm. See attached photo. CO showed 1022 ppm and percent oxygen was at 4.8%. He indicated that the CO reading was typical. The operator indicated that he generally ignores opacity and CO readings and instead relies on percent oxygen as a gauge to adjust fuel feed. If oxygen goes up, he increases the amount of fuel added. Due to the variety of types of wood that is feed into the boiler, the percent moisture content and whether it is green wood or not creates lots of fluctuations. The operator outlined a number of situations that created visible smoke.

I questioned the operator about how the boiler is started up. He said that start up is necessary about once a month. They simply take some wood that is drenched in diesel fuel and light it up. It takes about 3 hours to the bring the boiler up to become fully operationally. The operator indicated that they had been doing this method since he started working here 5 years ago.

I asked him how he keeps records for the amount of wood that is burned. He showed me the record that he filled out for the month of June. See attached photo. They processed 32.75 trailers full of wood dust/chips. Each trailer holds about 100 cubic yards of material. RS estimated that each cubic yard weighed somewhere between 8(dry) to 25(green) pounds per cubic foot. They both noted that May/June were particularly high compared to previous months in 2018.

RS showed me the two baghouses associated with the fuel handling system. One is referred to as the Murphy Rogers and the other is called the Steel Silo system.

The fuel handling system is not clearly described in the permit. There are two components to the fuel handling system: 1. fuel generation from processing the wood; 2. fuel fed to the wood fired boiler. The fuel (dry sawdust) is collected during the process of cutting the wood into smaller pieces of lumber. The saw dust is collected into baghouses that are designed to meet the permit limit of 0.01 pounds of particulate per 1,000 pounds of exhaust gases. The saw dust is transported to the fuel feeding system pneumatically. Wood chips and green saw dust are transported by truck/trailer to a fuel bin equipped with a walking floor type system according to the permit application. The operation of the fuel handling system requires a baghouse be installed and operating properly

and that the baghouse is equipped with a pressure drop indicator. (Note: The permit references only 1 baghouse but there are actually 2.)

Both of the baghouses exhaust horizontally. See attached photo. Collected dust from both collectors was spilling out on to the ground and visible emissions were noted while dust was being dropped into a truck. The Murphy Rogers collector had a pressure drop gauge located on it although it wasn't clear what the proper operating range was. See attached photo. RS noted that the bags in that baghouse had been replaced only a month ago. The other baghouse was not examined.

We then walked back through the lumber yard to RS's office. No dust from yard operations were noted and larger sprinklers were operating to keep the wood wet.

While walking back to the office, I observed the wood boiler exhaust stack. The permit requires the exhaust stack from the boiler to have a maximum diameter of 69 inches at an exit point not less than 65 feet above ground level and exhaust vertically upwards. The dimensions of the stack were confirmed as part of conducting the stack test in 1986 and appeared to that high visually. Opacity of the exhaust smoke was observed to be between 5 to 10%.

The permit has required performance testing of particulate emissions from the wood fired boiler. Based upon AQD's file review, the test was conducted on July 9 & 10, 1986 with acceptable results.

### Recordkeeping Review

PTI 460-85 doesn't require recordkeeping. Historically, Company maintained opacity charts but that function stop operating on the chart recorder when a new opacity monitor was installed in 2015. The Company also maintained the pounds of wood that was fired in boiler as it was required when MAERS reporting was being done. Now, the Company maintains the number of 100 cubic yard trailers filled with wood used per month. (Dry wood weights 8 to 12 pounds per cubic foot while green wood weighs about 25 pounds per cubic feet.)

Substantive permit conditions include:

14. 20% opacity limit on Boiler.
15. Visible emissions from the fuel handling system shall not exceed 0 percent opacity.
16. 13.1 pound/hour, 57.5 tons per year CO limit on Boiler
28. Start-up of boiler on sweet natural gas only.

Since the Company is currently not maintaining opacity records, compliance status with this condition can't be determined. Based on discussions with the boiler operator and the fact that the wood fired boiler is only controlled with a multi-clone collector, excess opacity is suspected.

