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

A403329031

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Kayla Peacock , Air Delivery Specialist		ACTIVITY DATE: 04/01/2015
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: FGBOILERS21&22, FGSITEBOILERS, Associated FGBOILERMACT		
RESOLVED COMPLAINTS:		

Inspection date April 1-2015 Inspection started: 1:00 PM Inspection ended: 3:30 PM

Emission units inspected:
FGBOILERBOILERS21&22-S1
FGSITE200BOILERS-S1
(FGBOILERMACT Portions applicable to above boilers -#21,22, 23, &24)

CAIR Ozone NOx Budget Permit MI-NOO-880031-2010: Ozone trading program

Dow and MDEQ-AQD staff present during the entire inspection.

Kathy Brewer (MDEQ-AQD)
Kayla Peacock (Dow, Air Delivery Specialist)

Additional Dow staff:
Brad kischnick (Environmental Specialist)
Bill Sigler (Environmental Technician)
Bill Martin (Plant Engineer)

The boilers provide steam if Midland Cogeneration is unable to meet the steam demand. All boilers inspected are 100 % natural gas boilers. Breitburn is the primary gas supplier and reports fuel sulfur content. The boilers originally had the capacity to burn fuel oil (2% sulfur). No capacity remains to use oil and all oil burning related equipment has been removed.

We viewed each boiler, monitoring readouts, and on site records. Sulfur concentrations are proportional to the mercaptans added to the fuel. The site assumes all mercaptans in ppmv are converted to SO2 during the combustion process. NOx emissions factors are from performance data collected during the last tuning event. A stack test is performed once/five years under 4 loads. A default value is used for NOx emissions as the results are <0.15 lb/MMBtu PM emissions are based on AES manual (textbook) factor of 0.076 lb/1000 lb vent gas. VOC emissions are based on PTI allowed 0.05 pph and are conservative relative to testing information. Each boiler has it's own gas input meter. "MOD 5" is a site data source from which fuel consumption and steam generation can be obtained. The site has reduced process steam demand since the time of the boiler installation.

FGBOILERS21&22

Compliance Status: Compliant

Each boilers has a maximum design heat input capacity equal to 357 MMBTU. The boilers are test fired on alternate weeks for 1 – 2 hours each per week.

The ROP emission limits compared to site records:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Feb 2015 Onsite record		Nov 2014 Onsite record	
				#21	#22	#21	#22
Sulfur Dioxide	1.11 lbs/MMBtu heat uinput	24 hour	Each Boiler	0.07	0.74	0.251	0.115
Particulate Matter	0.76 lb/1000 lbs exhaust gas	Test protocol	Each Boiler	0.12	0.054	0.018	0.008

The emission unit has no material limits, operating restrictions, or equipment parameters designated in tl ROP. The emission unit is included in FGBOILERMACT-S1.

Hourly data on fuel consumption and steam generation is recorded. In November 2014 Boiler #21 ran (two days each day between 2 and 3 hours. Boiler #22 ran one day for just over 2 hours. In February 20' Boiler #21 ran one day for just over 2 hours. Boiler #22 ran three days, between 2 and 6 hours each day.

Based on information provided I calculated the natural gas usage total for both boilers as 297.6 SCF November 2014 and 753.69 in February 2015.

A copy from a portion of the records reviewed during the inspection are attached.

The exhaust gases are discharged from an unobstructed vertical stack.

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)
SVBOILER21&22-001	84	100
SVBOILER21&22-002	84	100

FGSITE200BOILERS-S1

Compliance Status: Compliant

Description : Each natural gas fired boiler has a maximum heat incapacity of 71.9 MMBTU. The units (#2 & #24) are run in minimum fire mode, not standby mode. The boilers are back up steam for production plants if MCV is unable to provide the steam the facility needs. The boilers are not often used. Plate #24 information included a 1989 year built date & 60,000lbs/capacity.

The boilers are operating at minimum fire in standby mode. Gas flow, air/gas flow ratio & 02 are monitored We viewed the boilers & monitoring read outs.

The ROP emission limits compared to site records:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Feb 2015 Onsite record		Nov 2014 Onsite record	
				#23	#24	#23	#24
Particulate Matter (PM)/PM-10	0.18 pph	Test protocol	Each Boiler	0.02	0.02	0.02	0
PM/PM-10	1770 lbs/yr	Based on a 12-month rolling time period as determined at the end of each calendar month	Combination of both Boilers	299		307	
Sulfur Dioxide (SO_2)	1.13 pph	Test protocol	Each Boiler	0.01	0.01	0.01	0
SO_2	11,100 lbs/yr	Based on a 12-month rolling time period as determined at the end of each calendar month	Combination of both Boilers	169		173	
Nitrogen Oxide (NOx)	0.07 lb/MMBTU heat input	24-hour average	Each Boiler	0.068	0.068	0.07	0
NOx	5.05 pph	Test protocol	Each Boiler	0.81	0.81	0.81	0
NOx	49,600 lbs/yr	Based on a 12-month rolling time period as determined at the end of each calendar month	Combination of both Boilers	11253		11546	

VOC	0.05 pph	Test protocol	Each Boiler	0.01	0.01	0.01	0
VOC	500 lbs/yr	Based on a 12-month rolling time period as determined at the end of each calendar month	Combination of both Boilers	116		119	
Opacity	10%	6-minute average	Each Boiler				0

At the time of the inspection the #23 boiler had a NG flow of 194 scfm and #24 had a scfm of 189 scfm.

