DOCKETED

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Project Title:	Alamitos Energy Center
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Document Title:	AEC AFC Appendix 5.1E SCAQMD Forms
Description:	Previously TN# 201493-18
Filer:	Tiffani Winter
Organization:	CH2M Hill
Submitter Role:	Applicant Consultant
Submission Date:	2/3/2014 12:47:11 PM
Docketed Date:	2/3/2014

Appendix 5.1E
SCAQMD Permit Application Forms

AES Alamitos
690 North Studebaker Road
Long Beach, CA 90803
tel 562 493 7736
fax 562 493 7320

December 20, 2013

Mr. Mohsen Nazemi, P.E.
Deputy Executive Officer, Engineering & Compliance
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, California 91765-4178

Subject: AES Alamitos, LLC (Facility ID 115394)
Application for South Coast Air Quality Management District Permit to Construct and Modification to the Title V Permit to Operate

Dear Mr. Nazemi:

AES Alamitos, LLC (AES), a wholly-owned subsidiary of the AES Corporation, is submitting five copies of the application materials for a South Coast Air Quality Management District (SCAQMD) Permit to Construct for the Alamitos Energy Center (AEC) and a modification to the existing Title V Permit to Operate for Facility 115394.

AEC is a 1,936 megawatt (MW)[1] natural-gas-fired, air-cooled, combined-cycle electrical generating facility which will replace and be constructed on the site of the AES Alamitos Generating Station located in the City of Long Beach, California. AEC will consist of twelve natural gas combustion turbine generators with heat recovery steam generators, four steam turbine generators, four air-cooled condensers, three oil/water separators, and ancillary facilities. The attached application is being submitted in conjunction with an Application for Certification (AFC) that will be submitted to the California Energy Commission during the week of December 23, 2013.

The AEC application relies on the provisions contained in SCAQMD Rule 1304(a)(2), which allows the replacement of older, less efficient electric utility steam boilers with specific new generation technologies on a MW-to-MW basis. The SCAQMD Rule 1304(b)(2) offset exemption will be met by permanently retiring AES's Alamitos Generating Station Units 1 and 2 (175 MW each), Units 3 and 4 (320 MW each), and Units 5 and 6 (480 MW each) and using 45 MW from the retirement of Huntington Beach Generating Station Units 1 and 2.[2] All units proposed for retirement are owned by wholly-owned subsidiaries of the AES Corporation. The attached organizational chart illustrates

[1] Net generating capacity, referenced to site ambient average temperature conditions of 65.3 degrees Fahrenheit (°F) dry bulb and 62.7°F wet bulb temperature without evaporative cooler operation.
[2] The Huntington Beach Energy Project (12-AFC-02) AFC noted the retirement of 1,085 MW of generating capacity from Redondo Beach Generating Station Units 6 and 8 and Huntington Beach Generating Station Units 1 and 2 to mitigate the Huntington Beach Energy Project's 939 MW of new generation. This results in 146 MW of generating capacity not needed at Huntington Beach Energy Project, 50 MW of which were applied towards the Redondo Beach Energy Project.

the corporate structure of the subject limited liability corporations and demonstrates the common ownership of AES Redondo Beach, LLC; AES Huntington Beach, LLC; and AES Alamitos, LLC, per the requirements of SCAQMD Rule 1304(a)(2).

The contents of this application package include the required SCAQMD forms,[3] the manufacturers' emissions guarantees for the proposed oxidation catalyst and selective catalytic reduction systems, and the following sections from the AFC:

- Section 1.0: Executive Summary
- Section 2.0: Project Description
- Section 5.1: Air Quality (includes Appendices 5.1A through 5.1G)
- Section 5.9: Public Health (includes Appendices 5.9A through 5.9C)
- Section 6.0: Alternatives Analysis

In addition to the health risk assessment (HRA) included in Section 5.9, AES conducted an HRA consistent with the SCAQMD's current practice of estimating toxic emissions from gas turbines using emission factors listed in Table 3.1-3 of the EPA's AP-42 *Compilation of Air Pollutant Emission Factors*. However, formaldehyde emissions were estimated using the SCAQMD formaldehyde emission factor of 3.6×10^{-4} pound(s) per million British thermal units (lb/MMBtu), consistent with the toxic emissions discussion included in Section 5.9 of the AFC. A summary of the air toxics emissions included in the HRA is provided in Table 5.1B.5b of the attached AFC Appendix 5.1B.

A summary of the maximum incremental cancer risk (MICR), chronic health index, and acute health index at the point of maximum impact (PMI) locations have been included in Table 1. In accordance with SCAQMD Rule 1401, the results represent the predicted risk for each individual emission unit. Overall, the predicted MICR at the PMI is below the individual source significance threshold of 1 in one million and the predicted chronic and acute indices are also below the SCAQMD individual source significance threshold of 1.0. Furthermore, the AEC design includes the use of an oxidation catalyst to reduce carbon monoxide (CO) and volatile organic compounds (VOC) emissions to the best available control levels of 2 parts per million (ppm) and 1 ppm, respectively. Therefore, it is expected that the actual hazardous air pollutant (HAP) emissions, and resulting predicted health risk impacts, would be significantly less than the potential risk presented in this analysis.[4]

Report files from the California Air Resources Board (ARB) Hotspots Analysis Reporting Program (HARP), which was used to conduct the HRA, have also been included on the dispersion modeling file DVD.

[3] Per discussion with SCAQMD staff (Andrew Lee and John Yee) during the pre-application meeting for Redondo Beach Energy Project on April 19, 2012, Form 500-C1 has not been included in the application package.

[4] AP-42, Section 3.1, Stationary Internal Combustion Processes Guidance Document, updated in 2000, page 3.1-7— "The performance of these oxidation catalyst systems on combustion turbines results in 90-plus percent control of CO and about 85 to 90 percent control of formaldehyde. Similar emission reductions are expected on other HAP pollutants."

TABLE 1
AEC Health Risk Assessment Summary: Individual Units (BASIS: AP-42 Emission Factors) [a, b]

	Turbine Number											
Risk	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
MICR at the PMI [c] (per million)	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.35	0.36	0.36	0.36
Chronic Hazard Index at the PMI	0.00043	0.00043	0.00043	0.00042	0.00043	0.00043	0.00043	0.00043	0.00042	0.00043	0.00043	0.00042
Acute Hazard Index at the PMI	0.0079	0.014	0.014	0.024	0.0074	0.0098	0.013	0.012	0.0094	0.018	0.0087	0.0102

[a] The results represent the predicted risk for each individual emission unit in accordance with SCAQMD Rule 1401.
[b] A source with a MICR less than 1 in 1 million individuals is considered to be less than significant. A chronic or acute hazard index less than 1.0 for each source is considered to be a less-than-significant health risk.
[c] Cancer risk values are based on the Office of Environmental Health Hazard Assessment (OEHHA) Derived Methodology.

Also attached to this application are the dispersion modeling files and a check in the amount of $138,505.05 for the requisite permit application filing fee.

AES looks forward to working with the SCAQMD during the review of the AEC application materials and the issuance of the SCAQMD Permit to Construct and modified Title V operating permit.

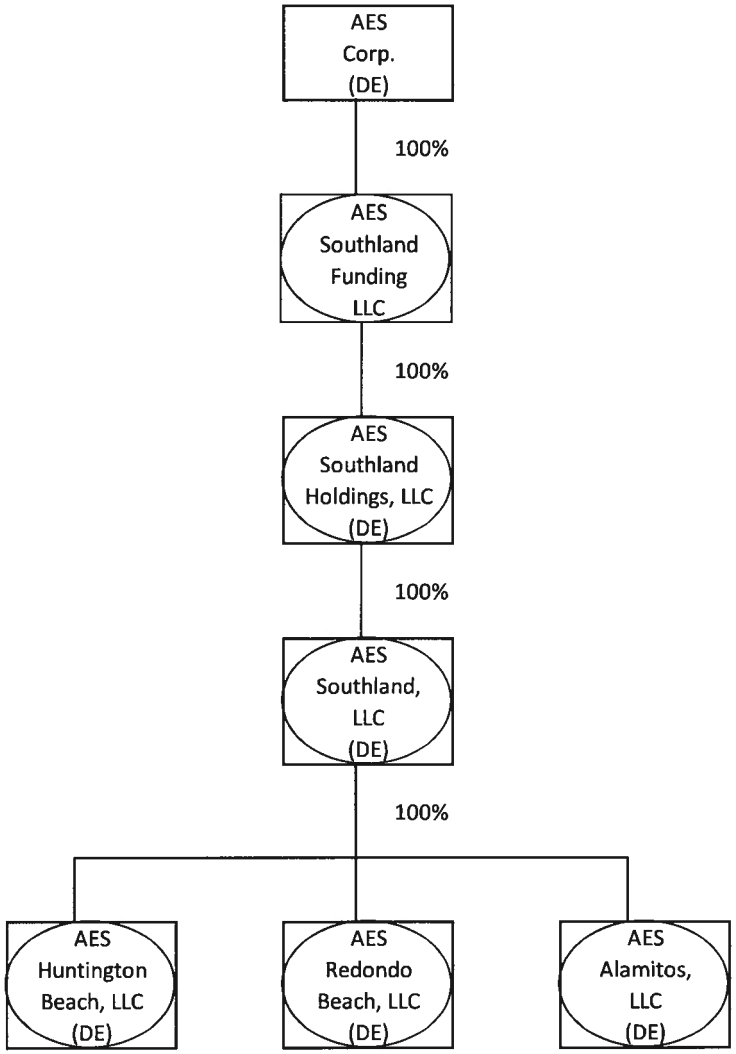
Sincerely,

Stephen O'Kane
Manager
AES Alamitos, LLC

Attachments: Five (5) hard copies of the application materials
Five (5) dispersion modeling file DVDs

cc: Keith Winstead/CEC (cover letter only)
Jerry Salamy/CH2M HILL (cover letter only)
Stephen O'Kane/AES (cover letter only)
Jennifer Didlo/AES (cover letter only)
Jeff Harris/ESH (cover letter only)

AES Southand
Legal Ownership Structure



South Coast Air Quality Management District

Form 400-A

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List only one piece of equipment or process per form.

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P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

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3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane — Manager
Contact Name — Title

(562) 493-7840 — Ext. — (562) 493-7737
Phone # — Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

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- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

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- ( ) RECLAIM Facility Permit Amendment

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

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8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Title V Revision

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 0

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: S Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

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3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

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Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

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- ( ) Change of Condition
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- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
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Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Combined Cycle Combustion Turbines

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 11

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: S O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

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Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

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13. What type of business is being conducted at this equipment location?
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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

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Tel: (909) 396-3385
www.aqmd.gov

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3. Owner's Business Name (If different from Business Name of Operator):

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Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

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Section D - Application Type

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10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 11

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13. What type of business is being conducted at this equipment location?
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South Coast Air Quality Management District

Form 400-A

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Diamond Bar, CA 91765-0944

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3. Owner's Business Name (If different from Business Name of Operator):

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City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

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City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
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Section D - Application Type

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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
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Section A - Operator Information

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Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

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Stephen O'Kane Manager
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Section D - Application Type

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South Coast Air Quality Management District

Form 400-A

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South Coast Air Quality Management District

Form 400-A

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7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Combined Cycle Combustion Turbines

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 11

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: S O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

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Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

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13. What type of business is being conducted at this equipment location?
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15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

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South Coast Air Quality Management District

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Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

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City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
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Contact Name Title

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Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

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10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 11

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13. What type of business is being conducted at this equipment location?
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Section F - Authorization/Signature

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21. Date: 12/20/2013

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South Coast Air Quality Management District

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Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
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3. Owner's Business Name (If different from Business Name of Operator):

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4. Equipment Location Is: (●) Fixed Location ( ) Various Location
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Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

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City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

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Section D - Application Type

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8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
SCR/Oxidation Catalyst

10. For identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process): 11

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Section E - Facility Business Information

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Section F - Authorization/Signature

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17. Signature of Responsible Official: O'Kane

18. Title of Responsible Official: Manager

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(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

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AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
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Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

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3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
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Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

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Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
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Section D - Application Type

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South Coast Air Quality Management District

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South Coast Air Quality Management District

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E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
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Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
SCR/Oxidation Catalyst

10. For identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process): 11

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code?
(North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
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Long Beach , CA 90803
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South Coast Air Quality Management District

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Application Form for Permit or Plan Approval

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www.aqmd.gov

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Contact Name Title

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Phone # Fax #

E-Mail: stephen.okane@AES.com

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South Coast Air Quality Management District

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Stephen O'Kane Manager
Contact Name Title

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Phone # Fax #

E-Mail: stephen.okane@AES.com

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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
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Diamond Bar, CA 91765-0944

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South Coast Air Quality Management District

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Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
SCR/Oxidation Catalyst

10. For identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process): 11

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code?
(North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
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Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
SCR/Oxidation Catalyst

10. For identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process): 11

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code?
(North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
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If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
SCR/Oxidation Catalyst

10. For identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process): 11

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code?
(North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane | Manager
Contact Name | Title

(562) 493-7840 Ext. | (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane | Manager
Contact Name | Title

(562) 493-7840 Ext. | (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

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- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
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Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
19% Aqueous Ammonia Tanks

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: S O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane | Manager
Contact Name | Title

(562) 493-7840 Ext. | (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane | Manager
Contact Name | Title

(562) 493-7840 Ext. | (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
19% Aqueous Ammonia Tanks

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

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Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: S O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

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21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
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- ( ) Change of Location without Prior Approval *
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If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Oil/Water Separators

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 2

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

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18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

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South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

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Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 01/01/2016

8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/30/2019

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Oil/Water Separators

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 2

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Electrical Power Generation

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ( ) No (●) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: S O'Kane

18. Title of Responsible Official: Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

690 N. Studebaker Road
Street Address

Long Beach , CA 90803
City Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

690 N. Studebaker Road
Address

Long Beach , CA 90803
City State Zip

Stephen O'Kane Manager
Contact Name Title

(562) 493-7840 Ext. (562) 493-7737
Phone # Fax #

E-Mail: stephen.okane@AES.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (●) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
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- ( ) Alteration/Modification
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- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

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If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

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8b. Estimated End Date of Construction (mm/dd/yyyy): 07/31/2027

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18. Title of Responsible Official: Manager

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20. Print Name: Stephen O'Kane

21. Date: 12/20/2013

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385 or (909) 396-2668.

Section A - Facility Information

1. Facility Name (Business Name of Operator To Appear On The Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Project Description:
1,936 MW Natural Gas-Fired Combined Cycle Facility

Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	◉	○	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**A request for a change of permittee only (without equipment modifications)?**
3.	○	◉	**A functionally identical permit unit replacement with no increase in rating or emissions?**
4.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
5.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
6.	○	◉	**A Title V** (i.e., Regulation XXX) **permit renewal (without equipment modifications)?**
7.	◉	○	**A Title V administrative permit revision?**
8.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

If **"Yes"** is checked for any question in Section B, your application does not require additional evaluation for CEQA applicability. Skip to Section D - Signatures on page 2 and sign and date this form.

Section C - Review of Impacts Which May Trigger CEQA

Complete Parts I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Part I - General
1.	○	○	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	○	**Is this project part of a larger project?** If yes, attach a separate sheet to briefly describe the larger project.
			Part II - Air Quality
3.	○	○	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	○	○	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

Section C - Review of Impacts Which May Trigger CEQA (cont.)			
	Yes	No	**Part II - Air Quality (cont.)**
5.	○	○	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	○	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	○	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Part III – Water Resources
8.	○	○	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	○	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Part IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply)**:**
	○	○	**a. the need for more than 350 new employees?**
	○	○	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	○	**c. increase customer traffic by more than 700 visits per day?**
			Part V – Noise
11.	○	○	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Part VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply)**:**
	○	○	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	○	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

REMINDER: *For each "Yes" response in Section C, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.*

Section D - Signatures

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm:
		Manager
3. Print Name of Responsible Official of Firm:		4. Date Signed:
Stephen O'Kane		12/20/2013
5. Phone # of Responsible Official of Firm:	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm:
(562) 493-7840	(562) 493-7737	stephen.okane@AES.com
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer:
10. Print Name of Preparer:		11. Date Signed:
Same as above.		
12. Phone # of Preparer:	13. Fax # of Preparer:	14. Email of Preparer:

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Haldor Topsoe
Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
Contact Info	Name: Same as Preparer Title: Company Name:	Phone #: Fax #: Email:

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

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Mail To:
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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

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SCR Catalyst

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No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

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Oxidation Catalyst

Manufacturer: Johnson Matthey
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No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

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Cost

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South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

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Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
Contact Info	Name: Same as Preparer Title: Company Name:	Phone #: Fax #: Email:

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Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

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SCAQMD
P.O. Box 4944
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Tel: (909) 396-3385
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(●) Fixed Location ( ) Various Locations

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SCR Catalyst

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( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
Contact Info	Name: Same as Preparer Title: Company Name:	Phone #: Fax #: Email:

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Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

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(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Haldor Topsoe
Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

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(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Haldor Topsoe
Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

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(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Haldor Topsoe
Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

South Coast Air Quality Management District

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
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Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Haldor Topsoe
Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

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3 years (expected)

Cost

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

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Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

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3 years (expected)

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Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

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Cost

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

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South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Haldor Topsoe
Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
Contact Info	Name: Same as Preparer Title: Company Name:	Phone #: Fax #: Email:

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Section B - Equipment Description

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SCR Catalyst

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Catalyst Active Material: Titanium/Vanadium/Tungsten
Model Number: DNX GT-201
Type: ceramic honeycomb
Size of Each Layer or Module: L: 65 ft. 10 in. W: 2 ft. 1.2 in. H: 20 ft. 4 in.
No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
Contact Info	Name: Same as Preparer Title: Company Name:	Phone #: Fax #: Email:

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SCR Catalyst

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No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Catalyst Replacement Cost: $569650

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

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Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

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No. of Layers or Modules: 1
Total Volume: 2816.66 cu. ft.
Total Weight: 78000 lbs.

Reducing Agent

( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 19.00 %
Injection Rate: 149.8 lb/hr

Reducing Agent Storage*

Diameter: 12 ft. in. Height: 28 ft. 5 in. Capacity: 24000 gal
Pressure Setting: 50 psia
* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 40049 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: 84287 ft/hr

Manufacturer's Guarantee

NOx: 2.0 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

3 years (expected)

Cost

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Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey
Catalyst Active Material: Palladium
Model Number: SC42
Type: ceramic honeycomb
Size of Each Layer or Module: L: 2 ft. 2 in. W: ft. 2 in. H: 2 ft. 2 in.
No. of Layers or Modules: 260
Total Volume: 204.21 cu. ft.
Total Weight: lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 552392 per hour

Manufacturer's Guarantee

VOC: 1.0 ppm VOC: gm/bhp-hr $\%O_2$: 15.00
CO: 2.0 ppm CO: gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

3 years (expected)

Cost

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Catalyst Replacement Cost: $491250

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 500 °F (from cold start) Maximum Temperature: 700 °F

Warm-up Time: 1 hr. 30 min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	Signature: S O'Kane Date: 12/20/2013 Title: Manager Company Name: AES Alamitos, LLC	Name: Stephen O'Kane Phone #: (562) 493-7840 Fax #: (562) 493-7737 Email: stephen.okane@AES.com
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South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
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(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

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(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

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Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
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NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

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Mail To:
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P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

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Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

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Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

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Gas Turbine

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www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

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Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

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Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

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Name: Same as Preparer

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(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

- [x] **Electrical Generation**
- [ ] **Driving Pump/Compressor**
- [ ] **Emergency Peaking Unit**
- [x] **Steam Generation**
- [ ] **Exhaust Gas Recovery**
- [ ] **Other** (specify): _____

Cycle Type

- ( ) **Simply Cycle**
- ( ) **Regenerative Cycle**
- (●) **Combined Cycle**
- ( ) **Other** (specify): _____

Combustion Type

- ( ) **Tubular**
- (●) **Can-Annular**
- ( ) **Annular**

Fuel (Turbine)

- [x] **Natural Gas**
- [ ] **LPG**
- [ ] **Digester Gas***
- [ ] **Landfill Gas***
- [ ] **Propane**
- [ ] **Refinery Gas***
- [ ] **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type:

- ( ) **Low NOx** (please attach manufacturer's specifications)
- ( ) **Other:** _____

Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

- ( ) **Natural Gas**
- ( ) **LPG**
- ( ) **Digester Gas***
- ( ) **Landfill Gas***
- ( ) **Propane**
- ( ) **Refinery Gas***
- ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

- ○ Selective Catalytic Reduction (SCR)* ○ Selective Non-Catalytic Reduction (SNCR)*
- ◉ Oxidation Catalyst* ○ Other (specify)*: _____
- ○ Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $595,000.00 Installation Cost: $45,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: Johnson Matthey Incorporated Model: SC42

Catalyst Dimensions: Length: 2 ft. 2 in. Width: _____ ft. 2 in. Height: 2 ft. 2 in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: 2.0

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: 3 yrs

VOC Control Efficiency: _____ % Operating Temp. Range: 500 °F

Space Velocity (gas flow rate/catalyst volume): 552392 Area Velocity (gas flow/wetted catalyst surface area): 92071

VOC Concentration into Catalyst: 1 PPMVD@ 15%O_2 CO Concentration inot Catalyst: 2 PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Title: Manager Company Name: AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

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Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

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Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

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Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

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No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

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Mail To:
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P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Form 400-E-12
Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

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Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

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Tel: (909) 396-3385
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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

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Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

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Form 400-E-12
Gas Turbine

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P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Form 400-E-12
Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

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Tel: (909) 396-3385
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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Gas Turbine

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

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Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

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No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

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NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

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Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

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690 N. Studebaker Road, Long Beach, CA 90803 (◉) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Turbine

Manufacturer: Mitsubishi Power System Americas **Model:** 501DA **Serial No.:** TBD

Size (based on Higher Heating Value - HHV):

Manufacturer Maximum Input Rating: _____ MMBTU/hr _____ kWh

Manufacturer Maximum Output Rating: 1509 MMBTU/hr 133160 kWh

Function (Check all that apply)

☒ **Electrical Generation** ☐ **Driving Pump/Compressor** ☐ **Emergency Peaking Unit**

☒ **Steam Generation** ☐ **Exhaust Gas Recovery** ☐ **Other** (specify): _____

Cycle Type

( ) **Simply Cycle** ( ) **Regenerative Cycle**

(◉) **Combined Cycle** ( ) **Other** (specify): _____

Combustion Type

( ) **Tubular** (◉) **Can-Annular** ( ) **Annular**

Fuel (Turbine)

☒ **Natural Gas** ☐ **LPG** ☐ **Digester Gas***

☐ **Landfill Gas*** ☐ **Propane** ☐ **Refinery Gas*** ☐ **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Heat Recovery Steam Generator (HRSG)

Steam Turbine Capacity: 143 MW

Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F

High Pressure Steam Output Capacity: 1230000 lb/hr @ 976 °F

Superheated Steam Output Capacity: _____ lb/hr @ _____ °F

Duct Burner

Manufacturer: _____ **Model:** _____

Number of burners: _____ **Rating of each burner** (HHV): _____

Type: ( ) **Low NOx** (please attach manufacturer's specifications)

( ) **Other:** _____
Show all heat transfer surface locations with the HRSG and temperature profile

Fuel (Duct Burner)

( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas***

( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other***: _____

* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

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Section B - Equipment Description (Cont.)

Air Pollution Control

(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-Catalytic Reduction (SNCR)*

( ) Oxidation Catalyst* ( ) Other (specify)*: _____

( ) Steam/Water Injection: Injection Rate: _____ lbs. water/lbs. fuel, or _____ mole water/mole fuel

* Separate application is required.

Capital Cost: $506,000.00 Installation Cost: $50,000.00 Annual Operating Cost: _____

Oxidation Catalyst Data (If Applicable)

Manufacturer: _____ Model: _____

Catalyst Dimensions: Length: _____ ft. _____ in. Width: _____ ft. _____ in. Height: _____ ft. _____ in.

Catalyst Cell Density: _____ cells/sq.in. Pressure Drop Across Catalyst: _____

Manufacturer's Guarantee: CO Control Efficiency: _____ % Catalyst Life: _____ yrs

VOC Control Efficiency: _____ % Operating Temp. Range: _____ °F

Space Velocity (gas flow rate/catalyst volume): _____ Area Velocity (gas flow/wetted catalyst surface area): _____

VOC Concentration into Catalyst: _____ PPMVD@ 15%O_2 CO Concentration inot Catalyst: _____ PPMVD@ 15%O_2

Section C - Operation Information

On-line Emissions Data

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG			1.0	1.9
NOx			2.0	10.7
CO			2.0	6.50
PM_{10}				4.5
SOx				3.09
NH_3			5	9.9

* Based on temperature, fuel consumption, and MW output.

Reference (attach data):

[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 120 ft. 0 in. Stack Diameter: 18 ft. 0 in.

Exhaust Temperature: 412 °F Exhaust Pressure: _____ inches water column

Exhaust Flow Rate: 1259905 CFM Oxygen Level: 13.69 %

South Coast Air Quality Management District

Form 400-E-12
Gas Turbine

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Operation Information (cont.)

Startup Data

No. of Startups per day: 3 No. of Startups per year: 495 Duration of each startup: 1.5 hrs.

Shutdown Data

No. of Shutdowns per day: 3 No. of Shutdowns per year: 495 Duration of each Shutdown: 0.16 hrs.

Startup and Shutdown Emissions Data

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O_2, dry	lb/hour	PPM@15% O_2, dry	lb/hour
ROG		27.3		32.6
NOx		25.5		18.0
CO		113.9		50.8
PM_{10}		4.5		4.5
SOx		3.09		3.09
NH_3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS): CEMS Make: TBD

CEMS Model: TBD

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☒ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify):

☒ Ammonia Stack Concentration: Ammonia CEMS Make: TBD

Ammonia CEMS Model: TBD

Operating Schedule

Normal: 24 hours/day 7 days/week 40 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: Company Name:

Phone #: Fax #:

Email:

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South Coast Air Quality Management District

Form 400-E-18
Storage Tank

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various locations in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Tank Type (Select ONE)

( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) (●) Horizontal Tank (HT)
( ) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)

Identification

Tank Identification Number: TBD

Tank Contents/Product (include MSDS): 19% Aqueous Ammonia

Section B - Tank Information

Tank Characteristics

Shell Diameter (ft.): 12

Shell Length (ft.): 28.4

Shell Height (ft.):

Turnovers Per Year: 21

Is Tank Heated? ( ) Yes (●) No

Is Tank Underground? ( ) Yes (●) No

Net Throughput (gal/year): 504000

Self Support Roof: ( ) Yes ( ) No

Number of Columns?

Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

External Shell Condition: (●) Good ( ) Poor

Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining

External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

Average Liquid Height (ft.) (Vertical Only):

Maximum Liquid Height (ft.) (Vertical Only):

Working Volume (gal.) (Vertical Only):

Actual Volume (gal.) (Vertical Only):

Paint Condition: (●) Good ( ) Poor

Paint Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Double Deck ( ) Dome Roof (Height_____ ft.) ( ) Cone Roof (Height_____ ft.)

Roof Fitting Category: ( ) Typical ( ) Detail

Roof Height (ft.):

Roof Paint Condition: ( ) Good ( ) Poor

Roof Color/Shade: ( ) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted

Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	Deck Seam Length (ft.):	Deck Seam:
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim -Seal System (Floating Roof Tank)

Tank Construction: ( ) Welded ( ) Riveted

Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted

Secondary Seal: ( ) Rim Mounted ( ) None ( ) Shoe Mounted

Breather Vent Setting

Vacuum Setting (psig): -1.25

Pressure Setting (psig): 50

*** Section D of the application MUST be completed.**

South Coast Air Quality Management District

Form 400-E-18
Storage Tank

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section B - Tank Information (cont.)

Site Selection

Nearest Major City: Long Beach, CA

Daily Average Ambient Temperature (°F): 64.7 Annual Average Minimum Temperature (°F): 55.4

Annual Average Maximum Temperature (°F): 74.1 Average Wind Speed (mph): 6.1

Annual Average Solar Insulation Factor (Btu / (ft^3 * ft * day)):

Tank Contents

Chemical Category: ○ Organic Liquids ○ Crude Oil ○ Petroleum Distillates

Liquid: ◉ Single ○ Multiple

If Multiple, Select Speciation Option: ○ Full Speciation ○ Partial Speciation ○ Various Weight Speciation ○ None

Section C - Operation Information

Vapor Control

Vapor Control During Loading or Unloading: ☐ Sparger ☒ Vapor Balance System ☐ Vapor Return Line ☐ Vented to Air Pollution Control Equipment [1]

[1] A separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discharging to (Check Appropriate Box)		
				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure	1	50	-1.25	☒	☐	☐
Vaccum				☐	☐	☐
Open				☐	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
19% aqueous ammonia

If material is stored in a solution, supply the following information:

Name of Solvent: Water Name of Materials Dissolved: Ammonia

Concentration of Materials Dissolved: 19.00 % by Weight OR _____ % by Volume OR _____ lbs/gal

Section D - Roof/Deck Fitting

Section D is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tanks, or Domed External Floating Roof Tanks.

Select the number of fittings for each applicable question. Examples: 3 Unbolted Cover, Ungasketed
_____ Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)	2. Automatic Gauge Float Well (20" diameter well)	3. Column Well (24" diameter well)
_____ Bolted Cover, Gasketed	_____ Bolted Cover, Gasketed	_____ Built-Up Col - Sliding Cover, Gasketed
_____ Unbolted Cover, UnGasketed	_____ Unbolted Cover, Ungasketed	_____ Built-Up Col - Sliding Cover, Ungasketed
_____ Unbolted Cover, Gasketed	_____ Unbolted Cover, Gasketed	_____ Pipe Col - Flex, Fabric Sleeve Seal
		_____ Pipe Col - Sliding Cover, Gasketed
		_____ Pipe Col - Sliding Cover, Ungasketed

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Section D - Roof/Deck Fitting (cont.)

Roof/Deck Fitting Details (cont.)

4. Gauge Hatch/Sample Well (8" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

5. Ladder Well (36" diameter)
- _____ Sliding Cover, Gasketed
- _____ Sliding Cover, Ungasketed

6. Rim Vent (6" diameter)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

7. Roof Drain (3" diameter)
- _____ Open
- _____ 90% Close

8. Roof Leg (3" diameter leg)
- _____ Adjustable, Pontoon Area, Ungasketed
- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
- _____ Adjustable, Pontoon Area, Gasketed
- _____ Adjustable, Pontoon Area, Sock
- _____ Adjustable, Center Area, Gasketed
- _____ Adjustable, Center Area, Sock

9. Roof Leg or Hang Well
- _____ Adjustable
- _____ Fixed

10. Sample Pipe (24" diameter)
- _____ Slotted Pipe – Sliding Cover, Gasketed
- _____ Slotted Pipe – Sliding Cover, Ungasketed
- _____ Slit Fabric Seal, 10% Open

11. Guided Pole/Sample Well
- _____ Ungasketed, Sliding Cover, Without Float
- _____ Ungasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, Without Float
- _____ Gasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, With Pole Sleeve
- _____ Gasketed Sliding Cover, With Pole Wiper
- _____ Gasketed Sliding Cover, With Float, Wiper
- _____ Gasketed Sliding Cover, With Float, Sleeve, Wiper
- _____ Gasketed Sliding Cover, With Pole Sleeve, Wiper

12. _____ Stub Drain (1" diameter)

13. Unslotted Guide – Pole Well
- _____ Ungasketed, Sliding Cover
- _____ Gasketed Sliding Cover
- _____ Ungasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Wiper

14. Vacuum Breaker (10" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature:	**Date:** 12/20/2013
Title: Manager	**Company Name:** AES Alamitos, LLC
Name: Stephen O'Kane	
Phone #: (562) 493-7840	**Fax #:** (562) 493-7737
Email: stephen.okane@AES.com	

Contact Info

Name: Same as Preparer	
Title:	**Company Name:**
Phone #:	**Fax #:**
Email:	

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Storage Tank

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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various locations in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Tank Type (Select ONE)

( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) (●) Horizontal Tank (HT)
( ) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)

Identification

Tank Identification Number: TBD

Tank Contents/Product (include MSDS): 19% Aqueous Ammonia

Section B - Tank Information

Tank Characteristics

Shell Diameter (ft.): 12

Shell Length (ft.): 28.4

Shell Height (ft.):

Turnovers Per Year: 21

Is Tank Heated? ( ) Yes (●) No

Is Tank Underground? ( ) Yes (●) No

Net Throughput (gal/year): 504000

Self Support Roof: ( ) Yes ( ) No

Number of Columns?

Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

External Shell Condition: (●) Good ( ) Poor

Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining

External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

Average Liquid Height (ft.) (Vertical Only):

Maximum Liquid Height (ft.) (Vertical Only):

Working Volume (gal.) (Vertical Only):

Actual Volume (gal.) (Vertical Only):

Paint Condition: (●) Good ( ) Poor

Paint Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Double Deck ( ) Dome Roof (Height_____ ft.) ( ) Cone Roof (Height_____ ft.)

Roof Fitting Category: ( ) Typical ( ) Detail

Roof Height (ft.):

Roof Paint Condition: ( ) Good ( ) Poor

Roof Color/Shade: ( ) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted

Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	Deck Seam Length (ft.):	Deck Seam:
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim -Seal System (Floating Roof Tank)

Tank Construction: ( ) Welded ( ) Riveted

Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted

Secondary Seal: ( ) Rim Mounted ( ) None ( ) Shoe Mounted

Breather Vent Setting

Vacuum Setting (psig): -1.25

Pressure Setting (psig): 50

*** Section D of the application MUST be completed.**

South Coast Air Quality Management District

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Storage Tank

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Section B - Tank Information (cont.)

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Nearest Major City: Long Beach, CA

Daily Average Ambient Temperature (°F): 64.7 Annual Average Minimum Temperature (°F): 55.4

Annual Average Maximum Temperature (°F): 74.1 Average Wind Speed (mph): 6.1

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Tank Contents

Chemical Category: ○ Organic Liquids ○ Crude Oil ○ Petroleum Distillates

Liquid: ◉ Single ○ Multiple

If Multiple, Select Speciation Option: ○ Full Speciation ○ Partial Speciation ○ Various Weight Speciation ○ None

Section C - Operation Information

Vapor Control

Vapor Control During Loading or Unloading: ☐ Sparger ☒ Vapor Balance System ☐ Vapor Return Line ☐ Vented to Air Pollution Control Equipment [1]

[1] A separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discharging to (Check Appropriate Box)		
				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure	1	50	-1.25	☒	☐	☐
Vaccum				☐	☐	☐
Open				☐	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
19% aqueous ammonia

If material is stored in a solution, supply the following information:

Name of Solvent: Water Name of Materials Dissolved: Ammonia

Concentration of Materials Dissolved: 19.00 % by Weight OR _____ % by Volume OR _____ lbs/gal

Section D - Roof/Deck Fitting

Section D is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tanks, or Domed External Floating Roof Tanks.

Select the number of fittings for each applicable question. Examples: 3 Unbolted Cover, Ungasketed
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Roof/Deck Fitting Details

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_____ Bolted Cover, Gasketed	_____ Bolted Cover, Gasketed	_____ Built-Up Col - Sliding Cover, Gasketed
_____ Unbolted Cover, UnGasketed	_____ Unbolted Cover, Ungasketed	_____ Built-Up Col - Sliding Cover, Ungasketed
_____ Unbolted Cover, Gasketed	_____ Unbolted Cover, Gasketed	_____ Pipe Col - Flex, Fabric Sleeve Seal
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Roof/Deck Fitting Details (cont.)

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- _____ Weighted Mechanical Actuation, Ungasketed

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- _____ Sliding Cover, Gasketed
- _____ Sliding Cover, Ungasketed

6. Rim Vent (6" diameter)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

7. Roof Drain (3" diameter)
- _____ Open
- _____ 90% Close

8. Roof Leg (3" diameter leg)
- _____ Adjustable, Pontoon Area, Ungasketed
- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
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- _____ Adjustable, Pontoon Area, Sock
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- _____ Gasketed Sliding Cover, Without Float
- _____ Gasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, With Pole Sleeve
- _____ Gasketed Sliding Cover, With Pole Wiper
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I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature:	**Date:** 12/20/2013
Title: Manager	**Company Name:** AES Alamitos, LLC
Name: Stephen O'Kane	
Phone #: (562) 493-7840	**Fax #:** (562) 493-7737
Email: stephen.okane@AES.com	

Contact Info

Name: Same as Preparer	
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(●) Fixed Location ( ) Various Locations

Tank Type (Select ONE)

( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) (●) Horizontal Tank (HT)
( ) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)

Identification

Tank Identification Number: OWS01

Tank Contents/Product (include MSDS): Water and petroleum residue from Power Blocks 1 and 2

Section B - Tank Information

Tank Characteristics

Shell Diameter (ft.): 5
Shell Length (ft.): 18
Shell Height (ft.): 5
Turnovers Per Year: 75

Is Tank Heated? ( ) Yes (●) No
Is Tank Underground? ( ) Yes (●) No
Net Throughput (gal/year): 223846
Self Support Roof: (●) Yes ( ) No

Number of Columns?
Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

External Shell Condition: (●) Good ( ) Poor
Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining
External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

Average Liquid Height (ft.) (Vertical Only):
Maximum Liquid Height (ft.) (Vertical Only):
Working Volume (gal.) (Vertical Only):
Actual Volume (gal.) (Vertical Only):

Paint Condition: (●) Good ( ) Poor
Paint Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Double Deck ( ) Dome Roof (Height_____ ft.) ( ) Cone Roof (Height_____ ft.)
Roof Fitting Category: ( ) Typical ( ) Detail
Roof Height (ft.):
Roof Paint Condition: ( ) Good ( ) Poor
Roof Color/Shade: ( ) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted
Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	Deck Seam Length (ft.):	Deck Seam:
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim -Seal System (Floating Roof Tank)

Tank Construction: ( ) Welded ( ) Riveted
Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted
Secondary Seal: ( ) Rim Mounted ( ) Shoe Mounted ( ) None

Breather Vent Setting

Vacuum Setting (psig):
Pressure Setting (psig):

* **Section D of the application MUST be completed.**

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Section B - Tank Information (cont.)

Site Selection

Nearest Major City: Long Beach

Daily Average Ambient Temperature (°F): 64.7 Annual Average Minimum Temperature (°F): 55.4

Annual Average Maximum Temperature (°F): 74.1 Average Wind Speed (mph): 6.1

Annual Average Solar Insulation Factor (Btu / (ft^3 * ft * day)):

Tank Contents

Chemical Category: (•) Organic Liquids ( ) Crude Oil ( ) Petroleum Distillates

Liquid: (•) Single ( ) Multiple

If Multiple, Select Speciation Option: ( ) Full Speciation ( ) Partial Speciation ( ) Various Weight Speciation ( ) None

Section C - Operation Information

Vapor Control

Vapor Control During Loading or Unloading: ☐ Sparger ☐ Vapor Balance System ☐ Vapor Return Line ☐ Vented to Air Pollution Control Equipment [1]

[1] A separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discharging to (Check Appropriate Box)		
				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open	1			☒	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
Oil/water separator will contain primarily precipitation oils/lubricants.

If material is stored in a solution, supply the following information:

Name of Solvent: Water Name of Materials Dissolved: petroleum products

Concentration of Materials Dissolved: ____ % by Weight OR 0.00 % by Volume OR ____ lbs/gal

Section D - Roof/Deck Fitting

Section D is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tanks, or Domed External Floating Roof Tanks.

Select the number of fittings for each applicable question. Examples: 3 Unbolted Cover, Ungasketed
Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)	2. Automatic Gauge Float Well (20" diameter well)	3. Column Well (24" diameter well)
Bolted Cover, Gasketed	Bolted Cover, Gasketed	Built-Up Col - Sliding Cover, Gasketed
Unbolted Cover, UnGasketed	Unbolted Cover, Ungasketed	Built-Up Col - Sliding Cover, Ungasketed
Unbolted Cover, Gasketed	Unbolted Cover, Gasketed	Pipe Col - Flex, Fabric Sleeve Seal
		Pipe Col - Sliding Cover, Gasketed
		Pipe Col - Sliding Cover, Ungasketed

South Coast Air Quality Management District

Form 400-E-18
Storage Tank

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Section D - Roof/Deck Fitting (cont.)

Roof/Deck Fitting Details (cont.)

4. Gauge Hatch/Sample Well (8" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

5. Ladder Well (36" diameter)
- _____ Sliding Cover, Gasketed
- _____ Sliding Cover, Ungasketed

6. Rim Vent (6" diameter)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

7. Roof Drain (3" diameter)
- _____ Open
- _____ 90% Close

8. Roof Leg (3" diameter leg)
- _____ Adjustable, Pontoon Area, Ungasketed
- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
- _____ Adjustable, Pontoon Area, Gasketed
- _____ Adjustable, Pontoon Area, Sock
- _____ Adjustable, Center Area, Gasketed
- _____ Adjustable, Center Area, Sock

9. Roof Leg or Hang Well
- _____ Adjustable
- _____ Fixed

10. Sample Pipe (24" diameter)
- _____ Slotted Pipe – Sliding Cover, Gasketed
- _____ Slotted Pipe – Sliding Cover, Ungasketed
- _____ Slit Fabric Seal, 10% Open

11. Guided Pole/Sample Well
- _____ Ungasketed, Sliding Cover, Without Float
- _____ Ungasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, Without Float
- _____ Gasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, With Pole Sleeve
- _____ Gasketed Sliding Cover, With Pole Wiper
- _____ Gasketed Sliding Cover, With Float, Wiper
- _____ Gasketed Sliding Cover, With Float, Sleeve, Wiper
- _____ Gasketed Sliding Cover, With Pole Sleeve, Wiper

12. _____ Stub Drain (1" diameter)

13. Unslotted Guide – Pole Well
- _____ Ungasketed, Sliding Cover
- _____ Gasketed Sliding Cover
- _____ Ungasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Wiper

14. Vacuum Breaker (10" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature:	**Date:** 12/20/2013
Title: Manager	**Company Name:** AES Alamitos, LLC
Name: Stephen O'Kane	
Phone #: 5624937840	**Fax #:** 5624937737
Email: stephen.okane@AES.com	

Contact Info

Name: Same as Preparer	
Title:	**Company Name:**
Phone #:	**Fax #:**
Email:	

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South Coast Air Quality Management District

Form 400-E-18
Storage Tank

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various locations in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Tank Type (Select ONE)

( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) (●) Horizontal Tank (HT)
( ) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)

Identification

Tank Identification Number: OWS02

Tank Contents/Product (include MSDS): Water and petroleum residue from Power Block 3

Section B - Tank Information

Tank Characteristics

Shell Diameter (ft.): 5

Shell Length (ft.): 18

Shell Height (ft.): 5

Turnovers Per Year: 38

Is Tank Heated? ( ) Yes (●) No

Is Tank Underground? ( ) Yes (●) No

Net Throughput (gal/year): 111923

Self Support Roof: (●) Yes ( ) No

Number of Columns?

Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

External Shell Condition: (●) Good ( ) Poor

Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining

External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

Average Liquid Height (ft.) (Vertical Only):

Maximum Liquid Height (ft.) (Vertical Only):

Working Volume (gal.) (Vertical Only):

Actual Volume (gal.) (Vertical Only):

Paint Condition: (●) Good ( ) Poor

Paint Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Double Deck ( ) Dome Roof (Height____ ft.) ( ) Cone Roof (Height____ ft.)

Roof Fitting Category: ( ) Typical ( ) Detail

Roof Height (ft.):

Roof Paint Condition: ( ) Good ( ) Poor

Roof Color/Shade: ( ) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted

Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	Deck Seam Length (ft.):	Deck Seam:
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim -Seal System (Floating Roof Tank)

Tank Construction: ( ) Welded ( ) Riveted

Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted

Secondary Seal: ( ) Rim Mounted ( ) None ( ) Shoe Mounted

Breather Vent Setting

Vacuum Setting (psig):

Pressure Setting (psig):

* **Section D of the application MUST be completed.**

South Coast Air Quality Management District

Form 400-E-18
Storage Tank

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
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P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section B - Tank Information (cont.)

Site Selection

Nearest Major City: Long Beach

Daily Average Ambient Temperature (°F): 64.7 Annual Average Minimum Temperature (°F): 55.4

Annual Average Maximum Temperature (°F): 74.1 Average Wind Speed (mph): 6.1

Annual Average Solar Insulation Factor (Btu / (ft^3 * ft * day)):

Tank Contents

Chemical Category: (•) Organic Liquids ( ) Crude Oil ( ) Petroleum Distillates

Liquid: (•) Single ( ) Multiple

If Multiple, Select Speciation Option: ( ) Full Speciation ( ) Partial Speciation ( ) Various Weight Speciation ( ) None

Section C - Operation Information

Vapor Control

Vapor Control During Loading or Unloading: ☐ Sparger ☐ Vapor Balance System ☐ Vapor Return Line ☐ Vented to Air Pollution Control Equipment [1]

[1] A separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discharging to (Check Appropriate Box)		
				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open	1			☒	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
Oil/water separator will contain primarily precipitation oils/lubricants.

If material is stored in a solution, supply the following information:

Name of Solvent: Water Name of Materials Dissolved: petroleum products

Concentration of Materials Dissolved: ____ % by Weight OR 0.00 % by Volume OR ____ lbs/gal

Section D - Roof/Deck Fitting

Section D is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tanks, or Domed External Floating Roof Tanks.

Select the number of fittings for each applicable question. Examples: 3 Unbolted Cover, Ungasketed; Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)	2. Automatic Gauge Float Well (20" diameter well)	3. Column Well (24" diameter well)
Bolted Cover, Gasketed	Bolted Cover, Gasketed	Built-Up Col - Sliding Cover, Gasketed
Unbolted Cover, UnGasketed	Unbolted Cover, Ungasketed	Built-Up Col - Sliding Cover, Ungasketed
Unbolted Cover, Gasketed	Unbolted Cover, Gasketed	Pipe Col - Flex, Fabric Sleeve Seal
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		Pipe Col - Sliding Cover, Ungasketed

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Section D - Roof/Deck Fitting (cont.)

Roof/Deck Fitting Details (cont.)

4. Gauge Hatch/Sample Well (8" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

5. Ladder Well (36" diameter)
- _____ Sliding Cover, Gasketed
- _____ Sliding Cover, Ungasketed

6. Rim Vent (6" diameter)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

7. Roof Drain (3" diameter)
- _____ Open
- _____ 90% Close

8. Roof Leg (3" diameter leg)
- _____ Adjustable, Pontoon Area, Ungasketed
- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
- _____ Adjustable, Pontoon Area, Gasketed
- _____ Adjustable, Pontoon Area, Sock
- _____ Adjustable, Center Area, Gasketed
- _____ Adjustable, Center Area, Sock

9. Roof Leg or Hang Well
- _____ Adjustable
- _____ Fixed

10. Sample Pipe (24" diameter)
- _____ Slotted Pipe – Sliding Cover, Gasketed
- _____ Slotted Pipe – Sliding Cover, Ungasketed
- _____ Slit Fabric Seal, 10% Open

11. Guided Pole/Sample Well
- _____ Ungasketed, Sliding Cover, Without Float
- _____ Ungasketed Sliding Cover, With Float
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- _____ Gasketed Sliding Cover, With Pole Sleeve
- _____ Gasketed Sliding Cover, With Pole Wiper
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- _____ Gasketed Sliding Cover, With Pole Sleeve, Wiper

12. _____ Stub Drain (1" diameter)

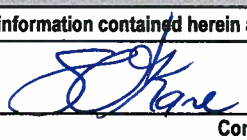
13. Unslotted Guide – Pole Well
- _____ Ungasketed, Sliding Cover
- _____ Gasketed Sliding Cover
- _____ Ungasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Wiper

14. Vacuum Breaker (10" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature:  **Date:** 12/20/2013

Title: Manager **Company Name:** AES Alamitos, LLC

Name: Stephen O'Kane

Phone #: 5624937840 **Fax #:** 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: **Company Name:**

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Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various locations in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) Fixed Location ( ) Various Locations

Tank Type (Select ONE)

( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) (●) Horizontal Tank (HT)
( ) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)

Identification

Tank Identification Number: OWS03

Tank Contents/Product (include MSDS): Water and petroleum residue from Power Block 4

Section B - Tank Information

Tank Characteristics

Shell Diameter (ft.): 5
Shell Length (ft.): 18
Shell Height (ft.): 5
Turnovers Per Year: 38

Is Tank Heated? ( ) Yes (●) No
Is Tank Underground? ( ) Yes (●) No
Net Throughput (gal/year): 111923
Self Support Roof: (●) Yes ( ) No

Number of Columns?
Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

External Shell Condition: (●) Good ( ) Poor
Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining
External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

Average Liquid Height (ft.) (Vertical Only):
Maximum Liquid Height (ft.) (Vertical Only):
Working Volume (gal.) (Vertical Only):
Actual Volume (gal.) (Vertical Only):

Paint Condition: (●) Good ( ) Poor
Paint Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Double Deck ( ) Dome Roof (Height_____ ft.) ( ) Cone Roof (Height_____ ft.)
Roof Fitting Category: ( ) Typical ( ) Detail
Roof Height (ft.):

Roof Paint Condition: ( ) Good ( ) Poor
Roof Color/Shade: ( ) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted
Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	Deck Seam Length (ft.):	Deck Seam:		
( ) Sheet		( ) 5 ft. wide	( ) 6 ft. wide	( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft.	( ) 5 x 12 ft.	

Tank Construction and Rim -Seal System (Floating Roof Tank)

Tank Construction: ( ) Welded ( ) Riveted
Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted
Secondary Seal: ( ) Rim Mounted ( ) None ( ) Shoe Mounted

Breather Vent Setting

Vacuum Setting (psig):
Pressure Setting (psig):

* **Section D of the application MUST be completed.**

South Coast Air Quality Management District

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Section B - Tank Information (cont.)

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Annual Average Maximum Temperature (°F): 74.1 Average Wind Speed (mph): 6.1

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Tank Contents

Chemical Category: (•) Organic Liquids ( ) Crude Oil ( ) Petroleum Distillates

Liquid: (•) Single ( ) Multiple

If Multiple, Select Speciation Option: ( ) Full Speciation ( ) Partial Speciation ( ) Various Weight Speciation ( ) None

Section C - Operation Information

Vapor Control

Vapor Control During Loading or Unloading: ☐ Sparger ☐ Vapor Balance System ☐ Vapor Return Line ☐ Vented to Air Pollution Control Equipment [1]

[1] A separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

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				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
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Open	1			☒	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
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Name of Solvent: Water Name of Materials Dissolved: petroleum products

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Section D - Roof/Deck Fitting

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Roof/Deck Fitting Details

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Bolted Cover, Gasketed	Bolted Cover, Gasketed	Built-Up Col - Sliding Cover, Gasketed
Unbolted Cover, UnGasketed	Unbolted Cover, Ungasketed	Built-Up Col - Sliding Cover, Ungasketed
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Section D - Roof/Deck Fitting (cont.)

Roof/Deck Fitting Details (cont.)

4. Gauge Hatch/Sample Well (8" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

5. Ladder Well (36" diameter)
- _____ Sliding Cover, Gasketed
- _____ Sliding Cover, Ungasketed

6. Rim Vent (6" diameter)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

7. Roof Drain (3" diameter)
- _____ Open
- _____ 90% Close

8. Roof Leg (3" diameter leg)
- _____ Adjustable, Pontoon Area, Ungasketed
- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
- _____ Adjustable, Pontoon Area, Gasketed
- _____ Adjustable, Pontoon Area, Sock
- _____ Adjustable, Center Area, Gasketed
- _____ Adjustable, Center Area, Sock

9. Roof Leg or Hang Well
- _____ Adjustable
- _____ Fixed

10. Sample Pipe (24" diameter)
- _____ Slotted Pipe – Sliding Cover, Gasketed
- _____ Slotted Pipe – Sliding Cover, Ungasketed
- _____ Slit Fabric Seal, 10% Open

11. Guided Pole/Sample Well
- _____ Ungasketed, Sliding Cover, Without Float
- _____ Ungasketed Sliding Cover, With Float
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- _____ Gasketed Sliding Cover, With Float
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- _____ Gasketed Sliding Cover, With Pole Sleeve, Wiper

12. _____ Stub Drain (1" diameter)

13. Unslotted Guide – Pole Well
- _____ Ungasketed, Sliding Cover
- _____ Gasketed Sliding Cover
- _____ Ungasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Wiper

14. Vacuum Breaker (10" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: [signature] Date: 12/20/2013

Name: Stephen O'Kane

Title: Manager

Company Name: AES Alamitos, LLC

Phone #: 5624937840 Fax #: 5624937737

Email: stephen.okane@AES.com

Contact Info

Name: Same as Preparer

Title: _____ Company Name: _____

Phone #: _____ Fax #: _____

Email: _____

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South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): AES Alamitos, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 690 N. Studebaker Road, Long Beach, CA 90803

(●) **Fixed Location** ( ) **Various Locations**

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? (●) Yes ( ) No

If yes, please provide name(s) of school(s) below:

School Name: Rosie the Riveter Charter High

School Address: 690 N. Studebaker Road, Long Beach, CA 90803

Distance from stack or equipment vent to the outer boundary of the school: 656 feet

School Name:

School Address:

Distance from stack or equipment vent to the outer boundary of the school: feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

( ) **Mixed Use Residential Commercial Zone (M-U)** ( ) **Service and Professional Zone (C-S)** ( ) **Medium Commercial (C-3)**

(●) **Heavy Commercial (C-4)** ( ) **Commercial Manufacturing (C-M)**

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 120 feet (above ground level) **What is the height of the closest building nearest the stack?** 104 feet

Stack Inside Diameter: 216.00 inches **Stack Flow:** 1259905 acfm **Stack Temperature:** 412 °F

Rain Cap Present: ( ) Yes (●) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: See AFC Appendix 5.1C

Building Height: feet (above ground level)

Building Width: feet

Building Length: feet

Building #/Name: See Appendix 5.1C

Building Height: feet (above ground level)

Building Width: feet

Building Length: feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 650 feet **Distance to nearest business:** 830 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No

If yes, please provide:

Building #/Name:

Building Height: feet (above ground level)

Building Width: feet

Building Length: feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	**Title of Preparer:** Manager	**Preparer's Phone #:** (562) 493-7840 **Preparer's Email:** stephen.okane@AES.com
Contact Person: Stephen O'Kane **Contact's Email:** stephen.okane@AES.com	**Contact's Phone#:** (562) 493-7840 **Contact's Fax#:** (562) 493-7737	**Date Signed:** 12/20/2013

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 500-A1

Title V Permit Application Supplemental

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit):

AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

115394

3. Facility Is Located In Title V Area:

- (•) 1 — All other zip codes not listed below
- ( ) 2 — 92201 92202 92203 92210 92211 92234 92235 92236 92239* 92240 92241 92247 92248 92253 92254 92255 92258 92260 92261 92262 92263 92264 92270 92274 92275 92276 92282 92292 92561
- ( ) 3 — 92239*

* If your zip code is 92239, please call (909) 396-3385 to verify your Title V area.

Section II - Title V Application

1. This is an application for a(n) (Check all applicable boxes and provide the requested information as appropriate):

a. ☐ Initial Title V Permit
b. ☐ Permit Renewal: (Provide current permit expiration date) _____
c. ☐ Administrative Change (check all that apply)
   - ☐ Change of Operator. (Complete and attach equipment-specific Form 400-E-XX series forms)
   - ☐ Change of Facility Information
   - ☐ Other, Please specify: _____
d. ☑ Title V Permit Revision
e. ☐ Title V Exemption Plan
f. ☐ MACT Part 1
g. ☐ Permit Shield

Complete and attach equipment specific Form 400-E-XX series form(s) to this form if your application involves permit action for new construction, change of location, non-administrative permit revision, alternative operating scenario (AOS), permit shield, streamlined permit conditions, or temporary source permit.

2. Is this facility required to prepare a Risk Management Plan (RMP) for another agency? (•) Yes ( ) No

Section III - Title V Submittal Checklist

1. Enter the quantity of each type form submitted in the space provided:

30 400-A (REQUIRED)	_____ 500-C1 (REQUIRED)	1 500-F1	1 500-H (REQUIRED)
1 400-CEQA (REQUIRED)	_____ 500-C2	_____ 500-F2	_____ 500-MACT PART 1
1 500-A2 (REQUIRED)	_____ 500-D	_____ 500-F3	_____ OTHER (SPECIFY):_____
1 500-B (REQUIRED)	_____ 500-E	_____ 500-F4	

2. Additional information referenced in this application submitted:

California Energy Commission, 2013. Alamitos Energy Center Application for Certification. December.

South Coast Air Quality Management District

Form 500-A2
Title V Application Certification

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. This Certification is submitted with a (Check one):
- a. (●) Title V Application (Initial, Revision or Renewal)
- b. ( ) Supplement/Correction to a Title V Application
- c. ( ) MACT Part 1

4. Is Form 500-C2 included with this Certification? ( ) Yes (●) No

Section II - Responsible Official Certification Statement

*Read each statement carefully and check each that applies – **You must check 3a or 3b.***

1. For Initial, Permit Renewal, and Administrative Application Certifications:

a. ( ) The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,

i. [ ] except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.

ii. [ ] except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).

b. (●) The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.

2. For Permit Revision Application Certifications:

a. [✓] The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.

3. For MACT Hammer Certifications:

a. ( ) The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j).

b. (●) The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

Section III - Authorization/Signature

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statement and information in this document and in all attached application forms and other materials are true, accurate, and complete.

1. Signature of Responsible Official:	2. Title of Responsible Official:
S O'Kane	Manager
3. Print Name:	**4. Date:**
Stephen O'Kane	
5. Phone #:	**6. Fax #:**
(562) 493-7840	(562) 493-7737

7. Address of Responsible Official:

Street #	City	State	Zip
690 N. Studebaker Road	Long Beach	CA	90803

Acid Rain Facilities Only: Please Complete Section IV

Acid Rain facilities must certify their compliance status of the devices subject to applicable requirements under Title IV by an individual who meets the definition of Designated (or Alternate) Representative in 40 CFR Part 72.

Section IV - Designated Representative Certification Statement	
For Acid Rain Facilities Only: I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.	
1. Signature of Designated Representative or Alternate:	2. Title of Designated Representative or Alternate: Manager
3. Print Name of Designated Representative or Alternate: Stephen O'Kane	4. Date: 12/20/2013
5. Phone #: (562) 493-7840	6. Fax #: (562) 493-7737

7. Address of Designated Representative or Alternate:

Street #	City	State	Zip
690 N. Studebaker Road	Long Beach	CA	90803

South Coast Air Quality Management District

Form 500-B

Title V List of Exempt Equipment

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Use this form for all application submittals requesting an initial Title V permit or permit renewal. If you are applying for a permit revision, you may also use this form to have your exempt equipment listing updated prior to renewing your permit.

This form is designed to summarize all of the equipment at a facility that is exempt per SCAQMD Rule 219 from SCAQMD permit requirements (e.g., I.C. Engines ≤ 50 BHP, Boilers < 2 MM BTU/hr etc.). This equipment can be listed according to category. However, if there is a specific device that is vented to control equipment, then the equipment must be listed separately. Trivial activities listed on the back of this form or the Technical Guidance Document do not have to be listed on this form. Note: If your facility is in the RECLAIM program, it is not necessary to repeat any equipment currently listed in Appendix A of the RECLAIM permit.

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. Check box if facility is in RECLAIM program: ☒

4. Provide Current Permit Issue Date: 01/19/2012

5. Permit Revision No.: 23

Section II - Summary of Equipment Exempt from Permit Requirements (Including Portable)

Exempt Equipment Description [e.g., Small Boilers (75,000 BTU/hr-2,000,000 BTU/hr)]	Venting to Control (Device# or Application#)	Control Device Description	Basis for Exemption [e.g., Rule 219 (b)(2), 05/19/00]	Source Specific Rule [e.g., Rule 1146.2]

Trivial Activities	
• Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources • Air-conditioning units used for human comfort that do not have applicable requirements under Title VI of the Act • Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing/industrial or commercial process • Non-commercial food preparation • Consumer use of office equipment and products, not including printers or businesses primarily involved in photographic reproduction • Janitorial services and consumer use of janitorial products • Internal combustion engines used for landscaping purposes • Laundry activities, except for dry-cleaning and steam boilers • Bathroom/toilet vent emissions • Emergency (backup) electrical generators at residential locations • Tobacco smoking rooms and areas • Blacksmith forges • Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification[1] • Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification • Portable electrical generators that can be moved by hand from one location to another[2] • Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic • Brazing, soldering and welding equipment, and cutting torches related to manufacturing and construction activities that do not result in emission of HAP metals[3] • Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents[4] • Routine calibration and maintenance of laboratory equipment or other analytical instruments • Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis • Hydraulic and hydrostatic testing equipment • Environmental chambers not using hazardous air pollutant (HAP) gasses • Shock chambers • Humidity chambers • Solar simulators	• Fugitive emission related to movement of passenger vehicles, provided any required fugitive dust control plan or its equivalent is submitted • Process water filtration systems and demineralizers • Demineralized water tanks and demineralizer vents Air compressors and pneumatically operated equipment, including hand tools • Batteries and battery charging stations, except at battery manufacturing plants • Storage tanks, vessels and containers holding or storing liquid substances that will not emit any VOC or HAP[5] • Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized • Equipment used to mix and package soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized • Drop hammers or hydraulic presses for forging or metalworking • Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment • Vents from continuous emissions monitors and other analyzers • Natural gas pressure regulator vents, excluding venting at oil and gas production facilities • Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation • Equipment used for surface coating, painting, dipping or spraying operations, except those that will emit VOC or HAP • CO_2 lasers, used only on metals and other materials which do not emit HAP in the process • Consumer use of paper trimmers/binders • Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substance being processed in the ovens or autoclaves or the boilers delivering the steam • Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants • Laser trimmers using dust collection to prevent fugitive emissions • Boiler water treatment operations, not including cooling towers • Oxygen scavenging (de-aeration) of water • Ozone generators • Fire suppression systems • Emergency road flares • Steam vents and safety relief valves • Steam leaks • Steam cleaning operations • Steam sterilizers

[1] Cleaning and painting activities qualify as trivial if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if otherwise required.

[2] "Moved by hand" means it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance or device.

[3] Brazing, soldering and welding equipment, and cutting torches related to manufacturing and construction activities that emit HAP metals are more appropriate for treatment as unpermitted equipment. Brazing, soldering, welding and cutting torches directly related to plant maintenance and upkeep and repair or maintenance shop activities that emit HAP metals are treated as trivial and listed separately in this appendix.

[4] Many lab fume hoods or vents might qualify for treatment as unpermitted equipment.

[5] Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.

South Coast Air Quality Management District

Form 500-F1 (Title V)

Title IV - Acid Rain Phase II Facility Information Summary

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

This form shall be completed by Acid Rain facilities ONLY and shall accompany all requests for Phase II permit actions unique to Acid Rain facilities. Also attach a completed Form 500-A2. In addition, if an initial Title V permit, permit renewal, or permit revision is requested, attach Form 500-A1 and any supplemental Acid Rain forms (Forms 500-F2, 500-F3, and 500-F4), as appropriate.

Section I - General Information

1. Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

3. ORIS Code (5-Digit): _____

4. This is an application for a (Check all that apply to the facility):

a. ☑ Phase II Acid Rain Permit or Revision (Complete Section II of this form)

b. ☐ Repowering Extension Plan or Revision (Complete Form 500-F2)

c. ☐ New Unit Exemption or Revision (Complete Form 500-F3)

d. ☐ Retired Unit Exemption or Revision (Complete Form 500-F4)

5. The requested permit action involves a(n) (Check one):

a. ○ Administrative Permit Revision

b. ○ Significant Permit Revision

c. ○ Fast Track Permit Revision

d. ○ Automatic Permit Revision

e. ○ Other (specify): _____

6. For all applications requesting a permit revision, provide a general description of the proposed changes (Attach additional sheets as necessary):

Section II - Phase II Acid Rain Device Summary

1. The following information is (Check one): a. ◉ New b. ○ Revised

AQMD Device #	EPA Unit #	Will device need a Repowering Extension Plan?	Has device started operations on or after 11/15/90?	Device Operations Start Date (mo/day/yr)	For devices starting-up after 11/15/90, provide date when Monitoring Certification will begin (mo/day/yr)
TBD	TBD	○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		

To complete this application, type or print the information in the appropriate blanks.

Section I - General Information

1. **Facility Name:** Provide the name of the legal entity that operates the facility.

   AQMD Facility ID: Complete only if the facility has been issued a 6-digit identification or ID number by AQMD. If not, leave these boxes blank. An ID number will be assigned when the application is submitted.

   ORIS Code: Provide the 5-digit code that has been assigned to facility by Department of Energy.

2. Check all applicable boxes to indicate the type of Acid Rain application filed. If box 1a. is checked, complete Section II of this form. If box 1b. is checked, complete and attach Form 500-F2 - Title IV Phase II Acid Rain Repowering Extension Plan. If box 1c. is checked, complete and attach Form 500-F3 - Title IV Phase II Acid Rain New Unit Exemption Request. If box 1d. is checked, complete and attach Form 500-F4 - Title IV Phase II Acid Rain Retired Unit Exemption Request.

3. Check one box that best represents the type of permit action requested. If box 1e. is checked, in the space provided identify any additional elements regarding the application or the facility that need to be considered during the processing of this application (i.e., Initial Title V Permit Application).

4. If the application is a revision request, describe in general terms the changes that are proposed in the application revision request. Attach additional sheets as necessary.

Section II - Phase II Acid Rain Device Summary

1. Before completing this section, check one box to indicate whether this is a new application or a revision.

AQMD Device #:	Provide the identification number for each AQMD-assigned device subject to Phase II requirements.
EPA Unit #:	Provide the identification number for each EPA-assigned device subject to Phase II requirements.
Will device need a Repowering Extension Plan?:	Indicate with a "yes" or "no" if the device is or will be participating under a Repowering Extension Plan.
Has device started operations on or after 11/15/90?:	Indicate with a "yes" or "no" if the device was source tested or started operating on or after November 15, 1990.
Device Operations Start Date:	Complete this column only if the device was source tested or started operating on or after November 15, 1990. Provide the date (mo/day/yr) when the device started or will start operating. Note: If the date of beginning operations changes, an administrative permit revision application will be required.
For Devices starting-up after 11/15/90, provide date when Monitoring Certification will begin:	Complete this column only if the device was source tested or started operating on or after November 15, 1990. Provide the date (mo/day/yr) when compliance with the monitoring procedures for the device will begin. Refer to 40 CFR Part 75.4 to determine this date. Note: If the monitoring certification date changes, an administrative permit revision application will be required.

South Coast Air Quality Management District

Form 500-H
Title V - Compliance Assurance Monitoring (CAM) Applicability Determination for Initial, Renewal, & Significant Permit Revision

This form is required as part of an initial, significant permit revision, or renewal Title V application. If your Title V facility has control devices in use, the CAM rule may apply. Follow the instructions on the reverse side of this form to determine whether your facility is subject to CAM requirements.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): AES Alamitos, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 115394

Section II - CAM Status Summary for Emission Units

3. Based on the criteria in the instructions (check one and attach additional pages as necessary):

a. ☐ The emission units identified below are subject to the CAM rule[1] and a CAM plan[2] is attached for each affected emissions unit:

b. ☑ There are no emission units with control devices at this Title V facility that are subject to the CAM rule.

Emission Unit[3] (Application, Permit or Device No.)	Equipment Description[4]	Uncontrolled Emissions		Connected to Control Unit[3] (Application, Permit or Device No.)	Equipment Description[4]	Controlled Emissions	
		Pollutant	PTE[5] (tons/year)			Pollutant	PTE[5] (tons/year)

1 For more detailed information regarding the CAM rule applicability, refer to Title 40, Chapter I, Part 64, Section 64.1 of the Code of Federal Regulations (40 CFR Part 64, Section 64.1). This also can be accessed via the internet at: http://www.access.gpo.gov/nara/cfr/waisidx_99/40cfr64_99.html.

2 Only one CAM plan is required for a control device that is common to more than one emissions unit, or if an emissions unit is controlled by more than one control device similar in design and operation. If the control devices are not similar in design and operation, one plan is required for each control device.

3 List all new and existing emission units and the connected control devices either by AQMD application, permit or device number. When the emission unit is new and has not yet been assigned an application number, leave this column blank.

4 Provide a brief equipment description of the emission units and control devices by indicating equipment type, make, and model and serial numbers as appropriate.

5 Potential to Emit

Instructions for Determining Applicability to the CAM Rule

With the exception of emission units that are municipally-owned backup utility power units as described by 40 CFR Part 64, Section 64.2(b)(2)[1], the CAM rule is applicable to each emission unit (existing and new construction) at a Title V facility that meets ALL of the following criteria[2]:

1. The emission unit is subject to an emission limitation or standard[3] (often found in permit conditions);
2. The emission unit uses a control device to achieve compliance with the emission limitation or standard; and,
3. The emission unit has a potential to emit (PTE)[4], either pre-control or post-control depending on the type of Title V application[5], that exceeds or is equivalent to any of Title V major source thresholds shown in the following table:

CAM Potential to Emit (PTE) Emission Threshold[6] For Individual Emission Units at a Title V Facility (tons per year)			
Pollutant	South Coast Air Basin (SOCAB)	Riverside County Portion of Salton Sea Air Basin (SSAB) and Los Angeles County Portion of Mojave Desert Air Basin (MDAB)	Riverside County Portion of Mojave Desert Air Basin (MDAB)
VOC	10	25	100
NOx	10	25	100
SOx	100	100	100
CO	50	100	100
PM-10	70	70	100
1 HAP[7]	10	10	10
2+ HAPs	25	25	25

1 The facility must attach the documentation required by 40 CFR Part 64, Section 64.2 (b)(2) to demonstrate that the backup utility power unit only operates during periods of peak demand or emergency situations; and has actual emissions, averaged over the last three calendar years of operation, less than 50% of the major source emission thresholds.

2 Additional information about the CAM rule can be found on EPA's website at http://www.epa.gov/ttnemc01/cam.html.

3 Only emission limitations and standards from an "applicable requirement" for emission units with control devices are subject to the CAM rule. Applicable requirements are federally-enforceable requirements that are rules adopted by AQMD or the State that are approved by EPA into the State Implementation Plan (SIP) (i.e. "SIP-approved rules"). Refer to Form 500-C1 for the latest versions of SIP-approved and non-SIP approved rules.

For emissions units with control devices that are subject to following federally enforceable requirements, the CAM rule does NOT apply: 1) NSPS (40 CFR Part 60); 2) NESHAP (40 CFR Parts 61 and 63); 3) Title VI of the Federal Clean Air Act (CAA) for Stratospheric Ozone Protection; 4) Title IV of the CAA and SCAQMD Regulation XXXI for Acid Rain facilities; 5) SCAQMD Regulation XX – RECLAIM; 6) Any emission cap that is federally enforceable, quantifiable, and meets the requirements in 40 CFR Part 70, Section 70.4 (b)(12); and 6) Emission limitation or standards for which a continuous compliance determination method is required.

4 To calculate the pre-control device and post-control device PTE for emission units at the facility, refer to the Title V Technical Guidance Document Version 4 .0, Appendix A (pages A-12 through A-23). The calculations are used to determine the CAM applicability according to 40 CFR Part 64, Section 64.5 of the CAM rule.

5 For initial Title V or significant permit revision applications submitted after April 20, 1998, use the post-control device PTE emissions to determine CAM applicability. For Title V permit renewal applications (submittals will begin in 2002), the CAM applicability will be based on the pre-control device PTE.

6 The following table is based on Rule 3001 (Amended November 14, 1997) and Rule 3008 (Amended March 16, 2001). Please be advised that the threshold values are subject to change based on rule amendments.

7 Hazardous Air Pollutant

Particulate Emissions Guarantee for AES Southland:

PM10: 4 lb/hr
PM2.5: 4 lb/hr

Conditions of Guarantee:

1. Particulate emissions shall be the sum of non-condensable emissions determined using EPA Method 201 or 201A and condensable emissions determined using EPA Method 202 dry.
2. Fuel gas composition is as specified in the AES Southland RFQ dated June 20, 2011. No sulfur or fuel bound nitrogen is contained in the fuel gas supplied.
3. Fuel gas supplied is in accordance with MPSA's fuel gas specification.
4. Particulate emission values specified above are stated as the difference between the GT outlet particulate emissions as measured at the GT exhaust flange and the GT inlet particulate emissions as measured at the GT inlet filter house.
5. Particulate emission values specified above are valid for GT normal operation between 100% GT load and 75% GT load.
6. Evaporative cooler is not in service.

January 29, 2013

Horacio Larios
Power Engineers Collaborative, LLC
600 West Jackson Blvd, Suite 600
Chicago, IL 60661

Subject: HRSG Proposal - Emissions Guarantees
Alamitos Energy Center
VPI Proposal P-1061

Dear Mr. Larios:

With regard to our proposal for the HRSGs and associated equipment for the above referenced project, this is to confirm that with the equipment proposed VPI will provide the following emissions guarantees

1. Given the attached M501DA Gas Turbine (GT) Expected Performance & Emissions provided by Mitsubishi Power Systems Americas, Inc. at the following conditions:

   28°F-78.1% Relative Humidity, 100% GT Load through 70% GT Load,
   65.3°F-86.6% Relative Humidity, 100% GT Load through 70% GT Load, and
   107°F-10% Relative Humidity, 100% GT Load through 70% GT Load;

   and with 450 MMBtu/hr (LHV) Duct Burner heat input at the GT 100% load cases

   Stack Emissions associated with each Gas Turbine – Heat Recovery Steam Generator for these conditions are as follows:

	ppmvd@15%O_2
CO	2
VOC	1
NO_X	2

   The CO and SCR catalysts are guaranteed to meet these emission limits for 24,000 hours of operation or three years after initial exhaust flow into the catalysts, whichever occurs first.

2. The Duct Burner's emissions contribution factored into the above stack guarantees are as follows:

	Lbs/MMBtu (HHV)
NO_X as NO_2	0.08
CO	0.05
VOC as CH_4	0.01
PM 10	0.01

Notes:

1. Emission levels given above in lbs/MMBtu (HHV) are guaranteed from 50% to 100% maximum designed heat release of the duct burner system, with all burner runners in operation. For reduced burner loads from 10% to 50% of maximum design heat release with all burner runners in operation, the emissions levels can be higher than those given on a lbs/MM Btu (HHV), but at no point will the burner emissions exceed the mass flow rates on a Lbs/hr bases.
2. For reduced burner loads from 10% to 50% of maximum design heat release, emissions levels given in lbs/MMBtu (HHV) are guaranteed levels when the burner runners are removed from operation (staged) to achieve turndown.
3. VOC's guarantee are non-methane / non-ethane described as methane.
4. PM-10 guarnatee is front and rear half, excludes all inorganic contribution and sulfur/sulfide compounds.

Please do not hesitate to contact me if you have any questions.

Yours sincerely,

Paul Eberle
Account Manager
Vogt Power International Inc.
13551 Triton Park Blvd., Suite 2000
Louisville KY 40223 USA.
Tel. +1-502-899-4614
Cell +1-502-298-4615
Fax. +1-502-899-4699
e-mail peberle@vogtpower.com

Attachments

1. GT Exhaust Outlet Conditions

M501DA Gas Turbine Expected Performance & Emissions

Engine Type		M501DA	M501DA	M501DA	M501DA
Fuel Type		Nat. Gas	Nat. Gas	Nat. Gas	Nat. Gas
GT Load Condition	%	100%	90%	80%	70%
Ambient Temp.	Deg F.	28	28	28	28
Ambient Press.	psia	14.68	14.68	14.68	14.68
Relative Humidity	%	78.1	78.1	78.1	78.1
Evaporative Cooler	On/Off	OFF	OFF	OFF	OFF
Fuel LHV	Btu/lb	20,648	20,648	20,648	20,648
GT Gross Output	kW	133,500	120,000	106,700	93,400
GT Gross Heat Rate (LHV)	Btu/kWh	10,030	10,118	10,196	10,465
GT Exhaust Flow x 10^3	lb/h	3,380.7	3,056.0	2,734.9	2,411.9
GT Exhaust Temp.	Deg F.	993	988	994	1,024
GT Exhaust Press Loss (total)	in. H2O	18.7	15.3	12.3	9.7
GT Exhaust Composition:					
O2	% wt.	15.36	15.40	15.40	15.27
CO2	% wt.	5.12	5.10	5.10	5.19
H2O	% wt.	4.35	4.33	4.33	4.40
N2	% wt.	73.85	73.85	73.85	73.82
Ar	% wt.	1.32	1.32	1.32	1.32
GT EMISSIONS					
NOx	ppmvd @ 15% O2	9	9	9	9
CO	ppmvd @ 15% O2	10	10	10	10
UHC	ppmvd @ 15% O2	1	1	1	1
VOC	ppmvd @ 15% O2	1	1	1	1
PM10/PM2.5 (front half)	mg/m3N	1	1	1	1

NOTES:

1. All above data is based on New & Clean conditions. All supplied values are estimations and not guaranteed.
2. Fuel characteristics are based on customer supplied fuel analysis. Sulfur and fuel bound nitrogen (FBN) in the fuel are assumed to be zero.
3. A tolerance of 0.75% on Power, 1.0% on Heat Rate, 2% on exhaust flow, and 10°F on exhaust temperature shall apply.
4. Particulate front-half emissions (non-condensables) shall be determined using EPA Method 201 or 201A.
5. The definition of VOC is on a non-methane, non-ethane basis assuming equivalent molecular weight of methane. Measurement of VOC is based on that THC(Total Hydro Carbon) measured by EPA Method 25A except methane and ethane measured by EPA Method 18.

198-AESInCA-DA-Gas-028.0F78.07%-PART-20120412(CUSTOMER) / GNP 4/12/2012

Vogt Power International Inc.
4000 Dupont Circle • Louisville, Kentucky 40207 • 502/899-4500 • Fax: 502/899-4690

M501DA Gas Turbine Expected Performance & Emissions

Engine Type		M501DA	M501DA	M501DA	M501DA	M501DA
Fuel Type		Nat. Gas	Nat. Gas	Nat. Gas	Nat. Gas	Nat. Gas
GT Load Condition	%	100%	100%	90%	80%	70%
Ambient Temp.	Deg F.	65.3	65.3	65.3	65.3	65.3
Ambient Press.	psia	14.68	14.68	14.68	14.68	14.68
Relative Humidity	%	86.6	86.6	86.6	86.6	86.6
Evaporative Cooler	On/Off	ON	OFF	OFF	OFF	OFF
Fuel LHV	Btu/lb	20,648	20,648	20,648	20,648	20,648
GT Gross Output	kW	119,900	119,300	107,400	95,500	83,500
GT Gross Heat Rate (LHV)	Btu/kWh	10,235	10,243	10,396	10,543	10,894
GT Exhaust Flow x 10^3	lb/h	3,135.0	3,128.6	2,855.4	2,578.4	2,287.7
GT Exhaust Temp.	Deg F.	1,013	1,014	1,009	1,015	1,046
GT Exhaust Press Loss (total)	in. H2O	16.3	16.2	13.5	11.0	8.8
GT Exhaust Composition:						
O2	% wt.	15.25	15.26	15.32	15.34	15.21
CO2	% wt.	5.06	5.06	5.02	5.00	5.09
H2O	% wt.	5.20	5.17	5.14	5.14	5.20
N2	% wt.	73.18	73.20	73.21	73.21	73.19
Ar	% wt.	1.31	1.31	1.31	1.31	1.31

GT EMISSIONS						
NOx	ppmvd @ 15% O2	9	9	9	9	9
CO	ppmvd @ 15% O2	10	10	10	10	10
UHC	ppmvd @ 15% O2	1	1	1	1	1
VOC	ppmvd @ 15% O2	1	1	1	1	1
PM10/PM2.5 (front half)	mg/m3N	1	1	1	1	1

NOTES:

1. All above data is based on New & Clean conditions. All supplied values are estimations and not guaranteed.
2. Fuel characteristics are based on customer supplied fuel analysis. Sulfur and fuel bound nitrogen (FBN) in the fuel are assumed to be zero.
3. A tolerance of 0.75% on Power, 1.0% on Heat Rate, 2% on exhaust flow, and 10°F on exhaust temperature shall apply.
4. Particulate front-half emissions (non-condensables) shall be determined using EPA Method 201 or 201A.
5. The definition of VOC is on a non-methane, non-ethane basis assuming equivalent molecular weight of methane. Measurement of VOC is based on that THC(Total Hydro Carbon) measured by EPA Method 25A except methane and ethane measured by EPA Method 18.

198-AESinCA-DA-Gas-065.3F96.62%-PART-20120412(CUSTOMER) / GNP 4/12/2012

Vogt Power International Inc.
4000 Dupont Circle • Louisville, Kentucky 40207 • 502/899-4500 • Fax: 502/899-4690

M501DA Gas Turbine Expected Performance & Emissions

Engine Type		M501DA	M501DA	M501DA	M501DA	M501DA
Fuel Type		Nat. Gas	Nat. Gas	Nat. Gas	Nat. Gas	Nat. Gas
GT Load Condition	%	100%	100%	90%	80%	70%
Ambient Temp.	Deg F.	107	107	107	107	107
Ambient Press.	psia	14.68	14.68	14.68	14.68	14.68
Relative Humidity	%	10.0	10.0	10.0	10.0	10.0
Evaporative Cooler	On/Off	ON	OFF	OFF	OFF	OFF
Fuel LHV	Btu/lb	20,648	20,648	20,648	20,648	20,648
GT Gross Output	kW	116,500	101,600	91,500	81,300	71,100
GT Gross Heat Rate (LHV)	Btu/kWh	10,285	10,606	10,865	11,131	11,560
GT Exhaust Flow x 10^3	lb/h	3,074.1	2,864.8	2,650.6	2,423.3	2,164.3
GT Exhaust Temp.	Deg F.	1,018	1,034	1,029	1,035	1,068
GT Exhaust Press Loss (total)	in. H2O	15.7	13.8	11.8	9.8	8.0
GT Exhaust Composition:						
O2	% wt.	15.26	15.69	15.79	15.82	15.69
CO2	% wt.	5.04	4.87	4.81	4.78	4.86
H2O	% wt.	5.28	4.39	4.34	4.32	4.39
N2	% wt.	73.11	73.73	73.74	73.76	73.74
Ar	% wt.	1.31	1.32	1.32	1.32	1.32
GT EMISSIONS						
NOx	ppmvd @ 15% O2	9	9	9	9	9
CO	ppmvd @ 15% O2	10	10	10	10	10
UHC	ppmvd @ 15% O2	1	1	1	1	1
VOC	ppmvd @ 15% O2	1	1	1	1	1
PM10/PM2.5 (front half)	mg/m3N	1	1	1	1	1

NOTES:

1. All above data is based on New & Clean conditions. All supplied values are estimations and not guaranteed.
2. Fuel characteristics are based on customer supplied fuel analysis. Sulfur and fuel bound nitrogen (FBN) in the fuel are assumed to be zero.
3. A tolerance of 0.75% on Power, 1.0% on Heat Rate, 2% on exhaust flow, and 10°F on exhaust temperature shall apply.
4. Particulate front-half emissions (non-condensables) shall be determined using EPA Method 201 or 201A.
5. The definition of VOC is on a non-methane, non-ethane basis assuming equivalent molecular weight of methane. Measurement of VOC is based on that THC(Total Hydro Carbon) measured by EPA Method 25A except methane and ethane measured by EPA Method 18.

198-AESinCA-DA-Gas-107.0F09.97%-PART-20120412(CUSTOMER) / GNP 4/12/2012

Vogt Power International Inc.
4000 Dupont Circle • Louisville, Kentucky 40207 • 502/899-4500 • Fax: 502/899-4690

Johnson Matthey

Gas Turbine Oxidation Catalyst

For the Control of CO, VOCs & HAPs

Applications:

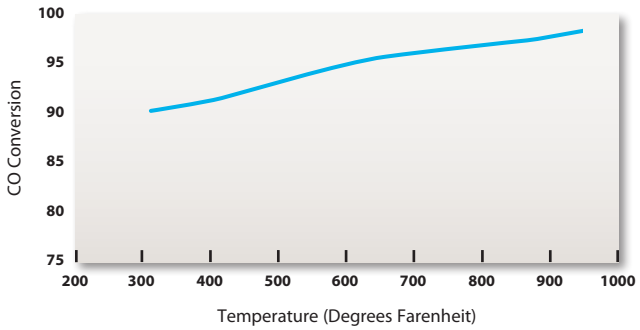
- Combined Cycle Gas Turbines
- Simple Cycle Gas Turbines

Performance

Johnson Matthey pioneered **Oxidation Catalyst** for gas turbines in the 1970's. Since then, **Oxidation Catalysts** have been installed in some of the most environmentally challenging applications, consistently providing greater than 90% destruction of CO, VOCs, formaldehyde and other toxic compounds. Our core expertise in catalysis has allowed Johnson Matthey to stay at the cutting edge of new catalyst development meeting the challenges of ever increasing regulatory requirements.

Our **Oxidation Catalysts** are formulated with Platinum Group Metals (PGM's) to achieve maximum conversion of pollutants at gas turbine temperatures, whether it is a simple cycle or combined cycle gas turbine. Our high activity catalyst plus flow through metal monolith design delivers the smallest catalyst package and the lowest back pressure in the industry. The chart to the right illustrates the level of conversion achievable. Side reactions such as NO to NO_2 are minimized.

OXIDATION CATALYST PERFORMANCE



Regeneration

Johnson Matthey gas turbine **Oxidation Catalysts** have an established durability of 10 or more years of continuous operation. Catalytic performance can be easily maintained and restored, if necessary, through washing. And at the end of the effective life of the catalyst, Johnson Matthey closes the loop at its West Deptford, NJ facility where spent catalyst can be recycled and precious metal value is credited to you. Johnson Matthey also provides field support during catalyst inspections, bed rotations, and partial bed replacements.

Dependability

You can count on Johnson Matthey. Founded in 1817, we are the global leader in environmental catalyst technology with more than 40 years of experience in environmental emissions control catalysts for mobile and stationary sources. We are committed to developing and supplying the highest quality product available.

JM

Johnson Matthey

Stationary Emissions Control

• 900 Forge Avenue, Suite 100, Audubon, PA 19403-2305, (484) 320-2125
• 31 Journey, Suite 250, Aliso Viejo, CA 92656, (949) 297-5200
• www.jmsec.com, info@jmsec.com

DNX® GT-series
Raising performance

RESEARCH | TECHNOLOGY | CATALYSTS

Topsøe's new GT-series of SCR and CO-oxidation catalysts – maximising power output of your gas turbine

The DNX® GT-series is Haldor Topsøe's newly developed line of catalysts tailored for gas turbine service. The GT-series comprises a range of GT catalysts for SCR NOx reduction and GTC catalysts for CO oxidation.

Topsøe's DNX® GT-series offers:

- lower pressure drop
- improved activity
- enhanced operation in all temperature ranges
- fast emission compliance

HALDOR TOPSØE
CATALYSING YOUR BUSINESS

DNX® GT-series
Raising performance

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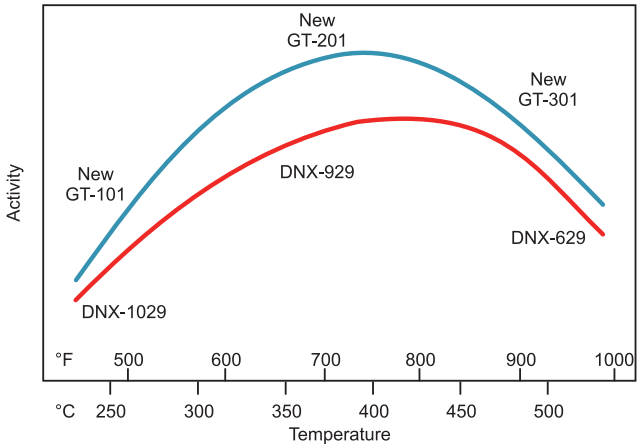
Features

To enhance power production by minimising the pressure drop and the required space for catalyst in the heat recovery steam generator (HRSG), Topsøe has developed a dedicated series of gas-turbine catalysts for SCR and for CO oxidation.



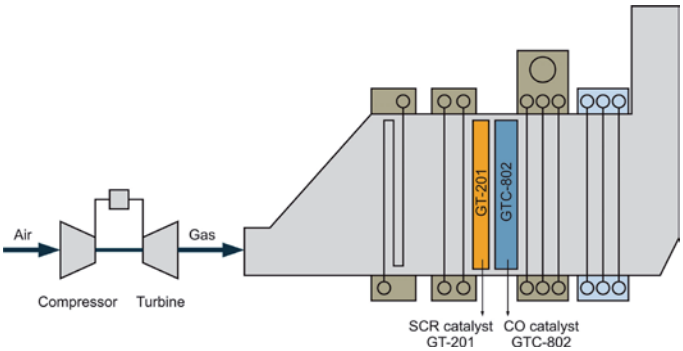
Activity advantage of the new GT catalysts for SCR NOx reduction

SCR catalysts

The GT catalysts feature an enhanced SCR activity which has been achieved through reformulating and changing the monolith structure of the original DNX® catalyst. Thereby an increased specific surface area and a higher catalyst wall utilisation have been achieved which together with a larger open area provide an attractive combination of increased activity and lower pressure drop.

CO oxidation catalysts

The GTC catalysts benefit from a dual functionality which makes the catalysts active in CO- and VOC oxidation as well as in the SCR reaction. The GTC catalysts share the features of the well-proven DNX® catalyst and are available as a high-temperature version that can be positioned upstream the ammonia injection grid (AIG) and a version optimised for positioning downstream the SCR catalyst where the dual functionality leads to reduced SCR catalyst volume and in turn even lower pressure drop.



Benefits

The 20% boost in volume activity for the GT catalysts yield a corresponding reduction in required catalyst volume. Together with a 10% lower specific pressure drop, the GT catalysts offer a saving in overall pressure loss across the SCR catalyst in the order of 30% compared to the previous DNX® versions.

The dual function of the GTC catalysts makes it possible to locate the CO-oxidation catalyst downstream of the SCR in the HRSG. The SCR can then be designed with excess ammonia slip which is subsequently eliminated across the GTC catalyst with the remaining part of the NOx in the flue gas. This combined GT-GTC solution offers more than 40% reduction in SCR catalyst volume and more than 25% reduction in total pressure drop.

The low volume of high-void catalysts has a low thermal mass that offers unlimited heating rate and consequently a minimum time until emission compliance.

DNX® GT-series	Function	Temperature level	Products
GT catalysts	SCR	Low	GT-101
		Medium	GT-201
		High	GT-301

DNX® GT-series	Function	Location	Products
GTC catalysts	CO oxidation	Upstream AIG	GTC-801
		Downstream GT catalyst	GTC-802

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