



# South Coast Air Quality Management District

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

February 16, 2011

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

Subject: Los Angeles Department of Water and Power Harbor Generating Station (ID 800170) – Title V Permit Revision

Dear Mr. Rios:

The Los Angeles Department of Water and Power (LADWP) operates the Harbor Generating Station located in Wilmington, CA. It has proposed to revise its Title V permit under Application No. 516528 by the following actions.

Application #	Device #	Section #	Proposed Actions
516529	C103	H	Modification of the SCR for D101
516530	C109	H	Modification of the SCR for D107
516531	C115	H	Modification of the SCR for D113
516532	C121	H	Modification of the SCR for D119
516533	C127	H	Modification of the SCR for D125

This proposed permit revision is considered as a “minor permit revision” to their Title V permit. Attached for your review are the permit evaluation and proposed Section H. With your receipt of the proposed Section H today, we will note that the EPA 45-day review period begins on February 16, 2011.

If you have any questions or need additional information regarding the proposed permit revision, please call Li Chen at (909) 396-2426.

Very truly yours,

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

cc: Bruce Moore, LADWP

BLY:AYL:JTY:LC  
Attachments

## **FACILITY PERMIT TO OPERATE**

**LA CITY, DWP HARBOR GENERATING STATION  
161 N ISLAND AVE  
WILMINGTON, CA 90744**

### **NOTICE**

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR A COPY THEREOF MUST BE KEPT AT THE LOCATION FOR WHICH IT IS ISSUED.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT SHALL NOT BE CONSTRUED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF ANY OTHER FEDERAL, STATE OR LOCAL GOVERNMENTAL AGENCIES.

Barry R. Wallerstein, D. Env.  
EXECUTIVE OFFICER

By \_\_\_\_\_  
Mohsen Nazemi, P.E.  
Deputy Executive Officer  
Engineering & Compliance

## FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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
<b>Process 1: INTERNAL COMBUSTION; POWER GENERATION</b>					
<b>System 1: Simple Cycle Turbines</b>					
SELECTIVE CATALYTIC REDUCTION, NO. 10, HALDOR TOPSOE, MODEL: DNX629, WITH 771 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 9 FT 1 IN; HEIGHT: 1 FT 1 IN; LENGTH: 48 FT 2 IN WITH A/N:  AMMONIA INJECTION, GRID	C103			NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 10-20-2000]	A195.10, D12.8, D12.9, D12.10, E179.4, E179.5, E193.1, E193.3
CO OXIDATION CATALYST, NO. 10, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C105				
SELECTIVE CATALYTIC REDUCTION, NO. 11, HALDOR TOPSOE, MODEL: DNX629, WITH 771 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 9 FT 1 IN; HEIGHT: 1 FT 1 IN; LENGTH: 48 FT 2 IN A/N:	C109			NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 10-20-2000]	A195.10, D12.8, D12.9, D12.10, E179.4, E179.5, E193.1
CO OXIDATION CATALYST, NO. 11, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C111				

\* (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 LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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
<b>Process 1: INTERNAL COMBUSTION; POWER GENERATION</b>					
SELECTIVE CATALYTIC REDUCTION, NO. 12, HALDOR TOPSOE, MODEL: DNX629, WITH 771 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 9 FT 1 IN; HEIGHT: 1 FT 1 IN; LENGTH: 48 FT 2 IN A/N:	C115			NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 10-20-2000]	A195.10, D12.8, D12.9, D12.10, E179.4, E179.5, E193.1
CO OXIDATION CATALYST, NO. 12, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C117				
SELECTIVE CATALYTIC REDUCTION, NO. 13, HALDOR TOPSOE, MODEL: DNX629, WITH 771 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 9 FT 1 IN; HEIGHT: 1 FT 1 IN; LENGTH: 48 FT 2 IN A/N:	C121			NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 10-20-2000]	A195.10, D12.8, D12.9, D12.10, E179.4, E179.5, E193.1
CO OXIDATION CATALYST, NO. 13, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C123				
SELECTIVE CATALYTIC REDUCTION, NO. 14, HALDOR TOPSOE, MODEL: DNX629, WITH 771 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 9 FT 1 IN; HEIGHT: 1 FT 1 IN; LENGTH: 48 FT 2 IN A/N:	C127			NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 10-20-2000]	A195.10, D12.8, D12.9, D12.10, E179.4, E179.5, E193.1

- \* (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 LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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
<b>Process 1: INTERNAL COMBUSTION; POWER GENERATION</b>					
CO OXIDATION CATALYST, NO. 14, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C129				

- \* (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  
LA CITY, DWP HARBOR GENERATING STATION**

**SECTION H: 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 LA CITY, DWP HARBOR GENERATING STATION

## SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	Section H Page No.	Process	System
C103	1	1	1
C105	1	1	1
C109	1	1	1
C111	1	1	1
C115	2	1	1
C117	2	1	1
C121	2	1	1
C123	2	1	1
C127	2	1	1
C129	3	1	1

## FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**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, 9-11-1998]**

F14.1 The operator shall not use fuel oil containing sulfur compounds in excess of 0.05 percent by weight.

The .05 percent sulfur limit shall not apply to existing supplies of any liquid fuel in storage as of October 1, 1993 until such supply is exhausted.

**[RULE 431.2, 5-4-1990]**

F14.2 The operator shall not purchase diesel fuel containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

This condition shall become effective on or after June 1, 2004.

**[RULE 431.2, 9-15-2000]**

F16.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

purchase records of fuel oil and sulfur content of the fuel

**[RULE 3004(a)(4)-Periodic Monitoring, 8-11-1995; RULE 431.2, 2-2-1979]**

## FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

F21.1 Acid Rain SO<sub>2</sub> Allowance Allocation for retired units are as follows:

Boiler ID	Contaminant	Tons in year
Boiler No. 1	SO <sub>2</sub>	68
Boiler No. 2	SO <sub>2</sub>	120
Boiler No. 3	SO <sub>2</sub>	94
Boiler No. 4	SO <sub>2</sub>	103
Boiler No. 5	SO <sub>2</sub>	170

- a). The allowance allocation(s) shall apply to calendar years 2000 through 2009.
- b). The number of allowances allocated to Phase II affected units by U.S. EPA may change in a 1998 revision to 40CFR73 Tables 2,3, and 4. In addition, the number of allowances actually held by an affected source in a unit account may differ from the number allocated by U.S. EPA. Neither of the aforementioned conditions necessitate a revision to the unit SO<sub>2</sub> allowance allocations identified in this permit (see 40 CFR 72.84).
- c). A unit exempted under 40CFR72.8 shall not emit any sulfur dioxide starting on the date it is exempted.
- d). The owners and operators of a unit exempted under 40CFR72.8 shall comply with monitoring requirements in accordance with part 75 and will be allocated allowances in accordance with 40CFR73.
- e). A unit exempted under 40CFR73 shall not resume operation unless the designated representative of the source that includes the unit submits an Acid Rain permit application for the unit not less than 24 months prior to the later of January 1, 2000, or the date the unit is to resume operation. On the earlier of the date the written exemption expires or the date an Acid Rain permit application is submitted or is required to be submitted under this paragraph, the unit shall no longer be exempted and shall be subject to all requirements of 40CFR72.

## FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

**[40CFR 73 Subpart B, 1-11-1993]**

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

A195.10 The 5 PPM NH<sub>3</sub> emission limit(s) is averaged over 60 min at 15 percent O<sub>2</sub> dry. The operator shall calculate and continuously record the NH<sub>3</sub> slip concentration using:  $NH_3(ppmv) = [a - b * c / 1E6] * 1E6 / b$ , a=NH<sub>3</sub> injection rate (lb/hr)/17(lb/lbmole), b=dry exhaust gas flow rate(lb/hr)/29(lb/lbmole), and c=change in measured NO<sub>x</sub> across the SCR, ppmvd at 15 percent O<sub>2</sub>. The operator shall install and maintain a NO<sub>x</sub> analyzer to measure the SCR inlet NO<sub>x</sub> ppm accurate to within +/- 5 percent calibrated at least once every 12 mo., or seek AQMD approval for alt. slip method.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for determination of ammonia.

