



South Coast Air Quality Management District



21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

June 21, 2012

Mr. Gerardo Rios
Chief – Permits Office
U. S. EPA, Region IX
75 Hawthorne Street, Air 3
San Francisco, CA 94105

Subject: Harbor Cogeneration Company, LLC (ID 156741) – Title V Permit Revision

Dear Mr. Rios:

Harbor Cogeneration Company, LLC has proposed to revise its Title V permit by the replacement of two existing backpressure steam turbines with a single condensing steam turbine, the replacement of the existing unfired heat recovery steam generator (HRSG) with a new unfired HRSG, and the addition of a four cell mechanical draft cooling tower to condense the exhaust steam. This proposed permit revision is considered a “minor permit revision” to their Title V (A/N 525899) permit. Attached for your review is the evaluation and permit for this proposed revision. With your receipt of the proposed revision today, we will note that the EPA 45-day review period begins on June 21, 2012.

If you have any questions or need additional information regarding the proposed permit revision, please call Mr. Kenneth L. Coats (909) 396-2527.

Very truly yours,

Brian L. Yeh
Senior Manager
Mechanical, Chemical, and Public Services

cc: Ron Hoffard, Harbor Cogeneration Company, LLC

BLY:AYL:JTY:KLC
Attachments

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1: INTERNAL COMBUSTION, INDUSTRIAL					
GAS TURBINE, NATURAL GAS, GENERAL ELECTRIC, MODEL PG7111EA, FRAME 7, WITH STEAM OR WATER INJECTION, 1080 MMBTU/HR WITH A/N: COMPRESSOR, 2000 HP FUEL BOOSTER COMPRESSOR, 1500 HP FUEL BOOSTER GENERATOR, 82.3 MW BOILER, HEAT RECOVERY STEAM, UNFIRED, 280,000 LB/HR TURBINE, STEAM GENERATOR, 56 MW	D1	C2	NOX: MAJOR SOURCE**	CO: 10 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996]; CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 7.5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996]; NOX: 78 PPMV (8) [40CFR 60 Subpart GG, 3-6-1981]; PM: 0.01 GRAINS/SCF (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]; PM: 11 LBS/HR (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; SOX: 150 PPMV (8) [40CFR 60 Subpart GG, 3-6-1981]	A99.1, A99.2, A327.1, B59.1, D12.1, E73.2, H23.1, H23.4, K40.1
OXIDIZER, CATALYST, CARBON MONOXIDE, WIDTH: 39 FT 5 IN; HEIGHT: 35 FT; LENGTH: 4 IN A/N: 487077	C2	D1 C3			

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
 (3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
 (5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
 (7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
 (9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1: INTERNAL COMBUSTION, INDUSTRIAL					
SELECTIVE CATALYTIC REDUCTION, HONEYCOMB CATALYST BED, WIDTH: 39 FT 5 IN; HEIGHT: 35 FT ; LENGTH: 2 FT 9 IN WITH A/N: 487077 AMMONIA INJECTION	C3	C2 S4		NH3: 20 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996]	D12.3, D29.1, E73.1, K40.1
STACK A/N: INACTIVE	S4	C3			D82.1
Process 2: R-219 EXEMPT EQUIPMENT SUBJECT TO SOURCE SPECIFIC RULES					
RULE 219 EXEMPT EQUIPMENT, COATING EQUIPMENT, PORTABLE, ARCHITECTURAL COATINGS	E10			ROG: (9) [RULE 1113, 11-8-1996; RULE 1113, 7-13-2007, RULE 1171, 11-7-2003; RULE 1171, 2-1-2008]	K67.1
RULE 219 EXEMPT EQUIPMENT, COOLING TOWERS	E18				H23.5
RULE 219 EXEMPT EQUIPMENT, AIR CONDITIONING UNITS	E11				H23.3
RULE 219 EXEMPT EQUIPMENT, HALON UNIT	E13				H23.2
Process 3: EXTERNAL COMBUSTION					
BOILER, STEAM CLEANER, INTRA-FACILITY, DIESEL FUEL, HOTSY. MODEL MODEL 555 SS, PORTABLE. 0.214 MMBTU/HR A/N: 487078	D16		NOX: PROCESS UNIT**	CO: 2000 PPMV (5) [RULE 407, 4-2-1982], NOX: 20 LBS/1000 GAL DIESEL (1) [RULE 2012, 5-11-2001; RULE 2012, 12-5-2003]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]; SO2: 500 PPMV (5) [RULE 407, 4-2-1982]	B61.1, C1.1, C1.2, D12.4, K48.1