Opacity was noted for the fuel (saw dust/wood) handling system while the collected air contaminants were being loaded into a truck. Saw dust also had spilled out on the ground and surrounding areas. (See attached photos.) This is a violation of the PTI and also Rule 370; the collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air.

Carbon monoxide emissions can be estimated. The Company maintains a CO monitor on the boiler exhaust. It showed a reading of 1020 ppm during the inspection. The boiler operator indicated that reading represented typical operation.

This converts to 1258 mg/cubic meter and further converts to 0.000078534374 pound per cubic foot.

From the PTI permit application, the exit flow rate is 19,200 acfm.

This works out to 1.5 pounds CO per minute or 90 pounds per hour. In the month of June, the boiler operated 672 hours. This comes to 30 tons per month or 363 tons per year assuming uniformity to the boiler load. (Boiler is used more in the Winter.) Estimated emissions far exceed permitted levels and suggests the facility should be considered a Major Source or even a PSD major source for CO. A CO stack test will be required to further define compliance. A CO stack test has not been previously conducted on this boiler. (Note: Historically, the Company

showed compliance with the CO limits using an emission factor and pounds of wood burned.)

The Company starts the boiler using wood and diesel fuel so this is violation of PTI Condition 28. (Start-up is done approximately once per month.) It takes up to 3 hours to get the boiler up to temperature to produce steam.

### Post-Inspection Meeting

I held a brief meeting with RS and outlined my concerns. This included opacity, CO emissions, the Boiler MACT and collected air contaminants. I thanked RS for his time and cooperation and left the facility at 3:30 pm.

### Compliance Summary

The facility appears to be out of compliance with the following:

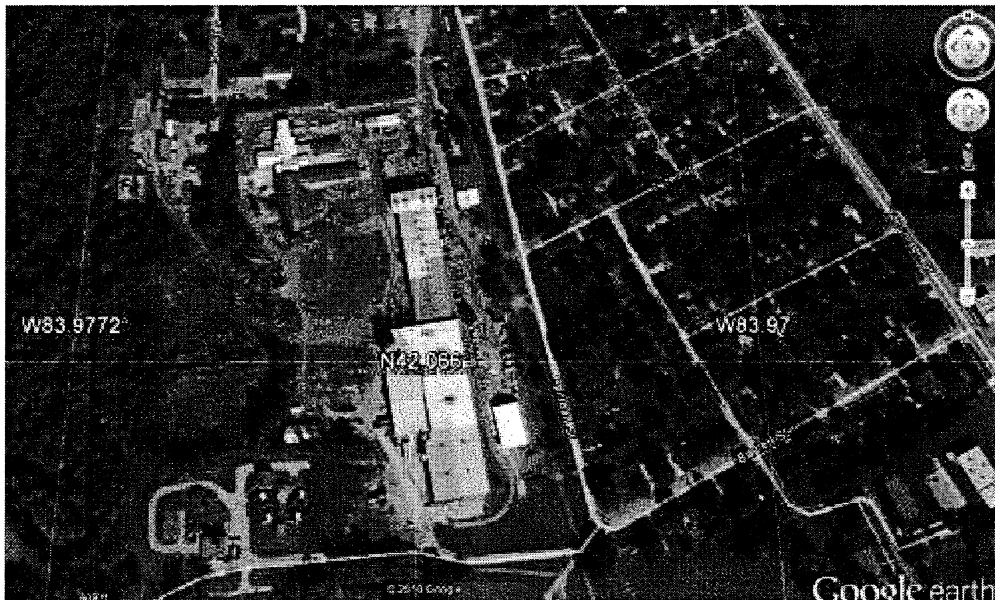
PTI Condition # 15 and Rule 370. Improper handling of collected air contaminants resulting in opacity and accumulation on the ground.

PTI Condition # 16 and Rule 210. Exceedance of CO hour and yearly emission rates and failure to apply for a Renewable Operating Permit (ROP) as the facility appears to be a Major source of CO emissions.

PTI Condition #28. Boiler is started up using wood and diesel fuel instead of required sweet natural gas.

