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PERMIT TO CONSTRUCT/OPERATE

COMPANY NAME AND ADDRESS:

Harbor Cogeneration Company
P.O. Box 550
Wilmington, CA 90748
ID: 106325

EQUIPMENT LOCATION:

505 Pier B Street
Wilmington, CA 90744

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EQUIPMENT DESCRIPTION:

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Process 2: EXTERNAL COMBUSTION					
Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
GAS TURBINE,NATURAL GAS,GENERAL ELECTRIC,MODEL PG711EA,FRAME7,WITH STEAM OR WATER INJECTION,1080 MMBTU/HR A/N: 430440 <u>A/N: 447323</u> COMPRESSOR,2000 HP FUEL BOOSTER COMPRESSOR,1500 HP FUEL BOOSTER GENERATOR,82.3 MW BOILER,WASTE HEAT RECOVERY,468,630 POUNDS PER HOUR STEAM,UNFIRTED	D1	C2	NOX: MAJOR SOURCE	CO:2000 PPM; CO:10PPMV; NOX:78 PPMV; NOX:7.5 PPMV; PM: .1 GRAINS/SCF; PM:11 LBS/HR; PM:0.01 GRAINS/SCF; SOX: 150 PPMV	A63.1, A99.1, A99.2, A327.1, B59.1, D12.1, D12.4, E73.2, E168.1, <u>E481.1</u> , H23.1, K40.1

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BACKGROUND:

Harbor Cogeneration Company (HCC) operates a combined-cycle merchant power plant consisting of a 1080 MMBTU/hr General Electric natural gas turbine that drives a 82.3 MW generator which exhausts into unfired waste heat recovery boiler. The waste heat boiler drives two high and low steam generators, 12.5 MW and 11.5 MW, respectively.

The plant was commissioned in 1988 as a cogeneration facility and fired on both natural gas and gas collected from neighboring oil production operations. Since 1997 the gas turbine has been exclusively been fired with natural gas. In 1999 the plant ceased operating as a cogeneration facility and has subsequently operated as a merchant power plant. It was at this point that the two steam turbine generators were installed to utilize the steam produced in the heat recovery boiler.

HCC does not operate the turbine on a continuous 24 hrs/day, 7 days/week, and 365 days/year basis. HCC essentially operates as a merchant energy plant and is under contract from Southern California Edison and must be available to provide electricity on demand. On days when the plant is required to provide electricity, it will typically start up between 6:00 A.M and 8:00 A.M and be on-line anywhere between six to sixteen hours but will not operate 24 hours per day.

HCC has to perform a Relative Accuracy Test Audit (RATA) on the CEMS which serves the turbine once every other quarter (or semi annually). HCC's problem is that it places an economic burden on the facility to perform the test in the 1st quarter (January-March) since they will have to start and operate the turbine to perform this test. Since there is no demand for electricity, HCC considers this to be economic burden to test in the 1st quarter.

For these reasons HCC has requested that the gas turbine be designated as an intermittently operated source as per Rule 2012 (B.2.d.ii) of Attachment C.

According to the data supplied, HCC qualifies to have the gas turbine designated as an intermittently operated source. During the third quarters (July-September), a quarter that the company has normal operation, the facility will perform the customary RATA test. During the first quarter (January-March), a quarter that the facility does not normally operate, the facility

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will perform the alternative RATA test. The Alternative RATA testing shall consist of using the Cylinder Gas Analysis (CGA) method, as per Rule 2012 (B.2.d.ii.I) of Attachment C.

HCC has proposed to perform the Alternate (CGA) test during the 1 st quarter since they will not be normally operating and the regular RATA test in the 3 rd quarter.

EQUIPMENT HISTORY:

Table-1-Turbine Permit History

Application Numbers	Application Dates	Comments
308033	09/27/1995	This permit (D93881) was superseded by a subsequent application.
361795	11/04/1999	This permit (F24549) was superseded by a subsequent application.
376559	11/09/2000	This permit (F36078) was superseded by a subsequent application.
430440	05/21/2004	This is the existing permit (F72436)
308007	09/27/1995	This control (D93838) was utilized by the previous turbine applications/permits .
447323	08/02/2005	Change of condition application for the existing turbine (this application).
446548	07/05/2005	Title V permit revision, serving 447323.

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COMPLIANCE HISTORY:

1. On 07/10/03, Joseph Liaw, an AQMD inspector, issued a Notice of Violation (NV) P37115 to Tony Blakemore, Operations and Maintenance Manager at HCC for the violation that occurred on 07/01/03. The facility was not in compliance with Rule 2004(f)(1), the facility exceeded NOx concentration for the turbine, device D1. Facility was in compliance by 7/10/03. See attached.

2. On 09/23/03, Joseph Liaw, an AQMD inspector, issued a Notice of Violation (NV) P37117 to Ron Hoffard, Plant Manager at HCC for the violation that occurred on 09/04/03. The facility was not in compliance with Rule 2004(f)(1), the facility exceeded NOx concentration for the turbine, device D1. Facility was in compliance by 09/23/03. See attached.

3. On 05/21/04, Joseph Liaw, an AQMD inspector, issued a Notice of Violation (NV) P37123 to Scott Hawley, Executive Director at HCC for the violation that occurred on 07/01/02. The facility was not in compliance with Rule 2004(d)(1),(h)(1), the facility exceeded the annual emission rate. Violation was discovered after the annual audit. Facility was in compliance by 05/21/04. See attached.

4. On 09/16/04, Joseph Liaw, an AQMD inspector, issued a Notice to Comply (NC) C76431 to Tony Blakemore, Operations and Maintenance at HCC for the violation that occurred on 09/15/04. The facility was required to transmit electronic reports of daily emissions totals and status codes by a specific deadline. Compliance was achieved by the facility submitting daily reports. See attached.

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PROCESS DESCRIPTION:

As was stated in the Background section, HCC operates a 1080 MMBTU/hr General Electric natural gas turbine and drives a 82.3 MW generator. The exhaust from this system is directed towards an unfired waste heat recovery boiler which drive a low pressure 11.5 MW turbine and a high pressure 12.5 MW turbine. Ammonia is injected into the exhaust gas upstream of the reduction catalyst to control NOx emissions.

EMISSIONS:

The turbine was permitted to operate 24 hrs/day, 7 days/week, and 365 days/yr. However, in actuality the turbine does not operate 24 hrs/day, 7 days/week, and 365 days/yr, even though potentially it can.

For emissions calculations purposes, the change in condition will not increase the potential to emit. The change should actually reduce the emissions, since it will not operate in the first quarter to primarily perform the RATA test. The previous emissions will remain unchanged.

Table-2 Turbine R2 Emissions

Contaminant	lbs/hr	lbs/day	lbs/yr	30 Day Av.
NOx	28.90	693.60	252,470	691
ROG	2.00	48.00	17,472	48
CO	4.20	100.80	36691.2	101
SOx	2.80	67.20	24,460.8	67
PM10	2.50	60.0	21,840	60

R1=R2

BACT Determination

Since there was no emission increase, BACT is not applicable.

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RULES EVALUATION:

RULE 212: STANDARDS FOR APPROVING PERMITS

There are no schools within 1000 feet of the facility. Since there was no increase in emissions, the MICR was not recalculated and no Public Notice is required (see attached maps).

RULE 401: VISIBLE EMISSIONS

Visible emissions are not expected from this equipment if operated properly.

RULE 402: NUISANCE

No nuisance complaints are expected from this facility if operated properly.

RULE 407: LIQUID AND GASEOUS CONTAMINANTS

The limit of 2000 PPM for CO and 500 PPM for SO₂ is expected when using natural gas..

RULE 409: COMBUSTION CONTAMINANTS

The PM emission limit is 0.1 grains/scf. The 409 calculation shows an emission limit of 0.003 grains/scf, thus compliance (see calculations in Appendix A).

REG. XIII: NEW SOURCE REVIEW

This is an existing equipment with no emission increase, thus BACT, Modeling and Offsets requirements are not applicable.

RULE 1401: NEW SOURCE REVIEW FOR TOXIC AIR CONTAMINANTS

There was no increase in emissions for this condition change application, therefore MICR was not recalculated.

