

**COVERED SOURCE PERMIT REVIEW
COVERED SOURCE PERMIT No. 0391-03-C
Application for Permit Renewal No. 0391-04**

Applicant: Itoen (USA), Inc.

Equipment: 1) 300 hp Superior Boiler, model no. 4-5-1506-L-GP, serial no. 13839.
2) 200 hp Cleaver-Books boiler, model no. CB200, serial no. L-84557.

Location: 125 Puuhale Road, Honolulu, Oahu
UTM: 615,300 Meters East and 2,358,380 Meters North (NAD 83)

Responsible

Official: Mr. Ito Kiyoshi

Title: Plant Manager

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1. Background

- 1.1 Itoen (USA), Inc. has applied for a permit renewal for operating a 300 hp Superior boiler and 200 hp Cleaver-Brooks boiler. Both boilers are fired on synthetic natural gas (SNG) supplied by the gas company as the primary fuel. Low sulfur fuel oil No. 2, used primarily for the company's freight trucks, is a backup fuel if the supply of SNG is interrupted. The gas company will give a cheaper price for SNG if a backup fuel is available. The maximum specified sulfur content for the low sulfur fuel oil No.2 is 0.05% to minimize will sulfur dioxide (SO₂) emissions. There are no proposed changes for the permit renewal. The Standard Industrial Classification Code (SICC) for this facility is 2086 (Bottled and Canned Soft Drinks and Carbonated Waters).
- 1.2 The number of gallons of low sulfur fuel oil No. 2 for the boilers will be determined based on a calculation from the boiler manufacturer that relates the hours of operation to the fuel consumption. The boilers, though, do not have an hour meter.
- 1.3 Pictures of the boilers are shown in Enclosure (1). Enclosure (1) pictures were taken during an April 10, 2008 site inspection.

2. Applicable Requirements

- 2.1 Hawaii Administrative Rules (HAR)
Chapter 59, Ambient Air Quality Standards

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Chapter 60.1, Air Pollution Control

Subchapter 1 - General Requirements

Subchapter 2 - General Prohibitions

11-60.1-31, Applicability

11-60.1-32, Visible Emissions

11-60.1-38, Sulfur Oxides From Fuel Combustion

Subchapter 4 - Noncovered Sources

Subchapter 6 - Fees for Covered Sources, Noncovered Sources, and Agricultural Burning

11-60.1-111, Definitions

11-60.1-117, General Fee Provisions for Noncovered Sources

11-60.1-118, Application Fees for Noncovered Sources

11-60.1-119, Annual Fees for Noncovered Sources

- 2.2 40 Code of Federal Regulations (CFR), Part 60 - New Source Performance Standards (NSPS), Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, is applicable to the 300 hp boiler because the boiler has been installed after 1989 and has a heat input capacity that is greater than 10 MMBtu/hr.
- 2.3 The facility is not a major stationary source for HAPs and is not subject to National Emissions Standards for Hazardous Air Pollutants (NESHAPS) or Maximum Achievable Control Technology (MACT) requirements under 40 Code of Federal Regulations (CFR), Parts 61 and 63.
- 2.4 The purpose of Compliance Assurance Monitoring (CAM) is to provide reasonable assurance that compliance is being achieved with large emission units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR, Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential precontrol emissions that are greater than the major source level; and (5) not otherwise be exempt from CAM. CAM is not applicable because emissions from this facility are below major source thresholds.
- 2.5 The Consolidate Emissions Reporting Rule (CERR) is not applicable because emissions from the facility are below reporting levels specified in 40 CFR, Part 51, Subpart A. See table below for CERR applicability.

CERR APPLICABILITY			
Pollutant	Facility Emissions (TPY)	CERR Triggering Levels (TPY)	
		1 year cycle (type A sources)	3 year cycle (type B sources)
PM-10	0.9	≥ 250	≥ 100
PM-2.5	0.7	≥ 250	≥ 100
SO ₂	4.7	≥ 2,500	≥ 100
NO _x	17	≥ 2,500	≥ 100
VOC	1.0	≥ 250	≥ 100
CO	7.6	≥ 2,500	≥ 1,000

- 2.6 A best available control technology analysis is not required because there are no

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modifications proposed for the permit renewal.

2.7 A synthetic minor source is a facility that without limiting conditions, physical or operational, emits above the major source triggering levels as defined by HAR §11-60.1-1 for either criteria pollutants or HAPs. This facility will not exceed major source thresholds for 8,760 hr/yr operation. As such, this facility is not a synthetic minor source.

2.8 Annual emissions reporting is applicable because the facility is a covered source.

3. Insignificant Activities/Exemptions

3.1 The following is a list of insignificant activities:

- a. A 4,000 gallon underground storage tank is considered insignificant activity pursuant to HAR, §11-60.1-82(f)(1).
- b. A 55-75 gallon day tank is considered insignificant activity pursuant to HAR, §11-60.1-82(f)(1).

4. Alternate Operating Scenarios

4.1 The applicant did not propose any alternate operating scenarios.

5. Air Pollution Controls

5.1 No air pollution controls were listed by the applicant.

6. Project Emissions

6.1 Emissions from the 200 hp and 300 hp boilers for firing low sulfur fuel oil No. 2 were estimated. Emissions from the 200 hp boiler were determined using emission factors from AP-42, Section 1.3, Fuel Oil Combustion and manufacturer's information. Emissions from the 300 hp boiler were based on AP-42 emission factors because Emissions estimates were based on a 59.8 gal/hr and 90 gal/hr fuel consumption at 100% load for the 200 hp and 300 hp boilers respectively. A sulfur content of 0.05% by weight was assumed for the low sulfur fuel oil fired by the boilers and SO₂ emissions were calculated based on mass balance. Emissions are shown in Enclosure (2) and summarized below as follows:

BOILER LOW SURLFUR FUEL OIL NO. 2 COMBUSTION						
Pollutant	Emission Rate					
	200 hp Boiler		300 hp Boiler		200 hp Boiler	300 hp Boiler
	lb/hr	g/s	lb/hr	g/s	ton/yr	ton/yr
SO ₂	0.425	0.054	0.639	0.081	1.9	2.8
NO _x	2.081	0.263	1.800	0.227	9.1	7.9
CO	0.590	0.075	0.450	0.057	2.6	2.0
VOC	-----	-----	-----	-----	0.9	0.1
PM	0.201	0.025	0.180	0.023	0.9	0.8
PM ₁₀	0.111	0.014	0.097	0.012	0.5	0.4
PM _{2.5}	0.084	0.011	0.075	0.009	0.4	0.3
Total HAPS	-----	-----	-----	-----	0.012	0.019

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6.2 Emissions from the 200 hp and 300 hp boilers for firing SNG were estimated using emission factors from AP-42, Section 1.4, Natural Gas Consumption. It was assumed that 45% of the total particulate was PM_{2.5} and 79% of the total particulate was PM₁₀ based on AP-42, Appendix B.2, Table B.2-2 (Page B.2-12) for boilers firing a mixture of fuel including gas. Emissions estimates were based on a gal/hr and 90 gal/hr fuel consumption at 100% load for the 200 hp and 300 hp boilers respectively. Emissions are shown in Enclosure (3) and summarized below as follows:

BOILER SNG COMBUSTION						
Pollutant	Emission Rate					
	200 hp Boiler		300 hp Boiler		200 hp Boiler	300 hp Boiler
	lb/hr	g/s	lb/hr	g/s	ton/yr	ton/yr
SO ₂	0.005	0.001	0.008	0.001	0.02	0.03
NO _x	0.820	0.104	1.260	0.159	3.6	5.5
CO	0.689	0.087	1.058	0.134	3.0	4.6
VOC	-----	-----	-----	-----	0.2	0.3
PM	0.062	0.008	0.096	0.012	0.3	0.4
PM ₁₀	0.049	0.006	0.076	0.010	0.2	0.3
PM _{2.5}	0.028	0.004	0.043	0.005	0.1	0.2
Total HAPS	-----	-----	-----	-----	0.125	0.192

6.3 Worst-case emissions between those for firing low sulfur fuel oil No. 2 and SNG are listed in the table below.

FACILITY-WIDE	
Pollutant	Emissions (TPY)
SO ₂	4.7
NO _x	17.0
CO	7.6
VOC	1.0
PM	1.7
PM ₁₀	0.9
PM _{2.5}	0.7
HAPS	0.317

7. Air Quality Assessment

7.1 An ambient air quality impact analysis is not required for the boilers because there are no changes proposed for the permit renewal.

8. Significant Permit Condition

8.1 The boilers shall be fired only on low sulfur fuel oil No. 2 with a sulfur content not to exceed 0.05% by weight or synthetic natural gas (SNG).

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Reason for 8.1: This condition was incorporated based on what was proposed by the applicant. The sulfur of the low sulfur fuel oil No. 2 meets NSPS Subpart Dc requirements. The 0.05% by weight sulfur content limit for fuel oil No. 2 also ensures compliance with the air standards and prevents the facility from exceeding the BACT threshold for sulfur dioxide.

9. Conclusion and Recommendation

- 9.1 Actual emissions from the boilers should be lower than predicted since calculations were based on operation at maximum capacity on a continuous basis. Actual operation of the boilers is intermittent with changes in demand for steam. An air modeling assessment of the boilers from the previous review showed compliance with both state and federal ambient air quality standards. Recommend issuance of the covered source permit subject to the incorporation of the significant permit condition, 30-day public comment period, and 45-day Environmental Protection Agency review period.

Mike Madsen
April 14, 2008