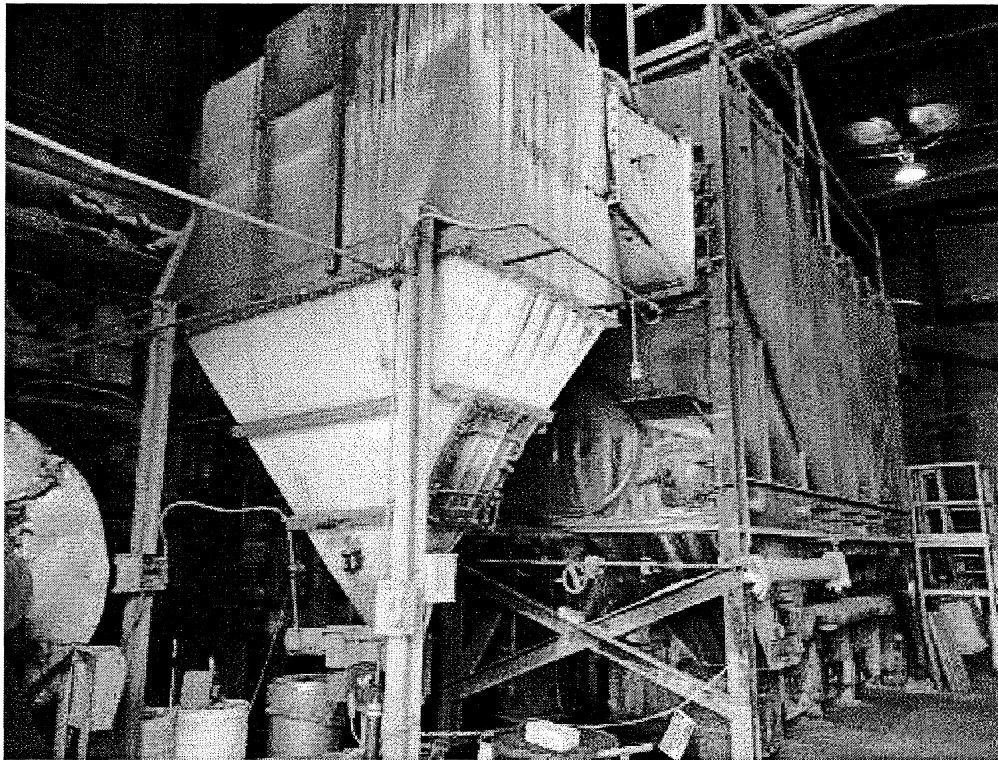
Boiler MACT (40 CFR Part 63, Subpart JJJJJJ) Large biomass category. Company is not complying with this EPA administered federal program.

A Violation Notice (VN) will be sent to the Company outlining the violations. They will have 21 days to respond with a compliance plan. Furthermore, a CO stack test will be required along with a opacity demonstration for the wood fired boiler.