- * (1) (1A) (1B) Denotes RECLAIM emission factor
- (3) Denotes RECLAIM concentration limit
- (5) (5A) (5B) Denotes command and control emission limit
- (7) Denotes NSR applicability limit
- (9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate
- (4) Denotes BACT emission limit
- (6) Denotes air toxic control rule limit
- (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
- (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

**FACILITY PERMIT TO OPERATE
HARBOR COGENERATION CO, LLC**

SECTION D: DEVICE ID INDEX

**The following sub-section provides an index
to the devices that make up the facility
description sorted by device ID.**

**FACILITY PERMIT TO OPERATE
HARBOR COGENERATION CO, LLC**

SECTION D: DEVICE ID INDEX

Device Index For Section D			
Device ID	Section D Page No.	Process	System
D1	1	1	0
C2	1	1	0
C3	2	1	0
S4	2	1	0
E10	2	2	0
E11	2	2	0
E13	2	2	0
D16	2	3	0
E18	2	2	0

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

FACILITY CONDITIONS

- F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:
- (a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or
 - (b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 11-9-2001]

- F24.1 Accidental release prevention requirements of Section 112(r)(7):

- a). The operator shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the Executive Officer, as a part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).
- b). The operator shall submit any additional relevant information requested by the Executive Officer or designated agency.

[40CFR 68 - Accidental Release Prevention, 5-24-1996]

DEVICE CONDITIONS

A. Emission Limits

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

A99.1 The 10 PPM CO emission limit(s) shall not apply during turbine start-up and shutdown periods. Start-up time shall not exceed 120 minutes per start-up. Shutdown time shall not exceed 60 minutes per shutdown. The turbine shall be limited to a maximum of 2 start-ups per day and 2 shutdowns per day. During start-up, the CO emissions shall not exceed 58.9 lb. During shutdown, the CO emissions shall not exceed 29.4 lb. Written records of start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer..

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE
1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]**

[Devices subject to this condition : D1]

A99.2 The 7.5 PPM NOX emission limit(s) shall not apply during turbine start-up and shutdown periods. Start-up time shall not exceed 120 minutes per start-up. Shutdown time shall not exceed 60 minutes. The turbine shall be limited to a maximum of 2 start-ups per day and 2 shutdowns per day. During start-up, NOx emissions shall not exceed 147.8 lb. During shutdown, NOx emissions shall not exceed 73.9 lb. Written records of start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer..

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 2005,
4-20-2001; RULE 2005, 5-6-2005]**

[Devices subject to this condition : D1]

A327.1 For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.

[RULE 475, 10-8-1976; RULE 475, 8-7-1978]

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : D1]

B. Material/Fuel Type Limits

B59.1 The operator shall only use the following material(s) in this device :

Natural gas with sulfur compounds, calculated as hydrogen sulfide, no greater than 5.0 ppmv.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D1]

B61.1 The operator shall only use diesel fuel containing the following specified compounds:

Compound	Logical statement	ppm by weight
Sulfur	less than or equal to	15

[RULE 431.2, 5-4-1990; RULE 431.2, 9-15-2000]

[Devices subject to this condition : D16]

C. Throughput or Operating Parameter Limits

C1.1 The operator shall limit the operating time to no more than 80 hour(s) in any one year.

[RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1304(c)-Offset Exemption, 6-14-1996]

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : D16]

C1.2 The operator shall limit the fuel usage to no more than 18 gallon(s) per day.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D16]

D. Monitoring/Testing Requirements

D12.1 The operator shall install and maintain a(n) flow meter to accurately indicate the fuel usage of the gas turbine.