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

[Devices subject to this condition : C103, C109, C115, C121, C127]

## **FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

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

#### **D. Monitoring/Testing Requirements**

D12.8 The operator shall install and maintain a(n) continuous monitoring system to accurately indicate the ammonia injection rate of the ammonia injection system.

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.

The ammonia injection rate shall not exceed 75 lbs per hour.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703 - PSD Analysis, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C103, C109, C115, C121, C127]

D12.9 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor.

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.

The operator shall maintain the temperature between 350 and 825 degrees F except during start ups and shutdowns

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703 - PSD Analysis, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C103, C109, C115, C121, C127]

D12.10 The operator shall install and maintain a(n) pressure gauge to accurately indicate the pressure across the SCR catalyst bed in inches water column.

## FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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.

The pressure differential shall not exceed 3.9 inches water column.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703 - PSD Analysis, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C103, C109, C115, C121, C127]

#### **E. Equipment Operation/Construction Requirements**

E179.4 For the purpose of the following condition number(s), continuous monitoring shall be defined as measuring at least once every hour, and shall be based upon the average of the continuous monitoring for that hour.

Condition Number D 12- 8

Condition Number D 12- 9

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

[Devices subject to this condition : C103, C109, C115, C121, C127]

E179.5 For the purpose of the following condition number(s), continuous monitoring shall be defined as measuring at least once every month, and shall be based upon the average of the continuous monitoring for that month.

Condition Number D 12-10

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703 - PSD Analysis, 10-7-1988; RULE 2005, 5-6-2005]**

## FACILITY PERMIT TO OPERATE LA CITY, DWP HARBOR GENERATING STATION

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

[Devices subject to this condition : C103, C109, C115, C121, C127]

- E193.1 The operator shall construct, operate, and maintain this equipment according to the following specifications:

In accordance with all mitigation measures as stipulated by the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" Attachment 1 of the Final EIR (SCH No. 2000101008) dated January 2001

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : C103, C109, C115, C121, C127]

- E193.3 The operator shall construct this equipment according to the following requirements:

After completion of the catalyst replacement and within 60 days of the first use of the new SCR catalyst the operator shall demonstrate compliance of gas turbine NOx and CO emission limits through CEMS data.

The CEMS data shall include emission data when the gas turbine is operating at 100% and 75% of the maximum load. The CEMS data shall be presented in ppmv, dry and corrected to 15% excess oxygen level.

The operator shall provide records of the CEMS data to the AQMD engineer within 90 days of the new SCR catalyst first use.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703 - PSD Analysis, 10-7-1988; RULE 2005, 5-6-2005**]

[Devices subject to this condition : C103]

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	PROCESSED BY LC02	CHECKED BY

**PERMIT TO CONSTRUCT**

**COMPANY NAME AND ADDRESS**

LA DWP Harbor Generation Station  
161 N. Island Avenue  
Wilmington, CA 90744  
SCAQMD ID #800170

Contact:      Dipak Patel (213) 367-3764

**EQUIPMENT LOCATION**

LA DWP Harbor Generation Station  
161 N. Island Avenue  
Wilmington, CA 90744

**EQUIPMENT DESCRIPTION**

Section H of the Facility Permit, ID# 800170, Facility Description and Temporary Permit to Operate.

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
<b>Process 1: INTERNAL COMBUSTION; POWER GENERATION</b>					
<b>System 1: Simple Cycle Turbines</b>					
SELECTIVE CATALYTIC REDUCTION, NO. 10, <u>ENGELHARD HALDOR TOPSOE, MODEL: DNX 629,</u> WITH <del>1674</del> <u>777</u> CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: <del>3-FT</del> <u>9'1"</u> ; HEIGHT: <del>54-FT</del> <u>1'1"</u> ; LENGTH: <del>11-FT</del> <u>48'2"</u> , WITH:	C103	D101		NH3: 5 PPMV (4) [RULE 1303-BACT]	A195-10, <u>D12-8,</u> <u>D12-9,</u> <u>D12-10,</u> E179-4, E179-5, E193-1, <u>E193-3</u>

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Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
A/N: <u>463098 516529</u>  AMMONIA INJECTION GRID					
CO OXIDATION CATALYST, NO. 10, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME  A/N: <u>463098 516529</u>	C105	D101			
SELECTIVE CATALYTIC REDUCTION, NO. 11, <del>ENGELHARD</del> HALDOR TOPSOE, MODEL: DNX 629, WITH <del>4674</del> 777 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: <del>3-FT</del> 9'1"; HEIGHT: <del>51-FT</del> 1'1"; LENGTH: <del>41-FT</del> 48'2", WITH:  A/N: <u>463099 516530</u>  AMMONIA INJECTION GRID	C109	D107		NH3: 5 PPMV (4) [RULE 1303-BACT]	A195-10, <u>D12-8</u> , <u>D12-9</u> , <u>D12-10</u> , E179-4, E179-5, E193-1, <u>E193-3</u>
CO OXIDATION CATALYST, NO. 11, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME  A/N: <u>463099 516530</u>	C109	D111			
SELECTIVE CATALYTIC REDUCTION, NO. 12, <del>ENGELHARD</del> HALDOR TOPSOE, MODEL: DNX 629, WITH <del>4674</del> 777 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: <del>3-FT</del> 9'1"; HEIGHT: <del>51-FT</del> 1'1"; LENGTH: <del>41-FT</del> 48'2",	C115	D113		NH3: 5 PPMV (4) [RULE 1303-BACT]	A195-10, <u>D12-8</u> , <u>D12-9</u> , <u>D12-10</u> , E179-4, E179-5, E193-1, <u>E193-3</u>

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Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
WITH:  A/N: <del>463100</del> <u>516531</u>  AMMONIA INJECTION GRID					
CO OXIDATION CATALYST, NO. 12, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME  A/N: <del>463100</del> <u>516531</u>	C117	D113			
SELECTIVE CATALYTIC REDUCTION, NO. 13, ENGELHARD <u>HALDOR</u> <u>TOPSOE, MODEL: DNX 629,</u> WITH <del>4674</del> <u>777</u> CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: <del>3-FT</del> <u>9'1"</u> ; HEIGHT: <del>54-FT</del> <u>1'1"</u> ; LENGTH: <del>41-FT</del> <u>48'2"</u> , WITH:  A/N: <del>463104</del> <u>516532</u>  AMMONIA INJECTION GRID	C121	D119		NH3: 5 PPMV (4) [RULE 1303-BACT]	A195-10, <u>D12-8,</u> <u>D12-9,</u> <u>D12-10,</u> E179-4, E179-5, E193-1, <u>E193-3</u>
CO OXIDATION CATALYST, NO. 13, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME  A/N: <del>463104</del> <u>516532</u>	C123	D119			
SELECTIVE CATALYTIC REDUCTION, NO. 14, ENGELHARD <u>HALDOR</u> <u>TOPSOE, MODEL: DNX 629,</u> WITH <del>4674</del> <u>777</u> CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: <del>3-FT</del> <u>9'1"</u> ; HEIGHT: <del>54-FT</del> <u>1'1"</u> ; LENGTH: <del>41-FT</del> <u>48'2"</u> , WITH:  A/N: <del>463104</del> <u>516532</u>	C127	D125		NH3: 5 PPMV (4) [RULE 1303-BACT]	A195-10, <u>D12-8,</u> <u>D12-9,</u> <u>D12-10,</u> E179-4, E179-5, E193-1,

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Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
HEIGHT: <del>51 FT</del> 1'1"; LENGTH: <del>41 FT</del> 48'2", WITH:  A/N: 463102 516533  AMMONIA INJECTION GRID					E193-3
CO OXIDATION CATALYST, NO. 14, ENGELHARD, WITH 835 CUBIC FEET OF TOTAL CATALYST VOLUME  A/N: 463102 516533	C129	D125			

## **BACKGROUND**

The Los Angeles Department of Water and Power (LADWP) operates the Harbor Generating Station (HGS) for electricity generation. In 2000 LADWP added five peaker units so that it could increase power generation during peak seasons. The peaker units are 47 MW GE LM6000 Sprint simple cycle turbines. Selective Catalyst Reduction (SCR) with ammonia injection is used for NOx emissions control, and oxidation catalysts are used for CO emissions control. The District issued a permit to construct to the gas turbines and the SCRs on May 18, 2001. The permit to operate for the equipment was issued in March 2007.

LADWP submitted six applications on December 7, 2010 for modification of the SCR catalysts. It decided to replace the existing SCR catalysts with a different make and model. However, it will not make a change to the CO catalysts. The following information is provided by LADWP on the Form 400-E-5.

SCR Catalyst Make:	Haldor Topsoe
Model:	DNX 629
Total Catalyst Volume:	776.9 cubic feet
Number of Modules:	11
Module length:	48'1.8"

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Module width: 9'1"  
Module height: 1'1"

In addition, LADWP indicated through email communication that the temperature window is between 350 F and 825 F. The maximum pressure drop across the SCR is 3.9 inch water column. The maximum ammonia injection rate is 75 lbs/hr.

LADWP plans to start catalysts replacement in March 2011. The replacement project is expected to complete in 6 months. Upon completion of construction LADWP will verify the catalyst performance through the certified CEMS. Performance tests are not required since the certified CEMS can provide equivalent assurance. LADWP will be required to provide CEMS data that demonstrates catalyst performance. A new condition E193.3 will be added to the permits.

The applications are deemed completed on December 10, 2010. The following table shows the application numbers. LADWP requested expedited permit processing.

Table 1 Application Numbers

Applications	Facility	Fee
516528	RECLAIM/Title V Facility Permit Modification	\$1,723.07
516529	SCR and oxidation catalyst for Turbine No. 10	\$3,313.05
516530	SCR and oxidation catalyst for Turbine No. 11	\$1,656.53
516531	SCR and oxidation catalyst for Turbine No. 12	\$1,656.53
516532	SCR and oxidation catalyst for Turbine No. 13	\$1,656.53
516533	SCR and oxidation catalyst for Turbine No. 14	\$1,656.53
Rule 301(t) – Expedite Permit Processing Fee		\$4,969.59
Total		\$16,631.83

LA DWP is a Title V facility and participates in the NOx RECLAIM program.

### **EMISSIONS**

The only emissions that are associated with the SCR catalysts are the ammonia slip emissions. The permit allows 5 ppmv ammonia slip. The changes to the SCR catalysts are not affecting the ammonia emissions.

The ammonia emissions, as determined by the previous applications, are 81 lbs/day for each SCR catalyst.

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## **RULES EVALUATION**

### **40CFR Part 60 Subpart GG – Standards of Performance for Stationary Gas Turbines**

This regulation applies to gas turbines. However, it does not apply to SCR.

### **40CFR Part 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines**

This regulation applies to gas turbines. However, it does not apply to SCR.

### **Rule 212 – Standards for Approving Permits**

There is no school within 1,000 feet of the facility boundary, and there is no emission increase. Public notice is not required.

### **Rule 401 – Visible Emissions**

Visible emissions are not expected under normal operating conditions of the turbines.

### **Rule 402 – Nuisance**

Nuisance problems are not expected under normal operating conditions of the turbines.

### **Rule 1300 – New Source Review for Non-RECLAIM Pollutants**

NSR is not triggered since there are no emission increases from the proposed modification.

### **Rule 1401 – Toxic Air Contaminants**

Toxic air contaminant emissions are not to expect to increase. This rule is not triggered.

### **Regulation XVII – Prevention of Significant Deterioration (PSD)**

The replacement of the SCR catalyst will not affect the emissions of attainment pollutants. CO, NO<sub>2</sub>, and SO<sub>2</sub> emissions from the gas turbine will not increase. This regulation is not triggered.

### **Regulation XX – RECLAIM**

The replacement of the SCR catalyst will not affect NO<sub>x</sub> emissions. Continued compliance with this regulation is anticipated.

### **Regulation XXX – Title V Permit**

The proposed SCR catalyst replacement constitutes a minor revision to the Title V permit. The engineering evaluation and the draft permit will be submitted to EPA for review. The EPA is afforded a 45-day review period. The final permit will be issued after the EPA review is completed if there is no comments, or revised to address EPA's comments.

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## RECOMMENDATION

The equipment is expected to comply with all the federal, state, and local regulations. It is recommended that a permit to construct be issued with the following conditions.

## CONDITIONS

A195.10 The 5 PPM NH<sub>3</sub> emission limit(s) is averaged over 60 min at 15 percent O<sub>2</sub> dry. The operator shall calculate and continuously record the NH<sub>3</sub> slip concentration using:  $NH_3(ppmv) = [a-b*c/1E6]*1E6/b$ , a= NH<sub>3</sub> injection rate (lb/hr)/17(lb/lbmole), b= dry exhaust gas flow rate(lb/hr)/29(lb/lbmole), and c= change in measured NO<sub>x</sub> across the SCR, ppmvd at 15 percent O<sub>2</sub>. The operator shall install and maintain a NO<sub>x</sub> analyzer to measure the SCR inlet NO<sub>x</sub> ppm accurate to within +/- 5 percent calibrated at least once every 12 mo. , or seek AQMD approval for alternative slip method.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for determination of ammonia.

[RULE 1303(a)(1)-BACT]

[Devices subject to this condition: C103, C109, C115, C121, C127]

D12.8 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH<sub>3</sub>).

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 twelve months. The ammonia injection rate shall not exceed 75 lbs per hour.

[RULE 1303(a)(1)-BACT]

[Devices subject to this condition: C103, C109, C115, C121, C127]

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**D12.9** The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature at the inlet to the SCR reactor.

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 twelve months. The temperature shall be between 350 °F and 825 °F.

[RULE 1303(a)(1)-BACT, RULE 2005, RULE 1703 PSD]

[Devices subject to this condition: C103, C109, C115, C121, C127]

**D12.10** The operator shall install and maintain a(n) pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column.

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 twelve months. The pressure differential shall not exceed 3.9 inches water column.

[RULE 1303(a)(1)-BACT, RULE 2005, RULE 1703 PSD]

[Devices subject to this condition: C103, C109, C115, C121, C127]

**E179.4** For the purpose of the following condition number(s), continuous monitoring shall be defined as measuring at least once every hour, and shall be based upon the average of the continuous monitoring for that hour.

Condition Number D12.8

Condition Number D12.9

[RULE 1303(a)(1)-BACT, RULE 2005, RULE 1703 PSD]

[Devices subject to this condition : C103, C109, C115, C121, C127]

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E179.5 For the purpose of the following condition number(s), continuous monitoring shall be defined as measuring at least once every month, and shall be based upon the average of the continuous monitoring for that month.

Condition Number D12.10

[RULE 1303(a)(1)-BACT, RULE 2005, RULE 1703 PSD]

[Devices subject to this condition : C103, C109, C115, C121, C127]

E193.1 The operator shall construct, operate, and maintain this equipment according to the following specifications:

In accordance with all mitigation measures as stipulated by the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" Attachment 1 of the Final EIR (SCH No. 2000101008) dated January 2001

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : C103, C109, C115, C121, C127]

E193.3 The operator shall construct this equipment according to the following specifications:

After completion of the catalyst replacement and within 60 days of the first use of the new SCR catalyst the operator shall demonstrate compliance of gas turbine NOx and CO emission limits through CEMS data.

The CEMS data shall include emission data when the gas turbine is operating at 100% and 75% of the maximum load. The CEMS data shall be presented in ppmv, dry and corrected to 15% excess oxygen level.

The operator shall provide records of the CEMS data to the AQMD engineer within 90 days of the new SCR catalyst first use.

[RULE 1303(a)(1)-BACT, RULE 2005, RULE 1703 PSD]

[Devices subject to this condition : C103, C109, C115, C121, C127]