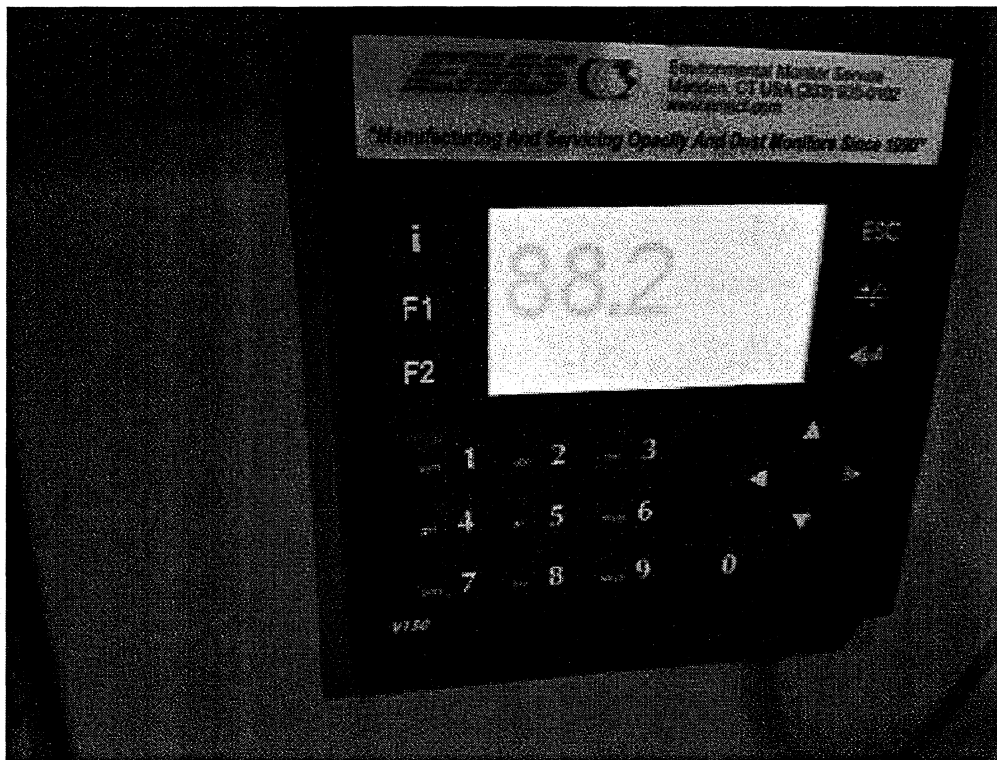


**Image 1(Aerial photo)** : Aerial photo.

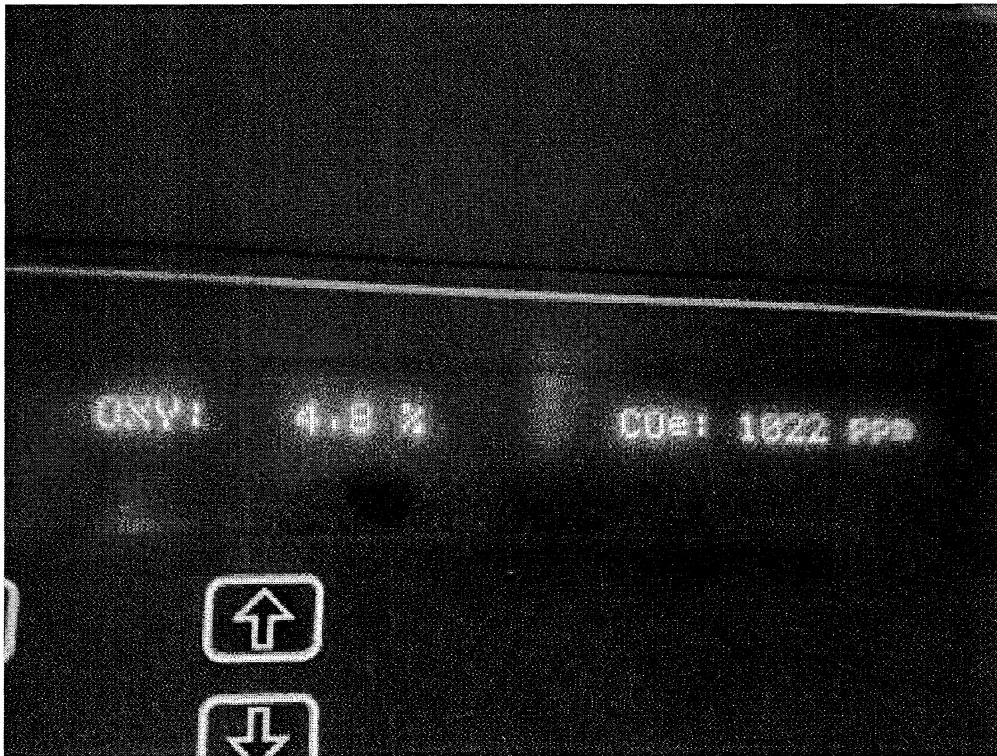




**Image 3(Wood boiler)** : Wood boiler with multi-clone collector in the front.



**Image 4(Opacity Monitor) :** Opacity Monitor showing incorrect reading.



**Image 5(Oxygen/CO monitor) :** Oxygen/CO monitor.



JIM HEARDWORKS, LLC  
POWER GENERATION DEPARTMENT  
MONTHLY PERFORMANCE REPORT

WEEK BEGINNING: 5/29/18 - 6/4/18

WOOD FIRE BOILER ON-LINE: 673 HRS  
 FIRD BOILER ON-LINE: 0 HRS  
 TURBINE GENERATOR ON-LINE: 272 HRS