Miscellaneous:

All boilers inspected are subject to the Boiler MACT DDDDD work practice standards that include tuning inspections. The stacks have continuous 02 trim control. The site has had an internal staff certified ener assessor complete an energy assessment.

An initial notification was submitted on May 1, 2013 w/updates on April 2 and December 19, 2014 and f removed equipment including some Rule 290 boilers and EU-94 cracker.

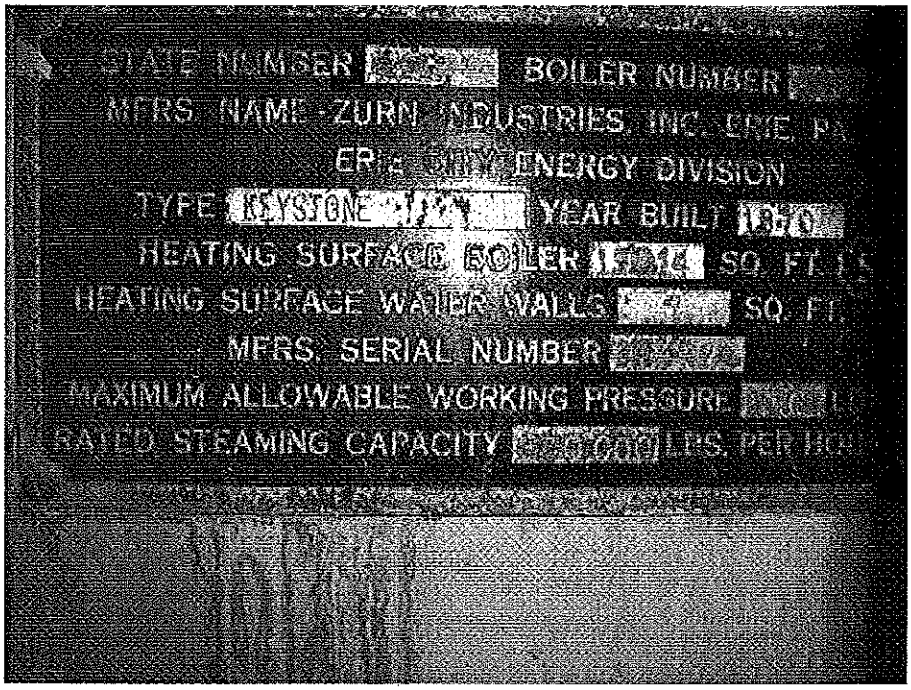

Image 1(21B boiler plate) : Dow Chem Boiler 21 manufacturer plate 4-1-2015

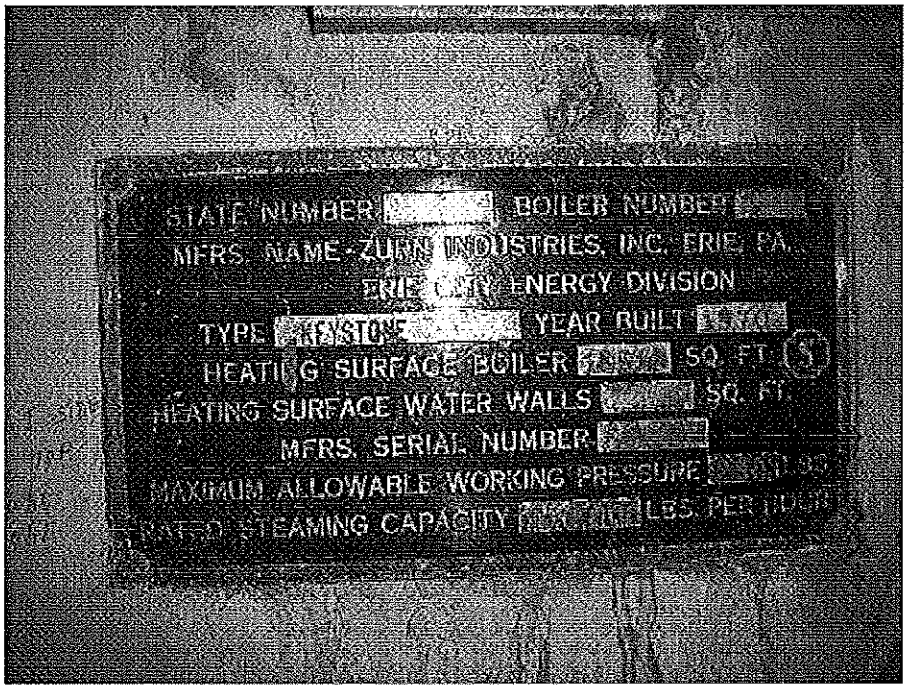

Image 2(Dow Chem Boiler 22) : Dow Chem boiler 22 manufacturer plate 4-1-2015

NAME _____ DATE 7/16/2015 SUPERVISOR C. Hare