



**PERMIT NUMBER:** 980444  
**BUSINESS NAME:** State Farm Mutual Automobile Insurance Company  
**SOURCE TYPE:** Fuel Burning and Emergency Generators  
**PERMIT ENGINEER:** Mike Sonenberg

<b>App. ID(s):</b>	401256
<b>Revision(s):</b>	3.0.0.0
<b>Revision Type(s):</b>	Renewal
<b>Date Prepared:</b>	02/10/2016

**BACT:** Yes      **MACT:** No      **NSPS:** No      **SYNTH MINOR:** No      **AIRS:** No  
**DUST PLAN REQUIRED:** No      **DUST PLAN RECEIVED:** No  
**O&M PLAN REQUIRED:** No      **O&M PLAN RECEIVED:** No  
**PORTABLE SOURCE:** No      **SITE VISIT:** Waived

**PROCESS DESCRIPTION:**

State Farm Mutual Automobile Insurance Company (State Farm) operates an Insurance Support Center in Phoenix. Regulated equipment at the facility includes:

- Six (6) 2,636 hp diesel-fired emergency generators
- Two (2) 2.343 MMBtu/hr natural gas fired boilers with fuel oil backup

This equipment releases products of combustion into the atmosphere. Products of combustion include carbon monoxide, sulfur dioxide, nitrogen oxides, volatile organic compounds, and particulate matter.

**PERMIT HISTORY:**

Date	Revision Number	Description
02/17/2000	0.0.0.0	MCAQD issues new permit.
05/07/2001	0.0.1.0	MCAQD issues minor mod to add boilers to equipment list.
09/07/2005	1.0.0.0	MCAQD issues permit renewal.
01/13/2010	2.0.0.0	MCAQD issues permit renewal.
11/03/2015	3.0.0.0	MCAQD receives permit renewal application.

**PURPOSE FOR APPLICATION:**

Renewal.

**A. APPLICABLE COUNTY REGULATIONS:**

- Rule 100: General Provisions and Definitions
- Rule 200: Permit Requirements
- Rule 220: Non-Title V Permit Provisions
- Rule 280: Fees: Table A (Source Subject to a BACT determination)
- Rule 324: Stationary Internal Combustion Engines

The boilers are not subject to Rule 323 because the rule only applies to boilers with a rating of 10 MMBtu/hr and greater. The boilers are 1.5 MMBtu each.

**B. APPLICABLE FEDERAL REGULATIONS:**

The 2,636 hp engines were installed in 1997 but are not subject to 40 CFR 63 Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) because the rule contains an exemption for residential, commercial, and institutional RICE. This exemption was further clarified in an August 9, 2010 EPA memorandum, *Guidance Regarding Definition of Residential, Commercial,*

and Institutional Emergency Stationary RICE in the NESHAP for Stationary RICE. According to the memo, “Insurance Agencies and Brokerages” qualifies as a commercial exemption to the rule.

40 CFR 60, Subpart Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units) does not apply because the boilers are rated less than 100 MMBtu/hr.

40 CFR 63, Subpart JJJJJ (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources) does not apply because the boilers are gas-fired.

**C. AIR POLLUTION CONTROL EQUIPMENT/EMISSION CONTROL SYSTEM(s):**

None.

**D. EMISSIONS:**



980444  
calcsheet.XLS

The emergency generators and boilers are the same units as in 1998 permit application; no change in equipment.

Emergency Engines

Per engineering evaluation by B. Rogers (I drive) in 2001, and proof of correspondence on OnBase, **the generators on site are considered BACT** due to the low emission rates. The emission rates are controlled by the fuel rate setting of the computer chip.

Emission factors for the diesel fuel combustion are based on manufacturer’s specification:

Pollutants	Lbs/hr
CO	4.6
NOx	31.2
SOx	0.5
PM 10	1.1
PM	1.1
VOC	1.3

Per EPA guidance (Calculating Potential to Emit for Emergency Generators – Seitz, Sept. 1996) 500 hours is an appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate in any 12-month period under worst-case conditions. This value is written into the permit for all engines as an enforceable limit.

Boilers

Boiler emissions are calculated using AP-42 Section 1.3 emission factors for small, distillate oil fired boilers. The boilers will normally burn natural gas, but may burn fuel oil. Consequently, oil burning emission factors are used as a worst-case scenario. A fuel sulfur content of 500 ppm (0.05%) is used for calculating SO2 emissions, which is written into the permit as an enforceable limit. Continuous operation (8,760 hours/year) is assumed.

**FACILITY WIDE ALLOWABLE EMISSIONS**

Pollutants	Emergency Engines	Boilers	Facility wide Annual Emissions
CO:	13,650	959	14,609
NOx:	93,360	3,837	97,197
PM10:	3,120	384	3,504
PM2.5:	3,120	384	3,504
VOC:	3,870	38	3,904
SOX:	1,500	1,362	2,862

**E. HAP EMISSION IMPACTS:**

Based on the information provided in the permit application, the facility emits insignificant amount of HAPs; therefore, SCREEN modeling was not performed per the Department's HAPs policy.

**F. PERFORMANCE TESTING:**

None.

**G. REGULATORY REQUIREMENTS AND MONITORING:**

None.

DRAFT

**APPENDIX**  
**Uncontrolled Diesel Industrial Engines (Emergency Generators)**

**Company:** State Farm Insurance, Inc

**Permit:** 980444

Input rating of equipment, Btu/hr

Emissions factors taken from Maricopa County Emission Inventory Factors for Diesel Industrial Engines, Reciprocating < 600 BHP

	HP Rating	
1.)	2,636	0.8 g/hp CO
2.)	2,636	5.4 g/hp Nox
3.)	2,636	
4.)	2,636	
5.)	2,636	
6.)	2,636	

TOTAL HP 15,816

Exempt: **No** 2 **4,572** lbs of NOx at 500 hours  
**Yes** 0 **669** lbs of CO at 500 hours

Emission factors

Constants

Emission factors for diesel

CO:	4.55 lbs/hr	1 HP = 2545 BTU/hr
NOx:	31.12 lbs/hr	137,000 BTU/gallon for diesel fuel
SOx:	0.50 lbs/hr	500 hours to determine Exempt Status
PM10:	1.04 lbs/hr	500 annual hours of operation
PM:	1.04 lbs/hr	24 daily hours of operation
VOC:	1.29 lbs/hr	6 # of generators
		3000 total hrs/yr

Emissions

3 engines max

	<u>Daily Emissions</u>		<u>Yearly Emissions</u>	
CO:	328	lbs	13650	lbs
NOx:	2241	lbs	93360	lbs
SOX:	36	lbs	1500	lbs
PM10	75	lbs	3120	lbs
PM:	75	lbs	3120	lbs
VOC:	93	lbs	3870	lbs

**Fuel Burning Equipment (0.3-10)E6 Btu/hr. Calculation Worksheet**

**Company:** State Farm insurance Companies

**Permit:** 980444

Input rating of equipment, Btu/hr

1.)	1,500,000	11.)	0	21.)	0
2.)	1,500,000	12.)	0	22.)	0
3.)	0	13.)	0	23.)	0
4.)	0	14.)	0	24.)	0
5.)	0	15.)	0	25.)	0
6.)	0	16.)	0	26.)	0
7.)	0	17.)	0	27.)	0
8.)	0	18.)	0	28.)	0
9.)	0	19.)	0	29.)	0
<u>10.)</u>	<u>0</u>	<u>20.)</u>	<u>0</u>	<u>30.)</u>	<u>0</u>
Totals	3,000,000		0		0

Overall Total: **3,000,000 Btu/hr**

Exempt: **No**

**Emission factors:**

**Distillate Oil**

Emission factors for industrial boilers  
<100 MMBtu/hr that burn distillate oil.

Constants

137,000 BTU/gallon  
24 hr/day  
365 day/yr

CO: 5 lb/1000 gallons  
NOx: 20 lb/1000 gallons  
PM: 2 lb/1000 gallons  
VOC: 0.2 lb/1000 gallons  
SO2: 7.1 lb/1000 gallons

**Emissions:**

Daily Emissions

CO: 2.62773723 lbs CO/day  
NOx: 10.5109489 lbs NOx/day  
PM: 1.05109489 lbs PM/day  
VOC: 0.10510949 lbs VOC/day  
SOx: 3.73138686 lbs SOx/day

Yearly Emissions

959 lbs CO/yr  
3,837 lbs NOx/yr  
384 lbs PM/yr  
38 lbs VOC/yr  
1,362 lbs SOx/yr



# NON-TITLE V COMPLETENESS DETERMINATION CHECKLIST

**Items 1-15 Front page:** Items 1 to 15 (14 for Renewals) must be completed.

*Notes to engineer:*

- *For renewal applications the source must either answer 'No' to questions 2-5 or submit an application for a permit modification.*
- *Item 8: Many applicants do not know the SIC code or NAICS code for their industry. For a new application the code can be obtained by doing an on-line search. <http://www.osha.gov/pls/imis/sicsearch.html>*
- *Items 5, 7 and 14: These may be the same for many applicants.*

Complete:  Incomplete:

**Item 16:** A simple site diagram has been included, preferably on a standard size paper. Detailed blueprints or construction drawings are not required.

Complete:  Incomplete:  N/A:

**Item 17:** A simple process flow diagram on a standard size paper is preferred. A process flow diagram may not be needed for some small businesses.

Complete:  Incomplete:  N/A:

**Item 18:** An O&M plan is required only for a control device. An O&M plan is not required for a spray booth. Instead of including the O&M plan with the application, an applicant may submit it after receiving the permit.

Complete:  Incomplete:  N/A:

**Item 19:** A dust control plan, if required, must accompany the permit application. The plan will be reviewed and approved by the dust compliance group.

Complete:  Incomplete:  N/A:

**Item 20:** The applicant needs to complete only those sections of the permit application that are applicable.

Complete:  Incomplete:  N/A:

*Notes to engineer:*

- *Concerning Section Z: Many applicants will not be able to perform these engineering calculations. We will accept the permit application with a blank Section Z.*

Instructions for completing Sections A, B, C, D, E-1, E-2, F, G, H, I, J, K-1, K-2, K-3, K-4, L, M, X-1, X-2, Y and Z of the permit application are included at the beginning of each section and are self-explanatory.

In general, a material safety data sheet (MSDS) is required for each chemical used, stored or processed at the facility. Exceptions are for very common materials, such as gasoline, diesel, acetone, etc.

Business name: State Farm Mutual Automobile Insurance Company

Permit number: 980444

Completeness review completed.

Application determined to be: Complete:  Incomplete:

Permit Engineer: Mike Sonenberg

Date: 2/9/2016