**ELECTRICAL PRODUCTION:**  
 Ending reading: 2120 beginning reading: 1562 = 558 kWh  
 KWHR: 4073 = 72.90 kWh

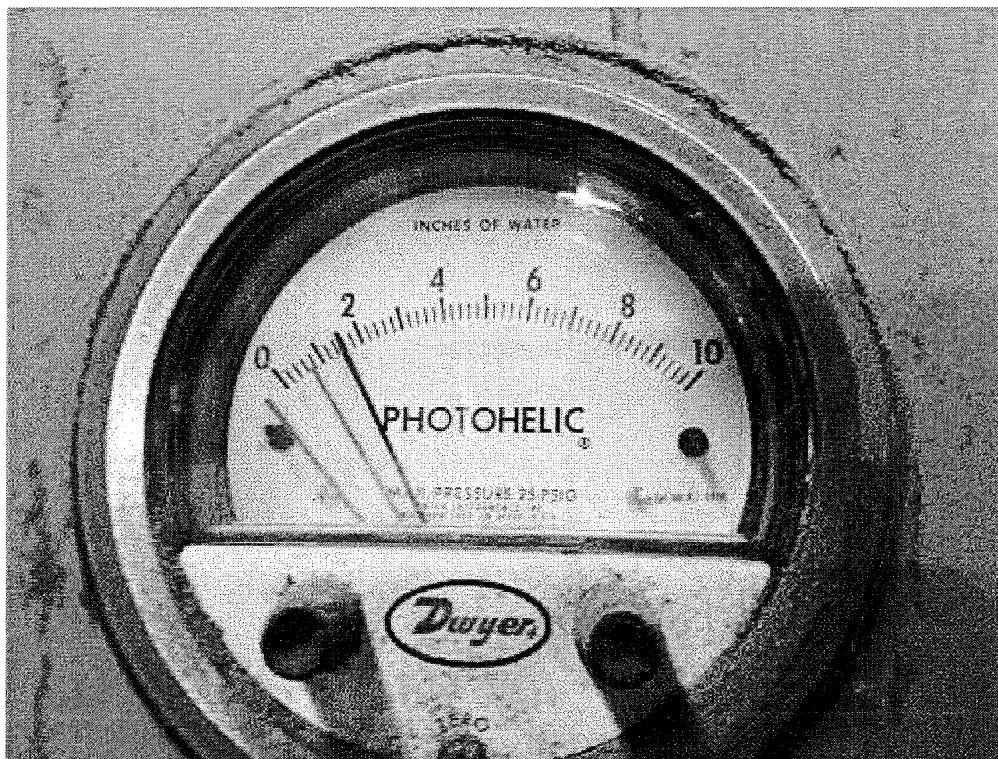
**GAS CONSUMPTION:**  
 Total consumption: ending reading: 2096 beginning reading: 16076  
 = 0 MCF = 0 MCF  
 Change consumption: ending reading: \_\_\_\_\_ beginning reading: \_\_\_\_\_  
 = \_\_\_\_\_ MCF

**WATER CONSUMPTION:**  
 Make-up water: ending reading: \_\_\_\_\_ gal. beginning reading: \_\_\_\_\_ gal.  
 = \_\_\_\_\_ gal.  
 Total consumption: ending reading: \_\_\_\_\_ gal. beginning reading: \_\_\_\_\_ gal.  
 = \_\_\_\_\_ gal.