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D1]

D12.3 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the gas turbine exhaust measured prior to the inlet of the SCR reactor..

The operator shall also install and maintain a device to continuously record the parameter being measured.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : C3]

D12.4 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the the boiler/steam cleaner.

The operator shall calculate emissions from the equipment using the data from the timer along with a fuel rate of 1.55 gal/hr and the Reclaim emission factor on the permit

[**RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002**]

[Devices subject to this condition : D16]

D29.1 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method	1 hour	Outlet

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The test shall be conducted at least annually and the District shall be notified of the date and time of the test at least 7 days prior to the test.

The source test shall be submitted to the District no later than 45 days after the source test was conducted

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002**]

[Devices subject to this condition : C3]

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

D82.1 The operator shall install and maintain a CEMS to measure the following parameters:

The CEMS will convert the actual NOX and CO concentrations to mass emission rates (lbs/hr) and record the hourly emission rates on a continuous basis.

NOX concentration in ppmv

CO concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

Oxygen concentration in percent volume

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 218, 8-7-1981; RULE 218, 5-14-1999]

[Devices subject to this condition : S4]

E. Equipment Operation/Construction Requirements

E73.1 Notwithstanding the requirements of Section E conditions, the operator may, at his discretion, choose not to use ammonia injection if all of the following requirement(s) are met:

Whenever the gas turbine exhaust measured at the inlet of the SCR reactor is less than 650 degrees Fahrenheit.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : C3]

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

E73.2 Notwithstanding the requirements of Section E conditions, the operator may, at his discretion, choose not to use water injection if any of the following requirement(s) are met:

During start-up periods.

During shutdown periods.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : D1]

H. Applicable Rules

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
CO	District Rule	218

[RULE 218, 8-7-1981; RULE 218, 5-14-1999]

[Devices subject to this condition : D1]

H23.2 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Halon	District Rule	1418

[RULE 1418, 9-10-1999]

FACILITY PERMIT TO OPERATE HARBOR COGENERATION CO, LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : E13]

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Refrigerants	District Rule	1415
Refrigerants	40CFR82, SUBPART	F

[RULE 1415, 10-14-1994; 40CFR 82 Subpart F, 5-14-1993]

[Devices subject to this condition : E11]

H23.4 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Sulfur compounds	District Rule	431.1

[RULE 431.1, 6-12-1998]

[Devices subject to this condition : D1]

H23.5 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Chromium, Hexavalent	District Rule	1404

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PERMIT TO OPERATE

COMPANY NAME AND ADDRESS

Contact: Ron Hoffard, (562) 495-3140

Harbor Cogeneration Company, LLC
505 Pier B Avenue
Wilmington, CA 90744
SCAQMD ID #156741

EQUIPMENT LOCATION

Same As Above

EQUIPMENT DESCRIPTION

Section D of the facility permit:

PROCESS 1: INTERNAL COMBUSTION					
Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
GAS TURBINE, NATURAL GAS, GENERAL ELECTRIC, MODEL PG711EA, FRAME 7, WITH STEAM OR WATER INJECTION, 1,080 MMBTU/HR, WITH A/N 518361 525894 COMPRESSOR, 2,000 HP FUEL BOOSTER COMPRESSOR, 1500 HP FUEL BOOSTER GENERATOR, 82.3 MW <u>BOILER, UNFIRED, HEAT RECOVERY STEAM, 280,000 LB/HR</u> <u>TURBINE, STEAM</u> <u>GENERATOR, 56 MW</u>	D1	C2	NOX: MAJOR SOURCE	CO: 10 PPMV (4) [BACT]; CO: 2000 PPMV (5) [RULE 407]; NOX: 7.5 PPMV (4) [BACT]; NOX: 78 PPMV (8) [40 CFR 60 SUBPART GG]; PM: 0.01 GRAINS/SCF (5B) [RULE 475]; PM: 0.1 GRAINS/SCF (5) [RULE 409]; PM: 11 LB/HR (5A) [RULE 475]; SOX: 150 PPMV (8) [40 CFR 60 SUBPART GG]	A99.1, A99.2 A327.1, B59.1 D12.1, E73.2 H23.1 H23.4, K40.1

