

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT STATIONARY SOURCE AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	1 of 7
	APP. NUMBER	530199-200
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	01/18/12

**PERMIT TO CONSTRUCT EVALUATION
(BOILERS)**

Applicant's Name	ARLON ELECTRONICS SUBSTRATES DIVISION
Company I.D.	046646
Mailing Address	9433 HYSSOP DR., RANCHO CUCAMONGA, CA 91730
Equipment Address	SAME AS ABOVE

EQUIPMENT DESCRIPTION

APPLICATION NO. 530199 (MODIFICATION, PREVIOUS P/N D84223, A/N 274472)

BOILER NO.1, MODEL NO. BF400D-W8, WATERTUBE TYPE FOR STEAM, 8.6 MM BTU PER HOUR MAXIMUM HEAT INPUT RATE, NATURAL GAS-FIRED, WITH A LOW NOX POWER FLAME NOVA PLUS BURNER, MODEL NO. NVC6-G-30.

APPLICATION NO. 530200 (MODIFICATION, PREVIOUS P/N D84222, A/N 274471)

BOILER NO. 2, MODEL NO. BF400D-W8, WATERTUBE TYPE FOR STEAM, 8.6 MM BTU PER HOUR MAXIMUM HEAT INPUT RATE, NATURAL GAS-FIRED, WITH A LOW NOX POWER FLAME NOVA PLUS BURNER, MODEL NO. NVC6-G-30.

APPLICATION NO. 530201

RECLAIM/TITLE V PERMIT REVISION

HISTORY

The above applications were filed with the District to modify currently permitted boilers with low NOx burners to comply with the Rule 1146 requirement of NOx emission to be less then 9 ppmv at 3% oxygen, per the District approved plan (A/N # 517582). These boilers are Group III boilers and the applicant needed to apply these modification applications before January 1, 2012 and comply with the Rule 1146 requirements before January 1, 2013.

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The above boilers originally were purchased in 1994 from International Boiler Works (IBW), Model No. BF 400D-W8. The burners were manufactured by by Combustion Specialists Model No. 250-NS. IBW company was purchased by Universal Boiler Works (UBW). In 2004, both boilers had a major overhaul by UBW. UBW, upon completion of the overhaul, installed new name-plates, which identifies the manufacturer as UBW with Model No. UFS 31 400 800 PVO. AQMD inspectors requested Arlon to install a new tag identifying the boilers as Model No. BF 400D-W8.

Arlon Adhesive System manufactures pre-preg (resin impregnated fabrics) for the circuit board laminate industries at this location. The manufacturing involves resin and solvent mixing, resin impregnating, and assembling of the copper foils and pre-pregs into boards under the pressure. District Rules 1128 and 1171 apply to this facility. The company currently operates a number of active permitted equipment under the District I. D. # 46646, such as coating lines, afterburner units, boilers, and blending equipment. A facility-wide VOC emission limit of 311 pounds per day has been established for this facility. The proposed changes are going to reduce the NOx emissions, as the old burners are being replaced with low NOx burners. Thus, this project will not require any offsets and will comply with the BACT requirements.

The District database shows that the applicant has not received any odor nuisance complaints from the public at this location. The database also indicated that the applicant has not received any Notice to Comply or Notice of Violations from the District inspectors in the last two years.

There are no schools located within 1000 feet from the new property-line. Also, this project do not result in any emission increases of criteria pollutants. Thus, Rule 212 public notice is not required for this project.

Arlon Materials is a Title V facility. A Title V renewal permit was issued to this facility on 6/18/2006. This is the second permit revision of the Title V renewal permit under this project. The proposed permit revision is considered as a “minor permit revision” to the renewed Title V permit, as described in Regulation XXX evaluation.

PROCESS DESCRIPTION

The boilers will emit combustion pollutants such as NOx, CO, PM10, SOx, ROG and hazardous air pollutants. Each boiler is equipped with a high radiant multi-port burner. The heat from the combustion products, which flow through tubes, is transferred to water which circulates outside of the tubes.

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These boilers are equipped with low-NOx burners to meet the BACT requirements for NOx emissions (9 ppmv). The burner relies on a patented, fully premixed surface stabilized combustion technology to minimize NOx emissions and assure complete combustion with minimal CO emissions. The Nova Plus™ achieves these performance levels without the use flue gas re-circulation.

OPERATING HOURS

24 hours/day, 7 day/week, 52 weeks/year (average)
24 hours/day, 7 day/week, 52 weeks/year (maximum)

SPECIFICATION DATA

DATA	
Manufacturer	International Boiler Works
Boiler Type	Water Tube Type
Model No.	BF 400D-W8
Unit Size	200 (BHP)
Fuel used:	Natural Gas
Heating Value of the Fuel	1050 (BTU/Ft ³)
Emission Factors from manufacturer	
NOx (corrected to 3% Oxygen)	9 PPMV (Max.)
CO (corrected to 3% Oxygen)	100 PPMV (Max.)
ROG	30 PPMV (Max)
PM10	0.005 lb/mmBTUH
Burner Model No.	Power Flame NVC6-G-30
Maximum Rated Heat Input	8.6 (mmBTU/HR)

EMISSION CALCULATIONS

Thus emissions from the modified boiler will be as follows.

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UBW BOILER

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	maximum	normal		
hr/dy	24	24	max heat input	8.60E+06 (BTU/hr)
<u>dy/wk</u>	7	7	<u>gross heating value</u>	1050 (BTU/scf)
<u>wk/yr</u>	52	52		
<u>load</u>	100%	100%		

	Emission Factors	MAX (lb/hr)	AVE (lb/hr)	MAX (lb/dy)	30-DAY (lb/dy)	MAX (lb/yr)	MAX (ton/yr)
SO ₂ (R1)	0.6	0.005	0.005	0.118	NA	43	0.021
SO ₂ (R2)	0.6	0.005	0.005	0.118	0.118	43	0.021
NO ₂ (R1)	100	0.819	0.819	19.657	NA	7,155	3.578
NO ₂ (R2)	11.6	0.095	0.095	2.280	2.280	830	0.415
CO (R1)	79	0.647	0.647	15.529	NA	5,653	2.826
CO (R2)	79	0.647	0.647	15.529	15.529	5,653	2.826
N ₂ O (R1)	2.2	0.018	0.018	0.432	NA	157	0.079
N ₂ O (R2)	0.64	0.005	0.005	0.126	0.126	46	0.023
PM, PM ₁₀ (R1=R2)	7.6	0.062	0.062	1.494	1.494	544	0.272
CO ₂ (R1=R2)	0.000012	0.000	0.000	0.000	0.000	0	0.000
TOC (R1=R2)	5.5	0.045	0.045	1.081	1.081	394	0.197
ethyle benzene	0.0095	7.8E-05	7.8E-05	1.9E-03	NA	6.80E-1	3.40E-4
acetaldehyde	0.0043	3.5E-05	3.5E-05	8.5E-04	NA	3.08E-1	1.54E-4
acrolein	0.0027	2.2E-05	2.2E-05	5.3E-04	NA	1.93E-1	9.66E-5
benzene	0.008	6.6E-05	6.6E-05	1.6E-03	NA	5.72E-1	2.86E-4
formaldehyde	0.017	1.4E-04	1.4E-04	3.3E-03	NA	1.22E+0	6.08E-4
naphthalene	0.0003	2.5E-06	2.5E-06	5.9E-05	NA	2.15E-2	1.07E-5
PAH's	0.0001	8.2E-07	8.2E-07	2.0E-05	NA	7.16E-3	3.58E-6
toluene	0.0366	3.0E-04	3.0E-04	7.2E-03	NA	2.62E+0	1.31E-3
xylenes	0.0272	2.2E-04	2.2E-04	5.3E-03	NA	1.95E+0	9.73E-4

NO ₂ @ 3% excess O ₂ ----->>>	8.94	(ppmv)	SO ₂ @ 3% excess O ₂ ----->>>	0.33	(ppmv)
CO @ 3% excess O ₂ ----->>>	99.97	(ppmv)	PM @ 12% CO ₂ ----->>>	5.6E-09	(grain/ft ³)

Ver. 1.3

There will be no increases in the combustion emissions under this project. Thus, it is exempt from Rule 1401 requirements.