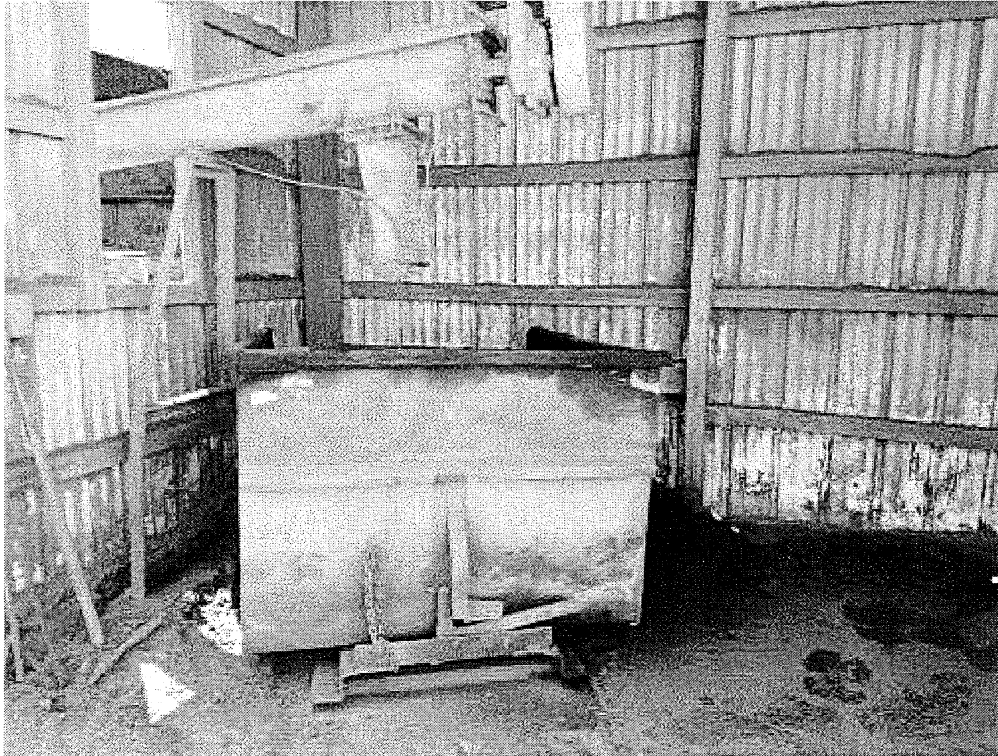
**GREEN FUEL TOTAL LOADS: 2274**

Dust: 11  
 Chips: 157/4  
 Bags of salt: 12/2  
 COMMENTS: \_\_\_\_\_

**Image 6(Wood Usage) :** Wood usage report for June.



**Image 7(Pressure drop) :** Pressure drop gauge for bag house for fuel handling system.



**Image 8(Ash collection)** : Ash collection from multi-clone collector.