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BOILER, WASTE HEAT RECOVERY, 468,630 LB/HR STEAM, UNFIRED GENERATOR, HP STEAM TURBINE GENERATOR, WESTINGHOUSE, ST-801, G-801, 13,800 VOLTS, 12.5MW GENERATOR, LP STEAM TURBINE GENERATOR, DE LAVAL, ST-802, G-802, 4,160 VOLTS, 11.5 MW					
OXIDIZER, CATALYST, CARBON MONOXIDE, WIDTH: 39 FT 5 IN; HEIGHT: 35 FT; LENGTH 4 IN WITH A/N: 487077	C2	D1 C3			
SELECTIVE CATALYTIC REDUCTION, HONEYCOMB CATALYST BED, WIDTH: 39 FT 5 IN; HEIGHT: 35 FT; LENGTH: 2 FT 9 IN; WITH A/N: 487077 AMMONIA INJECTION, GRID	C3	C2 S4		NH3: 20 PPMV NATURAL GAS (4) [BACT]	D12.3, D29.1 E73.1, K40.1
STACK A/N: 525894	S4	C3			D82.1
PROCESS 2: RULE 219 EXEMPT EQUIPMENT SUBJECT TO SOURCE SPECIFIC RULES					
Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
RULE 219 EXEMPT COOLING TOWERS	E18				<u>H23.5</u>

FACILITY BACKGROUND

Harbor Cogeneration Company, LLC (HCC) is an existing combined cycle power generation facility located in the Port of Long Beach industrial complex. The site is on an approximate 4-acre parcel and consists of a natural gas fired General Electric Frame 7 combustion turbine producing approximately 83 MW, a heat recovery steam generator, (HRSG), and two backpressure steam turbines each producing 11.5 MW and 12 MW. The air pollution control equipment consists of CO and SCR catalysts using aqueous ammonia for control of CO and NOx emissions, respectively. The total net electrical output (MW) from the facility is approximately 106.5 MW. Prior to the installation of the two steam turbines, the steam from the HRSG was previously used for underground injection for oil recovery operations. Since 1997 Harbor Cogeneration Company, LLC began using exclusively

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pipeline quality natural gas as a fuel for the gas turbine. The plant began operations as a merchant power plant in 1999 and is no longer operating as a cogeneration facility, although the name of the facility remained unchanged. The steam from the waste heat boiler is currently not being recovered for oil recovery operations. The steam exhaust is recaptured and used to drive the two steam turbines to produce additional electricity which is delivered to Southern California Edison for used on the grid. The gas turbine and SCR/CO catalyst are currently operating under P/N G13818 and P/N G10598, respectively.

COMPLIANCE RECORD

A review of the District compliance database indicates that there were two NCs (D12212 and E01210) issued to Harbor Cogeneration Company on 8/9/2011. NC D12212 was issued to provide the additional information regarding compliance and NC E01210 was issued to provide the following information for the 2012 compliance year for each 15-minute segment: the average NOx ppm value, the count of all valid data points and the count of all points greater than the range of the analyzer. The database indicates that the facility is now in compliance and there are no outstanding NCs or NOVs.

PROCESS DESCRIPTION

The plant operates to supply electrical power to the grid on a demand basis and operates in combined cycle. The high and low pressure steam produced in the waste heat recovery boiler is exhausted through separate non-condensing steam turbine generators each rated at 12.5 MW and 11.5 MW. The total electricity produced is based on the electrical output of the gas turbine generator and the two steam turbine generators. Emissions are controlled through water injection into the gas turbine compressor for control of NOx emissions. Catalyst modules for carbon monoxide oxidation as well as NOx reduction are contained in the heat recovery boiler within the turbine exhaust flow path. The CO catalyst will reduce CO emissions to BACT levels and ammonia injection is used in the exhaust stream to further reduce NOx emissions to BACT levels.

PROPOSED MODIFICATION

Harbor Cogeneration Company, LLC is proposing to modify the existing facility by replacing the existing unfired HRSG and the two backpressure steam turbines with a new unfired HRSG and a single larger condensing steam turbine, and the addition of a 4-cell mechanical draft cooling tower. The proposed modification will allow for more energy extraction from the available waste heat and at the same time increase the overall plant efficiency. The proposed modification will allow HCC to increase electrical generation efficiency which will also provide additional power output. The plant heat rate will be reduced from the present 11,200 BTU/kw-hr to approximately 7,500 BTU/kw-hr, with an expected overall efficiency improvement of 33%. The resulting maximum net

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electrical output of the project will be 138 MW, or an increase of approximately 28 MW in total generating capacity.

The proposed new steam turbine will be a dual pressure General Electric (GE) unit with steam inlet conditions of 1,000 psia and 970 degrees F for the high pressure stage and 75 psia and 500 degrees F for the intermediate/low pressure stages, under ambient conditions. The steam turbine electrical generator will be rated at 56 MW.

Steam will exit the turbine to a wet surface condenser operating at a pressure of approximately 0.80 psia with the final heat rejection being accomplished by a 4-cell mechanical draft wet cooling tower. The condensate boiler feed water will then be re-circulated to the HRSG for re-use, which completes the closed loop steam cycle. There are no modifications being proposed for the SCR/CO catalyst systems. Table 1 below lists the applications submitted to AQMD for the proposed modifications:

Table 1 – Applications for Proposed Modification

A/N	Equipment	Processing Fee
525894	Gas Turbine	\$13,035.13
525899	Title V Minor Modification	\$1,747.19
TOTAL PERMIT PROCESSING FEE		\$14,782.32

EMISSIONS

The proposed removal of the existing unfired HRSG and the two existing steam turbines and their subsequent replacement with a new unfired HRSG and a single steam turbine and the addition of the 4-cell mechanical draft cooling tower will not result in an increase in emissions from the existing gas turbine. There will also be no increase in fuel consumption to the gas turbine. Therefore the emissions prior to the modification will equivalent to the emissions after the proposed modification and are shown in Table 2 below:

Table 6 – Facility Emissions

Pollutant	Uncontrolled lb/hr	Controlled lb/hr	Uncontrolled lb/day	Controlled lb/day	lb/month	lb/year	30DA
CO	22.0	2.2	1,010.03	101.03	3,031.84	36,840.00	101.03
NOx	242.0	24.2	4,344.40	434.44	13,467.60	157,860.00	434.44
PM10	2.5	2.5	30.97	30.97	960.00	11,220.00	30.97
VOC	1.0	1.0	12.39	12.39	384.00	4,500.00	12.39
SOx	2.8	2.8	34.68	34.68	1,075.20	12,580.00	34.68

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RULES EVALUATION

RULE 212 – Standards for Approving Permits

This equipment is not located within 1,000 feet of a school, the maximum MICR is not expected to increase as a result of the proposed modification, and there is no increase in criteria pollutant emissions. Therefore, no public notice is required.

RULE 401 – Visible Emissions

Visible emissions are not expected under normal operation of this equipment.

RULE 402 – Nuisance

Nuisance problems are not expected under normal operation of this equipment.

RULE 407–Liquid and Gaseous Air Contaminants

CO and NOx emission limits will be in compliance with the use of natural gas.

RULE 409 – Combustion Contaminants

The Rule requires the PM emissions to be at 0.1 gr/scf @12% CO2. The gas turbine is expected to meet this limit based on the following calculations:

Exhaust flow rate	31.8 mmscf/hr
Maximum PM emissions	2.5 lb/hr
%CO2 in exhaust	3%

$$\text{Grain Loading} = (2.5 \text{ lb/hr} * 7,000 \text{ gr/lb})(12/3)/31.8 \text{ mmscfh} = 0.0022 \text{ gr/scf}$$

0.0022 gr/scf << 0.1 gr/scf

Compliance is expected

RULE 431.1 – Sulfur Content of Gaseous Fuels

The equipment will use pipeline quality natural gas as fuel. Compliance is expected.