REG. XVII: PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The District Governing Board in its action on February 7, 2003, authorized the Executive Officer, upon withdrawal of the EPA PSD delegation, not to request any further delegation and to allow the EPA to terminate the AQMD's PSD delegation agreement and for EPA to become the permitting agency for PSD sources in the AQMD. The Board determined that Regulation XVII is inactive upon EPA's withdrawal of delegation and shall remain inactive unless and until the EPA provides the AQMD with new delegation of authority to act either in full or on a Facility/Permit-Specific basis. The delegation was rescinded on March 3, 2003 by EPA.

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The District Governing Board in its April 1, 2005 meeting reaffirmed its previous action on February 7, 2003 to relinquish PSD analysis back to federal government and render Regulation XVII inactive unless the District receives new delegation in part or in full from the EPA.

Based on the Governing Board's actions, this rule is ineffective and no analysis is required for any pollutant subject to federal PSD requirement. The AQMD has sent the applicant a notification to contact the EPA directly for applicability of PSD to the proposed project

RULE 2000: RECLAIM

The facility is part of the RECLAIM program. As per Attachment C, B.2.d.ii.I:

ii. The facility Permit holder may submit a written request to designate a major source as an intermittently operated source provided the Facility Permit holder demonstrates that:

- I. During any calendar quarter within the previous two compliance years, the source was operated no more than 240 cumulative operating hours and no more than 72 consecutive hours.

The applicant submitted information regarding their operation for the last 2 consecutive years. The information showed that they qualify to operate as an intermittently operated source. (see attachment)

The following is a summary of the information provided by the applicant regarding their qualification to as an intermittently operated source.

Compliance Quarters	Calendar quarters	# of days of operation	Cumulative operation hours	Average hrs of operation
July to September, 2003	3	56	684	12.2
October to December, 2003	4	9	96	10.7
January to March, 2004	1	0	0	0
April to June, 2004	2	13	127	9.8
July to September, 2004	3	40	521	13
October to December, 2004	4	7	101	14.4
January to March, 2004	1	2	18	9
April to June, 2005	2	17	227	13.4

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- A. There are several quarters that are below the 240 cumulative hours of operation.
- B. According to additional data (see attached), no quarter exceeded the 72 consecutive hour criterion. The longest consecutive hours of operation occurred in the 2 nd quarter, 2005 and the amount was 47 consecutive hours.

Note: Since the facility has met both criteria, it qualifies as an intermittently operated source.

REG. XXX: TITLE V PERMITS

This facility is part of the Title V program. There is a change in condition with no increase in emissions, thus the facility Permit will undergo a *Minor Permit Revision*. This minor permit revision will not be subject to Public Review but will require a 45-day EPA review.

CEQA: CALIFORNIA ENVIRONMENTAL QUALITY ACT

The SCAQMD's 400-CEQA form attached verifies compliance and concludes that this application is exempt from any further CEQA action.

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RECOMMENDATION:

This equipment is expected to comply with all applicable Rules and Regulations of the District. Issue a revised Section “D” of the Facility Permit to Operate, tagging it with the new equipment and applicable rules and conditions. A Permit to Operate is recommended, subject to the following conditions:

No conditions were removed or revised. There is only one additional condition added to the turbine regarding it as an “intermittently operated source”.

1. (E481.1) The device qualifies as an intermittently operated source. The operator may postpone the date of a semi-annual assessment for the continuous emission monitoring system (CEMS) serving this device to the end of the next calendar quarter by conducting an alternative relative accuracy test audit during the same quarter the semi-annual assessment is due. The semi-annual assessment due date shall only be postponed if the alternative relative accuracy test audit is conducted according to and meet the criteria specified under Rule 2012, Appendix A, Attachment C, Subparagraph B.2.d. as amended January 7, 2005.

[Rule 2012]

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APPENDIX A

Rule 409 Calculations

Parameters:

Rating: 0.2143 MMBtu/hr

PM10 emissions: 0.003 lb/hr

8710 scf = 1 MMBtu/hr (conversion factor)

15% O₂

Estimated gas exhaust:

8710 Scf/MMBtu x (20.9)/(20.9 – 15%) x 0.2143 MMBtu/hr
= 6612.03 MMScf/hr

Loading:

$$\frac{0.003 \text{ lb/hr} \times 7000 \text{ grains/lb}}{6612.03 \text{ MMScf/hr}}$$
= 0.003 grains/Scf