**Image 9(Dust on ground)** : Dust on ground.



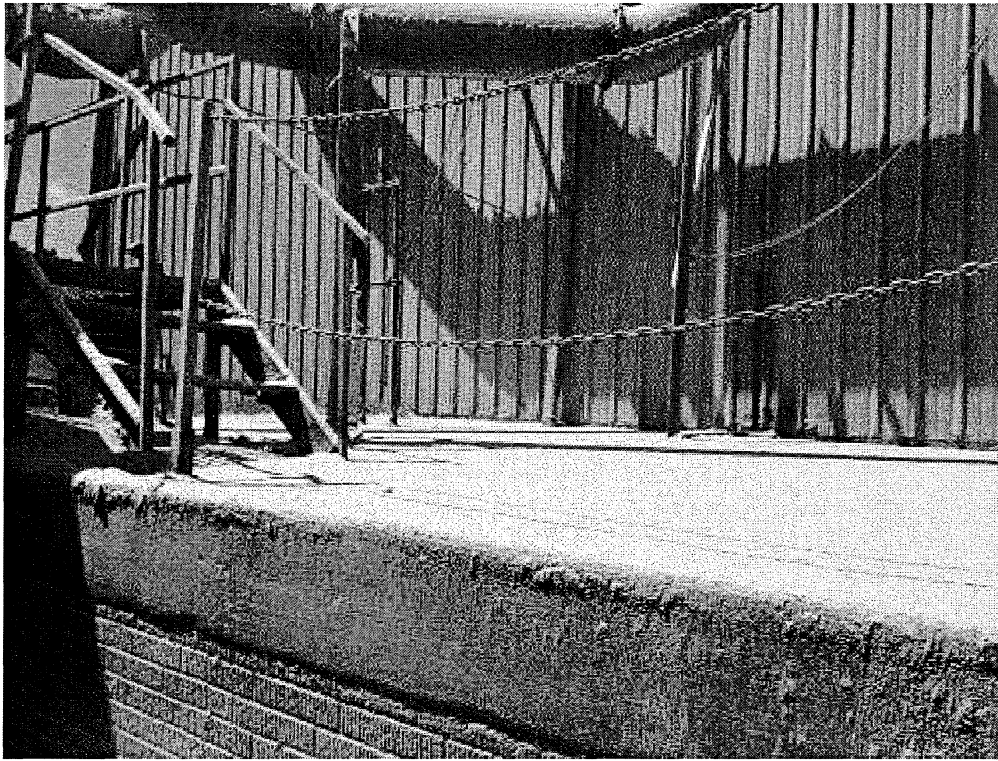
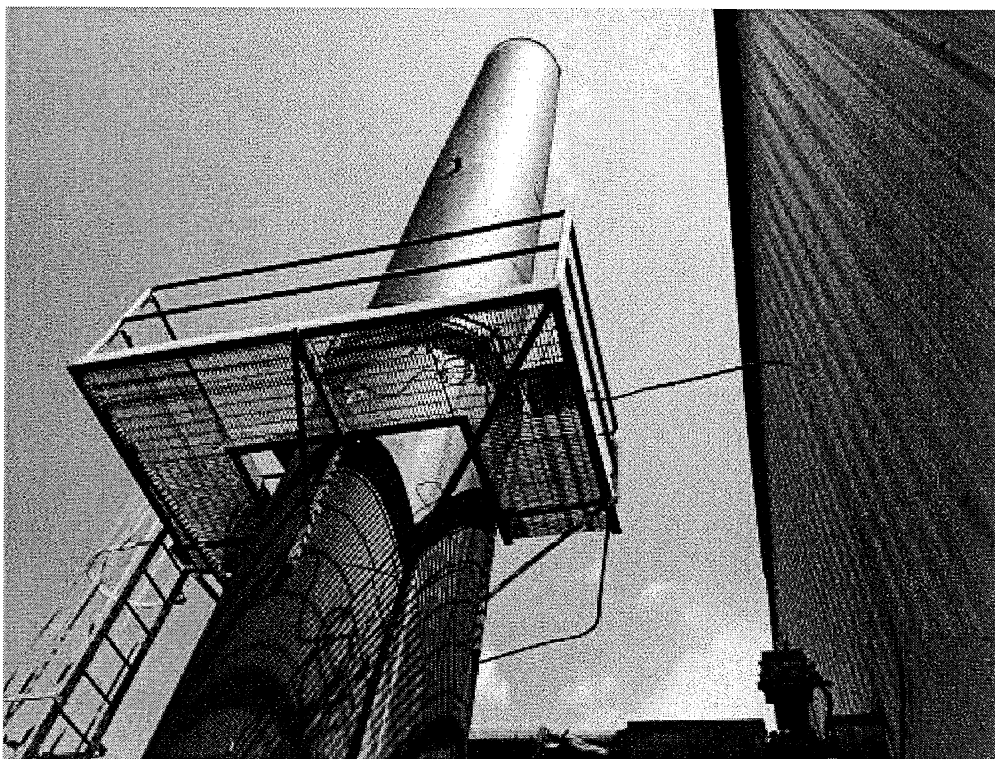


Image 10(Dust on ground) : Dust on ground near fuel handling baghouse



**Image 11(Bag houses)** : 2 bag houses. Exhaust is horizontal.



**Image 12(Boiler exhaust)** : Boiler exhaust stack

NAME \_\_\_\_\_

DATE \_\_\_\_\_

SUPERVISOR \_\_\_\_\_ 