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RULES/REGULATION EVALUATION

▣ **RULE 212, PUBLIC NOTIFICATION**

v **SECTION 212(c)(1):**

This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice will not be required by this section.

v **SECTION 212(c)(2):**

This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). This is a replacement of burner project with less emissions (low-NOx) of the same 8.6 mmBTU/hr rating. As shown in the following table, the emission increases for all the boilers are below the daily maximum limits specified by Rule 212(g). Therefore, these applications will not be subject to this section.

LB/DAY	CO	NOX	PM ₁₀	ROG	SOX	Pb
MAX. LIMIT	220	40	30	30	60	3
INCREASES	0	0	0	0	0	0

v **SECTION 212(c)(3):**

There are no combustion emission increases under this project. Thus there will be no increase in the cancer risk under this project. Therefore, these applications will not be subject to this section.

v **SECTION 212(g):**

This section requires a public notice for all new or modified sources which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). This is a replacement of burner project with less emissions of the same 8.6 mmBTU/hr rating.

As shown in the following table, there are no emission increases for the two boilers. Therefore, these applications will not be subject to this section.

LB/DAY	CO	NOX	PM ₁₀	ROG	SOX	Pb
MAX. LIMIT	220	40	30	30	60	3
INCREASES	0	0	0	0	0	0

▣ **RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE**

No visible emissions are expected with proper operation of the equipment.

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▣ **RULES 404, PARTICULATE MATTER - CONCENTRATION**

With proper operation of the equipment, these boilers will comply with these requirements.

▣ **RULE 1146, EMISSIONS OF OXIDES OF NITROGEN FROM BOILERS AND HEATERS**

This rule requires natural gas fired boilers to emit no more than 30 ppmv of NO_x at 3% O₂. The NO_x emission limit for these group III boilers will 9 ppmv of NO_x at 3% O₂. On January 1, 2013. The emissions of NO_x from these boilers are guaranteed by the manufacturer to be 9 ppmv or less at 3% O₂. Thus, these equipment are expected to comply with this requirement.

The 400 ppm CO emission limit is set in order to prevent emissions of higher CO to lower the NO_x emissions. Thus, the CO emission of 100 ppmv guaranteed by the manufacturer meets CO limit easily.

REGULATION XIII

▣ **RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)**

Boilers will comply with the current BACT requirements for <20 mm BTU/HR water-tube boiler (see following Table)

Pollutants	NO _x (PPMV @ 3% O ₂)	CO (PPMV @ 3% O ₂)
BACT Requirements	9	100
Manufacturer's guaranteed Emission levels	9	100

▣ **RULE 1303(b)(1), MODELING**

This section provides an exemption for air quality modeling requirements if the emissions are less than the emissions specified in table A-1. As there will be reduction in emissions under this project, therefore these applications will not be subject to this section.

▣ **RULE 1303 (b)(2), EMISSION OFFSETS**

There will be no increases in the criteria pollutant emissions under this project. Thus, no offsets will be required for this project.

▣ **RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS**

There will be no increases in the combustion emissions under this project. Thus, this project is exempt for these requirements.

REGULATION XXX

This facility is not in the RECLAIM program. The proposed project is considered as a "minor permit revision" to the Title V permit for this facility.

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Rule 3000(b)(12)(vi) defines a “minor permit revision” as any Title V permit revision that does not result in an increase in emissions of a pollutant subject to Regulation XIII – New Source Review (non-RECLAIM pollutants) or a hazardous air pollutant (HAP).

The proposed project is not expected to result in an increase in emissions of a pollutant subject to Regulation XIII – New Source Review (non-RECLAIM pollutants) or a hazardous air pollutant (HAP), and therefore is considered as a “minor permit revision” pursuant to Rule 3000(b)(12)(A)(vi).

This proposed project is the 3rd permit revision to the Title V renewal permit issued to this facility on June 18, 2006. The following table summarizes the permit revisions since the Title V renewal permit was issued:

Revision	HAP	VOC	NO_x	PM₁₀	SO_x	CO
1 st Revision (Administrative) (A/N 459520/1)	0	0	0	0	0	0
2 nd Revision Modification of Afterburner (A/N 461895)	0	0	0	0	0	0
Current 3 rd Revision Modification of boilers (A/N 530199, 530200)	0	0	0	0	0	0
Cumulative Totals	0	0	0	0	0	0
Maximum Daily	30	30	40	30	60	220

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “minor permit revision”, it is exempt from the public participation requirements under Rule 3006(b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility.