

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

M434730961	
FACILITY: PRAXAIR, INC	SRN / ID: M4347
LOCATION: 300 E GREAT LAKES ST., RIVER ROUGE	DISTRICT: Detroit
CITY: RIVER ROUGE	COUNTY: WAYNE
CONTACT: Jack Edwards , Facility Superintendent	ACTIVITY DATE: 09/02/2015
STAFF: Jorge Acevedo	COMPLIANCE STATUS: Compliance
SUBJECT:	SOURCE CLASS: SM OPT OUT
RESOLVED COMPLAINTS:	

COMPANY NAME : Praxair

FACILITY ADDRESS : 300 Great Lakes Avenue, Ecorse, MI

STATE REGISTRAT. NUMBER : M4347

SIC CODE : 2819

EPA SOURCE CLASS : B

EPA POLLUTANT CLASS : C

LEVEL OF INSPECTION : PCE

DATE OF INSPECTION : 9/2/15

TIME OF INSPECTION : 11:20 AM

DATE OF REPORT : 9/10/15

REASON FOR INSPECTION : Scheduled Inspection.

INSPECTED BY : Jorge Acevedo

PERSONNEL PRESENT : Jack Edwards, Jerry Cabalatungan

FACILITY PHONE NUMBER : 313-849-4207

FACILITY FAX NUMBER : 313-849-4330

**INSPECTION NARRATIVE:**

On September 2, 2015, I conducted a scheduled initiated inspection of Praxair. I met with Jack Edwards, Facility Superintendent, and Jerry Cabalatungan, SES specialist at 11:20AM. I explained that the purpose of my visit was to conduct an inspection to determine Praxair's compliance with Part 55, Air Pollution Control, of ACT 451(Natural Resources and Environmental Protection Act), and the federal Clean Air Act.

We went into Praxair's conference room and discussed Praxair's operations and equipment. I asked Mr. Edwards about any changes since the last inspection in 2010. Mr. Edwards explained that the facility was planning on installing a new air separation unit. The project would involve installing a new vaporizer. The facility was in the stages of working out the details and would be submitting a permit application in the future. The facility would then close out two of the older plants. Other than that the proposed change, there were no new changes since the last inspection.

At the previous inspection, the Steam Methane Reformer was not operating. It was operating during the time of my inspection. I asked about applicability to an area source MACT, namely 40 CFR 63 Subpart VVVVVV. Initially, Praxair submitted documentation stating that they subject to the Subpart but were not responsible for submitting a Title V permit because they were not using control equipment at their plant. Mr. Edwards submitted documentation, which was correspondence from the Environmental Protection Agency to a competitor which stated that the competitor was not subject to the Subpart at all because the only potential metal Hazardous Air Pollutants would only be emitted during maintenance catalyst change-outs when the reformer would not be running.

After our discussion of Praxair's equipment and operations, Mr. Cabalatungan accompanied me on the inspection.

Outside, Mr. Cabalatungan pointed out the seven plants. Each plant generally operates in the same fashion. I observed Plant 6 which had several distillation columns which were used to separate the ambient air into the various components. The plant is able to process 6 mmcf/hr of ambient air.

We began the inspection at the Steam Methane Reformer. Mr. Cabalatangan pointed out the new Nitrogen Thermax Vaporizer which was installed in 2012. The purpose of the vaporizer is to turn liquid Nitrogen back into a gas. I observed a ballast tank for Nitrogen as well. The tank is used to handle uneven demands on Nitrogen. The Steam Methane Reformer converts natural gas into hydrogen through a catalyst reaction.

Next, I observed a liquid Nitrogen truck loading station. Next, I observed two liquid hydrogen storage tanks. These tanks are used for emergencies during high demand.

Next we observed Boiler #3. The boiler is used to provide building heat. I also observed a Oxygen Thermax Vaporizer, which converts liquid oxygen into a gas. I then saw Boiler #2 and horizontal oxygen tanks. The tanks provide a buffer to pulsating demand.

At the time of the inspection Plants 1&2 were not operating. I observed several tanks which store the final product. For Plant 1, there were several Argon tanks which store pure Argon..

I received a log of the meter readers that staff keeps in the control room. I requested two years of natural gas usage for the facility. I left the facility at 1:10PM.

#### FACILITY BACKGROUND:

Praxair is a producer of atmospheric gasses( Nitrogen, Oxygen, Argon) and specialty gasses (CO2, Helium, Hydrogen). Ambient air is captured and processed into the individual components using purification, compression, cooling, distillation, and condensation.

Praxair is East of W. Jefferson, South of Belanger Park, and West of the DetroitRiver, in Ecorse.

#### COMPLAINT/COMPLIANCE HISTORY:

Praxair was last inspected in 2010.

There have not been any citizen complaints registered nor violations issued against Praxair.

#### OUTSTANDING CONSENT ORDERS:

None

#### OUTSTANDING LOVs

None

#### OPERATING SCHEDULE/PRODUCTION RATE:

Praxair operates 24 hours a day, 7 days a week.

#### PROCESS DESCRIPTION:

Praxair uses centrifugal air compressors to compress ambient air. The compressed ambient air is then cooled using heat exchangers. Water vapor and carbon dioxide are removed using a molecular sieve pre purification unit. This system also removes other contaminants. Heat transfer is used to cool the air to cryogenic temperatures. Distillation columns are then used to separate the air into desired products.

Pipelines are used to transfer the products to refineries, steel mills, and other customers. Products such as liquid oxygen are shipped in tanker trucks to supply hospitals. Boilers are used to produce steam to convert cryogenic liquids into gas in the case that the plant loses to ability to produce the liquid.

#### EQUIPMENT AND PROCESS CONTROLS

The plant has several steam boilers.

The plant has several tanks containing the liquid gases.

The plant has a steam methane generator where pure hydrogen is produced using natural gas and steam.

The plant has a 5000 gallon diesel tank.

**The plant has seven electrically driven centrifugal air compressors.**

**The plant has equipment which is used to separate ambient air into its fractional components.**

**APPLICABLE RULES/PERMIT CONDITIONS:**

**Praxair is currently operating under PTI 71-12.**

The following conditions apply Source-Wide to: FGFACILITY

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Compliance Determination
1. Carbon Dioxide Equivalent (CO <sub>2e</sub> )	89,000 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	Compliance-- Records received showed CO <sub>2</sub> emissions were well below 89,000 TPY.

**II. MATERIAL LIMITS**

1. The natural gas usage for FGFACILITY shall not exceed 1,405,166,040 cubic feet per year based on a 12- month rolling time period as determined at the end of each calendar month. (R 336.1205(3))

Compliance- Records were received- NG usage was well below 1.4 billion cubic feet per year.

**III. PROCESS/OPERATIONAL RESTRICTIONS**

NA

**IV. DESIGN/EQUIPMENT PARAMETERS**

NA

**V. TESTING/SAMPLING**

NA

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1205(3))

Compliance- Records are kept

2. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period CO<sub>2e</sub> emission calculation records for FGFACILITY/, as required by SC I.1. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. (R 336.1205(3))

Compliance- Records are kept

3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period natural gas usage records for FGFACILITY. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. (R 336.1205(3))

Compliance- Records are kept.

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

The 5000 gallon diesel tank is exempt from permitting under Rule R 336.284(d)

The liquid nitrogen, oxygen, hydrogen, argon, and gas oxygen storage tanks on the plant are exempt from permitting under Rule R336.1284(j)

The following fuel burning equipment are exempt under Rule R336.1282(b)(i):

<u>Fuel Burning Equipment</u>	<u>Heat Input Capacity</u>	<u>Year Installed</u>
Boiler #1	16.74 MMBTU/hr	1961
Boiler #2	13.39 MMBTU/hr	1966
Boiler #3	16.74 MMBTU/hr	1976
N2 Thermax	8 MMBTU/hr	1990
O2 Thermax	15 MMBTU/hr	1990
O2 Sellers #1	20.9 MMBTU/hr	1994
O2 Sellers #2	20.9 MMBTU/hr	1994
#6 Plant Regen Heater	8.4 MMBTU/hr	1994
N2 Sellers #3	29.3 MMBTU/hr	1997
N2 Sellers #4	29.3 MMBTU/hr	1997
#7 Plant Regeneration Heater	7.97 MMBTU/hr	2003
Steam Methane Reformer Heater	10.9 MMBTU/hr	1996

There are several boilers that have a heat input capacity of 10 MMBTU/hr or greater but since each one was installed before 1989, they are not subject to 40 CFR §60.40c. Each boiler uses natural gas.

The equipment used to separate ambient air into the fractional components of air is exempt under R336.1285(II).

**APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:**

Praxair has a fugitive dust control plan on file. Most of their plant is paved. I did not observe any excess opacity on the plant.

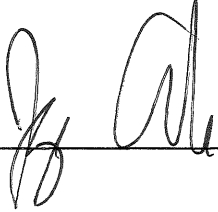
**MAERS REPORT REVIEW**

SOURCE REPORTED EMISSIONS		
2014		
Pollutant	Amount(lbs)	Unit
AMMONIA	37.50	LB

CO	948.48	LB
LEAD	0.01	LB
NOX	1172	LB
PM10,PRIMARY	89.07	LB
PM2.5,PRIMRY	89.07	LB
SO2	7.03	LB
VOC	64.46	LB

**FINAL COMPLIANCE DETERMINATION:**

The facility is operating in compliance with applicable regulations.

NAME 

DATE 9-18-15

SUPERVISOR W.M.