RULE 475 – Electric Power Generating Equipment

The rule requires compliance with a PM emission limit of either 11 lb/hr or 0.01 gr/scf. Compliance is demonstrated either the mass emission limit or the concentration emission limit is met. Emissions from the gas turbine are 2.5 lb/hr and 0.0022 gr/scf. Compliance is expected.

REGULATION XIII – New Source Review

There is no increase in emissions due to the proposed modification. Therefore, NSR is not triggered.

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RULE 1401 – New Source Review for Toxic Air Contaminants

There is no increase in emissions of toxic air contaminants due to the proposed modification. Therefore the facility is exempt under Rule 1401(g)(1)(B).

RULE 2005 – NSR for RECLAIM

There is no increase in NOx emissions from the proposed modification. Therefore, NSR is not triggered.

RULE 2012 – Requirements for Monitoring, Reporting and Recordkeeping for Oxides of Nitrogen (NOx) Emissions

The facility is currently in compliance with the applicable monitoring reporting and recordkeeping requirements in this rule.

Regulation XXX – Title V

The facility is currently subject to the Title V requirements. Since the proposed change of conditions is a minor modification, the facility is subject to a 45-day EPA review.

40 CFR 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

This NESHAP applies to all stationary gas turbines located at a major source of HAP emissions. A major source of HAP emissions is a source that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year. The AQMD database shows the 2011 HAP emissions from Harbor Cogeneration Company and are shown in the table below in lb/year:

Based on 2011 Actual Reported Emissions

106990	1,3-Butadiene	0.052
7664417	Ammonia	1285.489
7440382	Arsenic	0.000
71432	Benzene	1.438
7440439	Cadmium	0.000
18540299	Chromium (VI)	0.000
50000	Formaldehyde	16.516
7439921	Lead (inorganic)	0.000
91203	Naphthalene	0.156
7440020	Nickel	0.000
1151	PAHs, total, with components not reported	0.109

The total HAP emissions are 1,303.76 lb/year *1 ton/2,000 lb = 0.651 TPY << 25 TPY

The maximum single pollutant HAP rate is 1,285.489 lb/year *1 ton/2,000 lb = 0.643 TPY << 10 TPY

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Based on Facility Potential to Emit

Pollutant	Maximum Heat Input (MMBTU/hr)	AP-42 Emission Factor (lb/MMBTU)	HAP Emissions (lb/hr)	HAP Emissions (TPY)
1,3 Butadiene	1,080	0.00000043	0.0004644	0.00
Acetaldehyde	1,080	0.00004000	0.0432000	0.19
Acrolein	1,080	0.00000640	0.0069120	0.03
Benzene	1,080	0.00001200	0.0129600	0.06
Ethylbenzene	1,080	0.00003200	0.0345600	0.15
Formaldehyde	1,080	0.00007100	0.0766800	0.34
Napthalene	1,080	0.00000130	0.0014040	0.01
PAHs	1,080	0.00000220	0.0023760	0.01
Propylene Oxide	1,080	0.00002900	0.0313200	0.14
Toluene	1,080	0.00013000	0.1404000	0.61
Xylenes	1,080	0.00006400	0.0691200	0.30
TOTAL HAP PTE				1.84

The total HAP emissions are = 1.84 TPY << 25 TPY

The maximum single pollutant HAP rate is = 0.61 TPY << 10 TPY

Therefore based on both actual HAP and PTE HAP emissions, 40 CFR 63 Subpart YYYY is not applicable to this facility

CONCLUSION:

Upon satisfactory completion of the EPA 45-day review period, issue a Permit to Construct/Operate for the gas turbine with revised conditions as follows:

CONDITIONS:

The following condition will be added for the new cooling tower:

H23.5 This equipment is subject to the applicable requirements of the following rules and regulations

<u>Contaminant</u>	<u>Rule</u>	<u>Rule/Subpart</u>
Hexavalent Chromium	District Rule	1404

[Rule 1404]