

## DOCKETED

<b>Docket Number:</b>	00-AFC-02C
<b>Project Title:</b>	Mountainview Power Plant - Compliance
<b>TN #:</b>	220661
<b>Document Title:</b>	Mountainview Generating Station - carbon monoxide control catalysts replacement
<b>Description:</b>	Petition to replace CO air pollution emissions control catalysts
<b>Filer:</b>	Patty Paul
<b>Organization:</b>	Southern California Edison
<b>Submitter Role:</b>	Applicant
<b>Submission Date:</b>	8/11/2017 9:10:47 AM
<b>Docketed Date:</b>	8/11/2017

August 3, 2017

Mr. Joseph Douglas  
Compliance Project Manager  
California Energy Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814

**RE: MOUNTAINVIEW GENERATING STATION (Docket No. 00-AFC-2)  
Petition for Staff Approved Modification to Carbon Monoxide Catalyst  
Replacements**

Dear Mr. Douglas:

Pursuant to Section 1769 of the California Energy Commission ("CEC") Siting Regulations, Southern California Edison Company (SCE) hereby submits the attached Petition for a Staff Approved Modification ("Petition") for replacement of the carbon monoxide (CO) air pollution emissions control catalysts in the gas turbines at the Mountainview Generating Station (Mountainview).

Mountainview consists of two generating units (Unit 3 and Unit 4).<sup>1</sup> Each unit consists of two General Electric (GE) 7FA.04 combustion turbines (CT) and one GE Model D11 steam turbine. SCE plans to replace the CO catalysts (COC) on the four existing combustion turbines. The current CO catalyst beds are original to the plant, and nearing the end of their expected service life. Routine replacement is needed to assure the plant continues to meet its air permit limits, as specified in the plant's South Coast Air Quality Management District (SCAQMD) and Environmental Protection Agency (EPA) Title V permit, and CEC Certification.

Pursuant to the catalyst manufacturer's recommendation, the replacement catalysts will be functionally identical to, but slightly larger (at 185 cubic feet, each) than the existing catalyst beds (at 160 cubic feet, each). As catalyst volume is a stated parameter in the plant's Title V permit, SCE is currently working with the SCAQMD to revise the air permit for this increased CO catalyst volume. Coincidentally, as part of this work, SCE found that the current Title V permit contains an error regarding the CO catalyst volumes. As stated above, the existing CO catalyst beds each contain roughly 160 cubic feet of catalyst, rather than the 240 cubic feet erroneously stated on the current permit. SCE has not been able to determine the source of this apparent typographical error.

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<sup>1</sup> Units 1 and 2 have been decommissioned.

As part of revising the Title V permit (SCAQMD Permit Modification Application in Attachment A), the SCAQMD and EPA have also indicated they plan to make some unrelated changes to the permit regarding Monitoring/Testing Requirements (i.e., revisions to permit conditions D12.3 through D12.5 and the addition of new conditions D12.6 and D12.7). Attachment B includes a word file ("Draft New SCAQMD Conditions") that summarizes these proposed changes, but note that these changes are still being finalized.

A copy of SCE's application to the SCAQMD for the CO catalyst replacement is included in Attachment A ("South Coast AQMD Application for Modification-Oxidizers, Carbon Monoxide").

The COC replacement will not require any changes or deletions of any Conditions of Certification as set forth in the March 21, 2001 Commission Decision approving the Application for Certification of the Mountainview power plant project, as most recently amended on March 14, 2016. The Project will continue to comply with all applicable laws, ordinances, regulations, and standards ("LORS").

SCE will update this Petition once the ongoing assessment work with SCAQMD, associated with SCE's application to amend the plant's air permit for this modification, has concluded. Please do not hesitate to contact me if you have any further questions.

Sincerely,



Terry L. Maddox  
Principal Manager,  
Generation-Eastern Operations  
Southern California Edison

Enclosure: Application Fee

July 27, 2017

**SCE MOUNTAINVIEW GENERATING STATION**

**PETITION FOR A STAFF APPROVED MODIFICATION**  
**TO REPLACE FOUR CARBON MONOXIDE CATALYSTS DURING REGULARLY**  
**SCHEDULED FALL (2017)**  
**PLANT MAINTENANCE OUTAGES**

Pursuant to Section 1769 of the California Energy Commission's Siting Regulations, Southern California Edison Company (SCE) hereby submits the following information in support of a staff approved modification.

**Section 1769 (a)(I)(A) and (B) requires a description of the proposed modifications, including new language for affected conditions, and a discussion of the necessity for the proposed modifications.**

SCE is planning to replace all four of the carbon monoxide (CO) air pollution emissions control catalysts at our Mountainview Generating Station during our upcoming planned maintenance outage. The outage is scheduled for October 2017. The plant has four CO catalyst beds (one per combustion turbine). The current CO catalyst beds are original to the plant, and nearing the end of their expected service life. Routine replacement is needed to assure the plant continues to meet its air permit limits, as specified in the plant's SCAQMD and EPA Title V permit, and CEC Certification.

Pursuant to the catalyst manufacturer's recommendation, the replacement catalysts will be functionally identical to, but slightly larger (at 185 cubic feet, each) than the existing catalyst beds (at 160 cubic feet, each). As catalyst volume is a stated parameter in the plant's Title V permit, SCE is currently working with the SCAQMD to revise the air permit for this increased CO catalyst volume. Coincidentally, as part of this work, we found that the current Title V permit contains an error regarding the CO catalyst volumes. As stated above, the existing CO catalyst beds each contain roughly 160 cubic feet of catalyst, rather than the 240 cubic feet erroneously stated on the current permit. SCE has not been able to determine the source of this apparent typographical error.

This proposed amendment would require the revision of the Air Quality equipment description. In Attachment C, Order No. 16-0309-3 **Petition to Amend to Replace Hot Gas Path Components**, proposed amendments are identified in the four paragraphs where CO catalyst volumes are described.

**Section 1769(a)(I)(C) requires a discussion of whether the modification is based on information that was known by the petitioner during the certification proceeding, and an explanation of why the issue was not raised at that time.**

The proposed modification is not based upon information that was known during the certification proceeding for the Project.

**Section 1769(a)(I)(D) requires a discussion of whether the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, and explanation of why the change should be permitted.**

The modification does not change or undermine the assumptions, rationale, findings, or other bases of the Commission's decision certifying the Project. The replacement catalysts will be functionally identical to, but slightly larger (at 185 cubic feet, each) than the existing catalyst beds (at 160 cubic feet, each). As catalyst volume is a stated parameter in the plant's Title V permit, SCE is currently working with the SCAQMD to revise the permit for this increased CO catalyst volume. Coincidentally, as part of this work, we found that the current Title V permit contains an error regarding the CO catalyst volumes. As stated above, the existing CO catalyst beds each contain roughly 160 cubic feet of catalyst, rather than the 240 cubic feet erroneously stated on the current permit. SCE has not been able to determine the source of this apparent typographical error.

**Section 1769(a)(I)(E) requires an analysis of the impacts the modifications may have on the environment and proposed measures to mitigate any significant adverse impacts.**

The proposed modification will not have any effect on air emissions, as the new catalysts are guaranteed to meet the same emissions limits as the previous catalysts. The plant will continue to meet all existing emissions limits established in the existing permits, and there will be no change in the facility's potential to emit (PTE). The facility will also comply with any new monitoring conditions imposed by the South Coast Air Quality Management District (SCAQMD) and United States Environmental Protection Agency (US EPA) as a result of this modification.

**Section 1769(a)(I)(F) requires a discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards.**

The proposed modification will not impact the Project's ability to comply with applicable laws,

ordinances, regulations, and standards ("LORS").<sup>1</sup>

**Section 1769(a)(I)(G) requires a discussion of how the modifications affect the public.**

The proposed CO Catalyst replacement will not require new construction or other physical changes to the environment, and will not negatively impact air quality or public health. The proposed modification will not adversely affect the public, including:

- The replacement will not change the physical appearance of the Mountainview plant.
- The replacement does not require the construction of new equipment lay-down staging areas. The replacement catalyst will be staged at existing equipment lay-down areas, as are used for all turbine overhauls.
- The replacement will not require any ground disturbing activities.
- The replacement will not require plant outages beyond those already required for routine maintenance.
- The replacement will not increase plant water consumption.
- The replacement will not change ambient noise levels associated with the plant.
- The replacement will not affect traffic into and out of the plant, or the number of workers at the plant during normal operations or outages.
- The replacement will not change the inventory and is not expected to change consumption levels of hazardous chemicals stored and used by the plant.
- The replacement is not expected to cause any changes to the level of wastes produced by the plant.

The Mountainview facility is primarily located in a predominantly commercial/industrial area of Redlands, California. The 50+ acre plant site is at the Northeast corner of San Bernardino Ave. and Mountain View Ave. As shown in Figure 1 (below) to the North, the Mountainview plant is bounded by the Santa Ana River/Wash and commercial complexes, including the San Bernardino International airport; to the East, the Mountainview plant is bounded by a SCE transmission substation and commercial complexes; to the South and across San Bernardino Ave., the Mountainview plant is bounded by commercial complexes; to the East and across Mountain View Ave., the Mountainview plant is bounded by industrial complexes; and diagonally across these streets at the Mountainview plant's southwest corner are residential properties.

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<sup>1</sup> The listing of applicable Air Quality Laws, Ordinances, Regulations and Standards contained in the Mountainview CEC permit (Final Decision, p. 40) includes the federal Clean Air Act, 40 CFR Part 60 subpart GG.



**Figure 1**



Normal maintenance outages for the Mountainview Generating Station are performed in the fall and spring to prepare for the high demand winter and summer months. Traffic in and out of the plant during these outages is typically higher than at other times, given the additional contractor personnel required to support these overhauls.

As noted above, the CO catalyst replacement is being planned as part of a scheduled semiannual maintenance outage. Therefore, the contractor traffic to replace the catalysts will be no different than that associated with usual maintenance outages.

Once installed, the life of the new catalyst is expected to be similar to that of the previous catalyst. Therefore, traffic in subsequent years associated with catalyst maintenance is expected to remain the same as the traffic associated with the current catalyst maintenance.

Contractor access driving paths will not change as a result of the replacement. Contractors will continue to access the Mountainview plant property at the northwest corner of the facility from Mountain View Ave. Entrances to Mountainview are shown in Figure 2 (below).

**Figure 2**



As noted above, the catalyst will be installed during the regularly scheduled maintenance outages on Unit 3 and Unit 4 this Fall. These outages could occur as early as September 2017 and last approximately 2-3 weeks. The onsite workforce profile for these outages is forecast to be essentially identical to the workforce profile for semiannual maintenance outages incurred at Mountainview in the past.

During the outages, the workforce is expected to reach a peak of approximately 125 individuals on day shift and approximately 50 individuals on night shift. Approximately 10% of these individuals will be contractor personnel associated with the catalyst replacement. The remaining individuals will consist of SCE staff and contractors to perform plant maintenance activities that are in addition to the COC replacement.

Because of the importance of minimizing Mountainview total outage time to SCE's customers,



as was the case with past outages, SCE anticipates that work activity will be performed around-the-clock during the outage. SCE expects that each day's work will involve two 12-hour shifts, each beginning and ending at 7 a.m. and 7 p.m. Existing parking areas within the plant will accommodate this workforce, as it has for past overhaul outages employing the approximate same number of personnel.

Equipment laydown areas used for these upcoming Fall 2017 outages will be the same paved laydown areas used for previous maintenance outages. These areas are shown on Figure 3 (below). The laydown areas are generally adjacent to the equipment to be worked on, are well within the property boundaries.

**Figure 3**

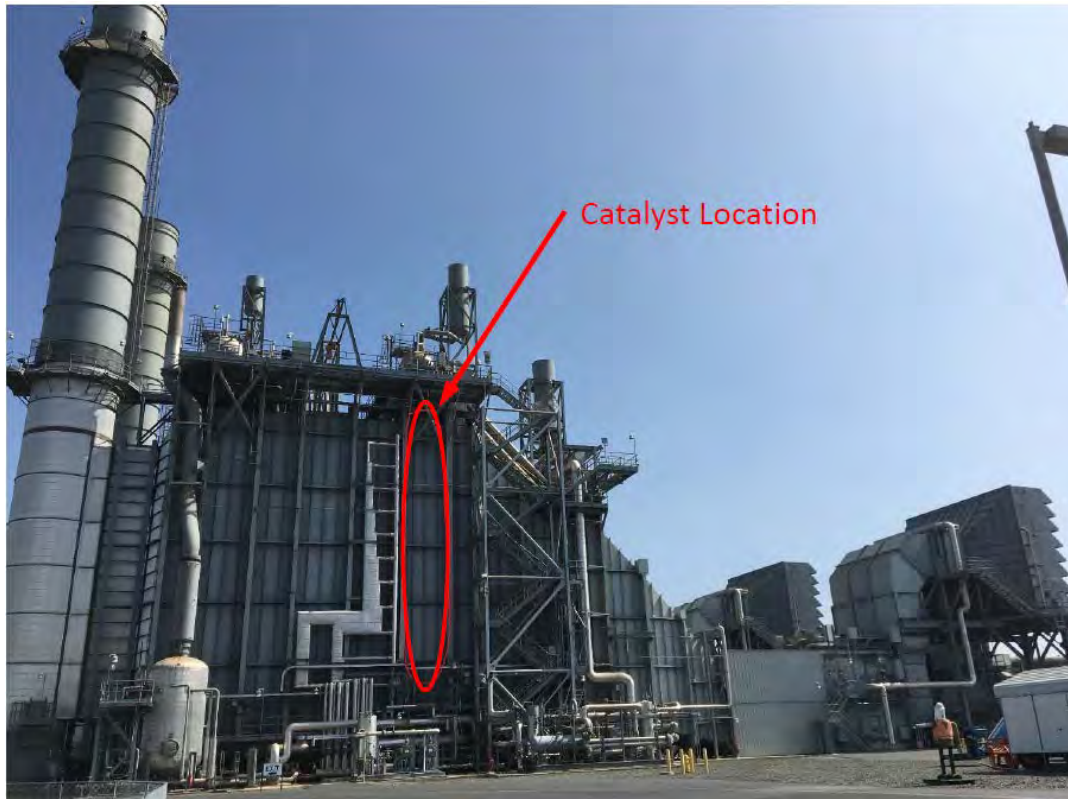


The existing plant layout and balance of plant equipment, including stacks, heat recovery steam generator (HRSG) and associated emission control systems, steam turbine generators, cooling towers, switchyard and all other equipment will remain unchanged. The existing inlet air filtration, and selective catalytic reduction system will continue to provide emission controls.

The proposed modifications will not change the external physical appearance of the affected equipment. The modifications are internal to the combustion turbine exhaust duct which is

self-contained, as shown in Figure 4 (below).

**Figure 4**



The proposed modifications are not expected to result in any changes to the noise emissions during operations, as the COC modules are internal to the combustion turbine exhaust duct.

The Mountainview facility uses reclaimed water to provide water requirements for the cooling towers, the heat recovery steam generator system and for other non-potable balance of plant water needs. The COC replacement will not change plant water consumption levels.

The replacement will not change the inventory or expected consumption levels of hazardous chemicals stored and used by the plant. The modifications will not cause any changes to the expected level of wastes produced by the plant.

There will be no impact of plant operations on aircraft safety.

**Section 1769(a)(I)(H) requires a list of property owners potentially affected by the modification.**

A list of owners of all properties and occupants located within 1,000 feet of Mountainview is provided in Attachment D. The proposed replacement will have no significant environmental effects and will be in compliance with applicable LORS. No significant adverse effects on these property owners will result from the proposed modification.

**Section 1769(a)(I)(I) requires a discussion of the potential effect on nearby property owners, the public and the parties in the application proceeding**

The proposed modification will have no environmental effects and will be in compliance with applicable LORS. Therefore, the proposed changes will have no impact on property owners, or any other parties.

## ATTACHMENT A

### South Coast AQMD Application for Modification- Oxidizers, Carbon Monoxide

April 28, 2017

South Coast Air Quality Management District  
Attention: Mr. Chris Perri  
21865 Copley Drive  
Diamond Bar, CA 91765

**Subject: Application for Modification – Southern California Edison  
Mountainview Generating Station (Facility ID 160437);  
Oxidizers, Carbon Monoxide (A/N 562528, 562529, 562530, and 562531)**

Dear Mr. Perri:

Southern California Edison (SCE) owns and operates the Mountainview Generating Station (MVGS, Facility ID 160437) in Redlands, CA. The purpose of this application package is to revise the Title V and RECLAIM Permit to reflect the replacement of four Carbon Monoxide (CO) oxidation control systems at MVGS.

## **BACKGROUND**

This facility consists of two approximately 552 megawatt (MW) combined-cycle power generation units, each with two General Electric 7FA.04 natural gas-fired combustion turbine generators (CTGs, devices D18, D27, D36, D45), and each with one steam turbine. Combined-cycle Unit 3 became operational in December 2005 and Unit 4 in January 2006. All four of the CTGs include selective catalytic reduction (SCR) control systems and CO oxidation catalyst control devices (C23, C32, C41 and C50). SCE plans to replace the four existing CO oxidation catalysts at MVGS with new similar (functionally equivalent, but not like-for-like) CO control systems. The new CO oxidation catalysts are guaranteed to comply with the existing permitted concentration limits for CO, so no changes to the permitted emissions levels are proposed.

The current Title V and RECLAIM permit was issued on March 18, 2016 and expires on March 17, 2021. The information related to the equipment being modified is shown below.

**Table 1: Equipment Identification**

Process	Combined-Cycle Unit – CTG #		Combustion Turbine	CO Oxidation Catalyst	Prior Application Number (A/N)
1	Unit 3	3-1	D18	C23	562528
1		3-2	D27	C32	562529
1	Unit 4	4-1	D36	C41	562530
1		4-2	D45	C50	562531



## FACILITY CONTACT INFORMATION AND LOCATION

The applicant contact and facility information is shown in Table 2.

**Table 2: Facility Contact Information**

<b>Applicant's Name:</b>	Southern California Edison (SCE)
<b>Responsible Official Contact Information:</b>	Terry Maddox Principal Manager, Eastern Operations Southern California Edison Phone: (909) 478-1713 Email: <a href="mailto:Terry.Maddox@SCE.com">Terry.Maddox@SCE.com</a>
<b>Environmental Contact Information:</b>	Julia M. Lakes Major Facilities Environmental Specialist Environmental Operations Division Southern California Edison 2492 W. San Bernardino Ave., Redlands, CA 92374 Phone: (909) 478-1721 Email: <a href="mailto:Julia.Lakes@SCE.com">Julia.Lakes@SCE.com</a>
<b>Facility ID:</b>	160437
<b>Equipment Location:</b>	2492 W. San Bernardino Ave, Redlands, CA 92374 San Bernardino County

Aerial photographs of the facility and its surroundings are shown in Figures 1 and 2.

## PROPOSED PERMIT ACTION

SCE is proposing to replace the four existing CO oxidation catalysts with four new CO oxidation catalysts. The project will require an amendment to the facility RECLAIM/Title V permit. The preparers of this application are shown below:

<b>Application Preparers</b>	Sara J. Head, QEP Yorke Engineering, LLC Phone: (805) 293-7085 E-mail: <a href="mailto:SHead@YorkeEngr.com">SHead@YorkeEngr.com</a>	Russell Kingsley, CPP #A1606 Yorke Engineering, LLC Phone: (805) 293- 7756 E-mail: <a href="mailto:RKingsley@YorkeEngr.com">RKingsley@YorkeEngr.com</a>
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SCE requests that the final revised permits (after the required EPA review) be issued by SCAQMD in August 2017 such that the four replacement CO oxidation catalysts can be installed during the fall maintenance outage for MVGS, which could occur as early as September 2017. Expedited permit processing is requested for this application. The forms included with this application are listed in Table 3. The forms are provided in Attachment 1.

**Figure 1: Mountainview Generating Station**





**Figure 2 Mountainview Generating Station Surrounding Area**





**Table 3: SCAQMD Application Forms Included With This Application**

Form	Title	Purpose
400-A	Application Form for Permit or Plan Approval	Alteration/Modification of Oxidizing Catalyst 3-1 (C23)
400-A	Application Form for Permit or Plan Approval	Alteration/Modification of Oxidizing Catalyst 3-2 (C32)
400-A	Application Form for Permit or Plan Approval	Alteration/Modification of Oxidizing Catalyst 4-1 (C41)
400-A	Application Form for Permit or Plan Approval	Alteration/Modification of Oxidizing Catalyst 4-2 (C50)
400-A	Application Form for Permit or Plan Approval	RECLAIM/Title V Facility Permit Amendment
400-E-5	Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst	Alteration/Modification of Oxidizing Catalyst 3-1 (C23)
400-E-5	Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst	Alteration/Modification of Oxidizing Catalyst 3-2 (C32)
400-E-5	Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst	Alteration/Modification of Oxidizing Catalyst 4-1 (C41)
400-E-5	Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst	Alteration/Modification of Oxidizing Catalyst 4-2 (C50)
400-CEQA	California Environmental Quality Act (CEQA) Applicability	Required for all applications
500-C1	Title V Compliance Status Report	Required for all Title V applications
500-A2	Title V Application Certification	Required for all Title V applications

## EQUIPMENT DESCRIPTION

EmeraChem ADCAT™ CO catalysts are proposed for replacement of the existing CO catalysts. The ADCAT™ CO catalyst system consists of two primary components.

- Catalyst Modules
- Gaskets

These components are field assembled and integral to the overall system.

Additional information and operating specifications of these CO oxidation catalysts, including a comparison of the operating data and dimensions between the existing and proposed units, are provided in Attachment 2.

## EMISSION CALCULATIONS

There are no emission changes proposed associated with replacement of the four CO oxidation catalysts. Hence, there are no emission calculations/changes associated with this application.

## RULE EVALUATION

The purpose of this request is a minor permit revision to the Equipment Descriptions to reflect the replacement of the CO oxidation catalysts which have a lower volume. Because there are no emissions changes proposed, no new requirements are anticipated associated with this request, as discussed below.

### *SCAQMD Regulations/Rules*

#### *REGULATION II*

##### *Rule 212: Standards for Approving Permits and Issuing Public Notice*

Rule 212(c) contains standards that define which projects require public notification. The proposed modifications to the permit under this application do not result in an increase in criteria pollutant emissions, there is no school within 1,000 feet of the facility, and there is no increase in toxic air contaminant (TAC) emissions. Therefore, the project is not considered significant under this rule, and no public notice is required.

#### *REGULATION III*

##### *Rule 301: Permitting and Associated Fees*

The application processing fees included with this request are shown in Table 4. Per Rule 301(c)(1)(F), when multiples of the same device are being permitting, the full fee is only required for the first unit, and additional units are assessed at 50% of the base fee. A check for the total amount shown in Table 4 is included with this application package as Attachment 3.

**Table 4: Application Processing Fees**

Equipment Item	Equipment ID	Quantity	Schedule	Fee	Total
<b>Permit Revision – Modification</b>					
CO Oxidation Catalyst	C23	1	C	\$3,927.10	\$3,927.10
CO Oxidation Catalyst	C32, C41, C50	3	C	\$1,963.55	\$5,890.65
<b>Subtotal</b>					<b>\$9,817.75</b>
50% fee for expedited processing per Rule 301(v)(1)					\$4,908.88
Title V Permit Revision Fee per Rule 301(l)(5)					\$2,042.42
<b>Total</b>					<b>\$16,769.05</b>



*REGULATION IV*

*Rule 401: Visible Emissions*

Visible emissions exceeding the limits of this rule are not expected during normal operations.

*Rule 402: Nuisance*

Nuisance problems are not expected during normal operation.

*Rule 407: Liquid and Gaseous Air Contaminants*

This rule limits CO concentrations from the turbine to 2000 ppm. The new CO oxidation catalysts will maintain CO emissions equal to or less than previous emissions. Continued compliance is anticipated.

*Rule 409: Combustion Contaminants*

This rule restricts the discharge of contaminants from the combustion of fuel to 0.23 grams per cubic meter (0.1 grain per cubic foot) of gas, calculated to 12% CO<sub>2</sub>, averaged over 15 minutes. The facility currently meets this limit, as demonstrated through source testing. No changes to the combustion related emissions are anticipated, hence continued compliance is expected.

*Rule 475: Electric Power Generating Equipment*

This rule applies to power generating equipment greater than 10 MW installed after May 7, 1976. Requirements are that the equipment meet a limit for combustion contaminants of 11 lbs/hr or 0.01 gr/scf. The facility currently meets both the limits in this Rule, as demonstrated through source testing. Compliance is achieved if either the mass limit or the concentration limit is met. No changes to the combustion-related emissions are anticipated, hence continued compliance is expected.

*REGULATION XIII (New Source Review)*

For facilities subject to Regulation XX - RECLAIM, Regulation XIII only applies to pollutants not specifically regulated by Regulation XX.

*Rule 1303: Requirements*

Best Available Control Technology (BACT) is required for emission increases greater than 1.0 lbs/day. The proposed modifications do not result in an increase in daily, monthly, or annual emissions for any pollutant.

Rule 1304(a)(1) indicates that upon approval by the Executive Officer or designee, an exemption from the modeling requirement of Rule 1303 (b)(1) and the offset requirement of Rule 1303 (b)(2) shall be allowed for replacements, where the source is replacing a functionally identical source or is a functionally identical modification to a source and there is no increase in maximum rating. Further, the potential to emit of any air contaminant will not be greater from the new source than

from the replaced source, when the replaced source was operated at the same conditions and as if current BACT were applied.

*Rule 1325: Federal PM2.5 New Source Review Program*

This rule applies to major sources of PM2.5 that undergo modifications that result in significant increases of PM2.5 and its precursors. There will be no change in potential to emit (PTE) for PM2.5, and hence, this rule is not applicable.

*REGULATION XIV (Toxic and Other Non-criteria Pollutants)*

*Rule 1401: New Source Review of Toxic Air Contaminants*

The requested permit changes are functionally identical replacements and do not result in an increase in any toxic air contaminant emissions; therefore, the proposed modification qualifies for the exemptions of paragraphs (g)(1)(B) and (g)(1)(C).

*REGULATION XVII [Prevention of Significant Deterioration (PSD)]*

*Rule 1703: PSD Analysis*

The South Coast Basin where the project is to be located is in attainment of state and federal ambient air quality standards for NO<sub>2</sub>, SO<sub>2</sub>, and CO, and in attainment of federal PM10 standards. Additionally, beginning on January 2, 2011, Greenhouse Gas (GHG) is a regulated criteria pollutant under the PSD major source permitting program. However, Rule 1704(a)(2) exempts projects related to the installation of pollution control equipment, hence this project is not subject to PSD.

*REGULATION XX (RECLAIM)*

MVGS is subject to the NO<sub>x</sub> RECLAIM regulations. The proposed project is not expected to increase NO<sub>x</sub> emissions nor adversely impact continued RECLAIM compliance.

*REGULATION XXX (Title V)*

The SCE MVGS facility is subject to the Title V requirements because it is a major source of NO<sub>x</sub>, CO, PM10, and VOC and is an Acid Rain facility [Rule 3001(c)(3)]. The modification proposed under this application package is considered a minor permit revision because there is no increase in emissions of any criteria pollutant on an average daily basis, no relaxation of any permit requirements, no increase in toxic emissions, no increase in GHG's > 75,000 tons per year (tpy) CO<sub>2</sub>e, and no new NSPS or NESHAP requirements. As a minor revision, the permit is subject to a 45-day review and comment period by the U.S. EPA.

## **State Regulations**

### **California Environmental Quality Act (CEQA)**

The proposed changes are ministerial in nature. A Form 400-CEQA has been completed and is included in this Application package. No changes were identified associated with this modification that would require further CEQA assessment.

## **Federal Regulations**

### **NSPS for Gas Turbines—40 CFR 60 Subpart GG**

This rule applies to stationary gas turbines that were constructed, modified or reconstructed after October 3, 1977. The subject equipment began construction in 2004; thus, Subpart GG is the applicable regulation.

Subpart GG imposes emission standards for NO<sub>x</sub> and SO<sub>x</sub> from combustion turbines. Source testing has demonstrated compliance with these limits. The proposed CO oxidation catalyst replacement is not expected to adversely impact NO<sub>x</sub> or SO<sub>x</sub> emissions; therefore, continued compliance is expected.

### **NSPS for Stationary Gas Turbines – 40 CFR Part 60 Subpart KKKK (and Subpart A)**

This rule applies to stationary combustion turbines with a heat input (at peak load) of greater than 10 MMBtu/hr that were constructed, modified or reconstructed after February 18, 2005. The MVGS turbines were not subject to Subpart KKKK when initially installed because construction began in 2004. Subpart KKKK would be applicable if the proposed change was a modification under federal rules. Per 40 CFR 60.2, “modification” is defined as follows:

*“Modification means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.”*

As discussed, the proposed modification is a functionally identical replacement of emission control equipment with no change in the method of operation or increase in emissions of any criteria pollutant expected. Therefore, the proposed CO catalyst replacement does not constitute a modification under federal rules, and Subpart KKKK does not apply.

### **NSPS for GHG Emissions from Electric Generating Units – 40 CFR 60 Subpart TTTT**

This rule applies to steam generating units, integrated gasification combined-cycle, and stationary gas turbines that commenced construction, modification, or reconstruction after January 8, 2014. As discussed, per §60.2, the proposed CO catalyst replacement does not constitute a modification under federal rules and, further, the EPA’s regulations specifically exempt pollution control

projects from the definition of an NSPS modification. Since the requested changes for MVGS do not meet the definition of a modification under NSPS rules, this rule does not apply to the facility.

*NSPS for Electric Utility Generating Units (Clean Power Plan) – 40 CFR 60 Subpart UUUU*

This rule applies to existing steam generating units, integrated gasification combined-cycle, and stationary combustion turbines that commenced construction on or before January 8, 2014. For stationary combustion turbines, only combined-cycle and combined heat and power units meet the relevant applicability conditions for Affected Electric Generating Units (EGUs) under the rule, per §60.5845(b)(3). As a facility with combined-cycle turbines, MVGS is subject to this rule; however, it is not directly affected as the State of California must submit a plan for statewide compliance. The proposed modification does not affect MVGS's compliance with this rule. Also note that on February 9, 2016, the Supreme Court stayed implementation of the Clean Power Plan pending judicial review.

*NESHAPS for Stationary Gas Turbines – 40CFR Part 63 Subpart YYYY*

This regulation applies to gas turbines located at major sources of HAP emissions. A major source is defined as a facility with emissions of 10 tpy or more of a single HAP or 25 tpy or more of a combination of HAPs. The facility is not a major source of HAP; therefore, the requirements of this regulation do not apply.

*Compliance Assurance Monitoring – 40 CFR Part 64*

This modification will not affect any requirements related to Compliance Assurance Monitoring (CAM). The CAM regulation applies to emission units at major stationary sources required to obtain a Title V permit, which use control equipment to achieve a specified emission limit and which have emissions that are at least 100% of the major source thresholds on a pre-control basis. A source is exempt from CAM if the source is subject to a post-1990 NSPS or NESHAP that includes a pollutant specific emissions standard and monitoring requirements. The rule is intended to provide "reasonable assurance" that the control systems are operating properly to maintain compliance with the emission limits.

Each turbine is assumed to emit greater than the major source threshold of CO, and the CO oxidation catalysts are control devices for CO emissions. Similarly, each turbine is assumed to emit greater than the major source threshold of NO<sub>x</sub>, and the SCRs are control devices for NO<sub>x</sub> emissions. However, pursuant to 64.2(b)(vi), "Emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in §64.1" are exempt from CAM requirements. Because the facility Title V permit requires CO and NO<sub>x</sub> monitoring using Continuous Emissions Monitoring Systems (CEMS), the turbines are exempt from CAM for CO and NO<sub>x</sub> emissions.

VOC and PM<sub>10</sub> emissions are controlled by the use of natural gas fuel and by efficient combustor design, but not by use of additional control device(s). Since add-on control equipment are not required to meet the VOC and PM<sub>10</sub> limits, this regulation does not apply to VOC and PM<sub>10</sub>

emissions. Compliance with the VOC and PM10 limits will be determined by periodic source testing.

Each turbine emits less than the major source threshold for SO<sub>x</sub>, and the turbines are not equipped with add-on SO<sub>x</sub> emission controls. Therefore, CAM does not apply to SO<sub>x</sub> emissions.

Acid Rain Provisions – 40 CFR Parts 72, 73 and 75

The facility is subject to the requirements of the federal acid rain program because the turbines are utility units greater than 25 MW. The acid rain program is a cap and trade program for SO<sub>2</sub> emissions. The operator is required to monitor SO<sub>2</sub> emissions through use of fuel gas meters and gas constituent analyses, or, if fired with pipeline quality natural gas, as in the case of the MVGS facility, a default emission factor of 0.0006 lbs/MMBtu is allowed. SO<sub>2</sub> mass emissions are to be recorded every hour. NO<sub>x</sub> and O<sub>2</sub> must be monitored with CEMS in accordance with the specifications of 40 CFR Part 75. Under this program, NO<sub>x</sub> and SO<sub>x</sub> emissions will be reported directly to the U.S. EPA. 40 CFR Part 75 requires that the CEMS be installed and certified within 90 days of initial startup. If over a threshold, SO<sub>2</sub> allowances available under the federal program must be provided to offset SO<sub>2</sub> emissions. Note that Section K of the permit includes the Acid Rain rule references applicable to this facility, specifically 40 CFR Part 72 and Part 73.

The proposed project is not expected to impact NO<sub>x</sub> or SO<sub>x</sub> emissions, thus continued compliance is expected.

## **SUGGESTED PERMIT REVISIONS**

Proposed changes or additions are shown in **bold/underline**, proposed deletions are shown in ~~strike through~~. No changes to existing conditions or limits are being requested with this application, only the equipment descriptions listed below.

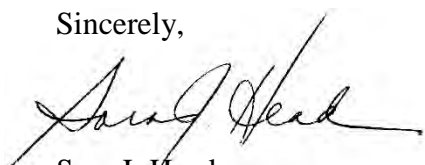


South Coast Air Quality Management District  
Attention: Mr. Chris Perri  
April 28, 2017  
Page 12 of 12

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
<b>PROCESS 1: INTERNAL COMBUSTION</b>					
<b>SYSTEM 1: POWER GENERATION</b>					
OXIDIZER, CARBON MONOXIDE, NO. 3-1, WITH <del>240</del> <b>185</b> CUBIC FEET OF TOTAL CATALYST VOLUME A/N:562528	C23	D18			
OXIDIZER, CARBON MONOXIDE, NO. 3-2, WITH <del>240</del> <b>185</b> CUBIC FEET OF TOTAL CATALYST VOLUME A/N:562529	C32	D27			
OXIDIZER, CARBON MONOXIDE, NO. 4-1, WITH <del>240</del> <b>185</b> CUBIC FEET OF TOTAL CATALYST VOLUME A/N:562530	C41	D36			
OXIDIZER, CARBON MONOXIDE, NO. 4-2, WITH <del>240</del> <b>185</b> CUBIC FEET OF TOTAL CATALYST VOLUME A/N:562531	C50	D45			

Should you have any questions or concerns, please contact me at (805) 293-7085.

Sincerely,



Sara J. Head  
Principal Scientist  
Yorke Engineering, LLC  
[SHead@YorkeEngr.com](mailto:SHead@YorkeEngr.com)

cc: Julia Lakes, SCE  
Casey Scott, SCE  
Terry Maddox, SCE  
Russell Kingsley, Yorke Engineering, LLC

Enclosures:

1. Attachment 1 – Application Processing Forms
2. Attachment 2 – Catalyst Information
3. Attachment 3 – Application Fees Check

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## **ATTACHMENT 1 – PERMIT APPLICATION FORMS**

**Five (5) Forms 400-A**

**Four (4) Forms 400-E-5**

**One (1) Form 400-CEQA**

**One (1) Form 500-C1**

**One (1) Form 500-A2**

**One (1) Form 400-XPP**



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): <b>Southern California Edison, Mountainview Generating Station</b>	2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): <b>160437</b>
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.)

2492 W San Bernardino Ave  
Street Address

Redlands, CA 92374  
City Zip

Julia M. Lakes Environmental Specialist  
Contact Name Title

(909) 478-1721  
Phone # Ext. Fax #

E-Mail: Julia.Lakes@sce.com

**Section C - Permit Mailing Address**

5. Permit and Correspondence Information:  
☐ Check here if same as equipment location address

P.O. Box 5085, Attn: Air Quality  
Address

Rosemead, CA 91770-0908  
City State Zip

Joy Brooks, PE, CPP Air Quality Manager  
Contact Name Title

(626) 302-8850  
Phone # Ext. Fax #

E-Mail: Joy.S.Brooks@SCE.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 (Refer to Title V Matrix)
- ☐ 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 \*

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

**Existing or Previous Permit/Application**  
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:  
**562528**

8a. Estimated Start Date of Construction (mm/dd/yyyy): 09/01/2017	8b. Estimated End Date of Construction (mm/dd/yyyy): 09/15/2017	8c. Estimated Start Date of Operation (mm/dd/yyyy): 09/15/2017
9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Modification to CO Oxidation Catalyst No. 3-1		10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 3
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) <input checked="" type="radio"/> No <input type="radio"/> Yes		12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: <input checked="" type="radio"/> No <input type="radio"/> Yes

**Section E - Facility Business Information**

13. What type of business is being conducted at this equipment location? Electric 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? <input type="radio"/> No <input checked="" type="radio"/> Yes	16. Are there any schools (K-12) within 1000 feet of the facility property line? <input checked="" type="radio"/> No <input type="radio"/> 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: 	18. Title of Responsible Official: Principal Mgr, Eastern Ops.	19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) <input type="radio"/> No <input checked="" type="radio"/> Yes
20. Print Name: Terry Maddox	21. Date: 04/28/2017	22. Do you claim confidentiality of data? (If Yes, see instructions.) <input checked="" type="radio"/> No <input type="radio"/> Yes

23. Check List: <input checked="" type="checkbox"/> Authorized Signature/Date <input checked="" type="checkbox"/> Form 400-CEQA <input checked="" type="checkbox"/> Supplemental Form(s) (ie., Form 400-E-xx) <input checked="" type="checkbox"/> 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 91765-0944Tel. (909) 396-3385  
www.aqmd.gov**Section A - Operator Information**

1. Facility Name (Business Name of Operator to Appear on the Permit):

Southern California Edison, Mountainview Generating Station

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

160437

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.)

2492 W San Bernardino Ave

Street Address

Redlands

CA 92374

City

Zip

Julia M. Lakes

Environmental Specialist

Contact Name

Title

(909) 478-1721

Phone #

Ext.

Fax #

E-Mail: Julia.Lakes@sce.com

**Section C - Permit Mailing Address**

5. Permit and Correspondence Information:

☐ Check here if same as equipment location address

P.O. Box 5085, Attn: Air Quality

Address

Rosemead

CA 91770

City

State

Zip

Joy Brooks, PE, CPP

Air Quality Manager

Contact Name

Title

(626) 302-8850

Phone #

Ext.

Fax #

E-Mail: Joy.S.Brooks@SCE.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 (Refer to Title V Matrix)  
☐ 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 \*

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

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

562529

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

09/01/2017

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

09/15/2017

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

09/15/2017

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

Modification to CO Oxidation Catalyst No. 3-2

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

3

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 ☐ Yes12. Has a Notice of Violation (NOV) or a Notice to  
Comply (NC) been issued for this equipment?  
If Yes, provide NOV/NC#:☒ No ☐ Yes**Section E - Facility Business Information**

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

Electric 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 ☒ Yes16. 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:

Terry P. Maddox

18. Title of Responsible Official:

Principal Mgr, Eastern Ops

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

20. Print Name:

Terry Maddox

21. Date:

04/28/2017

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

23. Check List:

☒ Authorized Signature/Date☒ Form 400-CEQA☒ Supplemental Form(s) (ie., Form 400-E-xx)☒ 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 91765-0944Tel: (909) 396-3385  
www.aqmd.gov**Section A - Operator Information**

1. Facility Name (Business Name of Operator to Appear on the Permit): <b>Southern California Edison, Mountainview Generating Station</b>	2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): <b>160437</b>
3. Owner's Business Name (If different from Business Name of Operator):	

**Section B - Equipment Location Address**

4. Equipment Location Is: <input checked="" type="radio"/> Fixed Location <input type="radio"/> Various Location (For equipment operated at various locations, provide address of initial site.)	
2492 W San Bernardino Ave Street Address	
Redlands	CA 92374
City	Zip
Julia M. Lakes	Environmental Specialist
Contact Name	Title
(909) 478-1721	
Phone #	Ext. Fax #
E-Mail: Julia.Lakes@sce.com	

**Section C - Permit Mailing Address**

5. Permit and Correspondence Information: <input type="checkbox"/> Check here if same as equipment location address	
P.O. Box 5085, Attn: Air Quality	
Address	
Rosemead	CA 91770
City	State Zip
Joy Brooks, PE, CPP	Air Quality Manager
Contact Name	Title
(626) 302-8850	
Phone #	Ext. Fax #
E-Mail: Joy.S.Brooks@SCE.com	

**Section D - Application Type**

6. The Facility Is: <input type="radio"/> Not In RECLAIM or Title V <input type="radio"/> In RECLAIM <input type="radio"/> In Title V <input checked="" type="radio"/> In RECLAIM & Title V Programs	
7. Reason for Submitting Application (Select only ONE):	
7a. New Equipment or Process Application: <input type="radio"/> New Construction (Permit to Construct) <input type="radio"/> Equipment On-Site But Not Constructed or Operational <input type="radio"/> Equipment Operating Without A Permit * <input type="radio"/> Compliance Plan <input type="radio"/> Registration/Certification <input type="radio"/> Streamlined Standard Permit	7c. Equipment or Process with an Existing/Previous Application or Permit: <input type="radio"/> Administrative Change <input checked="" type="radio"/> Alteration/Modification <input type="radio"/> Alteration/Modification without Prior Approval * <input type="radio"/> Change of Condition <input type="radio"/> Change of Condition without Prior Approval * <input type="radio"/> Change of Location <input type="radio"/> Change of Location without Prior Approval * <input type="radio"/> Equipment Operating with an Expired/Inactive Permit *
7b. Facility Permits: <input type="radio"/> Title V Application or Amendment (Refer to Title V Matrix) <input type="radio"/> RECLAIM Facility Permit Amendment	

**Existing or Previous Permit/Application**

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

**562530**

\* 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): 09/01/2017	8b. Estimated End Date of Construction (mm/dd/yyyy): 09/15/2017	8c. Estimated Start Date of Operation (mm/dd/yyyy): 09/15/2017
9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Modification to CO Oxidation Catalyst No. 4-1		10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 3
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) <input checked="" type="radio"/> No <input type="radio"/> Yes		12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: <input checked="" type="radio"/> No <input type="radio"/> Yes

**Section E - Facility Business Information**

13. What type of business is being conducted at this equipment location? Electric 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? <input type="radio"/> No <input checked="" type="radio"/> Yes	16. Are there any schools (K-12) within 1000 feet of the facility property line? <input checked="" type="radio"/> No <input type="radio"/> 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: <i>Terry L. Maddox</i>	18. Title of Responsible Official: Principal Mgr, Eastern Ops.	19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) <input type="radio"/> No <input checked="" type="radio"/> Yes
20. Print Name: Terry Maddox	21. Date: 04/28/2017	22. Do you claim confidentiality of data? (If Yes, see instructions.) <input checked="" type="radio"/> No <input type="radio"/> Yes

23. Check List: <input checked="" type="checkbox"/> Authorized Signature/Date <input checked="" type="checkbox"/> Form 400-CEQA <input checked="" type="checkbox"/> Supplemental Form(s) (i.e., Form 400-E-xx) <input checked="" type="checkbox"/> 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 91765-0944Tel: (909) 396-3385  
www.aqmd.gov**Section A - Operator Information**

1. Facility Name (Business Name of Operator to Appear on the Permit): <b>Southern California Edison, Mountainview Generating Station</b>	2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): <b>160437</b>
3. Owner's Business Name (If different from Business Name of Operator):	

**Section B - Equipment Location Address**

4. Equipment Location Is: <input checked="" type="radio"/> Fixed Location <input type="radio"/> Various Location (For equipment operated at various locations, provide address of initial site.)	
2492 W San Bernardino Ave Street Address	
Redlands City	CA 92374 Zip
Julia M. Lakes Contact Name	Environmental Specialist Title
(909) 478-1721 Phone #	Ext. Fax #
E-Mail: Julia.Lakes@sce.com	

**Section C - Permit Mailing Address**

5. Permit and Correspondence Information: <input type="checkbox"/> Check here if same as equipment location address	
P.O. Box 5085, Attn: Air Quality Address	
Rosemead City	CA 91770 State Zip
Joy Brooks, PE, CPP Contact Name	Air Quality Manager Title
(626) 302-8850 Phone #	Ext. Fax #
E-Mail: Joy.S.Brooks@SCE.com	

**Section D - Application Type**

6. The Facility Is: <input type="radio"/> Not In RECLAIM or Title V <input type="radio"/> In RECLAIM <input type="radio"/> In Title V <input checked="" type="radio"/> In RECLAIM & Title V Programs		
7. Reason for Submitting Application (Select only ONE):		
7a. New Equipment or Process Application: <input type="radio"/> New Construction (Permit to Construct) <input type="radio"/> Equipment On-Site But Not Constructed or Operational <input type="radio"/> Equipment Operating Without A Permit * <input type="radio"/> Compliance Plan <input type="radio"/> Registration/Certification <input type="radio"/> Streamlined Standard Permit	7c. Equipment or Process with an Existing/Previous Application or Permit: <input type="radio"/> Administrative Change <input checked="" type="radio"/> Alteration/Modification <input type="radio"/> Alteration/Modification without Prior Approval * <input type="radio"/> Change of Condition <input type="radio"/> Change of Condition without Prior Approval * <input type="radio"/> Change of Location <input type="radio"/> Change of Location without Prior Approval * <input type="radio"/> Equipment Operating with an Expired/Inactive Permit *	<b>Existing or Previous Permit/Application</b> If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number: <b>562531</b>
7b. Facility Permits: <input type="radio"/> Title V Application or Amendment (Refer to Title V Matrix) <input type="radio"/> RECLAIM Facility Permit Amendment	* 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): 09/01/2017	8b. Estimated End Date of Construction (mm/dd/yyyy): 09/15/2017	8c. Estimated Start Date of Operation (mm/dd/yyyy): 09/15/2017

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Modification to CO Oxidation Catalyst No. 4-2	10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 3
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) <input checked="" type="radio"/> No <input type="radio"/> Yes	12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: <input checked="" type="radio"/> No <input type="radio"/> Yes

**Section E - Facility Business Information**

13. What type of business is being conducted at this equipment location? Electric 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? <input type="radio"/> No <input checked="" type="radio"/> Yes	16. Are there any schools (K-12) within 1000 feet of the facility property line? <input checked="" type="radio"/> No <input type="radio"/> 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: 	18. Title of Responsible Official: Principal Mgr, Eastern Ops	19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) <input type="radio"/> No <input checked="" type="radio"/> Yes
20. Print Name: Terry Maddox	21. Date: 04/28/2017	22. Do you claim confidentiality of data? (If Yes, see instructions.) <input checked="" type="radio"/> No <input type="radio"/> Yes

23. Check List: <input checked="" type="checkbox"/> Authorized Signature/Date <input checked="" type="checkbox"/> Form 400-CEQA <input checked="" type="checkbox"/> Supplemental Form(s) (i.e., Form 400-E-xx) <input checked="" type="checkbox"/> 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.

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

**Section A - Operator Information**

1. Facility Name (Business Name of Operator to Appear on the Permit): <b>Southern California Edison, Mountainview Generating Station</b>	2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): <b>160437</b>
3. Owner's Business Name (If different from Business Name of Operator)	

**Section B - Equipment Location Address**

4. Equipment Location is: <input checked="" type="radio"/> Fixed Location <input type="radio"/> Various Location (For equipment operated at various locations, provide address of initial site.) <b>2492 W San Bernardino Ave</b> Street Address <b>Redlands</b> , CA <b>92374</b> City Zip <b>Julia M. Lakes</b> <b>Environmental Specialist</b> Contact Name Title <b>(909) 478-1721</b> Phone # E-Mail: <b>Julia.Lakes@sce.com</b>
---

**Section C - Permit Mailing Address**

5. Permit and Correspondence Information: <input type="checkbox"/> Check here if same as equipment location address <b>P.O. Box 5085, Attn: Air Quality</b> Address <b>Rosemead</b> , CA <b>91770</b> City State Zip <b>Joy Brooks, PE, CPP</b> <b>Air Quality Manager</b> Contact Name Title <b>(626) 302-8850</b> Phone # E-Mail: <b>Joy.S.Brooks@SCE.com</b>
---

**Section D - Application Type**

6. The Facility is: <input type="radio"/> Not In RECLAIM or Title V <input type="radio"/> In RECLAIM <input type="radio"/> In Title V <input checked="" type="radio"/> In RECLAIM & Title V Programs		
7. Reason for Submitting Application (Select only ONE): 7a. New Equipment or Process Application: <input type="radio"/> New Construction (Permit to Construct) <input type="radio"/> Equipment On-Site But Not Constructed or Operational <input type="radio"/> Equipment Operating Without A Permit * <input type="radio"/> Compliance Plan <input type="radio"/> Registration/Certification <input type="radio"/> Streamlined Standard Permit 7b. Facility Permits: <input checked="" type="radio"/> Title V Application or Amendment (Refer to Title V Matrix) <input type="radio"/> RECLAIM Facility Permit Amendment 7c. Equipment or Process with an Existing/Previous Application or Permit: <input type="radio"/> Administrative Change <input type="radio"/> Alteration/Modification <input type="radio"/> Alteration/Modification without Prior Approval * <input type="radio"/> Change of Condition <input type="radio"/> Change of Condition without Prior Approval * <input type="radio"/> Change of Location <input type="radio"/> Change of Location without Prior Approval * <input type="radio"/> Equipment Operating with an Expired/Inactive Permit * <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Existing or Previous Permit/Application If you checked any of the items in 7c, you MUST provide an existing Permit or Application Number: _____</div> <p>* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).</p>		
8a. Estimated Start Date of Construction (mm/dd/yyyy): <b>09/01/2017</b>	8b. Estimated End Date of Construction (mm/dd/yyyy): <b>09/15/2017</b>	8c. Estimated Start Date of Operation (mm/dd/yyyy): <b>09/15/2017</b>
9. Description of Equipment or Reason for Compliance Plan (list applicable rule): <b>Title V/RECLAIM Permit Amendment</b>	10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process)	
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) <input checked="" type="radio"/> No <input type="radio"/> Yes	12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? <input checked="" type="radio"/> No <input type="radio"/> Yes If Yes, provide NOV/NC#:	

**Section E - Facility Business Information**

13. What type of business is being conducted at this equipment location? <b>Electric Power Generation</b>	14. What is your business primary NAICS Code? (North American Industrial Classification System) <b>221112</b>
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? <input type="radio"/> No <input checked="" type="radio"/> Yes	16. Are there any schools (K-12) within 1000 feet of the facility property line? <input checked="" type="radio"/> No <input type="radio"/> 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: 	18. Title of Responsible Official: <b>Principal Mgr, Eastern Ops</b>	19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) <input type="radio"/> No <input checked="" type="radio"/> Yes
20. Print Name: <b>Terry Maddox</b>	21. Date: <b>04/28/2017</b>	22. Do you claim confidentiality of data? (If Yes, see instructions.) <input checked="" type="radio"/> No <input type="radio"/> Yes

23. Check List: <input checked="" type="checkbox"/> Authorized Signature/Data <input checked="" type="checkbox"/> Form 400-CEQA <input checked="" type="checkbox"/> Supplemental Form(s) (i.e., Form 400-E-xx) <input checked="" type="checkbox"/> Fees Enclosed									
APPLICATION TRACKING #		CHECK #	AMOUNT RECEIVED \$	PAYMENT TRACKING #		VALIDATION			
DATE	APP REJ	DATE	APP REJ	CLASS I II	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN



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 91765-0944Tel: (909) 396-3385  
www.aqmd.gov**Section A - Operator Information**

Facility Name (Business Name of Operator That Appears On Permit):

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

Southern California Edison, Mountainview Generating Station160437

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):

2492 W San Bernardino Ave, Redlands, CA 92374☒ Fixed Location ☐ Various Locations**Section B - Equipment Description****Selective Catalytic Reduction (SCR)**

SCR 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.	
Reducing Agent	<input type="radio"/> Urea <input type="radio"/> Anhydrous Ammonia <input type="radio"/> Aqueous Ammonia _____ %	Injection Rate: _____ lb/hr
Reducing Agent Storage *	Diameter: _____ ft. _____ in. Height: _____ ft. _____ in. Capacity: _____ gal Pressure Setting: _____ psia * A separate permit may be needed for the storage equipment.	
Space Velocity	Gas Flow Rate/Catalyst Volume: _____ per hour	
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: _____ ft/hr	
Manufacturer's Guarantee	NOx: _____ ppm %O <sub>2</sub> : _____ NOx: _____ gm/bhp-hr Ammonia Slip: _____ ppm @ _____ %O <sub>2</sub>	
Catalyst Life	_____ years (expected)	
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____	

**Oxidation Catalyst**

Oxidation Catalyst	Manufacturer: <u>EmeraChem</u> Catalyst Active Material: <u>Platinum</u>	
	Model Number: <u>n/a</u> Type: <u>ADCAT CO</u>	
	Size of Each Layer or Module: L: <u>2</u> ft. <u>2</u> in. W: _____ ft. <u>1.75</u> in. H: <u>2</u> ft. <u>2</u> in.	
	No. of Layers or Modules: <u>267</u> Total Volume: <u>185</u> cu. ft. Total Weight: <u>11288.0</u> lbs.	
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>250700.50</u> per hour	
Manufacturer's Guarantee	VOC: <u>2.0</u> ppm VOC: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u> CO: <u>2.0</u> ppm CO: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u>	
Catalyst Life	<u>10</u> years (expected)	
Cost	Capital Cost: <u>\$314,936.00</u> Installation Cost: _____ Catalyst Replacement Cost: _____	



## 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 <sub>3</sub> : _____ ppm %O <sub>2</sub> : _____
Catalyst Life	_____ years (expected)
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

**Section C - Operation Information**

Operating Temperature	Minimum Inlet Temperature: _____ °F (from cold start) Maximum Temperature: _____ °F
	Warm-up Time: _____ hr. _____ min. (maximum)
Operating Schedule	Normal: _____ hours/day _____ days/week _____ weeks/yr
	Maximum: _____ hours/day _____ days/week _____ 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: 04/26/2017	Name: Russell Kingsley
	Title: _____ Company Name: _____	Phone #: (805) 293-7756 Fax #: _____
	Principal Engineer Yorke Engineering, LLC	Email: RKingsley@YorkeEngr.com
Contact Info	Name: Julia M. Lakes	Phone #: (909) 478-1721 Fax #: _____
	Title: _____ Company Name: _____	Email: _____
	Env. Specialist SCE	Julia.Lakes@SCE.com

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South Coast Air Quality Management District

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

Facility Name (Business Name of Operator That Appears On Permit):

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

Southern California Edison, Mountainview Generating Station160437

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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SCR 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.	
Reducing Agent	<input type="radio"/> Urea <input type="radio"/> Anhydrous Ammonia <input type="radio"/> Aqueous Ammonia _____ %	Injection Rate: _____ lb/hr
Reducing Agent Storage *	Diameter: _____ ft. _____ in. Height: _____ ft. _____ in. Capacity: _____ gal Pressure Setting: _____ psia * A separate permit may be needed for the storage equipment.	
Space Velocity	Gas Flow Rate/Catalyst Volume: _____ per hour	
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: _____ ft/hr	
Manufacturer's Guarantee	NOx: _____ ppm %O <sub>2</sub> : _____ NOx: _____ gm/bhp-hr Ammonia Slip: _____ ppm @ _____ %O <sub>2</sub>	
Catalyst Life	_____ years (expected)	
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____	

**Oxidation Catalyst**

Oxidation Catalyst	Manufacturer: <u>EmeraChem</u> Catalyst Active Material: <u>Platinum</u>	
	Model Number: <u>n/a</u> Type: <u>ADCAT CO</u>	
	Size of Each Layer or Module: L: <u>2</u> ft. <u>2</u> in. W: _____ ft. <u>1.75</u> in. H: <u>2</u> ft. <u>2</u> in.	
	No. of Layers or Modules: <u>267</u> Total Volume: <u>185</u> cu. ft. Total Weight: <u>11288.0</u> lbs.	
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>250700.50</u> per hour	
Manufacturer's Guarantee	VOC: <u>2.0</u> ppm VOC: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u> CO: <u>2.0</u> ppm CO: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u>	
Catalyst Life	<u>10</u> years (expected)	
Cost	Capital Cost: <u>\$314,936.00</u> Installation Cost: _____ Catalyst Replacement Cost: _____	

## 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 <sub>3</sub> : _____ ppm %O <sub>2</sub> : _____
Catalyst Life	_____ years (expected)
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

**Section C - Operation Information**

Operating Temperature	Minimum Inlet Temperature: _____ °F (from cold start) Maximum Temperature: _____ °F
	Warm-up Time: _____ hr. _____ min. (maximum)
Operating Schedule	Normal: _____ hours/day _____ days/week _____ weeks/yr
	Maximum: _____ hours/day _____ days/week _____ 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: <u><i>Russell Kingsley</i></u> Date: <u>04/26/2017</u>	Name: <u>Russell Kingsley</u>
	Title: _____ Company Name: <u>Yorke Engineering, LLC</u>	Phone #: <u>(805) 293-7756</u> Fax #: _____
Contact Info	Name: <u>Julia M. Lakes</u>	Phone #: <u>(909) 478-1721</u> Fax #: _____
	Title: <u>Env. Specialist</u> Company Name: <u>SCE</u>	Email: <u>Julia.Lakes@SCE.com</u>

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

Facility Name (Business Name of Operator That Appears On Permit):

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

Southern California Edison, Mountainview Generating Station160437

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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SCR 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.	
Reducing Agent	<input type="radio"/> Urea <input type="radio"/> Anhydrous Ammonia <input type="radio"/> Aqueous Ammonia _____ %	
	Injection Rate: _____ lb/hr	
Reducing Agent Storage *	Diameter: _____ ft. _____ in. Height: _____ ft. _____ in. Capacity: _____ gal	
	Pressure Setting: _____ psia * A separate permit may be needed for the storage equipment.	
Space Velocity	Gas Flow Rate/Catalyst Volume: _____ per hour	
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: _____ ft/hr	
Manufacturer's Guarantee	NOx: _____ ppm %O <sub>2</sub> : _____ NOx: _____ gm/bhp-hr Ammonia Slip: _____ ppm @ _____ %O <sub>2</sub>	
Catalyst Life	_____ years (expected)	
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____	

**Oxidation Catalyst**

Oxidation Catalyst	Manufacturer: <u>EmeraChem</u> Catalyst Active Material: <u>Platinum</u>	
	Model Number: <u>n/a</u> Type: <u>ADCAT CO</u>	
	Size of Each Layer or Module: L: <u>2</u> ft. <u>2</u> in. W: _____ ft. <u>1.75</u> in. H: <u>2</u> ft. <u>2</u> in.	
	No. of Layers or Modules: <u>267</u> Total Volume: <u>185</u> cu. ft. Total Weight: <u>11288.0</u> lbs.	
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>250700.50</u> per hour	
Manufacturer's Guarantee	VOC: <u>2.0</u> ppm VOC: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u>	
	CO: <u>2.0</u> ppm CO: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u>	
Catalyst Life	<u>10</u> years (expected)	
Cost	Capital Cost: <u>\$314,936.00</u> Installation Cost: _____ Catalyst Replacement Cost: _____	

## 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 <sub>3</sub> : _____ ppm %O <sub>2</sub> : _____
Catalyst Life	_____ years (expected)
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

**Section C - Operation Information**

Operating Temperature	Minimum Inlet Temperature: _____ °F (from cold start) Maximum Temperature: _____ °F
	Warm-up Time: _____ hr. _____ min. (maximum)
Operating Schedule	Normal: _____ hours/day _____ days/week _____ weeks/yr
	Maximum: _____ hours/day _____ days/week _____ 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: 04/26/2017	Name: Russell Kingsley
	Title: _____ Company Name: _____	Phone #: (805) 293-7756 Fax #: _____
	Principal Engineer Yorke Engineering, LLC	Email: RKingsley@YorkeEngr.com
Contact Info	Name: Julia M. Lakes	Phone #: (909) 478-1721 Fax #: _____
	Title: _____ Company Name: _____	Email: _____
	Env. Specialist SCE	Julia.Lakes@SCE.com

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South Coast Air Quality Management District

**Form 400-E-5****Selective Catalytic Reduction (SCR) System,  
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Mail To:  
SCAQMD  
P.O. Box 4944  
Diamond Bar, CA 91765-0944Tel: (909) 396-3385  
www.aqmd.gov**Section A - Operator Information**

Facility Name (Business Name of Operator That Appears On Permit):

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

Southern California Edison, Mountainview Generating Station160437

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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SCR 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.	
Reducing Agent	<input type="radio"/> Urea <input type="radio"/> Anhydrous Ammonia <input type="radio"/> Aqueous Ammonia _____ %	Injection Rate: _____ lb/hr
Reducing Agent Storage *	Diameter: _____ ft. _____ in. Height: _____ ft. _____ in. Capacity: _____ gal Pressure Setting: _____ psia * A separate permit may be needed for the storage equipment.	
Space Velocity	Gas Flow Rate/Catalyst Volume: _____ per hour	
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: _____ ft/hr	
Manufacturer's Guarantee	NOx: _____ ppm %O <sub>2</sub> : _____ NOx: _____ gm/bhp-hr Ammonia Slip: _____ ppm @ _____ %O <sub>2</sub>	
Catalyst Life	_____ years (expected)	
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____	

**Oxidation Catalyst**

Oxidation Catalyst	Manufacturer: <u>EmeraChem</u> Catalyst Active Material: <u>Platinum</u>	
	Model Number: <u>n/a</u> Type: <u>ADCAT CO</u>	
	Size of Each Layer or Module: L: <u>2</u> ft. <u>2</u> in. W: _____ ft. <u>1.75</u> in. H: <u>2</u> ft. <u>2</u> in.	
	No. of Layers or Modules: <u>267</u> Total Volume: <u>185</u> cu. ft. Total Weight: <u>11288.0</u> lbs.	
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>250700.50</u> per hour	
Manufacturer's Guarantee	VOC: <u>2.0</u> ppm VOC: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u> CO: <u>2.0</u> ppm CO: _____ gm/bhp-hr %O <sub>2</sub> : <u>15.00</u>	
Catalyst Life	<u>10</u> years (expected)	
Cost	Capital Cost: <u>\$314,936.00</u> Installation Cost: _____ Catalyst Replacement Cost: _____	

## 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 <sub>3</sub> : _____ ppm %O <sub>2</sub> : _____
Catalyst Life	_____ years (expected)
Cost	Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

**Section C - Operation Information**

Operating Temperature	Minimum Inlet Temperature: _____ °F (from cold start) Maximum Temperature: _____ °F
	Warm-up Time: _____ hr. _____ min. (maximum)
Operating Schedule	Normal: _____ hours/day _____ days/week _____ weeks/yr
	Maximum: _____ hours/day _____ days/week _____ 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: <u>Russell Kingsley</u> Date: <u>04/26/2017</u>	Name: <u>Russell Kingsley</u>
	Title: <u>Principal Engineer</u> Company Name: <u>Yorke Engineering, LLC</u>	Phone #: <u>(805) 293-7756</u> Fax #: _____
Contact Info	Name: <u>Julia M. Lakes</u>	Phone #: <u>(909) 478-1721</u> Fax #: _____
	Title: <u>Env. Specialist</u> Company Name: <u>SCE</u>	Email: <u>Julia.Lakes@SCE.com</u>

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South Coast Air Quality Management District

## Form 400-CEQA

### California Environmental Quality Act (CEQA) Applicability



Mall 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<sup>1</sup> has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].<sup>2</sup> Refer to the attached instructions for guidance in completing this form.<sup>3</sup> 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):

Southern California Edison, Mountainview Generating Station

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

160437

3. Project Description:

Title V Permit Modification - replace four CO Oxidation Catalysts

#### Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	<input type="radio"/>	<input checked="" type="radio"/>	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.	<input type="radio"/>	<input checked="" type="radio"/>	A request for a change of permittee only (without equipment modifications)?
3.	<input checked="" type="radio"/>	<input type="radio"/>	A functionally identical permit unit replacement with no increase in rating or emissions?
4.	<input type="radio"/>	<input checked="" type="radio"/>	A change of daily VOC permit limit to a monthly VOC permit limit?
5.	<input type="radio"/>	<input checked="" type="radio"/>	Equipment damaged as a result of a disaster during state of emergency?
6.	<input type="radio"/>	<input checked="" type="radio"/>	A Title V (i.e., Regulation XXX) permit renewal (without equipment modifications)?
7.	<input type="radio"/>	<input checked="" type="radio"/>	A Title V administrative permit revision?
8.	<input type="radio"/>	<input checked="" type="radio"/>	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.


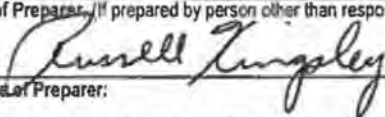
	Yes	No	Part I - General
1.	<input type="radio"/>	<input type="radio"/>	Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project? Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	<input type="radio"/>	<input type="radio"/>	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.	<input type="radio"/>	<input type="radio"/>	Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?
4.	<input type="radio"/>	<input type="radio"/>	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.

<sup>1</sup> 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.

<sup>2</sup> To download the CEQA guidelines, visit [http://ceres.ca.gov/env\\_law/state.html](http://ceres.ca.gov/env_law/state.html).

<sup>3</sup> 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.	<input type="radio"/>	<input type="radio"/>	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.	<input type="radio"/>	<input type="radio"/>	Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?
7.	<input type="radio"/>	<input type="radio"/>	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 17 <sup>4</sup>
Part III - Water Resources			
8.	<input type="radio"/>	<input type="radio"/>	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.	<input type="radio"/>	<input type="radio"/>	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):		
	<input type="radio"/>	<input type="radio"/>	a. the need for more than 350 new employees?
	<input type="radio"/>	<input type="radio"/>	b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?
	<input type="radio"/>	<input type="radio"/>	c. increase customer traffic by more than 700 visits per day?
Part V - Noise			
11.	<input type="radio"/>	<input type="radio"/>	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):		
	<input type="radio"/>	<input type="radio"/>	a. Solid waste disposal? Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	<input type="radio"/>	<input type="radio"/>	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: Principal Manager, Eastern Operations	
3. Print Name of Responsible Official of Firm: Terry Maddox		4. Date Signed: 04/28/2017	
5. Phone # of Responsible Official of Firm: (909) 478-1713	6. Fax # of Responsible Official of Firm: (909) 478-1740	7. Email of Responsible Official of Firm: Terry.Maddox@sce.com	
8. Signature of Preparer (if prepared by person other than responsible official of firm): 		9. Title of Preparer: Principal Engineer	
10. Print Name of Preparer: Russell Kingsley, CPP# A1606		11. Date Signed: 04/26/2017	
12. Phone # of Preparer: (805) 293-7756	13. Fax # of Preparer:	14. Email of Preparer: RKingsley@YorkeEngr.com	

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

<sup>4</sup> Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.





## Title V Compliance Status Report

To provide the compliance status of your facility with applicable federally enforceable requirements and identify other local-only requirements, complete this form and attach it to a completed compliance certification Form 500-A2. As appropriate, all submittals of Form 500-C2 as appropriate should also be attached to this form.

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):

Southern California Edison, Mountainview Generating Station

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

160437

## PROCEDURES FOR DETERMINING COMPLIANCE STATUS

1. **Equipment verification:** Review the list of pending applications, and either the preliminary Title V facility permit or the list of current permits to operate that the AQMD provided you, to determine if they completely and accurately describe all equipment operating at the facility. Attach a statement to describe any discrepancies.
2. **Identify applicable requirements\*:** Use the checklist in Section II to identify all applicable and federally-enforceable local, state, and federal rules and regulations, test methods, and monitoring, recordkeeping and reporting (MRR) requirements that apply to any equipment or process (including equipment exempt from a permit by Rule 219) at your facility. The potential applicable requirements, test methods and MRR requirements are identified and listed adjacent to each given equipment/process description. Check off each box adjacent to the corresponding requirement as it applies to your particular equipment/process.  
Note: Even if there is only one piece of equipment that is subject to a particular requirement, the appropriate box should be checked.
3. **Identify additional applicable requirements\*:** Use Section III to identify any additional requirements not found in Section II. Section II is not a complete list of all applicable requirements. It does not include recently adopted NESHAP regulations by EPA or recent amendments to AQMD rules. Do not add rules listed in Section V here.
4. **Identify any requirements that do not apply to a specific piece of equipment or process:** Also use Section III to identify any requirements that are listed in Section II but that do not apply to a specific piece of equipment or process. Fill out Section III of this form and attach a separate sheet to explain the reason(s) why the identified rules do not apply. Note: Listing any requirement that does not apply to a specific piece of equipment will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and is approved by AQMD.
5. **Identify SIP-approved rules that are not current AQMD rules:** Use Section IV to identify older versions of current AQMD rules that are the EPA-approved versions in the State Implementation Plan (SIP), and that are still applicable requirements as defined by EPA. The facility is not required to certify compliance with the items checked in Section IV provided that the non-SIP approved rule in Section II is at least as stringent as the older SIP-approved version in Section IV. \*\*
6. **Identify Local-Only Enforceable Regulatory Requirements:** Use Section V to identify AQMD rules that are not SIP-approved and are not federally enforceable.
7. **Determine compliance:** Determine if all equipment and processes are complying with all requirements identified in Sections II and III. If each piece of equipment complies with all applicable requirements, complete and attach Form 500-A2 to certify the compliance status of the facility. If any piece of equipment is not in compliance with any of the applicable requirements, complete and attach Form 500-C2 in addition to Form 500-A2.

\* The following AQMD rules and regulations are not required to be included in Section II and do not have to be added to Section III: Regulation I, List and Criteria in Regulation II, Rule 201, Rule 201.1, Rule 202, Rule 203, Rule 205, Rule 206, Rule 207, Rule 208, Rule 209, Rule 210, Rule 212, Rule 214, Rule 215, Rule 216, Rule 217, Rule 219, Rule 220, Rule 221, Regulation III, Regulation V, Regulation VIII, Regulation XII, Regulation XV, Regulation XVI, Regulation XIX, Regulation XXI, Regulation XXII, and Regulation XXX.

\*\* Emission units adversely affected by the gap between current and SIP-approved versions of rules may initially be placed in a non-Title V portion of the permit

Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	<input type="checkbox"/> Rule 480 (10/07/77)	N/A	N/A
<input type="checkbox"/> All Coating Operations (12/15/00)	<input type="checkbox"/> Rule 442	<input type="checkbox"/> Rule 442(f)	<input type="checkbox"/> Rule 442(g)
<input type="checkbox"/> All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	<input type="checkbox"/> Rule 474 (12/04/81)	<input type="checkbox"/> AQMD TM 7.1 or 100.1	
<input checked="" type="checkbox"/> All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	<input checked="" type="checkbox"/> Rule 407 (04/02/82) <input checked="" type="checkbox"/> Rule 409 (08/07/81)	<input type="checkbox"/> AQMD TM 100.1 or 10.1, 307-91 <input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3	
<input checked="" type="checkbox"/> All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	<input checked="" type="checkbox"/> Rule 431.1 (06/12/98)	<input checked="" type="checkbox"/> Rule 431.1(f)	<input checked="" type="checkbox"/> Rule 431.1(d) & (e)
<input checked="" type="checkbox"/> All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	<input checked="" type="checkbox"/> Rule 431.2 (09/15/00)	<input checked="" type="checkbox"/> Rule 431.2(g)	<input checked="" type="checkbox"/> Rule 431.2(f)
<input type="checkbox"/> All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	<input type="checkbox"/> Rule 431.3 (05/07/76)		
<input checked="" type="checkbox"/> All Equipment	<input checked="" type="checkbox"/> Rule 401 (11/09/01) <input checked="" type="checkbox"/> Rule 405 (02/07/86) <input checked="" type="checkbox"/> Rule 408 (05/07/76) <input checked="" type="checkbox"/> Rule 430 (07/12/96) <input checked="" type="checkbox"/> Rule 701 (06/13/97) <input checked="" type="checkbox"/> New Source Review, BACT <input type="checkbox"/> Rule 1703 (10/07/88) <input checked="" type="checkbox"/> 40 CFR68 - Accidental Release Prevention	<input type="checkbox"/> California Air Resources Board Visible Emission Evaluation <input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3 N/A	<input checked="" type="checkbox"/> Rule 430(b)
<input type="checkbox"/> All Equipment Processing Solid Materials	<input type="checkbox"/> Rule 403 (06/03/05)	See Applicable Subpart	See Applicable Subpart
<input checked="" type="checkbox"/> All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	<input checked="" type="checkbox"/> Rule 404 (02/07/86)	<input checked="" type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3	<input type="checkbox"/> Rule 403(f)
<input checked="" type="checkbox"/> All Facilities Using Solvents to Clean Various Items or Equipment	<input checked="" type="checkbox"/> Rule 109 (05/02/03) <input checked="" type="checkbox"/> Rule 1171 (05/01/09) <input type="checkbox"/> 40 CFR63 SUBPART T	<input checked="" type="checkbox"/> Rule 109(g) <input checked="" type="checkbox"/> Rule 1171(e) See Applicable Subpart	<input checked="" type="checkbox"/> Rule 109(c) <input checked="" type="checkbox"/> Rule 1171(c)(6) See Applicable Subpart
<input checked="" type="checkbox"/> All RECLAIM Equipment (NOx & SOx)	<input checked="" type="checkbox"/> Reg. XX - RECLAIM	<input type="checkbox"/> Rule 2011, App. A (05/06/05) <input checked="" type="checkbox"/> Rule 2012, App. A (05/06/05)	<input type="checkbox"/> Rule 2011, App. A (05/06/05) <input checked="" type="checkbox"/> Rule 2012, App. A (05/06/05)
<input checked="" type="checkbox"/> Abrasive Blasting	<input checked="" type="checkbox"/> Rule 1140 (08/02/85)	<input checked="" type="checkbox"/> Rule 1140(d) & (e), AQMD Visible Emission Method	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Aggregate and Related Operations	<input type="checkbox"/> Rule 1157 (09/08/06)	<input type="checkbox"/> Rule 1157(f)	<input type="checkbox"/> Rule 1157(e)	
<input type="checkbox"/> Appliances Containing Ozone Depleting Substances (except Motor Vehicle Air Conditioners): Manufacturing, Repair, Maintenance, Service, & Disposal	<input type="checkbox"/> 40 CFR82 SUBPART F	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Asphalt	See Manufacturing, Asphalt Processing & Asphalt Roofing			
<input type="checkbox"/> Asphalt Concrete/Batch Plants	<input type="checkbox"/> 40 CFR60 SUBPART I	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Benzene Emissions, Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, & Coke By-Product Recovery Plants	<input type="checkbox"/> Rule 1173 (02/06/09) <input type="checkbox"/> Rule 1176 (09/13/96) <input type="checkbox"/> 40 CFR61 SUBPART L <input type="checkbox"/> 40 CFR61 SUBPART Y <input type="checkbox"/> 40 CFR63 SUBPART R <input type="checkbox"/> 40 CFR63 SUBPART CC	<input type="checkbox"/> Rule 1173(j) <input type="checkbox"/> Rule 1176(h) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1173(i) <input type="checkbox"/> Rule 1176(f) & (g) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Benzene Transfer Operations	<input type="checkbox"/> Rule 1142 (07/19/91) <input type="checkbox"/> 40 CFR61 SUBPART BB <input type="checkbox"/> 40 CFR63 SUBPART Y	<input type="checkbox"/> Rule 1142(e) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1142(h) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Benzene Waste Operations	<input type="checkbox"/> Rule 1176 (09/13/96) <input type="checkbox"/> 40 CFR61 SUBPART FF <input type="checkbox"/> 40 CFR63 SUBPART CC	<input type="checkbox"/> Rule 1176(h) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1176(f) & (g) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Beryllium Emissions	<input type="checkbox"/> 40 CFR61 SUBPART C	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Beryllium Emissions, Rocket Motor Firing	<input type="checkbox"/> 40 CFR61 SUBPART D	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Boiler, < 5 Mmbtu/Hr (non-RECLAIM sources)	<input type="checkbox"/> Rule 1146.1 (09/05/08) <input type="checkbox"/> Rule 1146.2 (05/05/06) <input type="checkbox"/> 40 CFR63 SUBPART DDDDD	<input type="checkbox"/> Rule 1146.1(d) N/A See Applicable Subpart	<input type="checkbox"/> Rule 1146.1(c)(2) & (c)(3) N/A See Applicable Subpart	
<input type="checkbox"/> Boiler, < 5 Mmbtu/Hr (RECLAIM sources)	<input type="checkbox"/> Rule 1146.1 (09/05/08) - excluding NOx requirements <input type="checkbox"/> 40 CFR63 SUBPART DDDDD	<input type="checkbox"/> Rule 1146.1(d) See Applicable Subpart	<input type="checkbox"/> Rule 1146.1(c)(2) & (c)(3) See Applicable Subpart	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Boiler, ≥ 5 Mmbtu/Hr (non-RECLAIM sources)	<input type="checkbox"/> Rule 218 (05/14/99)	<input type="checkbox"/> AQMD TM 100.1	<input type="checkbox"/> Rule 218(e) & (f) <input type="checkbox"/> Rule 429(d)	
	<input type="checkbox"/> Rule 429 (12/21/90)	N/A		
	<input type="checkbox"/> Rule 475 (08/07/78)	<input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3	<input type="checkbox"/> Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	
	<input type="checkbox"/> Rule 476 (10/08/76)	<input type="checkbox"/> AQMD TM 7.1, 100.1, 5.1, 5.2, or 5.3		
	<input type="checkbox"/> Rule 1146 (09/05/08)	<input type="checkbox"/> Rule 1146(d)		
	<input type="checkbox"/> 40 CFR60 SUBPART D	See Applicable Subpart		
	<input type="checkbox"/> 40 CFR60 SUBPART Da	See Applicable Subpart		
	<input type="checkbox"/> 40 CFR60 SUBPART Dc	See Applicable Subpart		
	<input type="checkbox"/> 40 CFR63 SUBPART DDDDD	See Applicable Subpart		
	<input type="checkbox"/> Rule 475 (08/07/78)	<input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3	<input type="checkbox"/> Rule 1146(c)(6) & (c)(7) <input type="checkbox"/> Rule 211, App. A (05/06/05) or <input type="checkbox"/> Rule 212, App. A (05/06/05) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	
	<input type="checkbox"/> Rule 476 (10/08/76) - excluding NOx requirements	<input type="checkbox"/> AQMD TM 7.1, 100.1, 5.1, 5.2, or 5.3		
	<input type="checkbox"/> Rule 1146 (09/05/08) - excluding NOx requirements	<input type="checkbox"/> Rule 1146(d)		
	<input type="checkbox"/> Rule 211 (05/06/05)	<input type="checkbox"/> Rule 211, App. A (05/06/05)		
	or <input type="checkbox"/> Rule 212 (05/06/05)	or <input type="checkbox"/> Rule 212, App. A (05/06/05)		
	<input type="checkbox"/> 40 CFR60 SUBPART D	See Applicable Subpart		
<input type="checkbox"/> Boiler, Petroleum Refining (non-RECLAIM sources)	<input type="checkbox"/> 40 CFR60 SUBPART Da	See Applicable Subpart	<input type="checkbox"/> Rule 218(e) & (f) <input type="checkbox"/> Rule 429(d) <input type="checkbox"/> Rule 431.1(d) & (e) <input type="checkbox"/> Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART Dc	See Applicable Subpart		
	<input type="checkbox"/> 40 CFR63 SUBPART DDDDD	See Applicable Subpart		
	<input type="checkbox"/> Rule 218 (05/14/99)	<input type="checkbox"/> AQMD TM 100.1		
	<input type="checkbox"/> Rule 429 (12/21/90)	N/A	<input type="checkbox"/> Rule 218(e) & (f) <input type="checkbox"/> Rule 429(d) <input type="checkbox"/> Rule 431.1(d) & (e) <input type="checkbox"/> Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart	
	<input type="checkbox"/> Rule 431.1 (06/12/98)	<input type="checkbox"/> Rule 431.1(f)		
	<input type="checkbox"/> Rule 475 (08/07/78)	<input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3		
	<input type="checkbox"/> Rule 1146 (09/05/08)	<input type="checkbox"/> Rule 1146(d)		
	<input type="checkbox"/> 40 CFR60 SUBPART J	See Applicable Subpart		
	<input type="checkbox"/> 40 CFR63 SUBPART DDDDD	See Applicable Subpart		

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Boiler, Petroleum Refining (RECLAIM sources)	<input type="checkbox"/> Rule 1146 (09/05/08) - excluding NOx requirements <input type="checkbox"/> Rule 2011 (05/06/05) <input type="checkbox"/> or <input type="checkbox"/> Rule 2012 (05/06/05) <input type="checkbox"/> 40 CFR60 SUBPART J <input type="checkbox"/> 40 CFR63 SUBPART DDDDD	<input type="checkbox"/> Rule 1146(d)  <input type="checkbox"/> Rule 2011, App. A (05/06/05) <input type="checkbox"/> or <input type="checkbox"/> Rule 2012, App. A (05/06/05) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1146(c)(6) & (c)(7)  <input type="checkbox"/> Rule 2011, App. A (05/06/05) <input type="checkbox"/> or <input type="checkbox"/> Rule 2012, App. A (05/06/05) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Boilers, Electric Utility (non-RECLAIM sources)	<input type="checkbox"/> Rule 218 (05/14/99) <input type="checkbox"/> Rule 429 (12/21/90) <input type="checkbox"/> Rule 1135 (07/19/91) <input type="checkbox"/> 40 CFR60 SUBPART Db <input type="checkbox"/> 40 CFR63 SUBPART DDDDD	<input type="checkbox"/> AQMD TM 100.1 N/A <input type="checkbox"/> Rule 1135(e) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 218(e) & (f) <input type="checkbox"/> Rule 429(d) <input type="checkbox"/> Rule 1135(e) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Boilers, Electric Utility (RECLAIM sources)	<input type="checkbox"/> Rule 2012 (05/06/05) <input type="checkbox"/> 40 CFR60 SUBPART Db <input type="checkbox"/> 40 CFR63 SUBPART DDDDD	<input type="checkbox"/> Rule 2012, App. A (05/06/05) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 2012, App. A (05/06/05) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Bulk Loading Of Organic Liquids	<input type="checkbox"/> Rule 462 (05/14/99) <input type="checkbox"/> 40 CFR60 SUBPART XX <input type="checkbox"/> 40 CFR63 SUBPART R <input type="checkbox"/> 40 CFR63 SUBPART BBBBBB <input type="checkbox"/> 40 CFR63 SUBPART EEEE	<input type="checkbox"/> Rule 462(f) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 462(g) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Cadmium Electroplating Operation	<input type="checkbox"/> Rule 1426 (05/02/03)		<input type="checkbox"/> Rule 1426(e)	
<input type="checkbox"/> Calciner, Mineral Industries	<input type="checkbox"/> 40 CFR60 SUBPART UUU	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Calciner, Petroleum Coke	<input type="checkbox"/> Rule 477 (04/03/81)  <input type="checkbox"/> Rule 1119 (03/02/79) <input type="checkbox"/> 40 CFR63 SUBPART L	<input type="checkbox"/> AQMD Visible Emissions, AQMD TM 5.1, 5.2, or 5.3 <input type="checkbox"/> AQMD TM 6.1 or 100.1 See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Charbroilers	<input type="checkbox"/> Rule 1174 (10/05/90) <input type="checkbox"/> Rule 1138 (11/14/97)	<input type="checkbox"/> AQMD Test Protocol <input type="checkbox"/> Rule 1138(g)	<input type="checkbox"/> Rule 1138(d)	
<input type="checkbox"/> Chrome Plating & Chromic Acid Anodizing Operation	<input type="checkbox"/> Rule 1426 (05/02/03) <input type="checkbox"/> Rule 1469 (12/05/08)	<input type="checkbox"/> Rule 1469(e)	<input type="checkbox"/> Rule 1426(e) <input type="checkbox"/> Rule 1469(g), (j) & (k)	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Coating Operation, Adhesive Application Operation	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1168 (01/07/05)	<input type="checkbox"/> Rule 1168(f) & (e)	<input type="checkbox"/> Rule 1168(d)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR60 SUBPART RR	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Aerospace Assembly & Component Manufacturing	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1124 (09/21/01)	<input type="checkbox"/> Rule 1124(e) & (f)	<input type="checkbox"/> Rule 1124(j) & (d)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR63 SUBPART GG	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Graphic Arts (Gravure, Letter Press, Flexographic & Lithographic Printing Process, Etc.)	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)	<input type="checkbox"/> Rule 1130(e)	
	<input type="checkbox"/> Rule 1130 (10/08/99)	<input type="checkbox"/> Rule 1130(h)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART QQ	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART RR	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART FFF	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART VVV	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART KK	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART JJJJ	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Magnet Wire Coating	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1126 (01/13/95)	<input type="checkbox"/> Rule 1126(d)	<input type="checkbox"/> Rule 1126(c)(4)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Coating Operation, Marine Coating (Except for recreational equipment)	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1106 (01/13/95)	<input type="checkbox"/> Rule 1106(e)	<input type="checkbox"/> Rule 1106(c)(5)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR63 SUBPART II	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Metal Coating	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1107 (01/06/06)	<input type="checkbox"/> Rule 1107(e)	<input type="checkbox"/> Rule 1107(j)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR60 SUBPART EE	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART SS	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART NNNN	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART MMMM	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART RRRR	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Metal Containers, Closure, & Coil Coating Operations	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1125 (03/07/08)	<input type="checkbox"/> Rule 1125(e)	<input type="checkbox"/> Rule 1125(c)(6)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR60 SUBPART TT	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR60 SUBPART WW	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART KKKK	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART SSSS	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Motor Vehicle & Mobile Equipment Non-Assembly Line Coating Operation	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109©	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1151 (12/02/05)	<input type="checkbox"/> Rule 1151(h)	<input type="checkbox"/> Rule 1151(f)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Coating Operation, Motor Vehicle Assembly Line	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1115 (05/12/95)	<input type="checkbox"/> Rule 1115(e)	<input type="checkbox"/> Rule 1115(g)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR60 SUBPART MM	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART IIII	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Paper, Fabric, & Film Coating Operations	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1128 (03/08/96)	<input type="checkbox"/> Rule 1128(f)	<input type="checkbox"/> Rule 1128(e)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR60 SUBPART VVV	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART OOOO	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Plastic, Rubber, & Glass	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1145 (12/04/09)	<input type="checkbox"/> Rule 1145(e)	<input type="checkbox"/> Rule 1145(d)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR60 SUBPART TTT	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> 40 CFR63 SUBPART NNNN	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Pleasure Craft	<input type="checkbox"/> 40 CFR63 SUBPART PPPP	See Applicable Subpart	See Applicable Subpart	
	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)	
	<input type="checkbox"/> Rule 481 (01/11/02)	<input type="checkbox"/> Rule 481(d)		
	<input type="checkbox"/> Rule 1106.1 (02/12/99)	<input type="checkbox"/> Rule 1106.1(e)	<input type="checkbox"/> Rule 1106.1(d)	
	<input type="checkbox"/> Rule 1132 (05/05/06)	<input type="checkbox"/> Rule 1132(f)	<input type="checkbox"/> Rule 1132(g)	
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)	
	<input type="checkbox"/> 40 CFR63 SUBPART II	See Applicable Subpart	See Applicable Subpart	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Coating Operation, Screen Printing	<input type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 1130.1 (12/13/96) <input type="checkbox"/> Rule 1132 (05/05/06) <input type="checkbox"/> Rule 1171 (05/01/09) <input type="checkbox"/> 40 CFR63 SUBPART KK	<input type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 1130.1(g) <input type="checkbox"/> Rule 1132(f) <input type="checkbox"/> Rule 1171(e) See Applicable Subpart	<input type="checkbox"/> Rule 109(c) <input type="checkbox"/> Rule 1130.1(c)(5) <input type="checkbox"/> Rule 1132(g) <input type="checkbox"/> Rule 1171(c)(6) See Applicable Subpart	
<input checked="" type="checkbox"/> Coating Operation, Use Of Architectural Coating (Stationary Structures)	<input checked="" type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 481 (01/11/02) <input checked="" type="checkbox"/> Rule 1113 (07/13/07) <input type="checkbox"/> Rule 1132 (05/05/06) <input checked="" type="checkbox"/> Rule 1171 (05/01/09)	<input checked="" type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 481(d) <input checked="" type="checkbox"/> Rule 1113(e) <input type="checkbox"/> Rule 1132(f) <input checked="" type="checkbox"/> Rule 1171(e)	<input checked="" type="checkbox"/> Rule 109(c)  <input type="checkbox"/> Rule 1132(g) <input checked="" type="checkbox"/> Rule 1171(c)(6)	
<input type="checkbox"/> Coating Operation, Wood Flat Stock	<input type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 481 (01/11/02) <input type="checkbox"/> Rule 1104 (08/13/99) <input type="checkbox"/> Rule 1132 (05/05/06) <input type="checkbox"/> Rule 1171 (05/01/09) <input type="checkbox"/> 40 CFR63 SUBPART II	<input type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 481(d) <input type="checkbox"/> Rule 1104(e) <input type="checkbox"/> Rule 1132(f) <input type="checkbox"/> Rule 1171(e) See Applicable Subpart	<input type="checkbox"/> Rule 109(c)  <input type="checkbox"/> Rule 1104(d) <input type="checkbox"/> Rule 1132(g) <input type="checkbox"/> Rule 1171(c)(6) See Applicable Subpart	
<input type="checkbox"/> Coating Operation, Wood Products (Commercial Furniture, Cabinets, Shutters, Frames, Toys)	<input type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 481 (01/11/02) <input type="checkbox"/> Rule 1132 (05/05/06) <input type="checkbox"/> Rule 1136 (06/14/96) <input type="checkbox"/> Rule 1171 (05/01/09) <input type="checkbox"/> 40 CFR63 SUBPART JJ	<input type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 481(d) <input type="checkbox"/> Rule 1132(f) <input type="checkbox"/> Rule 1136(f) <input type="checkbox"/> Rule 1171(e) See Applicable Subpart	<input type="checkbox"/> Rule 109(c)  <input type="checkbox"/> Rule 1132(g) <input type="checkbox"/> Rule 1136(d) & (g) <input type="checkbox"/> Rule 1171(c)(6) See Applicable Subpart	
<input type="checkbox"/> Coater	See Coating Operations			
<input type="checkbox"/> Columns	See Petroleum Refineries, Fugitive Emissions			
<input type="checkbox"/> Composting Operation	<input type="checkbox"/> Rule 1133 (01/10/03) <input type="checkbox"/> Rule 1133.1 (01/10/03) <input type="checkbox"/> Rule 1133.2 (01/10/03) See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions	<input type="checkbox"/> Rule 1133.1(e) <input type="checkbox"/> Rule 1133.2(g)	<input type="checkbox"/> Rule 1133.1(d) <input type="checkbox"/> Rule 1133.2(h)	
<input type="checkbox"/> Compressors	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions			
<input type="checkbox"/> Concrete Batch Plants	See Nonmetallic Mineral Processing Plants			
<input type="checkbox"/> Consumer Product Manufacturing	See Manufacturing, Consumer Product			
<input checked="" type="checkbox"/> Cooling Tower, Hexavalent Chromium	<input type="checkbox"/> 40 CFR63 SUBPART Q	See Applicable Subpart	See Applicable Subpart	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Copper Electroplating Operation	<input type="checkbox"/> Rule 1426 (05/02/03)		<input type="checkbox"/> Rule 1426(e)
<input type="checkbox"/> Crude Oil Production	See Oil Well Operations		
<input type="checkbox"/> Crusher	See Nonmetallic Mineral Processing Plants		
<input type="checkbox"/> Dairy Farms and Related Operations	<input type="checkbox"/> Rule 1127 (08/06/04)	<input type="checkbox"/> Rule 1127(h)	<input type="checkbox"/> Rule 1127(g)
<input type="checkbox"/> Degreasers	<input type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 1122 (05/01/09) <input type="checkbox"/> Rule 1171 (05/01/09) <input type="checkbox"/> 40 CFR63 SUBPART T	<input type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 1122(h) <input type="checkbox"/> Rule 1171(e) See Applicable Subpart	<input type="checkbox"/> Rule 109(c) <input type="checkbox"/> Rule 1122(i) <input type="checkbox"/> Rule 1171(c)(6) See Applicable Subpart
<input type="checkbox"/> Dry Cleaning, Perchloroethylene	<input type="checkbox"/> Rule 1421 (12/06/02)	<input type="checkbox"/> Rule 1421(e) & (i)	<input type="checkbox"/> Rule 1421(g) & (h)
<input type="checkbox"/> Dry Cleaning, Petroleum Solvent	<input type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 1102 (11/17/00) <input type="checkbox"/> 40 CFR60 SUBPART JJJ	<input type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 1102(g) See Applicable Subpart	<input type="checkbox"/> Rule 109(c) <input type="checkbox"/> Rule 1102(f) See Applicable Subpart
<input type="checkbox"/> Dryers, Mineral Industries	<input type="checkbox"/> 40 CFR60 SUBPART UUU	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Ethylene Oxide Sterilizer	See Sterilizer, Ethylene Oxide		
<input type="checkbox"/> Flanges	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		
<input type="checkbox"/> Fluid Catalytic Cracking Unit	<input type="checkbox"/> Rule 218 (05/14/99) <input type="checkbox"/> Rule 1105 (09/01/84) <input type="checkbox"/> Rule 1105.1 (11/07/03)	<input type="checkbox"/> AQMD TM 100.1 <input type="checkbox"/> Rule 1105(c)(1) <input type="checkbox"/> Rule 1105.1(f)	<input type="checkbox"/> Rule 218(e) & (f) <input type="checkbox"/> Rule 1105(c)(2) <input type="checkbox"/> Rule 1105.1(e)
<input type="checkbox"/> Foundries, Iron and Steel	<input type="checkbox"/> 40 CFR63 SUBPART EEEEE	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Friction Materials Manufacturing	See Manufacturing, Friction Materials		
<input type="checkbox"/> Fugitive Emissions, Benzene	<input type="checkbox"/> Rule 1173 (12/06/02) <input type="checkbox"/> 40 CFR61 SUBPART L <input type="checkbox"/> 40 CFR61 SUBPART V <input type="checkbox"/> 40 CFR63 SUBPART R <input type="checkbox"/> 40 CFR63 SUBPART CC	<input type="checkbox"/> Rule 1173(j) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1173(j) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart

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## Section II - Applicable Requirements, Test Methods, & MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Fugitive Emissions, Chemical Plant	<input type="checkbox"/> Rule 466 (10/07/83)	<input type="checkbox"/> Rule 466(f)	<input type="checkbox"/> Rule 466(e)
	<input type="checkbox"/> Rule 466.1 (03/16/84)	<input type="checkbox"/> Rule 466.1(g)	<input type="checkbox"/> Rule 466.1(h)
	<input type="checkbox"/> Rule 467 (03/05/82)	<input type="checkbox"/> Rule 467(f)	<input type="checkbox"/> Rule 467(e)
	<input type="checkbox"/> Rule 1173 (02/06/09)	<input type="checkbox"/> Rule 1173(j)	<input type="checkbox"/> Rule 1173(i)
	<input type="checkbox"/> 40 CFR60 SUBPART VV	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Fugitive Emissions, Natural Gas Processing Plant	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 466 (10/07/83)	<input type="checkbox"/> Rule 466(f)	<input type="checkbox"/> Rule 466(e)
	<input type="checkbox"/> Rule 466.1 (03/16/84)	<input type="checkbox"/> Rule 466.1(g)	<input type="checkbox"/> Rule 466.1(h)
	<input type="checkbox"/> Rule 467 (03/05/82)	<input type="checkbox"/> Rule 467(f)	<input type="checkbox"/> Rule 467(e)
	<input type="checkbox"/> Rule 1173 (02/06/09)	<input type="checkbox"/> Rule 1173(j)	<input type="checkbox"/> Rule 1173(i)
	<input type="checkbox"/> 40 CFR60 SUBPART KKK	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart

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Rule = AQMD Rule

App. = Appendix  
AQMD TM = AQMD Test Method

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Fugitive Emissions, Oil & Gas Production Facility	<input type="checkbox"/> Rule 466 (10/07/83)	<input type="checkbox"/> Rule 466(f)	<input type="checkbox"/> Rule 466(e)
	<input type="checkbox"/> Rule 466.1 (03/16/84)	<input type="checkbox"/> Rule 466.1(g)	<input type="checkbox"/> Rule 466.1(h)
	<input type="checkbox"/> Rule 467 (03/05/82)	<input type="checkbox"/> Rule 467(f)	<input type="checkbox"/> Rule 467(e)
	<input type="checkbox"/> Rule 1173 (02/06/09)	<input type="checkbox"/> Rule 1173(j)	<input type="checkbox"/> Rule 1173(i)
	<input type="checkbox"/> 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Fugitive Emissions, Pipeline Transfer Station	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 466 (10/07/83)	<input type="checkbox"/> Rule 466(f)	<input type="checkbox"/> Rule 466(e)
	<input type="checkbox"/> Rule 466.1 (03/16/84)	<input type="checkbox"/> Rule 466.1(g)	<input type="checkbox"/> Rule 466.1(h)
	<input type="checkbox"/> Rule 467 (03/05/82)	<input type="checkbox"/> Rule 467(f)	<input type="checkbox"/> Rule 467(e)
	<input type="checkbox"/> Rule 1173 (02/06/09)	<input type="checkbox"/> Rule 1173(j)	<input type="checkbox"/> Rule 1173(i)
	<input type="checkbox"/> 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Furnace, Basic Oxygen Process <input type="checkbox"/> Furnace, Electric Arc, For Steel Plants: Constructed After August 17, 1983 <input type="checkbox"/> Furnace, Electric Arc, For Steel Plants: Constructed After Oct. 21, 1974, & On Or Before Aug. 17, 1983 <input type="checkbox"/> Furnace, Glass Melting <input type="checkbox"/> Furnace, Lead Melting, Automotive Batteries	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART Na	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART AAa	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART AA	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 1117 (01/06/84)	<input type="checkbox"/> Rule 1117(c), AQMD TM 7.1 or 100.1	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 1101 (10/07/77)	<input type="checkbox"/> AQMD TM 6.1	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART X	See Applicable Subpart	See Applicable Subpart
<b>KEY ABBREVIATIONS:</b> Reg. = AQMD Regulation Rule = AQMD Rule App. = Appendix AQMD TM = AQMD Test Method CFR = Code of Federal Regulations CCR = California Code of Regulations			

Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Gasoline Transfer & Dispensing Operation	<input type="checkbox"/> Rule 461 (06/03/05)	<input type="checkbox"/> Rule 461(f)	<input type="checkbox"/> Rule 461(e)(6) & (e)(7)	
<input type="checkbox"/> Glass Manufacturing	See Manufacturing, Glass			
<input type="checkbox"/> Grain Elevators	<input type="checkbox"/> 40 CFR60 SUBPART DD	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Halon-containing Equipment, Use for Technician Training, Testing, Maintenance, Service, Repair, or Disposal	<input type="checkbox"/> 40 CFR82 SUBPART H	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Hazardous Waste Combustors	<input type="checkbox"/> 40 CFR63 SUBPART EEE	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Heater, Asphalt Pavement	<input type="checkbox"/> Rule 1120 (08/04/78)	<input type="checkbox"/> AQMD Visible Emissions, AQMD TM 6.2	<input type="checkbox"/> Rule 1120(f)	
<input type="checkbox"/> Heaters, Petroleum Refinery Process	<input type="checkbox"/> Rule 429 (12/21/90) <input type="checkbox"/> Rule 431.1 (06/12/98) <input type="checkbox"/> Rule 1146 (09/05/08) <input type="checkbox"/> 40 CFR60 SUBPART J <input type="checkbox"/> 40 CFR63 SUBPART DDDDD	N/A <input type="checkbox"/> Rule 431.1(f) <input type="checkbox"/> Rule 1146(d) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 429(d) <input type="checkbox"/> Rule 431.1(d) & (e) <input type="checkbox"/> Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Heaters, Process	See Boilers			
<input type="checkbox"/> Incinerators	<input type="checkbox"/> 40 CFR60 SUBPART E <input type="checkbox"/> 40 CFR60 SUBPART CCCC	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Inorganic Arsenic Emissions, Arsenic Trioxide & Metallic Arsenic Production Facilities	<input type="checkbox"/> 40 CFR61 SUBPART P	See Applicable Subpart	See Applicable Subpart	
<input checked="" type="checkbox"/> Internal Combustion Engines, Reciprocating	<input type="checkbox"/> Rule 1110.2 (07/09/10) <input type="checkbox"/> 40 CFR60 SUBPART IIII and JJJJ <input type="checkbox"/> 40 CFR63 SUBPART ZZZZ	Rule 1110.2(g) See Applicable Subpart See Applicable Subpart	Rule 1110.2(f) See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Kiln, Cement Plant	<input type="checkbox"/> Rule 1112 (06/06/86) <input type="checkbox"/> Rule 1112.1 (12/04/09) <input type="checkbox"/> 40 CFR60 SUBPART F	N/A N/A See Applicable Subpart	N/A N/A See Applicable Subpart	

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Landfills	<input type="checkbox"/> Rule 1150 (10/15/82) <input type="checkbox"/> Rule 1150.1 (03/17/00) <input type="checkbox"/> 40 CFR60 SUBPART WWW <input type="checkbox"/> 40 CFR63 SUBPART AAAA	<input type="checkbox"/> Rule 1150.1(j) See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1150.1(e) & (f) See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Lead Acid Battery Manufacturing Plants	See Manufacturing, Lead Acid Battery		
<input type="checkbox"/> Lead Electroplating Operation	<input type="checkbox"/> Rule 1426 (05/02/03)		<input type="checkbox"/> Rule 1426(e)
<input type="checkbox"/> Manufacturing, Asphalt Processing & Asphalt Roofing	<input type="checkbox"/> Rule 470 (05/07/76) <input type="checkbox"/> Rule 1108 (02/01/85) <input type="checkbox"/> Rule 1108.1 (1/04/83) <input type="checkbox"/> 40 CFR60 SUBPART UU <input type="checkbox"/> 40 CFR63 SUBPART LLLLL	N/A <input type="checkbox"/> Rule 1108(b) <input type="checkbox"/> Rule 1108.1 (b) See Applicable Subpart See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Manufacturing, Brick & Structural Clay Products	<input type="checkbox"/> 40 CFR63 SUBPART JJJJJ	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Cement	<input type="checkbox"/> Rule 1156 (03/06/09)	<input type="checkbox"/> Rule 1156(g)	<input type="checkbox"/> Rule 1156(f)
<input type="checkbox"/> Manufacturing, Clay Ceramics	<input type="checkbox"/> 40 CFR63 SUBPART KKKKK	See Applicable Subpart	See Applicable Subpart
<input checked="" type="checkbox"/> Manufacturing, Coatings & Ink (SIC Code 2851)	<input type="checkbox"/> Rule 1141.1 (11/17/00) <input type="checkbox"/> 40 CFR63 SUBPART HHHHH	N/A See Applicable Subpart	<input type="checkbox"/> Rule 1141.1(c) See Applicable Subpart
<input type="checkbox"/> Manufacturing, Consumer Product	<input type="checkbox"/> Title 17 CCR 94500		
<input type="checkbox"/> Manufacturing, Food Product	<input type="checkbox"/> Rule 1131 (06/06/03)	<input type="checkbox"/> Rule 1131(e)	<input type="checkbox"/> Rule 1131(d)
<input type="checkbox"/> Manufacturing, Friction Materials	<input type="checkbox"/> 40 CFR63 SUBPART QQQQQ	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Glass	<input type="checkbox"/> Rule 1117 (01/06/84) <input type="checkbox"/> 40 CFR60 SUBPART CC <input type="checkbox"/> 40 CFR61 SUBPART N	<input type="checkbox"/> Rule 1117(c), AQMD TM 7.1 or 100.1 See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Manufacturing, Hydrochloric Acid	<input type="checkbox"/> 40 CFR63 SUBPART NNNNN	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Lead-Acid Battery	<input type="checkbox"/> 40 CFR60 SUBPART KK	See Applicable Subpart	See Applicable Subpart

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Manufacturing, Lime	<input type="checkbox"/> 40 CFR63 SUBPART AAAAA	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Magnetic Tape Industry	<input type="checkbox"/> 40 CFR60 SUBPART SSS <input type="checkbox"/> 40 CFR63 SUBPART EE	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Manufacturing, Miscellaneous Organic Chemical	<input type="checkbox"/> 40 CFR63 SUBPART FFFF	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Nitric Acid	<input type="checkbox"/> Rule 218 (05/14/99) <input type="checkbox"/> Rule 1159 (12/06/85) <input type="checkbox"/> 40 CFR60 SUBPART G	<input type="checkbox"/> AQMD TM 100.1 <input type="checkbox"/> AQMD TM 7.1 or 100.1 See Applicable Subpart	<input type="checkbox"/> Rule 218(e) & (f) See Applicable Subpart
<input type="checkbox"/> Manufacturing, Plywood & Composite Wood Products	<input type="checkbox"/> Rule 1137 (02/01/02) <input type="checkbox"/> 40 CFR63 SUBPART DDDD	N/A See Applicable Subpart	<input type="checkbox"/> Rule 1137(e) See Applicable Subpart
<input type="checkbox"/> Manufacturing, Polymer Industry	<input type="checkbox"/> 40 CFR60 SUBPART DDD <input type="checkbox"/> 40 CFR63 SUBPART W <input type="checkbox"/> 40 CFR63 SUBPART J	See Applicable Subpart See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Manufacturing, Polymeric Cellular Foam	<input type="checkbox"/> Rule 1175 (09/07/07) <input type="checkbox"/> 40 CFR63 SUBPART UUUU	<input type="checkbox"/> Rule 1175(f) See Applicable Subpart	<input type="checkbox"/> Rule 1175(e) See Applicable Subpart
<input type="checkbox"/> Manufacturing, Products Containing Halon Blends	<input type="checkbox"/> 40 CFR82 SUBPART H	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Products Containing Organic Solvents	<input type="checkbox"/> Rule 443.1 (12/05/86)	N/A	N/A
<input type="checkbox"/> Manufacturing, Products Containing Ozone Depleting Substances (ODS)	<input type="checkbox"/> 40 CFR82 SUBPART A <input type="checkbox"/> 40 CFR82 SUBPART E	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Manufacturing, Reinforced Plastic Composites	<input type="checkbox"/> 40 CFR63 SUBPART WWWW	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Refractory Products	<input type="checkbox"/> 40 CFR63 SUBPART SSSSS	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Resin	<input type="checkbox"/> Rule 1141 (11/17/00) <input type="checkbox"/> 40 CFR63 SUBPART W	<input type="checkbox"/> Rule 1141(d) See Applicable Subpart	<input type="checkbox"/> Rule 1141(c) See Applicable Subpart
<input type="checkbox"/> Manufacturing, Rubber Tire	<input type="checkbox"/> 40 CFR63 SUBPART XXXX	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Manufacturing, Semiconductors	<input type="checkbox"/> Rule 109 (05/02/03) <input type="checkbox"/> Rule 1164 (01/13/95) <input type="checkbox"/> Rule 1171 (05/01/09) <input type="checkbox"/> 40 CFR63 SUBPART BBBB	<input type="checkbox"/> Rule 109(g) <input type="checkbox"/> Rule 1164(e) <input type="checkbox"/> Rule 1171(e) See Applicable Subpart	<input type="checkbox"/> Rule 109(c) <input type="checkbox"/> Rule 1164(c)(5) <input type="checkbox"/> Rule 1171(c)(6) See Applicable Subpart
<input type="checkbox"/> Manufacturing, Solvent	<input type="checkbox"/> Rule 443 (05/07/76)	N/A	N/A

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## Section II - Applicable Requirements, Test Methods, & MRR Requirements

Equipment/Process		Applicable Requirement		Test Method		MRR Requirement
<input type="checkbox"/>	Manufacturing, Sulfuric Acid	<input type="checkbox"/> Rule 469 (02/13/81) <input type="checkbox"/> 40 CFR60 SUBPART H <input type="checkbox"/> 40 CFR60 SUBPART Cd		<input type="checkbox"/> AQMD TM 6.1 or 6.2 See Applicable Subpart See Applicable Subpart		See Applicable Subpart See Applicable Subpart
<input type="checkbox"/>	Manufacturing, Surfactant	<input type="checkbox"/> Rule 1141.2 (01/11/02)		<input type="checkbox"/> Rule 1141.2(e) <input type="checkbox"/> AQMD TM 25.1		
<input type="checkbox"/>	Manufacturing, Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	<input type="checkbox"/> 40 CFR60 SUBPART III <input type="checkbox"/> 40 CFR60 SUBPART NNN		See Applicable Subpart See Applicable Subpart		See Applicable Subpart See Applicable Subpart
<input type="checkbox"/>	Manufacturing, Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	<input type="checkbox"/> 40 CFR60 SUBPART RRR		See Applicable Subpart		See Applicable Subpart
<input type="checkbox"/>	Manufacturing, Vinyl Chloride	<input type="checkbox"/> 40 CFR61 SUBPART F		See Applicable Subpart		See Applicable Subpart
<input type="checkbox"/>	Manufacturing, Water Heaters	<input type="checkbox"/> Rule 1121 (09/03/04)		N/A		N/A
<input type="checkbox"/>	Manufacturing, Wool Fiberglass Insulation	<input type="checkbox"/> 40 CFR60 SUBPART PPP		See Applicable Subpart		See Applicable Subpart
<input type="checkbox"/>	Manure Processing Operations	<input type="checkbox"/> Rule 1127 (08/06/04)		<input type="checkbox"/> Rule 1127(h)		<input type="checkbox"/> Rule 1127(g)
<input type="checkbox"/>	Marine Tank Vessel Operations	<input type="checkbox"/> Rule 1142 (07/19/91) <input type="checkbox"/> Rule 1173 (02/06/09) <input type="checkbox"/> 40 CFR63 SUBPART Y		<input type="checkbox"/> Rule 1142(e) <input type="checkbox"/> Rule 1173(j) See Applicable Subpart		<input type="checkbox"/> Rule 1142(h) <input type="checkbox"/> Rule 1173(i) See Applicable Subpart
<input type="checkbox"/>	Mercury Emissions	<input type="checkbox"/> 40 CFR61 SUBPART E <input type="checkbox"/> 40 CFR63 SUBPART IIII		See Applicable Subpart See Applicable Subpart		See Applicable Subpart See Applicable Subpart
<input type="checkbox"/>	Motor Vehicle Air Conditioners with Ozone Depleting Substances (ODS): Repair, Service, Manufacturing, Maintenance, or Disposal	<input type="checkbox"/> 40 CFR82 SUBPART B <input type="checkbox"/> 40 CFR82 SUBPART F		See Applicable Subpart See Applicable Subpart		See Applicable Subpart See Applicable Subpart
<input type="checkbox"/>	Municipal Waste Combustors	<input type="checkbox"/> 40 CFR60 SUBPART Cb <input type="checkbox"/> 40 CFR60 SUBPART Ea <input type="checkbox"/> 40 CFR60 SUBPART Eb		See Applicable Subpart See Applicable Subpart See Applicable Subpart		See Applicable Subpart See Applicable Subpart See Applicable Subpart
<input type="checkbox"/>	Negative Air Machines/HEPA, Asbestos	<input type="checkbox"/> 40 CFR61 SUBPART M		See Applicable Subpart		See Applicable Subpart
<input type="checkbox"/>	Nickel Electroplating Operation	<input type="checkbox"/> Rule 1426 (05/02/03)				<input type="checkbox"/> Rule 1426(e)
<input type="checkbox"/>	Nonmetallic Mineral Processing Plants	<input type="checkbox"/> Rule 404 (02/07/86) <input type="checkbox"/> Rule 405 (02/07/86) <input type="checkbox"/> 40 CFR60 SUBPART OOO		<input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3 <input type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3 See Applicable Subpart		See Applicable Subpart
<input type="checkbox"/>	Off-site Waste and Recovery Operation	<input type="checkbox"/> 40 CFR63 SUBPART DD		See Applicable Subpart		See Applicable Subpart

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Oil and Gas Well Operation	<input type="checkbox"/> Rule 1148 (11/05/82) <input type="checkbox"/> Rule 1148.1 (03/05/04)	<input type="checkbox"/> AQMD TM 25.1 <input type="checkbox"/> Rule 1148.1 (g)	<input type="checkbox"/> Rule 1148.1 (f)
<input type="checkbox"/> Onshore Natural Gas Processing, SO2 Emissions	<input type="checkbox"/> 40 CFR60 SUBPART LLL	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Open Fires	<input type="checkbox"/> Rule 444 (11/07/08)		
<input type="checkbox"/> Open Storage, Petroleum Coke	<input type="checkbox"/> Rule 403 (06/03/05) <input type="checkbox"/> Rule 403.1 (04/02/04) <input type="checkbox"/> Rule 1158 (06/11/99)	<input type="checkbox"/> Rule 403(d)(4) <input type="checkbox"/> Rule 1158(h)	<input type="checkbox"/> Rule 403(f) <input type="checkbox"/> Rule 403.1(h) <input type="checkbox"/> Rule 1158(j)
<input type="checkbox"/> Open Storage	<input type="checkbox"/> Rule 403 (06/03/05) <input type="checkbox"/> Rule 403.1 (04/02/04)	<input type="checkbox"/> Rule 403(d)(4)	<input type="checkbox"/> Rule 403(f) <input type="checkbox"/> Rule 403.1(h)
<input type="checkbox"/> Outer Continental Shelf Platform	<input type="checkbox"/> Rule 1183 (03/12/93) <input type="checkbox"/> 40 CFR55	<input type="checkbox"/> 40 CFR55 See Applicable Subpart	<input type="checkbox"/> 40 CFR55 See Applicable Subpart
<input type="checkbox"/> Oven, Commercial Bakery	<input type="checkbox"/> Rule 1153 (01/13/95)	<input type="checkbox"/> Rule 1153(h)	<input type="checkbox"/> Rule 1153(g)
<input type="checkbox"/> Oven, Petroleum Coke	<input type="checkbox"/> Rule 477 (04/03/81) <input type="checkbox"/> 40 CFR63 SUBPART L <input type="checkbox"/> 40 CFR63 SUBPART CCCCC	<input type="checkbox"/> AQMD Visible Emissions, AQMD TM 5.1, 5.2, or 5.3 See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
<input type="checkbox"/> Ozone Depleting Substances (ODS) or Alternative ODS, Use	<input type="checkbox"/> 40 CFR82 Subpart G	See Applicable Subpart	See Applicable Subpart

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Petroleum Refineries	<input type="checkbox"/> Rule 218 (05/14/99)	<input type="checkbox"/> AQMD TM 100.1	<input type="checkbox"/> Rule 218(e) & (f)
	<input type="checkbox"/> Rule 465 (08/13/99)		
	<input type="checkbox"/> Rule 468 (10/08/76)	<input type="checkbox"/> AQMD TM 6.1 or 6.2	
	<input type="checkbox"/> Rule 469 (02/13/81)	<input type="checkbox"/> AQMD TM 6.1 or 6.2	<input type="checkbox"/> Rule 1118(f), (g), (h), & (i)
	<input type="checkbox"/> Rule 1118 (11/04/05)	<input type="checkbox"/> Rule 1118(j)	<input type="checkbox"/> Rule 1123(c)
	<input type="checkbox"/> Rule 1123 (12/07/90)	N/A	<input type="checkbox"/> Rule 1189(e)
	<input type="checkbox"/> Rule 1189 (01/21/00)	<input type="checkbox"/> Rule 1189(f)	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART J	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART EEEE	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART GGGG	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Petroleum Refineries, Fugitive Emissions	<input type="checkbox"/> Title 13 CCR 2250		
	<input type="checkbox"/> Rule 1173 (02/06/09)	<input type="checkbox"/> Rule 1173(j)	<input type="checkbox"/> Rule 1173(i)
	<input type="checkbox"/> Rule 466 (10/07/83)	<input type="checkbox"/> Rule 466(f)	<input type="checkbox"/> Rule 466(e)
	<input type="checkbox"/> Rule 466.1 (03/16/84)	<input type="checkbox"/> Rule 466.1(g)	<input type="checkbox"/> Rule 466.1(h)
	<input type="checkbox"/> Rule 467 (03/05/82)	<input type="checkbox"/> Rule 467(f)	<input type="checkbox"/> Rule 467(e)
	<input type="checkbox"/> 40 CFR60 SUBPART GGG	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart

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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Petroleum Refineries, Storage Tanks	<input type="checkbox"/> Rule 463 (05/06/05)	<input type="checkbox"/> Rule 463(g)	<input type="checkbox"/> Rule 463(e)(5)
	<input type="checkbox"/> Rule 1178 (04/07/06)	<input type="checkbox"/> Rule 1178(i)	<input type="checkbox"/> Rule 1178(f) & (h)
	<input type="checkbox"/> 40 CFR60 SUBPART K	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART Ka	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART Kb	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART EEEE	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 1176 (09/13/96)	<input type="checkbox"/> Rule 1176(h)	<input type="checkbox"/> Rule 1176(f) & (g)
<input type="checkbox"/> Petroleum Refineries, Wastewater Systems	<input type="checkbox"/> Rule 464 (12/07/90)	N/A	
	<input type="checkbox"/> 40 CFR60 SUBPART QQQ	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 1103 (03/12/99)	<input type="checkbox"/> Rule 1103(f)	<input type="checkbox"/> Rule 1103(e)
<input type="checkbox"/> Pharmaceuticals & Cosmetics Manufacturing	<input type="checkbox"/> 40 CFR63 SUBPART GGG	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 109 (05/02/03)	<input type="checkbox"/> Rule 109(g)	<input type="checkbox"/> Rule 109(c)
<input type="checkbox"/> Polyester Resin Operation	<input type="checkbox"/> Rule 1162 (07/08/05)	<input type="checkbox"/> Rule 1162(f)	<input type="checkbox"/> Rule 1162(e)
	<input type="checkbox"/> Rule 1171 (05/01/09)	<input type="checkbox"/> Rule 1171(e)	<input type="checkbox"/> Rule 1171(c)(6)
<input type="checkbox"/> Primary Magnesium Refining	<input type="checkbox"/> 40 CFR63 SUBPART TTTT	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Printing Press	See Coating Operations		
<input type="checkbox"/> Publicly Owned Treatment Works Operations	<input type="checkbox"/> Rule 1179 (03/06/92)	<input type="checkbox"/> Rule 1179(e)	<input type="checkbox"/> Rule 1179(c) & (d)
	<input type="checkbox"/> 40 CFR60 SUBPART O	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Pumps	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		

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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Recycling & Recovery Equipment for Ozone Depleting Substances (ODS),	<input type="checkbox"/> 40 CFR82 SUBPART F	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Refrigerant Reclaimers for Ozone Depleting Substances (ODS)	<input type="checkbox"/> 40 CFR82 SUBPART F	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Rendering Plant	<input type="checkbox"/> Rule 472 (05/07/76)	N/A	<input type="checkbox"/> Rule 472(b)	
<input type="checkbox"/> Rock Crushing	See Nonmetallic Mineral Processing Plants			
<input type="checkbox"/> Secondary Aluminum Production	<input type="checkbox"/> 40 CFR63 SUBPART LL	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Semiconductor Manufacturing	See Manufacturing, Semiconductors			
<input type="checkbox"/> Sewage Treatment Plants	See Publicly Owned Treatment Works Operation			
<input type="checkbox"/> Site Remediation	<input type="checkbox"/> 40 CFR63 SUBPART GGGGG	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Smelting, Primary Copper	<input type="checkbox"/> 40 CFR63 SUBPART QQQ	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Smelting, Secondary Lead	<input type="checkbox"/> 40 CFR60 SUBPART L <input type="checkbox"/> 40 CFR63 SUBPART X	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Soil Decontamination / Excavation	<input type="checkbox"/> Rule 1166 (05/11/01) <input type="checkbox"/> 40 CFR63 SUBPART GGGGG	<input type="checkbox"/> Rule 1166(e) See Applicable Subpart	<input type="checkbox"/> Rule 1166(c)(1)(C) See Applicable Subpart	
<input type="checkbox"/> Spray Booth	See Coating Operations			
<input type="checkbox"/> Sterilizer, Ethylene Oxide	<input type="checkbox"/> 40 CFR63 SUBPART O	See Applicable Subpart	See Applicable Subpart	
<input type="checkbox"/> Storage Tank, Degassing Operation	<input type="checkbox"/> Rule 1149 (07/14/95) <input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart	

KEY ABBREVIATIONS:	Reg. = AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations
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Section II - Applicable Requirements, Test Methods, & MRR Requirements			
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
<input type="checkbox"/> Storage Tank, Greater Than 19,815 Gallon Capacity	<input type="checkbox"/> Rule 463 (05/06/05)	<input type="checkbox"/> Rule 463(g)	<input type="checkbox"/> Rule 463(e)(5)
	<input type="checkbox"/> Rule 1178 (04/07/06)	<input type="checkbox"/> Rule 1178(i)	<input type="checkbox"/> Rule 1178(h)
	<input type="checkbox"/> 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART K	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART Ka	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART Kb	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Synthetic Fiber Production Facilities	<input type="checkbox"/> 40CFR63 SUBPART BBBB	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART HHH	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART RRRR	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> Rule 1134 (08/08/97)	<input type="checkbox"/> Rule 1134(e) & (g)	<input type="checkbox"/> Rule 1134(d) & (f)
	<input checked="" type="checkbox"/> Rule 475 (08/07/78)	<input checked="" type="checkbox"/> AQMD TM 5.1, 5.2, or 5.3	See Applicable Subpart
	<input checked="" type="checkbox"/> 40 CFR60 SUBPART GG	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR60 SUBPART KKKK	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART YYYY	See Applicable Subpart	See Applicable Subpart
	<input type="checkbox"/> 40 CFR63 SUBPART YYYY	See Applicable Subpart	See Applicable Subpart
<input type="checkbox"/> Turbine, Stationary Oil-Fired  <input type="checkbox"/> Valves  <input type="checkbox"/> Vessel, Refinery Process  <input type="checkbox"/> Vessels	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		
	<input type="checkbox"/> Rule 1123 (12/07/90)	N/A	<input type="checkbox"/> Rule 1123(c)
	See Petroleum Refineries, Fugitive Emissions		

KEY ABBREVIATIONS:	Reg. = AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations
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Section II - Applicable Requirements, Test Methods, & MRR Requirements				
Equipment/Process	Applicable Requirement	Test Method	MRR Requirement	
<input type="checkbox"/> Wastewater, Chemical Plant	<input type="checkbox"/> Rule 464 (12/07/90) <input type="checkbox"/> Rule 1176 (09/13/96) <input type="checkbox"/> 40 CFR63 SUBPART F <input type="checkbox"/> 40 CFR63 SUBPART G <input type="checkbox"/> 40 CFR63 SUBPART H <input type="checkbox"/> 40 CFR63 SUBPART I <input type="checkbox"/> 40 CFR63 SUBPART CC	N/A <input type="checkbox"/> Rule 1176(h) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	<input type="checkbox"/> Rule 1176(f) & (g) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	
<input type="checkbox"/> Wastewater Treatment, Other	<input type="checkbox"/> Rule 464 (12/07/90) <input type="checkbox"/> Rule 1176 (09/13/96)	N/A <input type="checkbox"/> Rule 1176(h)	<input type="checkbox"/> Rule 1176(f) & (g)	
<input type="checkbox"/> Woodworking Operations	<input type="checkbox"/> Rule 1137 (02/01/02)	N/A	<input type="checkbox"/> Rule 1137(e)	

KEY ABBREVIATIONS:	Reg. = AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations
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## Section III - Supplemental Identification of Specific Requirements

Complete this section only if there is a specific requirement (i.e., rule reference, test method, or MRR requirement) that is:

1. Listed for a specific type of equipment or process in Section II of this form & DOES NOT pertain to a specific device at your facility\*; OR,
2. Is NOT Listed for a specific type of equipment or process in Section II of this form but it IS applicable to a specific device at your facility.

NOTES:

1. For any specific requirement, test method, or MRR requirement that is identified as "Remove," attach additional sheets to explain the reasons why the specific requirement does not pertain to the device listed.
2. All boxes that are checked in Section II and any additional requirements identified in this section as "Add" will be used to determine the facility's compliance status. This information will be used to verify the certification statements made on Form 500-A2.
3. Do not use this section to identify equipment that is exempt from specific rule requirements. Your equipment is automatically considered to be in compliance with the rule that specifically exempts the equipment from those requirements.
4. Listing any requirement that does not apply to a specific piece of equipment in this section will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and approved by the AQMD.

\* If this section is completed as part of the initial Title V application & there is no device number assigned, refer to the existing permit or application number in this column.

[illegible]

# Section IV - SIP-Approved Rules That Are Not The Most Current AQMD Rules

Check off each SIP-Approved Rule as it applies to the facility. Use the blanks at the end of this form to fill-in new items.

SIP - Approved Rule	Adoption/ Amendment Date	Check (✓) If Applies	SIP - Approved Rule	Adoption/ Amendment Date	Check (✓) If Applies
401	03/02/84	<input checked="" type="checkbox"/>			<input type="checkbox"/>
431.2	05/04/90	<input checked="" type="checkbox"/>			<input type="checkbox"/>
461	6/3/05	<input type="checkbox"/>			<input type="checkbox"/>
466.1	05/02/80	<input type="checkbox"/>			<input type="checkbox"/>
469	04/07/76	<input type="checkbox"/>			<input type="checkbox"/>
475	10/08/76	<input checked="" type="checkbox"/>			<input type="checkbox"/>
1112	01/06/84	<input type="checkbox"/>			<input type="checkbox"/>
1112.1	2/7/86	<input type="checkbox"/>			<input type="checkbox"/>
1113	11/08/96	<input checked="" type="checkbox"/>			<input type="checkbox"/>
1117	1/6/83	<input type="checkbox"/>			<input type="checkbox"/>
1122	07/11/97	<input type="checkbox"/>			<input type="checkbox"/>
1132	03/05/04	<input type="checkbox"/>			<input type="checkbox"/>
1140	02/01/80	<input checked="" type="checkbox"/>			<input type="checkbox"/>
1146	11/17/00	<input type="checkbox"/>			<input type="checkbox"/>
1146.1	5/13/94	<input type="checkbox"/>			<input type="checkbox"/>
1151	12/11/98	<input type="checkbox"/>			<input type="checkbox"/>
1158	6/11/99	<input type="checkbox"/>			<input type="checkbox"/>
1162	11/17/00	<input type="checkbox"/>			<input type="checkbox"/>
1166	07/14/95	<input type="checkbox"/>			<input type="checkbox"/>
1171	11/07/03	<input checked="" type="checkbox"/>			<input type="checkbox"/>
1175	05/13/94	<input type="checkbox"/>			<input type="checkbox"/>
1186	09/10/99	<input type="checkbox"/>			<input type="checkbox"/>

## Section V - AQMD Rules That Are Not SIP-Approved (Continued on Following Page)

Check off each AQMD Rule as it applies to the facility. Use the blanks at the end of this form to fill-in new items.

Non SIP - Approved Rule	Adoption/ Amendment Date	Check (✓) If Applies	Non SIP - Approved Rule	Adoption/ Amendment Date	Check (✓) If Applies
53 Los Angeles Co.	N/A	<input type="checkbox"/>	1192	06/16/00	<input type="checkbox"/>
53 Orange Co.	N/A	<input type="checkbox"/>	1193	07/09/10	<input type="checkbox"/>
53 Riverside Co.	N/A	<input type="checkbox"/>	1194	10/20/00	<input type="checkbox"/>
53 San Bernardino Co.	N/A	<input checked="" type="checkbox"/>	1195	05/05/06	<input type="checkbox"/>
53A San Bernardino Co.	N/A	<input type="checkbox"/>	1196	06/06/08	<input type="checkbox"/>
402	05/07/76	<input checked="" type="checkbox"/>	1401	09/10/10	<input checked="" type="checkbox"/>
429	12/21/90	<input type="checkbox"/>	1401.1	11/04/05	<input type="checkbox"/>
430	07/12/96	<input checked="" type="checkbox"/>	1402	03/04/05	<input type="checkbox"/>
441	05/07/76	<input type="checkbox"/>	1403	10/05/07	<input type="checkbox"/>
473	05/07/76	<input type="checkbox"/>	1404	04/06/90	<input type="checkbox"/>
477	04/03/81	<input type="checkbox"/>	1405	01/04/91	<input type="checkbox"/>
480	10/07/77	<input type="checkbox"/>	1406	07/08/94	<input type="checkbox"/>
1109	08/05/88	<input type="checkbox"/>	1407	07/08/94	<input type="checkbox"/>
1110.2	07/09/10	<input type="checkbox"/>	1411	03/01/91	<input type="checkbox"/>
1116.1	10/20/78	<input type="checkbox"/>	1414	05/03/91	<input type="checkbox"/>
1127	08/06/04	<input type="checkbox"/>	1415	10/14/94	<input type="checkbox"/>
1143	07/09/10	<input type="checkbox"/>	1418	09/10/99	<input type="checkbox"/>
1147	12/05/08	<input type="checkbox"/>	1420	09/11/92	<input type="checkbox"/>
1148.1	03/05/04	<input type="checkbox"/>	1420.1	11/05/10	<input type="checkbox"/>
1150	10/15/82	<input type="checkbox"/>	1421	12/06/02	<input type="checkbox"/>
1155	12/04/09	<input type="checkbox"/>	1425	03/16/01	<input type="checkbox"/>
1156	03/06/09	<input type="checkbox"/>	1426	05/02/03	<input type="checkbox"/>
1157	09/08/06	<input type="checkbox"/>			<input type="checkbox"/>
1163	06/07/85	<input type="checkbox"/>			<input type="checkbox"/>
1170	05/06/88	<input type="checkbox"/>			<input type="checkbox"/>
1183	03/12/93	<input type="checkbox"/>			<input type="checkbox"/>
1186.1	01/09/09	<input type="checkbox"/>			<input type="checkbox"/>
1191	06/16/00	<input type="checkbox"/>			<input type="checkbox"/>

**Section V - AQMD Rules That Are Not SIP-Approved (Continued on Following Page)**

Check off each AQMD Rule as it applies to the facility. Use the blanks at the end of this form to fill-in new items.

Non SIP - Approved Rule	Adoption/ Amendment Date	Check (✓) If Applies	Non SIP - Approved Rule	Adoption/ Amendment Date	Check (✓) If Applies
1469	12/05/08	<input type="checkbox"/>	2009.1	05/11/01	<input type="checkbox"/>
1469.1	03/04/05	<input type="checkbox"/>	2501	05/09/97	<input type="checkbox"/>
1470	06/01/07	<input checked="" type="checkbox"/>	2506	12/10/99	<input type="checkbox"/>
1472	03/07/08	<input type="checkbox"/>			<input type="checkbox"/>
2009	01/07/05	<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>





## Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit):

Southern California Edison, Mountainview Generating Station

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

160437

3. This Certification is

a. ☒ Title V Application (Initial, Revision or Renewal)

submitted with a (Check one)

b. ☐ Supplement/Correction to a Title V Applicationc. ☐ MACT Part 14. 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:

Principal Manager, Eastern Operations

3. Print Name:

Terry Maddox

4. Date:

04/28/2017

5. Phone #:

(909) 478-1713

6. Fax #:

(909) 478-1740

7. Address of Responsible Official:

2492 W. San Bernardino Ave

Redlands

CA

92374

Street #

City

State

Zip

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:

*Terry L. Maddox*

2. Title of Designated Representative or Alternate:

Principal Manager, Eastern Operations

3. Print Name of Designated Representative or Alternate:

Terry Maddox

4. Date:

4.28.2017

5. Phone #:

(909) 478-1713

6. Fax #:

(909) 478-1740

7. Address of Designated Representative or Alternate:

2492 W. San Bernardino Ave

Redlands

CA

92374

Street #

City

State

Zip





South Coast Air Quality Management District

**Form 400 - XPP****Express Permit Processing Request**

Form 400-A, Form 400-CEQA and one or more 400-E-xx form(s) must accompany all submittals.

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

1. Facility Name (Business Name of Operator To Appear On The Permit):

Southern California Edison - Mountainview Generating Station

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

160437

**Section B - Equipment Location Address**3. ☒ Fixed Location ☐ Various Location

(For equipment operated at various locations, provide address of initial site.)

2492 W San Bernardino Ave

Street Address

Redlands CA 92374

City State Zip

Julia M. Lakes Env. Specialist

Contact Name Title

(909) 478-1721

Phone # Ext. Fax #

Julia.Lakes@sce.com

E-Mail

**Section C - Permit Mailing Address**

4. Permit and Correspondence Information:

☐ Check here if same as equipment location address

P.O. Box 5085, Attn: Air Quality

Address

Rosemead CA 91770

City State Zip

Joy Brooks, PE, CPP AQ Manager

Contact Name Title

(626) 302-8850

Phone # Ext. Fax #

Joy.S.Brooks@SCE.com

E-Mail

**Section D - Authorization/Signature**

I understand that the Expedited Permit Processing fees must be submitted at the time of application submittal, and that the application may be subject to additional fees per Rule 301. I understand that requests for Express Permit Processing neither guarantees action by any specific date nor does it guarantee permit approval; that Express Permit Processing is subject to availability of qualified staff; and that once Express Permit Processing has commenced, the expedited fees will not be refunded. I hereby certify that all information contained herein and information submitted with the application are true and correct.

5. Signature of Responsible Official:

6. Title of Responsible Official:

Principal Manager, Eastern Operations

7. Print Name of Responsible Official:

Terry Maddox

8. Date:

04/28/2017

9. Phone #:

(909) 478-1713

10. Fax #:

(909) 478-1740

AQMD USE ONLY		APPLICATION TRACKING #		TYPE B C		EQUIPMENT CATEGORY CODE		FEE SCHEDULE \$		VALIDATION	
ENG. DATE	A R	ENG. DATE	A R	CLASS I III	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT \$	TRACKING #			

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## ATTACHMENT 2 – CATALYST MANUFACTURER DATA



1/6/2016

STEVEN JOHNSON

HRST

RE: 7FA.04 EFFECT ON EXISTING DESIGN

Quote Ref. 20160106-SO CAL EDISON-MOUNTAINVIEW-CO

It is our pleasure to provide you with this detailed estimate for supply of an ADCAT™ CO Oxidation Catalyst system for the reduction of CO and VOCs. We are assured that we have presented the most efficient and economical solution for your emission controls requirements, featuring the latest in technological advances for proven performance and ease of maintenance.

Since 1992, EmeraChem has been designing and manufacturing CO Oxidation Catalysts for combustion turbines, reciprocating engines, and industrial processes worldwide, with patents in North America, Europe and Asia. Our superior design features, including bonded steel, discrete cell substrates, and **100% platinum** formulation ensure the highest performance with the lowest available pressure drop. EmeraChem provides seamless integration of the most advanced technology available with best in class, reliable construction and installation methods. This yields extremely strong, high performance, long lasting catalyst for owners and OEMs, with a **TEN YEAR MECHANICAL WARRANTY**, standard as well as performance warranties of 3, 5 and 7 years.



EmeraChem's oxidation catalyst systems are successfully operating in hundreds of locations across the United States, consistently performing throughout service life. Expertise earned in some of the most challenging environmental compliance regions in the nation, backed by field tested manufacturing techniques combines in unsurpassed reliability and longevity. EmeraChem offers analytical testing, catalyst washing services, and long-term catalyst maintenance contracts to provide OEM expertise in measuring performance over time and extending the life of installed systems. Our catalytic engineers will be with you every step of the way, ready to offer solutions that ensure you get the most out of your emissions control system.

EmeraChem's oxidation catalyst systems are successfully operating in hundreds of locations across the United States, consistently performing throughout service life. Expertise earned in some of the most challenging environmental compliance regions in the nation, backed by field tested manufacturing techniques combines in unsurpassed reliability and longevity. EmeraChem offers analytical testing, catalyst washing services, and long-term catalyst maintenance contracts to provide OEM expertise in measuring performance over time and extending the life of installed systems. Our catalytic engineers will be with you every step of the way, ready to offer solutions that ensure you get the most out of your emissions control system.



The ADCAT™ product is a passive, metal substrate system incorporating an alumina "wash-coat" which provides a high surface area base for the 100% Platinum precious metal catalyst. Our Discreet Cell substrate construction provides excellent rigidity, while allowing for a minimum resultant pressure drop. The secret to the success of our design rests in the combination of Diffusion Bonding and our efficient use of Platinum. Similar to brazing, Diffusion Bonding results when the thousands of connecting points between the

alternating layers of crimped and flat foil (42% more surface area) are fused by the formation of oxides during the heat treating of the alumina wash-coat. This resilient bond can easily survive flow rates of well above five million lb/hr under operating temperatures ranging from 500-1100 deg F while resisting the "nesting" and particulate "plugging" common to torturous path or folded crimp foils. Platinum has an excellent oxidation rate, achieving

maximum destruction efficiency at relatively low operating temperatures for quick start performance. During low temperature transient conditions, where sulfur species entrained in the fuel of combustion can condense onto the substrate, Platinum resists chemical bonding, often allowing systems to be restored to performance years past planned service life with our proprietary chemical washing process. The use of Platinum also provides for high reclaim value which can be applied as a credit to replacement systems in the future. By comparison, Palladium requires higher temperatures for catalytic activity, prolonging start-up, and can be more vulnerable to common deactivators such as sulfur.

Our catalyst system support structure (frame) incorporates allowances for thermal expansion without sacrificing gas path sealing critical to compliance performance. Featuring an efficient, practical design, our frames permit rapid installation of catalyst modules, while eliminating the possibility of gasket failure and resultant by-pass of untreated exhaust. Our frames are also customized to meet your application requirements, including future addition of up to 50% of the original catalyst layer.



Again, it is a sincere pleasure to offer our assistance in providing you with a proven, fully-backed performance guarantee for our ADCAT™ CO Oxidations system. Should you require further details, support or additional estimation, please do not hesitate to call either myself or any of our staff.

## Joshua D. Gillespie

Sales & Proposals Manager  
(865) 246-3008 office  
(865) 789-3002 mobile  
jgillespie@emerachem.com

24 January, 2017

**Kelvin R. Estrada**

Power Plant Performance Engineer  
Plant Engineering | Asset Mgmt. and Generation Strategy | Power Generation  
492 West San Bernardino Avenue  
Redlands, CA 92374  
PAX: 11705  
Office: 909-478-1705  
Mobile: 909-219-2617  
Fax: 909-478-1740

Subject: COMPARATIVE DESIGN CONDITIONS, SCE MOUNTAINVIEW GENERATING

Kelvin,

Thank you for your request of 23 January regarding the variations in cuft of catalyst supplied to the earlier and more recent iterations of CO/VOC oxidation catalyst to Mountainview Generating Station. The following details the comparative differences in both the design conditions, and the corresponding changes in catalyst volume and sizing between 2009-2016.

OPERATING INFORMATION	7FA.03 (2009)	7FA.04 (2016)	
Exhaust Flow at COC	3,683,000	3,473,416	lb/hr
as scfh	46,379,592	46,379,592	scfh
as acfh	96,783,288	96,783,288	acfh
Exhaust Temp. at COC	623	625	°F
Max. Exhaust Temp. at COC	654	625	°F
CO Destruction Required	33.6	77.8	%
VOC Destruction Required	39.7	0.0 (58.7 predicted)	%

MODULE ARRANGEMENT (per unit)	7FA.03 (2009)	7FA.04 (2016)
Number of Full Elements	267	267
Number of Rows	27	27
Number of Columns	10	10
Number of Spare Elements	-	-
Number of Test Sites	3	3
Number of Test Cans	12	12
Number of Spare Test Cans	3	2



<b>MODULE DIMENSIONS</b>			
Cell Geometry	260	260	cpsi
<b>Full Element Dimensions</b>			
Width	26.000	26.00	in
Height	26.000	26.00	in
Depth	1.500	1.75	in
Full Element Weight	26.407	42.40	lbs
<b>Test Can Dimensions</b>			
Width	12.625	12.625	in
Height	12.625	12.625	in
Depth	1.500	1.75	in
Total cuft/system (effective)	140.4	163.8	cuft

As you can see, the increased CO destruction rate efficiency requirement (DRE), resulted in an increased catalyst depth of 1.75 inches over the previous 1.5 inches. This increased effective catalyst volume supplied (per unit) to 163.8 cuft, up from 140.4 cuft.

The VOC DRE required under the "7FA.04" condition was not supplied. However, a resultant VOC DRE of 587% predicted was included.

If there are additional questions or concerns regarding the 2016 design, please do not hesitate to ask.

Many Sincere Regards,

Joshua D. Gillespie  
Sales & Proposals Manager  
[jgillespie@emerachem.com](mailto:jgillespie@emerachem.com)  
(865)246-3008 office  
(423)667-2393 mobile



**Operation and Maintenance Manual  
ADCAT™ Oxidation Catalyst System and  
Catalyst Support Structure**

*for*

**Southern California Edison Company**

**Mountainview**

**Customer P.O. No: 4500816942**



---

THE POWER OF CATALYSIS



# **PROJECT INFORMATION**

## **Southern California Edison Company**

**Customer:** Mountainview Power Company  
2492 W San Bernardino Ave  
Redlands, CA 92374  
USA

**Project Name:** Mountainview  
**Project Manager:** Sharon Anderson

---

**Manufactured By:** EmeraChem, LLC  
1729 Louisville Drive.  
Knoxville, TN 37921  
Tel.: 865.246.3000  
Fax: 865.246.3001  
Project Manager: Matt Vela

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**Delivery Date:** Catalyst: 4/22/16

**Project Site:** Mountainview Generating Station

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**Project P.O.:** 4500816942

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## INDEX OF TERMS

**ADCAT™** - EmeraChem's proprietary CO/VOC catalyst

**Ambient temperature** – Surrounding air temperature

**Catalyst** - A substance that changes the rate of a chemical reaction but emerges from the process unchanged

**CO** – Carbon monoxide

**CO<sub>2</sub>** – Carbon dioxide

**CO module** – A canister containing catalyzed metal substrate.

**COC** – Carbon Monoxide Catalyst

**CPSI** – Cells per square inch, the measure of cell density

**Frame** – Support structure upon which the catalyst modules are supported

**G's**- Acceleration of a mass of one pound resulting in one pound force

**HRSG** – Heat Recovery Steam Generator

**Monel nut** – nut made of Monel metal that allows easy removal after being in service on a stainless steel bolt or stud.

**NO**- Nitric Oxide

**NO<sub>2</sub>** – Nitrogen Dioxide

**O<sub>2</sub>** – Oxygen

**PPM** – Parts per million

**PPMVD** – Parts per million by volume, dry

**SCFH** – Standard cubic feet per hour

**SCM** – Standard cubic meter



**SO<sub>2</sub>** – Sulfur dioxide

**SO<sub>3</sub>** – Sulfur trioxide

**Space Velocity** – The volume (in cubic feet) of gas flowing through one cubic foot of catalyst in one hour, expressed as 1/hr

**Substrate** – A high temperature, stainless steel, multi-cellular monolithic structure onto which the catalyst is applied

**UHC** – Unburned hydrocarbons

**VOC** – Volatile organic compounds – EPA Definition - 40 CFR Ch. 1, Subpart F - Procedural Requirements, Section 51.100 – Definitions, Paragraph (S) - VOCs, Subparagraph (1) states, “**(S)** any compound of carbon, **excluding** carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. **(1)** This includes any such organic compound **other than the following**, which have been determined to have negligible photochemical reactivity: **methane; ethane;** methylene chloride, (dichloromethane); 1,1,1-trichloroethane, (methyl chloroform); etc.”

## SYSTEM SPECIFICATIONS

<b>Number of Test Module Locations per Frame</b>	3
<b>Number of Full Size Modules per Frame</b>	267
<b>Number of Test Modules per Frame</b>	14
<b>Design Maximum Temperature*</b>	625° F
<b>Over-Temperature Alarm Limit</b>	675° F
<b>Over-Temperature Trip Limit</b>	725° F
<b>Design Pressure Drop*</b>	0.9" H <sub>2</sub> O
<b>Pressure Drop Alarm Limit</b>	1.25" H <sub>2</sub> O
<b>Pressure Drop Trip Limit</b>	1.5" H <sub>2</sub> O

\* For expected operating temperature and pressure drop, refer to Appendix A.

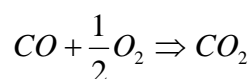
## 1.0 INTRODUCTION

The purpose of this document is to provide operation and maintenance guidelines for the EmeraChem ADCAT™ CO Catalyst system, including an overview of the oxidation process occurring within the catalyst, installation of the system, system operation, and system maintenance. Instrumentation needed to operate and maintain the ADCAT™ CO Catalyst system but *not* provided by EmeraChem will also be discussed.

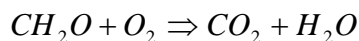
## 2.0 SYSTEM DESCRIPTIONS

### 2.1 Process Description

The combustion of hydrocarbon fuels produces various byproducts, one of which is carbon monoxide (CO). The ADCAT™ CO Catalyst system converts CO to CO<sub>2</sub> through the use of a precious metal oxidation catalyst. A catalyst is a substance that aids in a chemical reaction but emerges from the process unchanged. This precious metal oxidation catalyst reduces the activation energy (required energy input) enabling the reaction below to occur at lower temperatures and more favorable rates:



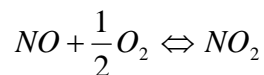
**Equation 1:** Oxidation Reaction of Carbon Monoxide



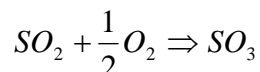
**Equation 2:** Example Oxidation Reaction of VOCs (formaldehyde)

This reaction is referred to as a catalyst aided oxidation reaction. Oxygen in the exhaust is absorbed onto the surface of the catalyst. This interaction of oxygen with the catalyst surface greatly distorts and weakens the oxygen bond. In this distorted state, the oxygen is more likely to bond to an adsorbed CO molecule eventually forming CO<sub>2</sub>.

In the presence of this powerful oxidation catalyst, other oxidation reactions also occur. The catalyst will convert NO to NO<sub>2</sub> and SO<sub>2</sub> to SO<sub>3</sub>:



**Equation 3:** Oxidation Reaction of Nitric Oxide



**Equation 4:** Oxidation Reaction of Sulfur Dioxide

These reactions can be minimized by carefully choosing the catalyst formulation and application. For example, NO to NO<sub>2</sub> conversion is highest around 600°F. When the catalyst can be operated at a higher temperature, the NO conversion rates will be lower while the CO and VOC conversion rates are higher. However, installing the catalyst in a higher temperature zone will increase SO<sub>2</sub> to SO<sub>3</sub> conversion. EmeraChem offers special catalyst formulations to minimize these reactions where required.

The performance and effectiveness of a catalyst is stated by percent conversion. EmeraChem's warranty is expressed as a percent conversion. As the engine emissions increase, the post-catalyst emissions will increase, maintaining the percent conversion. The percent conversion is determined by the equation:

$$\%Conversion = \left[ 1 - \frac{CatalystOutletConcentration(ppmvd @ 15\%O_2)}{CatalystInletConcentration(ppmvd @ 15\%O_2)} \right] \times 100$$

**Equation 5:** Calculation of Conversion

The percent conversion is referred to as Destruction and Removal Efficiency (DRE).

EmeraChem uses a monolithic "discrete cell" honeycomb structure (described in section 2.2) designed to minimize pressure drop and its impacts on plant

efficiency. This honeycomb structure consists of many parallel cells through which the exhaust gas must pass, thereby increasing the reactive catalyst surface area. The high surface area substrate and ceramic wash coat increases gas contact with the catalyst surface, thereby facilitating and advancing the oxidation reaction.

## **2.2 Equipment Description**

The ADCAT™ CO catalyst system consists of two primary components.

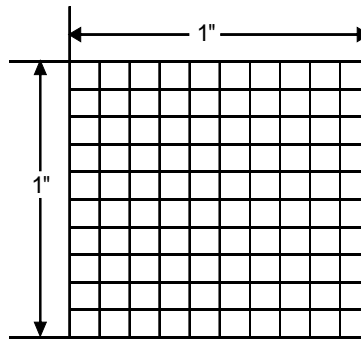
1. Catalyst Modules
2. Gaskets

These components are field assembled and integral to the overall system.

### **2.2.1 Catalyst Modules**

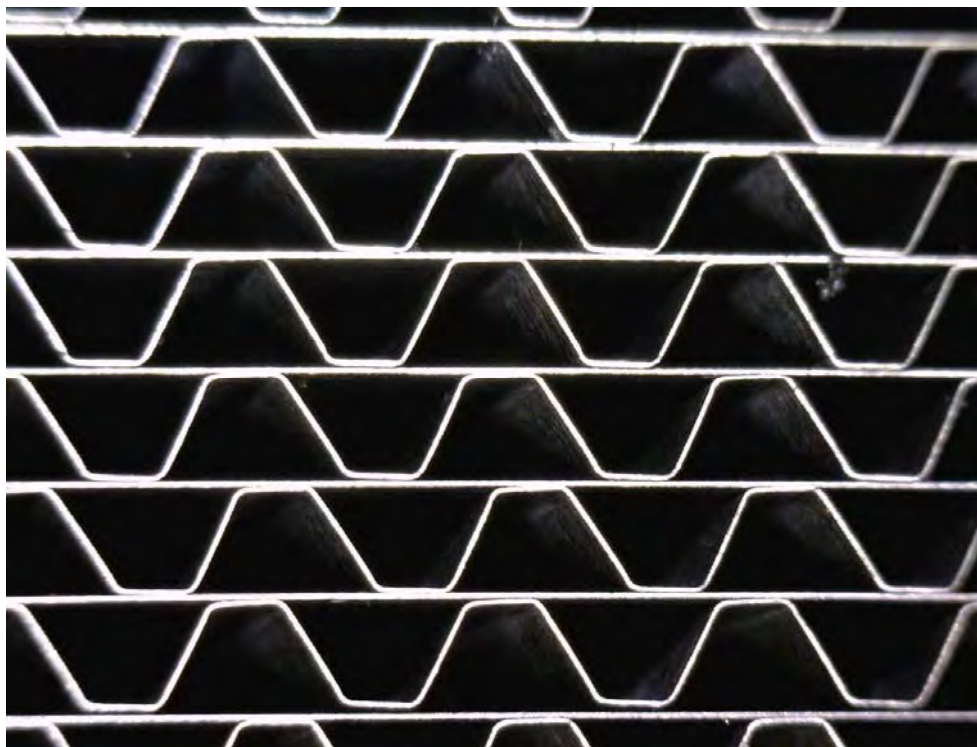
The EmeraChem ADCAT™ CO catalyst coating is applied to a metal substrate. The substrate is a high-temperature, stainless steel, multi-cellular monolithic structure. This substrate structure is created using a stainless-steel/aluminum alloy foil, approximately 0.002 inches thick. Some of the foil is corrugated and then layered with strips of flat foil and retained within a stainless steel channel frame to form a honeycomb core. A typical CO catalyst module will have between 230-260 cells per square inch (cpsi); higher cell densities are sometimes used to increase the surface area and catalytic performance. Figure 1 further illustrates the concept of cell density, showing 100 cpsi as an example.





**Figure 1: Visual Example of Cell Count: 100 Cells per Square Inch**

Figure 2 below shows a close up picture of a stainless steel CO catalyst module, further illustrating the previously described honeycomb cell structure. Please note individual cell size depends upon the specific design for each application.



**Figure 2: Catalyst Module Close-up, Illustrating Honeycomb Cell Structure**

Next, the assembled substrate module is oxidized at a high temperature, then coated with a high surface area ceramic alumina layer designed to distribute and disperse the catalytic component (platinum). The resulting

surface area of a 24"x24"x3" catalyst module is 350,000 to 550,000 square meters. The final step is the application of the platinum coating. The particle size of the platinum is 10-50 angstroms (one angstrom is 0.00000001 centimeters), and adheres to the alumina layer. The end result is a module with a high number of active sites with minimum resistance to flow.

### **2.2.2 Gaskets**

A single type of gasket is used in EmeraChem's ADCAT™ CO Catalyst system. These gaskets are made from high-temperature fiberglass material, capable of withstanding temperatures over 1,100°F. The purpose of the gasket is to seal between the catalyst modules and the frame. These gaskets typically measure 2" wide x 1/8" thick. These gaskets are placed along the frame members before the catalyst is installed. Since the gaskets are made of fiberglass, proper breathing apparatus and gloves must be used during installation. Please see Appendix D, MSDS for more information.

## **3.0 FACTORS AFFECTING CATALYST PERFORMANCE**

### **3.1 Bypass**

Exhaust gas bypass is a major factor that can adversely affect conversion. Bypass is exhaust gas passing through gaps in the system rather than through the catalyst. Bypass can occur between the frame and the individual catalyst modules, and between the frame and the HRSG liner. To prevent bypass, EmeraChem uses flat woven fiberglass gaskets between the frame and the catalyst modules. A bent seal plate prevents bypass between the frame and the HRSG casing liner plates. Bypass *must* be eliminated to prevent voiding the catalyst CO conversion performance warranty.

### **3.2 Temperature**

Temperature is a significant factor affecting conversion. Higher temperatures create more favorable conditions for the CO/VOC oxidation reaction to occur.

EmeraChem recommends that the catalyst operating temperature be maintained above 600 F. Even at operating temperatures below 600 F, the catalyst will achieve high CO destruction efficiency. However, operating temperatures below 600F are known to accelerate sulfur deposition, accumulation and eventually catalyst masking. As sulfur accumulates on the catalyst surface it physically covers or “masks” the platinum and prevents the platinum from coming in contact with the exhaust gas. The result is reduced catalyst performance (see Sect. 3.6). Sulfur accumulation cannot be reversed by raising the operating temperature, except to unrealistically high temperatures. Once sulfur has accumulated to the extent that it produces a significant loss of catalyst performance, the only remedy is to remove the catalyst and chemically clean and regenerate it.

Exposure to excessive temperature significantly lowers catalyst life by affecting the ceramic wash coat and the distribution of platinum on the surface of the wash coat. Therefore, operation of the catalytic reactor shall not exceed 1150°F on a continuous basis, shall not exceed 1200°F for cumulative total of 10 minutes, and shall not exceed 1250°F. Catalyst operating temperatures in excess of these values shall void the warranty.

**UNDER NO CIRCUMSTANCE SHOULD THE CO CATALYST BE EXPOSED TO DIRECT FLAME.**

### **3.3 Space Velocity**

Another significant factor that affects conversion is the amount of gas that the catalyst must process in a given time. Higher conversion will be achieved when the catalyst processes a reduced volume of gas per unit time. In the

catalysis industry, the concept of space velocity is routinely used to quantify this idea. Space velocity is defined as:

$$SpaceVelocity = \frac{GasVolumetricFlowRate\left(\frac{ft^3}{hr}\right)}{CatalystVolumeInService(ft^3)}$$

**Equation 6:** Mathematical Definition of Space Velocity

The gas volumetric flow rate is usually expressed in units that when divided by the catalyst volume, the unit of space velocity is reciprocal hours (1/hr). One can think of space velocity as expressing the “catalyst volume equivalents” of exhaust gas that a catalyst processes in one hour. For example, a space velocity of 50,000/hr indicates that the catalyst is processing 50,000 times its own volume of exhaust gas every hour. Space velocity is inversely proportional to catalytic performance.

### 3.4 Cell Geometry

Another important factor affecting overall CO conversion is catalyst honeycomb structure cell geometry, as described in section 2.2.1. The honeycomb structure is designed for each project to maximize the total surface area of catalyst within the constraints of the specified pressure drop or back pressure. Catalytic performance and pressure drop are directly proportional to cell density.

### 3.5 Exhaust Gas Distribution

The distribution of exhaust gas also effects the overall CO conversion. If the flow’s velocity, CO concentration, or temperature are not distributed evenly across the catalyst the CO conversion will fall. If the exhaust flow is maldistributed then some sections of catalyst will be operating at higher space velocities than they were designed for, which causes performance of those high-flow zones to be lower than they were designed for.

EmeraChem's catalyst performance warranty requires that the exhaust gas velocity and concentration distribution at the entrance plane of the Catalyst be  $\pm 15\%$  RMS of the average and at least 85% of the points measured are within  $\pm 15\%$  of the average. As for the exhaust gas temperature, a  $\pm 25^\circ\text{F}$  distribution is required.

### 3.6 Catalyst Masking Agents

The following contaminants are known to catalyst deactivators and contribute to shortened catalyst life. Hence, the contents of these contaminants in the catalyst shall not accumulate to such a level that exceeds the warranty limits shown in the tables below. The reference standard method for determining the identity and quantity of these compounds on catalyst is ICP-OES (inductive couple plasma - optical emissions spectroscopy), glow discharge mass spectrophotometry or other analytical method approved by EmeraChem to provide the required selectivity and sensitivity. The presence of contaminants in excess of these levels shall void the catalyst performance Warranty.

The following catalyst deactivator species have been found in turbine, boiler and reciprocating engine applications:

Contaminant	Catalyst Warranty
	Limit (mg/ft <sup>3</sup> of catalyst)
Sulfur (S)	500
Phosphorous (P)	500
Zinc (Zn)	250
Collective limit for P and Zn	500



Contaminant	Catalyst Warranty
	Limit (mg/ft <sup>3</sup> of catalyst)
Chromium (Cr)	500
Nickel (Ni)	500
Collective limit for Cr and Ni	500
Silicon (Si)	1,000
Iron (Fe)	5,000

\*Silicon limit of 1000 mg/ft<sup>3</sup> is derived from normal atmospheric dust. Silica from the combustion of siloxane compounds is not allowed.

Contaminant	Catalyst Warranty
	Limit (mg/ft <sup>3</sup> of catalyst)
Sodium (Na)	2,000
Calcium (Ca)	2,000
Potassium (K)	2,000
Collective limit for this group	2,000

The following catalyst deactivator species are not commonly found in turbine, boiler and reciprocating engine applications:

Contaminant	Catalyst Warranty Limit (mg/ft <sup>3</sup> of catalyst)
Antimony (Sb)	50
Arsenic* (As)	50
Copper (Cu)	50
Lead (Pb)	50
Tin (Sn)	50
Lithium (Li)	50
Collective limit for above group	50
Mercury (Hg)**	5

\*Has been found in natural gas.

\*\*Requires ICP-MS analytical method.

Contaminant	Catalyst Warranty Limit (mg/ft <sup>3</sup> of catalyst)
Chlorine (Cl)	25
Fluorine (F)	25
Bromine (Br)	25
Iodine (I)	25
Collective limit for this group	25

### 3.7 Particulate Exposure

The catalyst shall be operated in exhaust streams that are free of dust and other particulate matter. Exposure to such particulate contamination may result in temporary or permanent catalyst masking or blinding, and may require Customer, at Customer's expense, to periodically clean, or have

cleaned, the catalyst according to EmeraChem's specified procedures. Any claims for damages caused by dust, carbon, or other particulate matter are excluded under the warranty. Silica from the combustion of siloxane compounds is a known catalyst masking agent that causes permanent catalyst deactivation and is not allowed.

Carbon and/or carbonaceous soot, often from a malfunctioning duct burner, can act as a catalyst masking agent and also absorb sulfur onto the catalyst surface. Chemical washing is only marginally effective in removing carbon.

Effects of abrasion, corrosion, erosion and deposition are also damaging to the catalyst. Catalyst should be protected against them. Catalyst exposed to any conditions that cause abrasion, corrosion, erosion, or deposition is excluded under the warranty.

## **4.0 FACTORS AFFECTING CO SYSTEM OPERATION**

EmeraChem's warranty excludes coverage for any defects in materials and workmanship for products, components and materials that are not supplied by EmeraChem.

### **4.1 Catalyst Gas Path Dimensions**

The catalyst gas path dimensions are the internal height and width of the duct in which the catalyst is installed. These dimensions are provided to EmeraChem for the system design and are a starting point for EmeraChem to determine the volume of catalyst that can be installed into the duct.

### **4.2 Expected Operating Conditions**

The Catalyst furnished for this project has been sized and designed for the exhaust gas characteristics, operating conditions and emission control performance shown in Appendix A. The emission control performance

guarantees are applicable when the catalyst is operated within this design basis and within the parameters of this O&M Manual.

### **4.3 Operating Requirements**

#### **4.3.1 Over-Temperature Protection**

The system has been designed for a maximum temperature as defined in the system specification at the front of the manual (page vii - Design Maximum Temperature). In the event of a turbine or HRSG malfunction, it is possible for exhaust gas temperatures to exceed the maximum design temperature. For this reason, over-temperature protection must be provided. This over-temperature protection consists of temperature switches/thermocouples upstream of the ADCAT™ CO Catalyst system measuring the catalyst inlet temperature, with an annunciation light and audible alarm. The alarm should sound if the temperature surpasses the over-temperature alarm limit as defined in the system specification (page vii - Over-Temperature Alarm Limit), and the reason for the over-temperature condition should be determined and corrected. If the catalyst inlet temperature surpasses over-temperature trip limit (page vii - Over-Temperature Trip Limit), the turbine should shutdown and corrective action should be taken. This over-temperature protection is not in EmeraChem's scope of supply.

#### **4.3.2 Differential Pressure Protection**

A differential pressure transmitter should be installed to determine the pressure drop across the ADCAT™ CO Catalyst system. The design pressure drop is defined in the system specifications at the front of the manual (page vii – Design Pressure Drop). If the pressure drop exceeds the pressure drop alarm limit (page vii – Pressure Drop Alarm Limit), an alarm should sound, and the reason for the condition should be determined and corrected. The transmitter is not in EmeraChem's scope

of supply. It should be noted that a catastrophic failure of the duct liner could result in the deposition of insulation or liner plates on the CO catalyst grid. If this occurs, a large pressure drop across the catalyst grid could result, and major structural component failure could ensue. To prevent structural failure, any differential pressures across the catalyst grid greater than the pressure drop trip limit (page vii – Pressure Drop Trip Limit) should immediately initiate turbine shutdown.

#### **4.3.3 Turbine Lubricating Oil**

Catalyst durability is significantly affected by the type and consumption rate of turbine lubricating oil. The warranty is based upon a maximum lubricating oil consumption rate of 0.0016 pounds per million SCFH. Low ash, phosphorous-free oils are recommended for prolonged catalyst durability. Excess lubricating oil usage could contaminate the catalyst and void the catalyst warranty.

#### **4.3.4 Turbine Cleaning Solutions**

Periodic turbine maintenance includes introducing cleaning solutions through the turbine. These solutions should be free of ingredients that poison catalyst (e.g., phosphorous; see Section 3.6) and should be prevented from coming in contact with the catalyst. Catalyst contamination with turbine cleaning solutions could contaminate the catalyst and void the catalyst warranty.

#### **4.3.5 Water Treatment Chemicals**

Several chemical formulations are used to treat boiler feed water. Some contain compounds such as phosphorous that poison catalyst. Leaking boiler tubes upstream of the catalyst could provide a pathway for contaminating the catalyst. Boiler operators should beware of this concern and monitor tube leaks via inspection, makeup water consumption, steam drum levels, and other means. Contamination with



some boiler feed water treatment chemicals could contaminate the catalyst and void the catalyst warranty.

#### **4.3.6 Vibration**

Excessive turbine vibration may result in loosening the catalyst modules in the frame. To prevent this loosening, acceleration levels must not exceed 2.5 G's. If excess vibration is detected, shut down the turbine, determine the reason for the condition, and correct it.

#### **4.3.7 Housekeeping**

Keep inside of duct and HRSG free of loose material that can be blown into the catalyst. Keep the area free from any hazards that would prevent easy movement around the ADCAT™ CO Catalyst system or easy access into the casing interior. No flammable or otherwise hazardous materials should be stored in the immediate vicinity of the ADCAT™ CO Catalyst system.

#### **4.3.8 Catalyst Washing**

EmeraChem utilizes a proprietary 4-step chemical washing process for regenerating contaminated catalyst. Unless approved in writing by EmeraChem, the use of any other catalyst cleaning process voids the warranty. See Appendix B for more information on catalyst washing.

#### **4.3.9 Catalyst Vacuuming**

Some losses to catalyst performance are due to particulate accumulation on the face of the catalyst. A simple approach to removing light debris from the face of the catalyst is to lightly brush the face of the catalyst and vacuum the debris off the face. Use light strokes with a wire brush and vacuum the debris, however, do not press the wire brush into the catalyst face because it will abrade the ceramic catalyst coating. The use of

compressed air could strip the ceramic coating off the metal substrate and void the catalyst warranty

## 5.0 CATALYST STORAGE INSTRUCTIONS

Upon delivery, the following storage criteria should be observed:

1. Store indoor only in a clean, dry place.
2. Do not expose to rain or snow.
3. Protect from falling objects.
4. Do not drop catalyst modules.
5. Store in locked facility with security.
6. Do not stack anything on top of catalyst crates.
7. Please note that failure to observe the storage criteria may result in a void of system warranty.

## 6.0 CATALYST PERFORMANCE TESTING

Catalyst testing is conducted on EmeraChem's ADCAT™ CO Catalyst system utilizing EPA test methodologies shown below. Catalyst performance is determined using these methods. Testing of the installed catalyst system is not included in EmeraChem's scope of supply.

EPA Test Method	Description	Web Address
1	Sample Port Location	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
2	Stack Gas Velocity	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
3	O <sub>2</sub> and CO <sub>2</sub> Concentration in Exhaust	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
10	CO DRE	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
18	VOC DRE as NMNEHC	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
6c	SO <sub>2</sub> to SO <sub>3</sub> Conversion	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
7e	NO to NO <sub>2</sub> Conversion	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>

A number, determined by the size of the system, of test coupons are tested prior to shipment, in order to verify performance. Test coupons may also be tested after on-line service. For additional information please see EmeraChem's Carbon Monoxide Catalytic Oxidation Test Protocol (see Inspection and Test Plan).

## 7.0 CATALYST PRE-INSTALLATION REQUIREMENTS

The EmeraChem **ADCAT™ CO Catalyst system** is designed to be simple and robust, but precautions should be taken when starting up the system for the first time. The following items should be checked prior to system start-up:

1. Inspect the duct liner up-stream of the ADCAT™ CO Catalyst system to ensure against loose insulation being accidentally released onto/into the catalyst.
2. Verify that no loose objects or trash are present in the duct upstream of the catalyst.
3. Inspect the frame, duct liner and expansion joints to be sure they are installed correctly.
4. Inspect the frame for any damage done during field erection.
5. Check that the frame has proper expansion allowance.
6. Examine for proper bent seal plate installation and look for any bypass potential.

## 8.0 START-UP AND INSPECTION

### 8.1 Initial Turbine Firing and Inspection

TO AVOID CATALYST CONTAMINATION, IT IS RECOMMENDED THAT THE CATALYST MODULES BE INSTALLED IN THE SUPPORT STRUCTURE AFTER INITIAL TURBINE FIRING.

For the ADCAT™ CO Catalyst system, the objectives of the initial start-up procedure are to burn off any paints, oils, and coatings on the turbine, duct, HRSG, and frame that could contaminate the catalyst, and to uniformly heat the frame assembly. The internal frame is an intricately welded fabrication; therefore uniform initial heat-up is necessary. Stresses induced during fabrication are relieved over time at elevated temperatures. The internal tube frame will undergo vertical and horizontal thermal expansion as the exhaust

gas temperature increases. The changes in temperature exercise the expansion joint system as well as other system components. At the time of initial turbine firing, the following steps are recommended:

1. Inspect all access doors for proper sealing.
2. Follow turbine manufacturers pre-start-up/start-up procedures.
3. Start the engine and attain synchronous idle conditions.
4. Maintain these conditions until the catalyst support frame is uniformly heated.
5. Increase the turbine power slowly through the time when maximum output is achieved.

The EmeraChem catalyst system is designed to operate, to the largest degree possible, in the same thermal environment as the duct and HRSG; however, during initial exhaust gas release to the catalyst system, extra precaution should be taken to reduce thermal shock and possible distortion. If the catalyst is not dry when the initial exhaust gas is released, any moisture on the catalyst would flash into steam and cause irreparable damage to the catalyst. A gradual temperature increase with a dry catalyst is optimal. As with all equipment exposed to the extreme temperatures of gas turbine exhaust, it is desirable to minimize thermal shock, temperature spikes, excursions and unnecessary thermal cycling.

After initial start-up, check the following items:

1. Check the duct liner for buckled or loose plates.
1. Check the frame for cracks or broken parts.
2. Check the expansion seals for buckled or binding components.
3. Check that the bent seal plates are intact.
4. Check the frame integrity; look for bent/buckled items, frame position within the HRSG, etc.

## 8.2 Catalyst Installation

After commissioning, inspection, and the initial turbine firing, the catalyst modules can be installed. The frame temperature should be less than 110 °F prior to catalyst installation. An EmeraChem field representative should observe and inspect the initial installation of catalyst modules and test coupons.

The first step is to install access equipment (platforms, scaffolding, or other equipment) that allows the installation crew safe access to the front face of the frame. All applicable local and national safety procedures must be adhered to, with workers using safety harnesses and safety lines.

The components needed for the catalyst installation are as follows:

1. Catalyst modules
2. Fiberglass gasket
3. Catalyst hold down plates
4. Nuts (2 per stud)

The catalyst hold down plates are shown in Figure 3 below. Additionally, these components are shown in the drawing details in Appendix E.

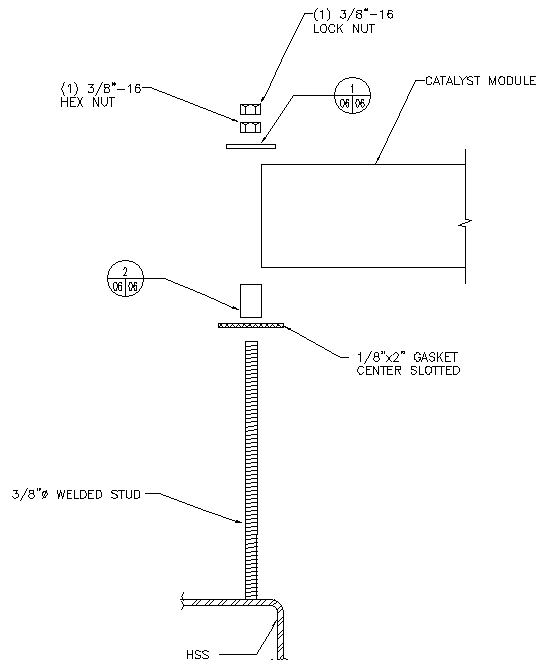
Once the access equipment is installed and ready to use, begin the catalyst installation at the top of the catalyst support frame. Installing the catalyst from top to bottom will help to prevent damage to the catalyst substrate during assembly.



**Figure 4:** Catalyst Hold Down Plates



First, place the gasket along all members of the catalyst frame. The gasket is slotted and will slide over the studs provided for securing the catalyst modules. Beginning at the top of the unit, apply gasket material to all vertical members. Then, apply gasket to all horizontal members with the adhesive side applied to the horizontal members, cutting the horizontal gasket material at the intersections with the vertical gasket material to provide a snug fit and without overlap without gaps. **Gaps and overlaps in gasket will cause bypass leakage and degrade performance.** Place spacers over each of the studs. Next, place the catalyst module between the spacers on the frame (on top of the gasket).



CATALYST HOLD DOWN SECTION

If the gasket appears out of position, use a long, thin tool (i.e. screwdriver) to move it into position, making sure not to tear the gasket. Visually inspect the seal with a flashlight. If the gasket is not seated properly, gas will bypass the catalyst.

If viewed from the downstream side of the frame, the edge of the gasket should just be visible, roughly parallel with the edge of the frame. This indicates the gasket is properly placed.

Rest a catalyst module between the 8 threaded studs and push it against the gasket. After the module is seated in the frame, secure the module by installing a catalyst hold down plate and securing it with one nut. Some catalyst hold down plates serve to secure two modules, so those plates should only be added after the adjacent module is installed. Once the hold down plates are secured with one nut, a second nut, acting as a jamb nut, is tightened against the first. Prevent the first nut from turning and thus changing the torque while the second nut is tightened. For one layer of catalyst the nuts should be tightened to 10 ft-lbs of torque. For more than one layer of catalyst the interior nuts should be tightened to 20 ft-lbs of torque and the perimeter nuts to 10 ft-lbs of torque.

Follow this sequence working across the frame, progressing from the top to the bottom.

Once the catalyst modules have been completely installed and prior to re-starting the system, the following should be checked:

1. Check for proper seal installation from the downstream side of the frame, looking for even placement of the gasket between the modules and frame.
2. Any gaps (corner, sides) should be eliminated to prevent bypass.
3. Inspect the bent seal plates that seal the frame against the HRSG. Examine for bypass.
4. Ensure all catalyst hold down washers are secured by two nuts and are tight.

Smaller test catalyst modules have been provided (four modules per location) as shown in Appendix E and in the System Specifications (page vii).

Installation and removal of test catalyst modules shall be completed as detailed above.

### **8.3 Final Inspection**

Once the catalyst has been installed, the turbine will likely be started and operated at normal operating temperature for testing and data gathering. It is important, if the opportunity arises, to inspect the ADCAT™ CO Catalyst system again after this period of operation. The following items should be checked:

1. Examine the gaskets on the frame for gaps/potential bypass.
2. Check the frame for cracks, broken welds, and disfigured components.
3. Check that the frame has not shifted during operation.
4. Examine the catalyst to ensure that debris has not blocked off the catalyst surface.
5. Check seal plates where the frame and duct liner meet to ensure they are tight against the frame with no room for bypass.

## **9.0 SAFETY CONSIDERATIONS**

The ADCAT™ CO Catalyst system is designed to oxidize carbon monoxide and VOCs as the gas turbine exhaust passes over the precious metal-coated catalyst at elevated temperatures. These high temperatures make it mandatory that personnel be protected against injury. Do not attempt to work around the ADCAT™ CO Catalyst system if temperatures exceed 110° F. Entering the space where the catalyst is located is considered a confined space entry. Check with plant safety policies and personnel for appropriate procedures and personal protective equipment.

Always use caution when working around the ADCAT™ CO Catalyst system during a shutdown period. If the system shuts down because of a high

temperature or any other reason, pay particular attention to hot surfaces and make sure there is adequate area ventilation. This is especially important when inspecting, removing, or installing the ADCAT™ CO Catalyst system.

If necessary, use a ventilation fan to keep fresh air flowing through the system during inspection, removal, or installation. All appropriate OSHA confined space safety procedures, as well as all local and company procedures should be followed at all times.

Any time the ADCAT™ CO Catalyst system is not in operation because of the need to perform maintenance work, use the appropriate equipment lockout and tagging measures.

Use proper personnel protection at all times when installing or removing catalyst modules. Read the recommendations below before starting any procedures:

1. Follow all appropriate OSHA and plant safety procedures at all times, including equipment lockout / tag out and confined space entry procedures.
2. Provide adequate ventilation.
3. Wear leather gloves when handling catalyst modules. Metal edges of the modules are sharp and can cut and bruise.
4. Wear safety glasses with side shields or goggles when installing or removing modules from the frame. Protruding threading studs on the frames may often be at eye level.
5. Wear safety shoes and a hard hat.
6. Wear appropriate fall protection equipment as required during module loading.
7. Precautions should be taken to prevent injury from falling objects while loading modules (nuts, hold down plates, modules, tools).

8. Review the operation of the ADCAT™ CO Catalyst system with the plant safety officer before starting the unit. Any suggestions and additions should be added to those instructions.

All those involved in the operation of the ADCAT™ CO Catalyst system should read and understand the complete operating instructions before starting the system. Safety meetings of all those involved with the ADCAT™ CO Catalyst system should be held periodically in conjunction with housekeeping reviews.

## **10.0 OPERATION LOG**

To maintain compliance with warranty provisions, process operating logs must be maintained. These operating logs are to contain record of the operating conditions of the system. The conditions are to be recorded on a regular basis, not less than every 24 hours, and maintained by the Customer in a process operating log. At all times during the warranty period these logs shall be available for inspection within 48 hours from the time the request to inspect them. A failure to make the logs available within the time limit renders the warranty null and void. These process operating logs shall be available to EmeraChem at all times during the warranty period. (Refer to appendix F – Warranty for further information.)

## **11.0 REVISIONS AND CHANGES**

EmeraChem reserves the right to amend the Operation and Maintenance Manual as necessary. Such amendments to the Operation and Maintenance Manual shall not be applied retroactively in determining the customer's warranty compliance. (Refer to appendix F – Warranty for further information.)

## **APPENDIX A: Design Cases**





20160210-SO CAL EDISON-MOUNTAINVIEW-CO

SOUTHERN CALIFORNIA EDISON  
HRST  
7FA.04 DESIGN TO 2 PPMVDC CO  
GE  
7FA.04

Design											
PARAMETER	Units	DESIGN BASIS	Base Case	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
CASE DESCRIPTION		Case 2									
GENERAL INFORMATION											
Ambient Temp	°F	40	59	26	40	50	70	80	90	100	115
Temp at Catalyst	°F	625	624	624	625	625	623	622	620	619	614
EXHAUST CHARACTERISTICS AT CATALYST INLET											
Exhaust Flow	lb/hr	3,473,416	3,424,137	3,439,933	3,473,416	3,459,378	3,330,813	3,246,175	3,145,535	3,044,542	2,861,854
Gas Composition	% vol										
O <sub>2</sub>		12.63	12.63	12.63	12.63	12.63	12.35	11.71	11.71	11.71	12.73
H <sub>2</sub> O		8.31	8.31	8.31	8.31	8.31	9.77	10.34	10.34	10.34	8.46
N <sub>2</sub>		74.40	74.40	74.40	74.40	74.40	73.26	73.03	73.03	73.03	74.23
CO <sub>2</sub>		3.77	3.77	3.77	3.77	3.77	3.75	4.05	4.05	4.05	3.69
Ar		0.89	0.89	0.89	0.89	0.89	0.87	0.87	0.87	0.87	0.89
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
MW	lb/lb-mole	28.38	28.38	28.38	28.38	28.38	28.22	28.19	28.19	28.19	28.36
Flow Rate (wet)	scfh	46,379,592	45,721,595	45,932,507	46,379,592	46,192,155	44,732,028	43,650,802	42,297,513	40,939,481	38,245,648
	acfh	96,783,288	95,343,647	95,782,806	96,783,288	96,375,517	93,162,168	90,804,671	87,880,991	84,960,926	79,018,477
Flow Rate (dry)	scfh	42,525,528	41,922,210	42,115,595	42,525,528	42,353,667	40,361,800	39,136,549	37,923,214	36,705,626	35,010,135
O <sub>2</sub> Concentration Dry	%	13.77	13.77	13.77	13.77	13.77	13.69	13.06	13.06	13.06	13.91
CO AT CATALYST INLET											
CO as ppmvd at 15% O <sub>2</sub>		9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
CO Flow	lb/hr	34.2	33.7	33.8	34.2	34.0	32.8	34.6	33.5	32.4	27.6
CO AT CATALYST OUTLET											
CO as ppmvd at 15% O <sub>2</sub>		2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
CO Destruction Required	%	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8
VOC AT CATALYST INLET											
VOC as ppmvd at 15% O <sub>2</sub>		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
VOC Flow	lb/hr	4.3	4.3	4.3	4.3	4.3	4.2	4.4	4.3	4.1	3.5
VOC AT CATALYST OUTLET											
VOC as ppmvd at 15% O <sub>2</sub>		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
VOC Destruction Required	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC Destruction Predicted		58.7	59.2	59.0	58.7	58.8	59.9	60.7	61.8	62.8	64.7
VOC Flow	lb/hr	4.34	4.3	4.3	4.3	4.3	4.2	4.4	4.3	4.1	3.5
ADDITIONAL DATA											
SO <sub>2</sub> Inlet Concentration	ppm	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SO <sub>2</sub> to SO <sub>3</sub> Conversion Expected	%	19.6	19.7	19.6	19.6	19.6	19.8	19.9	20.1	20.3	20.4
NO to NO <sub>2</sub> Conversion	%	24.4	24.5	24.5	24.4	24.5	24.7	24.9	25.1	25.3	25.7
Required Pressure Drop	"H <sub>2</sub> O	0.0									
Expected Pressure Drop	"H <sub>2</sub> O	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7

## **APPENDIX B: Catalyst Maintenance and Chemical Washing Procedure**

EmeraChem ADCAT™ CO catalyst is a platinum metal based catalyst and should not require regular catalyst maintenance if the turbine exhaust gas remains clean of potential blocking (insulation) and/or masking agents (dust, iron oxides, excessive turbine lubricate oil, sulfur, soot, etc.). A build-up of blocking material indicated by an increase in pressure drop across the catalyst or visual observation of foreign material on the surface of the catalyst can be removed with a vacuum cleaner – NEVER WITH HIGH PRESSURE COMPRESSED AIR.

If excessive masking agents are found to be on the test catalyst, as evidenced by decreased CO destruction performance, removal and chemical washing of individual modules would be required to regain original performance. NOTE: DO NOT RINSE THE CATALYST WITH DEIONIZED WATER. THIS CAN CAUSE PERMANENT DAMAGE TO THE CATALYST. EmeraChem provides catalyst test coupon evaluation to determine the extent of masking, as well as, washing services in our Knoxville factory.

Pressure drop across the catalyst and CO destruction readings should be taken on a regular basis by plant operators to monitor the catalyst performance and need for maintenance. CO destruction readings are determined by measuring the CO concentration upstream of the catalyst and downstream of the catalyst and calculating catalyst performance using Equation 5. Simultaneous upstream and downstream measurements yield the most accurate results. Be aware that single point measurements may not be representative of the mean, minimum or maximum – particularly in large HRSGs.

## **APPENDIX C: Spare Parts List**

<b>ADCAT™ CO CATALYST SYSTEM SPARE PARTS LIST (Per Unit)</b>			
<b>Item</b>		<b>Start-Up Supply <sup>a</sup></b>	<b>2-Year Supply <sup>b</sup></b>
<b>Catalyst</b>			
	CO Catalyst Module (26" x 26")	0	0
	CO Catalyst Test Module (12.625" x 12.625"))	1 per test module location	0
<b>Packing Gaskets</b>			
	1/8" x 2" Slotted*	10% extra*	0**
<sup>a</sup> Start-Up Supply is in addition to the Installation Supply			
<sup>b</sup> 2-Year Supply can be purchased from EmeraChem in addition to the Start-Up Supply			
* Supplied by EmeraChem as part of the original P.O.			
** Off Shelf Item			

**Table 1:** Spare Parts List

## **APPENDIX D: MSDS**



## OXIDATION CATALYST MSDS

### MATERIAL SAFETY DATA SHEET

Date: April 25, 2007

Product Name: ADCAT CO CATALYST

### SECTION 1

Manufacturer: EmeraChem LLC, 1729 Louisville Drive, Knoxville, TN 37921  
Emergency Telephone: 865-246-3000

Chemical Name and Synonyms: CO Catalyst

Formula: N/A

### SECTION II HAZARDOUS INGREDIENTS

					TLV (Units)	
PRINCIPAL HAZARDOUS COMPONENT (S)	CAS #	% BY WEIGHT	ORAL LD <sub>50</sub>	DERMAL LD <sub>50</sub>	ACGIH	OSHA
<b>CHEMICAL NAME:</b> Platinum (Pt)	7440-06-4		No Data	No Data	0.002 mg/m <sup>3</sup>	0.002 mg/m <sup>3</sup>
<b>COMMON NAME:</b> Platinum						
<b>CHEM NAME:</b> Palladium (Pd)	7440-05-3		No Data	No Data	None	None
<b>COMMON NAME:</b> Palladium						
<b>CHEM NAME:</b> Rhodium (Rh)	7440-16-6		No Data	No Data	0.1mg/m <sup>3</sup>	0.1mg/m <sup>3</sup>
<b>COMMON NAME:</b> Rhodium						
<b>CHEMICAL NAME:</b> Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	1344-28-1		No Data	No Data	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
<b>COMMON NAME:</b> Alumina						
<b>CHEMICAL NAME:</b> Stainless Steel Monolith	No Info		No Data	No Data	None	None
<b>COMMON NAME:</b> Stainless Steel Monolith						

\* No animal mortalities during course of 14-day study.

This product is non-hazardous according to the definitions for “health hazard” and “physical hazard” provided in the OSHA Hazard Communication Law (29 CFR part 1910).

### **SECTION III PHYSICAL DATA**

<b>BOILING POINT (F)</b>	N/A	<b>SPECIFIC GRAVITY (H<sub>2</sub>O=1)</b>	N/A
<b>VAPOR PRESSURE (mmHg)</b>	N/A	<b>PERCENT VOLATILE BY VOLUME (%)</b>	N/A
<b>VAPOR DENSITY (AIR=1)</b>	N/A	<b>PH</b>	N/A
<b>SOLUBILITY IN WATER</b>	Insoluble	<b>OTHER packing density</b>	N/A
<b>APPEARANCE AND ODOR</b>	Black coating with no distinct odor		

While this information and recommendations set forth herein are believed to be accurate as of the date hereof, EMERACHEM LLC MAKES NO WARRANTY WITH RESPECT HERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

### **SECTION IV FIRE AND EXPLOSION HAZARD DATA**

<b>Flash Point (Method Used)</b>	N/A
<b>Extinguishing Media</b>	As appropriate for combustibles in area
<b>Special Fire Fighting Procedures</b>	None
<b>Unusual Fire and Explosion Hazards</b>	None

## **SECTION V HEALTH HAZARD DATA**

### **EFFECTS OF OVEREXPOSURE:**

#### **ACUTE:**

Ingestion:	The product is non-toxic through ingestion
Inhalation:	N/A
Dermal Exposure:	
Toxic:	Non-Toxic
Irritation:	This product is not a skin irritant
Sensitization:	None
Eye Irritation:	This product is not an eye irritant
Subchronic, Chronic, Other:	The effects of long-term, low-level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

#### **FIRST AID:**

Eye:	Flush with plenty of water for 20 – 30 minutes. If irritation, tears and redness persist, seek medical attention.
Skin:	Wash with soap and water
Ingestion:	This product is not expected to be an ingestion hazard. No human or animal defects have been documented.
Inhalation:	N/A

## **SECTION VI REACTIVITY DATA**

STABILITY	STABLE	X	CONDITIONS TO AVOID:	NONE
	UNSTABLE			
INCOMPATIBILITY: (MATERIALS TO AVOID)	Keep away from extreme heat and open flame			
HAZARDOUS DECOMPOSITION PRODUCTS:	None			

### **SECTION VII SPILL OR LEAK PROCEDURES**

<b>REPORTABLE QUANTITIES (RQ) IN LBS OF EPA HAZARDOUS SUBSTANCES IN PRODUCT</b>	1. N/A 2. _____ 3. _____
<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	Sweep up and save for reclaiming precious metals
<b>WASTE DISPOSAL METHOD</b>	Save material and recycle for precious metal value.

### **SECTION VIII HANDLING & STORAGE**

<b>PROTECTIVE GLOVES</b>	Rubber gloves recommended	
<b>EYE PROTECTION</b>	Safety glasses or goggles recommended	
<b>OTHER PROTECTIVE CLOTHING</b>	None	
<b>RESPIRATORY PROTECTION</b>	None	
<b>VENTILATION</b>	<b>Local Exhaust</b>	None
	<b>Mechanical (general)</b>	None
	<b>Other</b>	None
<b>STORAGE &amp; HANDLING</b>	Store at room temperature and wear gloves when handling. Exercise caution in the storage and handling of all chemical substances	
<b>OTHER PRECAUTIONS</b>	Wash thoroughly after handling	

## CO ADCAT Gasket Data Sheet

MANUFACTURER'S BRAND NAME: ZETEX

GENERAL DESCRIPTION: Bolt Hole Tape

APPLICATION: High temperature fiberglass packing gasket installed between the catalyst support structure and the catalyst modules. Rated for continuous service to 1500°F.

High Temperature Packing Gasket	
STYLE	n/a
WEIGHT	64 (Oz./Square yard)
WEAVE	Modified Plain
COATING	Vermiculate Coated
THICKNESS	0.125"
WIDTH	2"
BOLT HOLE POSITION	Centered
OPERATING TEMPERATURE	Continuous to 1500°F (815°C)

CHEMICAL RESISTANCE: Resists most acids, alkalis, and solvents, with the exception of hydrofluoric acid and corrosive environments at elevated temperatures.

QUANTITY: Calculate bill of materials from drawing set on sheets no.: 4 & 6

Ordering Information	
SUPPLIER NAME	SHOOK AND FLETCHER INSULATION CO.
ADDRESS	P.O. BOX 6037 KNOXVILLE, TN 37914
PHONE	865.637.7813
FAX	865.637.6944
ROLL LENGTH	100 Feet (Standard)



NEWTEX INDUSTRIES, INC. MATERIAL SAFETY DATA SHEET  
ZETEXPLUS PRODUCTS Pg. 1 OF 3

SECTION I-PRODUCTION IDENTIFICATION

ZETEXPLUS PRODUCTS  
INCLUDING FABRIC, TAPE, ROPE AND TUBING

MANUFACTURER:	EMERGENCY TELEPHONE NUMBER:
NEWTEX INDUSTRIES, INC.	(716) 924-9135
8050 Victor-Mendon Road	
Victor, New York 14564	PRODUCT IDENTIFICATION NUMBER:
	N/A
CHEMICAL NAME AND SYNONYMS:	CHEMICAL FAMILY:
N/A Mixture	N/A

SECTION II - INGREDIENTS

The above products are considered "articles" according to OSHA hazard Communication Standard 29 CFR 1910.1200 and, as such, are exempt from the Material Safety Data Sheet provisions of 29 CFR 1910.1200(G)(6). As a service to the customer, Newtex Industries Inc. has prepared this Material Safety Data Sheet to provide appropriate safety and handling information. These products are considered non-hazardous when used according to accepted practices for the intended use.

AS MANUFACTURED:	WT. %	TLV/PEL
Continuous Fibrous Glass (CAS # 65997-17-3)	85-95%	(NON RESPIRABLE)
Proprietary Ingredients	5-15%	Not Listed
Total dust		ACGIH TLV : 10 mg/m3 OSHA PEL : 15 mg/m3 OSHA PEL : 5 mg/m3
Respirable dust		

SECTION III - PHYSICAL DATA

BOILING POINT : N/A SPECIFIC GRAVITY RANGE(H<sub>2</sub>O=1) : 2.55  
MELTING POINT : N/A PERCENT VOLATILE BY VOLUME : N/A  
VAPOR PRESSURE(mm Hg) : N/A EVAPORATION RATE  
VAPOR DENSITY(Air=1) : N/A (Butyl Acetate=1) : N/A  
VAPOR PRESSURE(mm Hg) : N/A SOLUBILITY IN WATER : Insoluble  
APPEARANCE AND ODOR : Vitreous silicate fibers six microns in diameter bound together in strands and woven, braided, or twisted into golden brown product with insignificant odor.



NEWTEX INDUSTRIES' MSDS ZETEXPLUS Pg. 2 OF 3

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): N/A FLAMMABLE LIMIT : LEL: N/A  
UNUSUAL FIRE AND EXPLOSIVE HAZARDS: None UEL: N/A  
SPECIAL FIRE FIGHTING PROCEDURES: None  
EXTINGUISHING MEDIA: N/A Will not burn

SECTION V - HEALTH HAZARD DATA

ROUTES OF ENTRY:

Inhalation - No toxic effects are known to be associated with the inhalation of vapors from this material under normal conditions.

Skin - Short contact periods with human skin are not likely to produce skin irritation. Repeated/prolonged contact can induce mild irritation. This product is not likely to be absorbed through human skin.

Eyes - May cause a physical irritation to the eye.

CARCINOGENICITY: This product is not known as a carcinogen.

HEALTH HAZARD (Acute & Chronic): None known

SIGNS AND SYMPTOMS OF EXPOSURE : Minor skin irritation

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Experimental studies have shown that chemically exfoliated vermiculite induces a lung response, which is similar to that of mica exposure. After repeated, prolonged exposure to excessive concentrations of mica dust, some mica workers have developed an accumulation of dust in the lungs which is observed only by chest x-ray and is not considered hazardous to workers' health.

EMERGENCY FIRST AID PROCEDURES:

Skin - Wash any material off skin with soap and cool water.

If redness, itching or burning sensation develops, get medical attention.

Eyes - Flush with water for at least 15 minutes. If irritation develops, get medical attention.

Ingestion - Not expected to occur.

SECTION VI - REACTIVITY DATA

ABILITY: Stable

CONDITIONS TO AVOID: None known

INCOMPATIBILITY: None known

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: In a sustained fire, the organic binders will decompose releasing minor quantities of decomposition products believed to be insufficient to be harmful.

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: None known

NEWTEX INDUSTRIES' MSDS ZETEXPLUS Pg. 3 OF 3

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Material is a solid.

Pick up big pieces and sweep up any scrapes.

WASTE DISPOSAL METHOD: Dispose of as any other innocuous material. Discarded product is not a hazardous waste under RCRA 40 CFR 261.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: For maximum comfort, avoid excessive contact with skin and use good personal hygiene.

OTHER PRECAUTIONS: If excessive dust is generated, use a respirator approved by MSHA or NIOSH for dust.

SECTION VIII - CONTROL MEASURES

RESPIRATOR PROTECTION (specify type): A NIOSH type TC-21C-XXX dust respirator is recommended if significant dust is created in handling or processing and should be required if necessary to prevent exposure above limits for total and respirable dust.

VENTILATION LOCAL EXHAUST : Is not necessary. Use product in well ventilated areas.

SPECIAL : None

MECHANICAL : None

OTHER : None

PROTECTIVE GLOVES: Rubber or synthetic gloves are recommended when necessary to prevent prolonged or repeated skin contact

EYE PROTECTION: As generally good practice, safety glasses can be worn.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: None required.

WORK HYGIENIC PRACTICES: Avoid excessive contact with skin.

Wash thoroughly with soap and water after handling of the material.

HMIS HAZARD INDEX: Health - 1, Flammability - 0, Reactivity - 0


\*\* The information herein is given in good faith, but no warranty, expressed or implied is made and we assume no liability from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N/A = Not Applicable

Revision Date : 04/07/99

NEWTEX INDUSTRIES, INC. 8050 Victor-Mendon Rd., Victor, NY 14564-6109 – Phone: 716-924-9135 – 800-836-1001 – Fax: 716-924-4645  
34016 Ninth Ave., So., Bldg. D, Suite 3, Federal Way, WA 98003 – Phone: 206-838-7760 – Fax: 206-838-5603

## **APPENDIX E: WARRANTY**

	Doc # <b>EC-CC-100</b>	Rev # <b>1</b>
Document Title <b>ADCAT™ CO Catalyst System for Combustion Turbines and Boilers – 36-Month 26,280-hour Warranty</b>		Revision Date <b>3/31/2015</b>

Effective Date and Warranty Period

The EFFECTIVE DATE of this Warranty is the earlier of the date the catalyst is first exposed to exhaust gas or 180 days after delivery. EmeraChem LLC (Seller) warrants the performance of its ADCAT™ CO Catalyst (Catalyst) as set forth herein for the earlier of thirty-six (36) months or 26,280 operating hours from the EFFECTIVE DATE (the PERFORMANCE WARRANTY PERIOD). The Seller warrants the mechanical integrity of its ADCAT™ CO Catalyst (Catalyst) as set forth herein for one hundred and twenty (120) months from the EFFECTIVE DATE (the MECHANICAL WARRANTY PERIOD). The Warranty is subject to the terms, Design Basis, and Warranty Limitations set forth below.

Catalyst Design Basis

The Catalyst furnished hereunder has been sized and designed for the exhaust gas characteristics, operating conditions and the emission control performance specified in the Seller's proposal. Together, these form the Design Basis for the catalyst. The emission control performance guarantees are applicable when the catalyst is operated within the Design Basis defined in the Seller's proposal and within the Warranty Limitations defined in this Warranty.

Catalyst Operation & Maintenance

The Catalyst must be operated and maintained in accordance with the Design Basis, this Warranty and the Operation and Maintenance Manual furnished by Seller. In addition, the operating conditions of the system must be recorded on a regular basis, not less than every 24 hours, and maintained by the Customer in a process operating log. At all times during the warranty period said operating logs shall be available for inspection by the Seller within forty-eight (48) hours from the time Seller makes the request to inspect them. Customer's failure to make the operating logs available for inspection by the Seller within the time limit identified in the previous sentence shall render the warranty null and void. Seller reserves the right to amend the Operation and Maintenance Manual, as determined in its sole discretion, provided that amendments to the Operation and Maintenance Manual shall not be applied retroactively in determining Customers' compliance therewith. **FAILURE TO OPERATE THE ADCAT™ CO CATALYST SYSTEM IN ACCORDANCE WITH THE OPERATION AND MAINTENANCE MANUAL AND WITHIN THE LIMITATIONS DEFINED IN THIS WARRANTY SHALL AUTOMATICALLY VOID THIS WARRANTY.**


Compliance with Performance Warranty

Compliance with the performance Warranty shall be determined by performance test procedures mutually agreed to by Customer and Seller. If no other procedures are mutually agreed upon, then the following EPA test methods shall be used.

EPA Test Method	Description	Web Address
1	Sample Port Location	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
2	Stack Gas Velocity	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
3	O <sub>2</sub> and CO <sub>2</sub> Concentration in Exhaust	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
10	CO DRE	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
18	VOC DRE as NMNEHC	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>
6c	SO <sub>2</sub> to SO <sub>3</sub> Conversion	<a href="http://www.epa.gov/ttnemc01/promgate.html">www.epa.gov/ttnemc01/promgate.html</a>

Because the Seller expresses the performance Warranty for CO, VOC and SO<sub>2</sub> to SO<sub>3</sub> conversion, and other compounds in terms of percentage removal, compliance with the performance Warranty for CO, VOC and SO<sub>2</sub> to SO<sub>3</sub> conversion, and other compounds shall be determined by measuring such compounds upstream and downstream of the Catalyst and computing the percentage removal by the Catalyst.

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<p align="center">Document Title</p> <p align="center"><b>ADCAT™ CO Catalyst System for Combustion Turbines and Boilers – 36-Month 26,280-hour Warranty</b></p>		<p align="center">Revision Date</p> <p align="center"><b>3/31/2015</b></p>

#### Performance Warranty

Provided that the Customer (i) has operated the Catalyst within the Design Basis defined in the Seller's proposal; (ii) has operated and maintained the Catalyst in compliance with the Operation and Maintenance Manual and Warranty provided by Seller; (iii) has given Seller access to the relevant process operating data and emission data; and (iv) has given Seller access to the operating logs for inspection, as outlined above, then Seller warrants that, subject to the Effective Date and Warranty Period and any other limitations included herein, the Catalyst will achieve the emission control performance specified in the Seller's proposal.

In the event the ADCAT™ CO Catalyst System fails to perform as described above during the first (1st) through the twelfth (12th) month of operation, Seller shall have the option to:

- (a) replace the non-performing catalyst at Seller's expense; or
- (b) reactivate the non-performing catalyst at Seller's expense; or
- (c) refund to Customer the full purchase price of the non-performing catalyst upon receipt of the non-performing catalyst by Seller.

Note: If Seller exercises its rights under (a) or (c), Customer shall transfer title and return the original catalyst to the Seller.

In the event the ADCAT™ CO Catalyst fails to perform as described above during the thirteenth (13th) through thirty-sixth (36th) months of operation, Seller shall have the option to:

- (a) replace the non-performing Catalyst with Seller responsible for that proportion of the replacement catalyst price equal to thirty-six (36) minus the number of months since start-up, divided by thirty-six (36) (i.e.,  $(36-N) \div 36$ ); and Customer shall be responsible for the balance. (For example, if the Catalyst fails to perform during the twentieth (20th) month, then Seller would be responsible for  $((36-20) \div 36 = .444)$  of the replacement price.); or
- (b) reactivate the non-performing Catalyst with Seller responsible for that proportion of the reactivation expense equal to thirty-six (36) minus the number of months since start-up, divided by thirty-six (36); and the Customer shall be responsible for the balance; or
- (c) refund to Customer that proportion of the purchase price of the Catalyst equal to thirty-six (36) minus the number of months since start-up, divided by thirty-six (36), upon receipt of the non-performing Catalyst by Seller.

Note: If Seller exercises its rights under (a) or (c), Customer shall transfer title and return the original catalyst to the Seller.


#### Notice

Customer shall notify Seller of any potential warranty claim within ninety-six (96) hours from the time the Customer, including any of its employees, officers, directors, representatives, agents, contractors or anyone else acting on its behalf, has a reasonable basis to believe a potential warranty claim exists. Customer shall provide notice in writing addressed to either Steven DeCicco or Thomas Girdlestone at 1729 Louisville Drive, Knoxville, Tennessee 37921.

#### Investigation

Once Customer provides Seller with notice of a possible warranty claim, Customer shall provide reasonable access to the Catalyst to the Seller or any of its officers, employees, representatives, agents or contractors for the purpose of conducting an investigation into the Customer's warranty claims. This may, at the discretion of the Seller, include subjecting some of the catalyst elements to physical/chemical

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analysis, performance tests, and/or chemical treatments, at the Seller's facilities. Customer shall not interfere with Seller's investigation into Customer's warranty claim. Nor shall Customer take any action that either damages any portion of the Catalyst or compromises the Seller's ability to conduct its investigation.

Seller's investigation shall be performed at its expense, unless the results show there is no basis for a warranty claim. If there is no basis for a warranty claim then the Customer shall be responsible for any and all costs and expenses associated with Seller's investigation. Any investigation conducted by Customer shall be conducted at Customer's own expense. Nothing in this Warranty or any other Agreement between the parties shall obligate Seller to conduct any on-site testing to verify the performance of the Catalyst, either following the initial system start-up or after warranty work has been performed. Any decision by the Seller to conduct such testing shall be within the sole discretion of the Seller.

#### Repairs

If a warranty claim is made and approved by Seller, Seller shall only be responsible for shipping the Catalyst to a location where Seller can repair the Catalyst; providing the labor and materials necessary to correct, repair, modify or replace the defects and any resulting damages to the Catalyst; and any costs relating to shipping the Catalyst back to the Customer's place of business. Customer shall be responsible for any and all other costs, including by way of illustration and not by way of limitation, labor and other costs relating to the removal of the Catalyst and/or reinstallation of the Catalyst after any repairs have been made by Seller, packaging the Catalyst for shipment, labor and any other indirect, incidental or consequential costs relating to the Catalyst warranty claim.


#### Warranty Limitations

- (1) Maximum Liability. The maximum liability of Seller under this Warranty shall not exceed the purchase price of the Catalyst paid to Seller by the Customer. Seller shall in no event be liable for production losses or indirect, incidental or consequential damages resulting from the use of the Catalyst or the failure of the Catalyst to meet warranty.
- (2) Chemical Contamination. The following contaminants are known to catalyst deactivators and contribute to shortened catalyst life. Hence, the contents of these contaminants in the catalyst shall not accumulate to such a level that exceeds the warranty limits shown in the tables below. The reference standard method for determining the identity and quantity of these compounds on catalyst is ICP-OES (inductive couple plasma - optical emissions spectroscopy), glow discharge mass spectrophotometry or other analytical method approved by the Seller to provide the required selectivity and sensitivity. The presence of contaminants in excess of these levels shall void this Warranty.

The following catalyst deactivator species have been found in turbine, boiler and reciprocating engine applications:

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Contaminant	Catalyst Warranty Limit (mg/ft3 of catalyst)
Sulfur (S)	500
Phosphorous (P)	500
Zinc (Zn)	250
Collective limit for P and Zn	500

Contaminant	Catalyst Warranty Limit (mg/ft3 of catalyst)
Chromium (Cr)	500
Nickel (Ni)	500
Collective limit for Cr and Ni	500
Silicon (Si)*	1,000
Iron (Fe)	5,000

\* Silicon limit of 1000 mg/ft3 is derived from normal atmospheric dust. Silica from the combustion of siloxane compounds is not allowed.

Contaminant	Catalyst Warranty Limit (mg/ft3 of catalyst)
Sodium (Na)	2,000
Calcium (Ca)	2,000
Potassium (K)	2,000
Collective limit for this group	2,000

The following catalyst deactivator species are not commonly found in turbine, boiler and reciprocating engine applications:


Contaminant	Catalyst Warranty Limit (mg/ft3 of catalyst)
Antimony (Sb)	50
Arsenic* (As)	50
Copper (Cu)	50
Lead (Pb)	50
Tin (Sn)	50
Lithium (Li)	50
Collective limit for above group	50
Mercury (Hg)**	5

\*Has been found in natural gas.

\*\*Requires ICP-MS analytical method.


Contaminant	Catalyst Warranty Limit (mg/ft3 of catalyst)
Chlorine (Cl)	25
Fluorine (F)	25
Bromine (Br)	25
Iodine (I)	25
Collective limit for this group	25

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- (3) Operating Temperature. Exposure to excessive temperature significantly lowers catalyst life. Therefore, operation of the catalytic reactor shall not exceed 1150 degrees Fahrenheit on a continuous basis, shall not exceed 1200 degrees Fahrenheit for a cumulative total of 10 minutes, and shall not exceed 1250 degrees Fahrenheit. Catalyst operating temperatures in excess of these values shall void this Warranty. EmeraChem recommends that the system be operated at temperatures above 610 degrees Fahrenheit to minimize the potential for masking. The catalyst will oxidize CO and VOCs at temperatures below 600 degrees Fahrenheit, however, catalyst masking from the accumulation of sulfur, particulate and other contaminants may accelerate and may require periodic catalyst chemical washing to restore and maintain catalyst performance.
- (4) Chemical Washing and Catalyst Regeneration. EmeraChem utilizes a proprietary 4-step chemical washing process for regenerating contaminated catalyst. Unless approved in writing by EmeraChem, the use of any other catalyst cleaning process voids this warranty.
- (5) Particulate Exposure. The catalyst shall be operated in exhaust streams that are free of dust and other particulate matter. Exposure to such particulate contamination may result in temporary or permanent catalyst masking or blinding, and may require Customer, at Customer's expense, to periodically clean, or have cleaned, the catalyst according to procedures specified by Seller. Silica from the combustion of siloxane compounds is a known catalyst masking agent that causes permanent catalyst deactivation and is not allowed. This Warranty specifically excludes coverage for any claims for damages caused by dust or other particulate matter.
- (6) Abrasion, Corrosion, Erosion and Deposition. Seller does not guarantee the Catalyst against abrasion, corrosion, erosion or deposition.
- (7) Velocity Distribution and Concentration Distribution. Seller requires that the exhaust gas velocity and concentration distribution at the entrance plane of the Catalyst be  $\pm 15\%$  RMS of the average and that less than 15% of the points measured are  $\pm 15\%$  of the average. Measurement methods shall be in accordance with EPA Test Methods #1 and #2 (see above).
- (8) Temperature Distribution. Seller requires that the exhaust gas temperature distribution at the entrance plane of the Catalyst be  $\pm 25$  degrees Fahrenheit. Measurement locations shall be in accordance with EPA Test Methods #1 and #2 (see above).
- (9) Components Made By Others. This Warranty specifically excludes coverage for any defects in materials and workmanship for products, components and materials that are not supplied by Seller.
- (10) Warranty Period. The Warranty Period shall include the total cumulative calendar months that have elapsed since the date the catalyst was first exposed to exhaust gas. For purposes of determining the warranty period, cumulative calendar months shall include: (i) all elapsed time during which the Catalyst has been in operation and (ii) all non-operating elapsed time that has occurred through no fault of the Catalyst. In the event of a Catalyst deficiency requiring shutdown for Seller's corrections, all operating and non-operating periods prior to such shutdown and subsequent to restart shall be considered cumulative for purposes of the warranty period; but such period of required shutdown shall not count

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toward the cumulative warranty period. Nothing in this Warranty or any other Agreement between the parties shall be construed as to extend the Warranty Period beyond the number of months and operating hours defined in the Section Effective Date and Warranty Period.

#### Indemnification

Customer shall indemnify, defend and hold harmless Seller from and against any and all claims, proceedings, liabilities, damages and expenses including legal fees and litigation expenses arising out of or resulting from Customer's unauthorized, improper or negligent use or operation of the ADCAT™ CO Catalyst System or Customer's violation of any of its obligations under this Warranty.

#### No Default

Seller shall not be responsible for, and shall not be in default hereunder, in the event of any delay or failure to perform any services, or deliver any products or resolve any warranty claims, if due directly or indirectly to any cause beyond the reasonable control of Seller, including by way of illustration and not by way of limitation, strikes, accidents, acts of God, acts of war, weather conditions, action or inaction of any governmental or other proper authority or other causes beyond Seller's control.

#### