

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

B258940473

FACILITY: MDOC - Jackson Complex		SRN / ID: B2589
LOCATION: 4000 Cooper Street, JACKSON		DISTRICT: Jackson
CITY: JACKSON		COUNTY: JACKSON
CONTACT:		ACTIVITY DATE: 06/29/2017
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Announced compliance inspection-FCE.		
RESOLVED COMPLAINTS:		

Opt-out Source for NOx and SO2-Full Compliance Evaluation**Facility Contact**

Lyle Wyskowski: Plant Supervisor ph: 517-780-6366

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Purpose

On June 29, 2017, I conducted an announced compliance inspection of Michigan Department of Corrections-Jackson Complex (MDOC) located near Jackson, Michigan in Jackson 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 and MDOC's Permit to Install (PTI) 135-15.

Facility Location

The power house portion of the facility is located just north of the city of Jackson within the prison complex. See aerial photo dated October, 2016.

Facility Background

The facility was last inspected in 1983.

"Electricity for the Jackson Complex is provided by the local public utility grid system. The prison operates a small power plant and miscellaneous hot water heaters to provide the facility's heating requirements and back up electrical service. In addition, the facility has six emergency generators, for use in the event that the Jackson Complex loses power, which is necessary to provide security.

Steam is primarily provided to the Jackson Complex by three large natural gas-fired boilers with fuel oil back up capability. The complex also operates a number of small natural gas-fired water heaters, and six emergency generators. All of this equipment was installed prior to the Michigan requirement to obtain an air use PTI, or was exempt from the requirement to obtain a PTI at the time of installation."

The boilers/generators are all located in a single building just outside the prison walls near the old municipal waste incinerator.

Regulatory Applicability

The entire facility currently operates under PTI 135-15. This permit was issued on October 1, 2015. It contains language to restrict all facility operations to emissions less than 89.9 tpy NOx, 7.1 tpy SO2, and 61.9 tpy of CO.(Synthetic minor for NOx, SO2, and a true minor for VOC's and HAPs.)

40 CFR Part 63, Subpart ZZZZ (RICE MACT) The facility's 5 emergency generators are not subject to the RICE MACT.

40 CFR Part 63, Subpart JJJJJJ (Boiler MACT) The facility's 3 natural gas fired boiler are not subject to the Boiler MACT.

The 3 boilers are not subject Federal New Source Performance Standards NSPS Dc, as the boilers are

grandfathered/were installed prior to the NSPS applicability date.

A Violation Notice was issued on September 15, 2015 for having a potential to emit greater than major source thresholds. This led to Consent Order AQD No. 10-2016 issued on April 15, 2016. See Attachment (1). This Consent Order enforces some of the conditions of PTI 135-15.

The facility has one outdated PTI permit; PTI 363-83 for paint booths associated with a metal furniture coating process. (There was a furniture plant covered by the permit and a separate chair plant where coating operations also occurred using a single booth.) Coating operations have not been conducted at the facility for years.

There are several PTI exempt processes at the facility but are included in PTI 135-15 so the processes are covered by the opt-out limitations.

Arrival & Facility Contact

Visible emissions or odors were not observed upon my approach to MDOC's facility. I arrived at 9:00 am, proceeded to the MDOC's power house to request access for an inspection, provided my identification and spoke with Lyle Wyskowski (LW) Power Plant Supervisor for the facility. (The powerhouse is in an unsecured area just outside the prison walls. There were low-security risk prisoners in the area surrounding the powerhouse. I scheduled the visit prior to my visit to announce the inspection due to initial concerns about facility access.)

I informed him of my intent to conduct a facility inspection and to review the various records as necessary.

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

Pre-Inspection Meeting

LW outlined that the facility is of course operating 24 hours a day year around. There are currently 9 full time employees at the power house.

LW first discussed the on-going construction project that involves installing 7 natural gas fired heating boilers and 2 domestic hot-water boilers. These boilers will be used to replace the existing 3 boilers. Construction is expected to be completed by December 31st. Each boiler will have its own dedicated exhaust at or above roof height. (The new boilers are exempt from PTI requirements due to their small heating capacity rating so the existing PTI permit will not need to be modified. The PTI will need to remain in place to restrict the potential to emit of the emergency generators below major source thresholds.)

He indicated that the existing 3 natural gas fired boilers use No. 6 fuel oil as back up. Each boiler has a 10,000 gallon fuel oil tanks. LW indicated that they haven't used any fuel oil or received any fuel oil shipments since before he was supervisor. (He has been a supervisor for 2 years.)

They have 5 emergency generators that are fired by No. 2 diesel fuel. These emergency generators kick on automatically if there is an interruption in power supplied by Consumer's Energy. LW indicated he didn't know the sulfur content of the diesel fuel but he was able to produce shipment invoices that showed it to be "ultra low sulfur". (this fuel is always less than 500 ppm but now generally 15 ppm sulfur.) (Note: The original permit application mentions 6 emergency generators but 1 one them was portable and wasn't included in the final permit.) They keep track of diesel fuel usage by manually reading the level indicator on the tank.

Each generator is tested each week for 30 minutes. So far in 2017, besides for testing purposes, the generators have only run for a few minutes when a brief interruption in power occurred.

I asked LW if was aware of any other source of meaningful air emissions occurring elsewhere at the prison complex. LW indicated that he wasn't aware of any. He says there is no longer any paint coating booths. There is a mattress manufacturing operation but with no significant air emissions.

Onsite Inspection

LW gave me a tour of the power house. Overall, the power house appeared to be out dated but reasonable well maintained.

The 3 boilers are located on the main level. The new boilers are located in the basement. We first went to the basement.

We located at the 7 new heating boilers that were in the process of being installed. They are small fraction of the size of the existing boilers. See attached photo. The panel plate on each of the 7 boilers showed them to be 1757 KW in size.(6 MM BTU/Hour). See attached photo.

Next, we looked at the 2 domestic hot water boilers. See attached photo. The panel plate on each boiler showed them to be 1464 KW in size.(5 MM BTU/Hour). See attached photo.

We went back upstairs and looked at the 3 existing boilers. Boiler #3 was not operating. See attached photo. Boiler #2 was operating and was producing about 100 PSI worth of steam. See attached photo.

Boiler #1 is no longer operable. They are using this boiler to scavenge parts for the other 2 boilers. See attached photo. Attached photos shows the 3 exhaust stacks.

Next, we looked at the five emergency generators. See attached photos. The generators matched the descriptions provided in PTI 135-15. We also looked at the exhaust stacks. Generally, the stacks exhausted just above the roof line with rain caps. See attached photos.

Recordkeeping/Permit Requirements Review

-MAERS Review

MAERS Report Summary for 2016 provided as Attachment (2).

2016 MAERS submittal listed the following emission units:

EU-BOILER1-A 89.9 MMBtu/hr natural gas fired steam boiler capable of burning fuel oil as a back-up fuel.

EU-BOILER2-A 89.9 MMBtu/hr natural gas fired steam boiler capable of burning fuel oil as a back-up fuel.

EU-BOILER3-A 89.9 MMBtu/hr natural gas fired steam boiler capable of burning fuel oil as a back-up fuel.

EU-BOILER1+EU-BOILER2+EU-BOILER3=RG-BOILERS

Reviewing the data for RG-Boilers, it indicated the following:

No distillate oil (containing 0.05% sulfur) was used in 2015.

Natural gas usage was 305 million cubic feet. (PTI limit is 1325 million cubic feet.)

Emissions of CO were 12.8 tons and 15.2 tons of NOX. (PTI limit for entire facility is 61.9 tons CO & 89.9 tons of NOX.)

EU-EMGRICE1-This emission unit, and any replacement of this unit as applicable under R 336.1285(a) (vi), is for a 1000 kW diesel-fueled reciprocating internal combustion emergency engine located at the Jackson Complex Power Plant.

EU-EMGRICE2- This emission unit, and any replacement of this unit as applicable under R 336.1285(a) (vi), is for a 500 kW diesel-fueled reciprocating internal combustion emergency engine located at the Jackson Complex Power Plant.

EU-EMGRICE3- This emission unit, and any replacement of this unit as applicable under R 336.1285(a) (vi), is for a 500 kW diesel-fueled reciprocating internal combustion emergency engine located at the Jackson Complex Power Plant.

EU-EMGRICE4- This emission unit, and any replacement of this unit as applicable under R 336.1285(a) (vi), is for a 500 kW diesel-fueled reciprocating internal combustion emergency engine located at the Jackson Complex Power Plant.

EU-EMGRICE5- This emission unit, and any replacement of this unit as applicable under R 336.1285(a) (vi), is for a 400 kW diesel-fueled reciprocating internal combustion emergency engine located at the Jackson Complex Power Plant.

EU-DWH-300 kW diesel-fuel reciprocating internal combustion emergency engine. (Permit exempt-not operated in 2016.)

EU-EMGRICE1 + EU-EMGRICE2 + EU-EMGRICE3 + EU-EMGRICE4 + EU-EMGRICE5=RG-EMGGENS.

Reviewing the data for RG-EMGGENS, it indicated the following for 2016:

1600 gallons of diesel fuel used containing 0.05 weight percent sulfur. Emissions of all pollutants were reported to be less than one ton. (Only Permit limit is for diesel to contain no more than 0.05 weight percent sulfur.)

Overall, 2016 MAERS shows compliance.

-Permit Requirements Review

The facility provided some basic information after the inspection.

Natural gas usage for 2017 between January 1 and May 31 for all equipment was 75,061 MCF.

Total amount of diesel fuel used for the 5 generators was 672 gallons.

The engine manufacturer for the 5 generators was either Cummins or Caterpillar.

The generators were installed in 1967 for 2 of them with the date unknown for the other 3.

Engine model numbers 1) VT12-700-GS; 2)VT12-700-GS 3) 3412 4) 3512 5) 3409

Engine Horsepower: 1) Not known, 2) No known, 3) 665 HP 4) 1482 HP 5) 603 HP

Engine Serial Number 1) 562625 2) 562623 3) 38S11230 4) 24Z02342 5) 78Z05508

For FG-Boilers, the facility was in compliance with all emission limits, material limits, design/equipment parameters and process/operational parameters. There are no testing/sampling/reporting or stack/vent restrictions. Under Other Requirements, the facility must be in compliance with the Boiler MACT. The facility is in compliance with the Boiler MACT since the existing boilers are exempt from it. (The new boilers will also be exempt from the Boiler MACT and from obtaining a new PTI permit as they will be considered exempt per Rule 282 (2) (b) (i) (Can be no more than 50 million BTU/hour). Under Monitoring/Recordkeeping, the facility is maintaining natural gas usage records.

For FG-EMGGENS, the facility was in compliance with all PTI requirements. The facility is maintaining its exempt status from the federal RICE MACT requirements by only using the generators for emergency use only besides testing that amounted to less than 26 hours per engine per year. (30 minutes per week) RICE MACT exemption allows up to 100 hour per year of testing. Records show actual number of hours of usage in 2017 ending May 31 was 3.5 hours for each generator. Total life time usage of the generators ranged from 179 hours to 560 hours.

The existing Consent Order was also reviewed for compliance. The facility appeared to be in compliance with all the terms of the Consent Order. The facility can request the Consent Order be terminated as early as April 15, 2018.

The new boilers that are being constructed should offer a significant improvement over the existing 3 boilers when the facility changes over to the new system. The natural gas fuel requirement will only be a fraction of the existing ones with reduction expected in emissions of all criteria pollutants. No permit to install modification will be needed due to the change. The facility wide opt-out language in PTI 135-15 will cover the new boilers.

Post-Inspection Meeting

I held a brief post-inspection meeting with LW. I outlined that I would send a follow-up email requesting

some records but had no other compliance concerns. I thanked LW for his time and cooperation, and I departed the facility at approximately 10 AM.

Compliance Summary

The facility is in compliance.



Image 1(Aerial photo) : Aerial photo of power house on left with abandon waste incinerator facility on the right.



Image 2(Boilers for heating) : Natural gas fired boilers for heating

RE
RADIANT ELECTRIC
MADE IN U.S.A.

HEATING BOILER

MODEL NO./MODELE NO. CK 6000

CONTROLS/CONTROLES MBH

MIN. HEATING WATER CAPACITY MIN. DEBIT D'EAU DE SURETE

MAX. W.P. WATER/ PRESSION MAXI D'EAU 160 PSI 1100 KPa

INLET GAS PRESSURE/ PRESSION DE GAZ A L'ENTREE	NAT. GAS/ GAZ NAT.	LP GAS/ GAZ LP	VENTILATION/ VENTILATION	
MAX. (IN.W.C)/ MAXI (POUNCES DE COLONNE D'EAU)	14	N/A	NAT	NAT
MIN. (IN.W.C)/ MINI (POUNCES DE COLONNE D'EAU)	3	N/A	EXH	EXH

0 TO 2000 FT. 0 à 2000 PIEDS

INPUT/ ALIMENTATION	6000/1757	MBH/ KW	Category I only ANSI Z21.10-40 CSA 4.4-2001
MIN. INPUT/ ALIMENTATION		MBH/ KW	NATURAL GAS 4.75 GCV/ BTU Manufactured to meet or exceed ANSI Z21.10-40
OUTPUT	5808/1701	MBH/ KW	SRNRT184750 Model CK6000-1
ORIFICE/ ORIFICE	0.871/22	DWS/ mm	CK6000NARS20000357-01MAY04

480VAC/50 HZ/3 PH

ELECTRICAL RATING/PUISSANCE ELECTRIQUE NOMINALE
MAXIMUM AMPS /AMP. MAXI 10.3 A SCCR=5kA

FOR INSTALLATION ON COMBUSTIBLE FLOORING
POUR L'INSTALLATION SUR LES PLANCHERS COMBUSTIBLES

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS
EGARTEMENT MINIMAL DE MATIERES COMBUSTIBLES

RIGHT AND LEFT SIDE/ COTE DROITE ET GAUCHE	6.152.4	IN/ mm	JACKET TOP OF GAS INLET DESSUS DE L'ENTREE A L'ENTREE
REAR/ ARRIERE	6.152.4	IN/ mm	NEW EVENEMENT

Image 3(Name plate) : Name plate for new natural gas boilers/heating

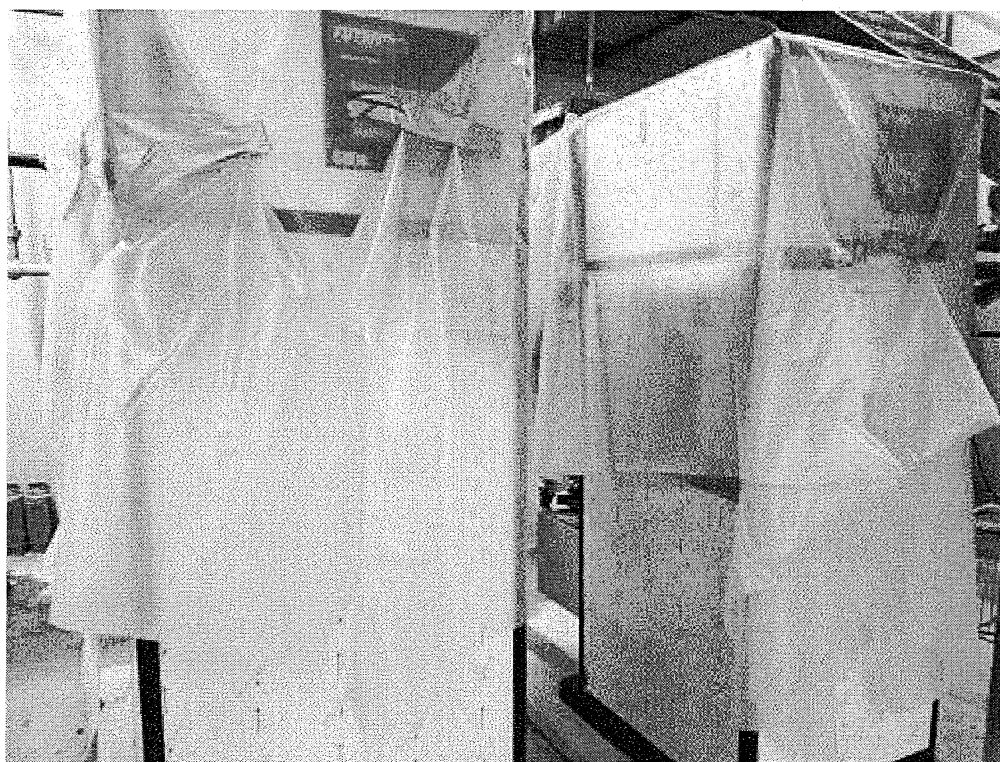


Image 4(Water heaters) : New water heaters for domestic hot water

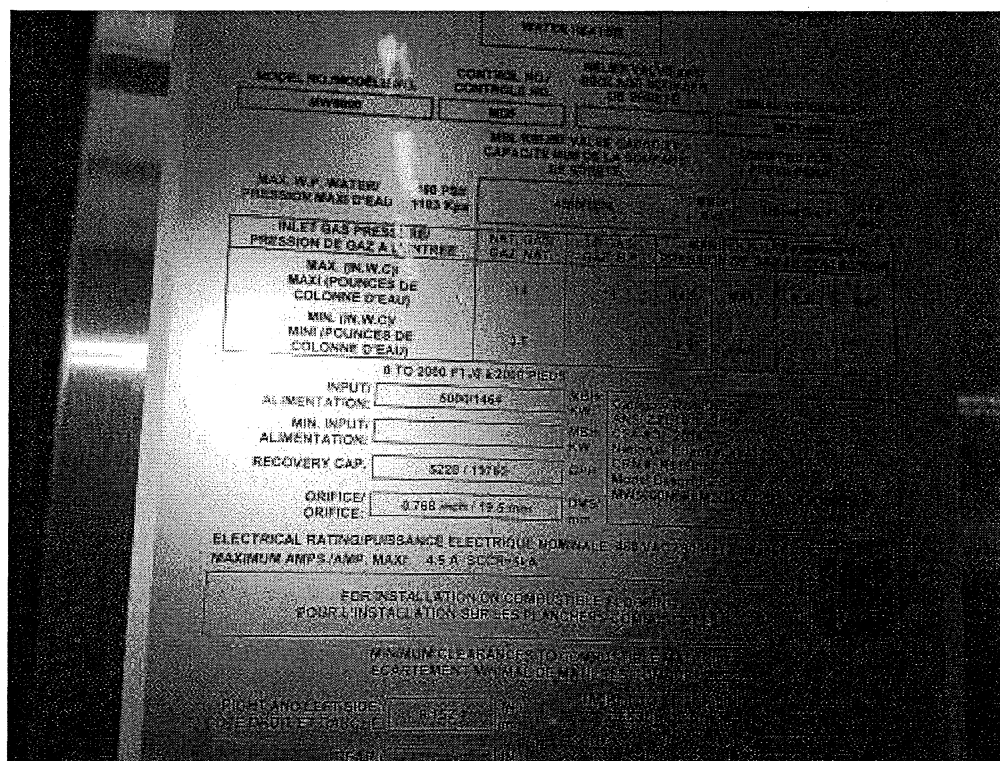


Image 5(Name Plate) : Name plate for domestic water heater

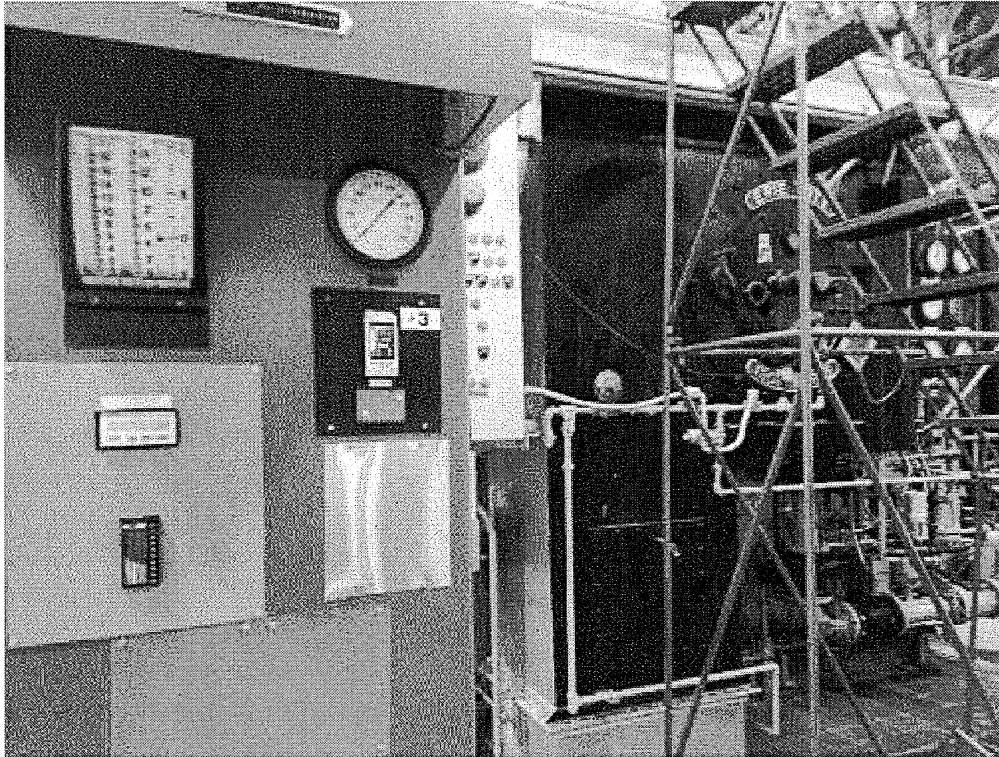


Image 6(Existing Boiler #3) : Existing Boiler #3. (Not operating.)

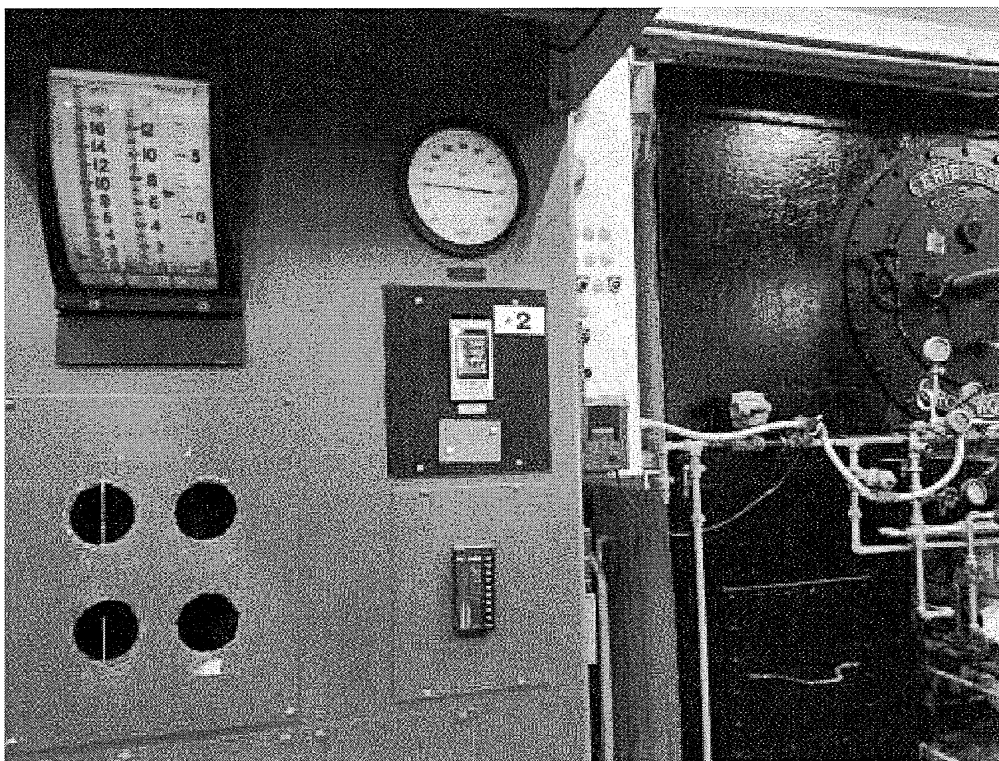


Image 7(Existing Boiler #2) : Existing Boiler #2. (Operating.)



Image 8(Existing Boiler #1) : Existing Boiler #1 (abandon)

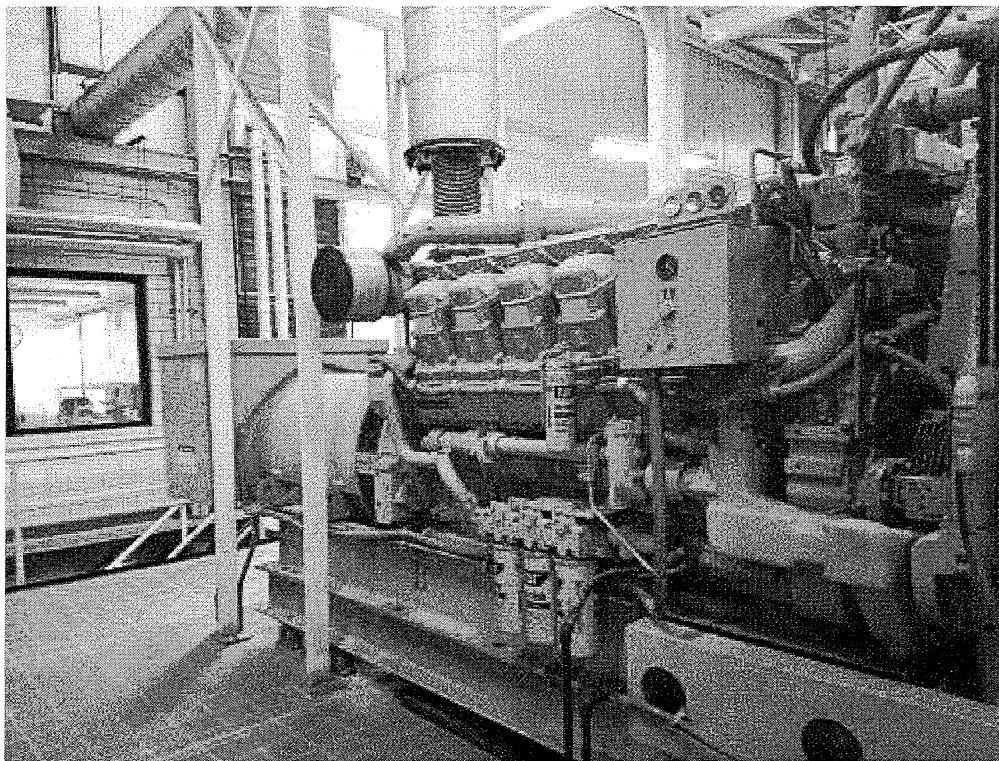


Image 9(Emergency generator) : Emergency generator engine

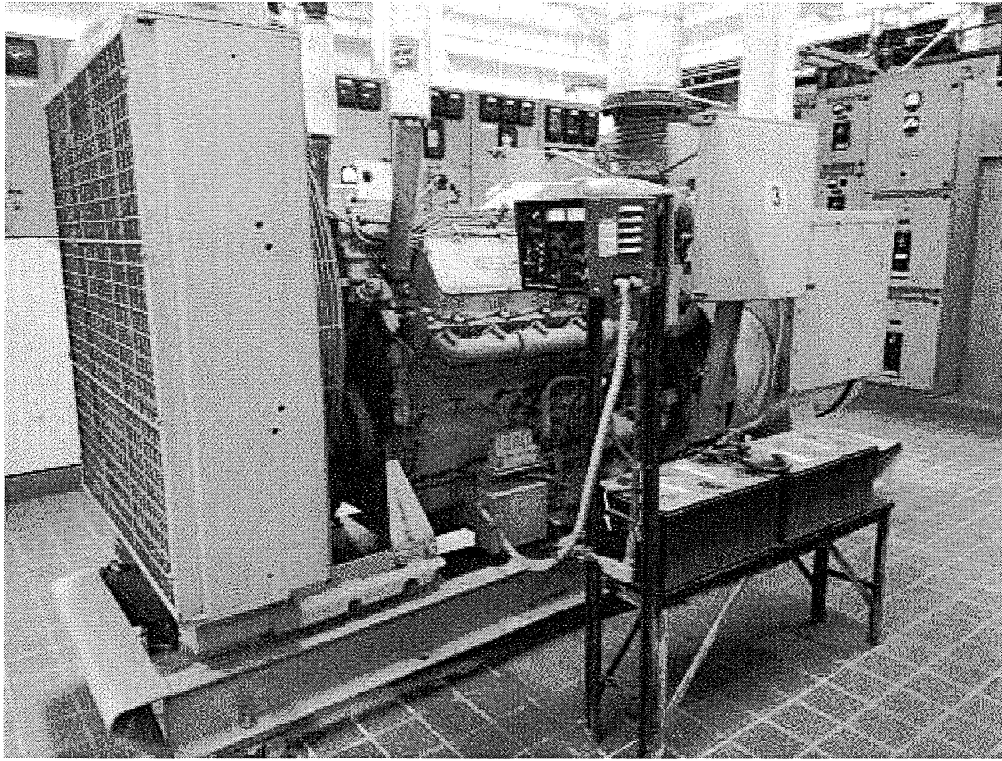


Image 10(Emergency generator) : Emergency generator engine

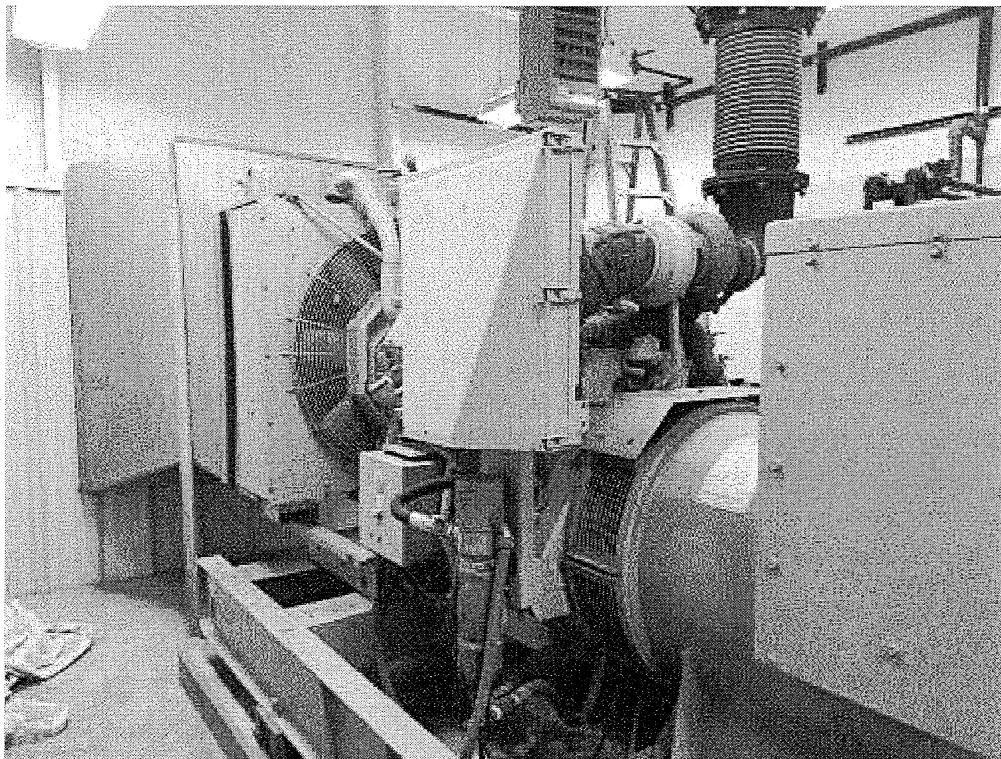


Image 11(Emergency generator) : Emergency generator engine

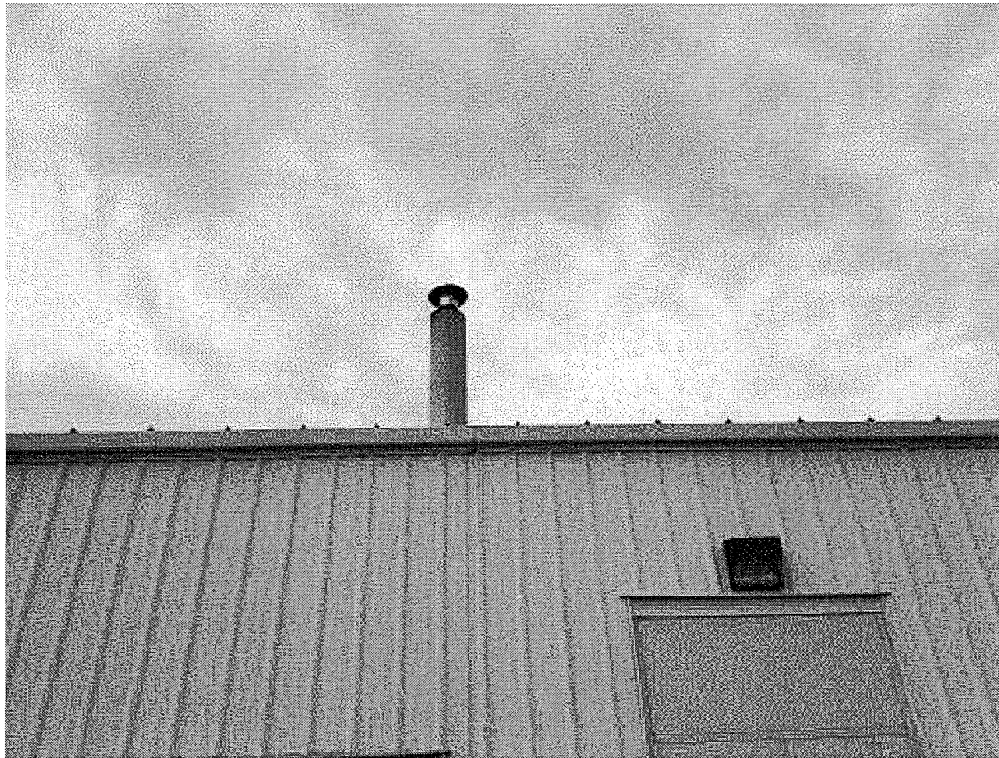


Image 12(Generator stack) : Emergency generator exhaust stack with rain cap



Image 13(generator stack) : Rusty emergency generator stack with rain cap

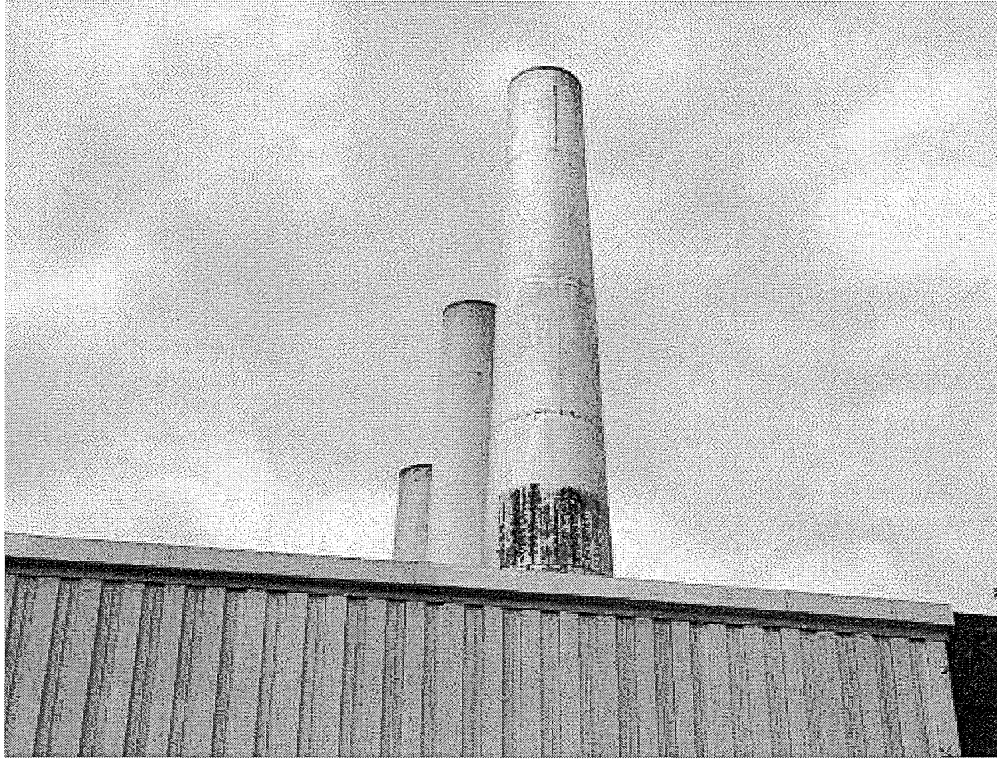


Image 14(Boiler stacks) : Existing natural gas fired boiler stacks.

NAME

M. Kachuk

DATE

7/26/2017

SUPERVISOR

[Signature]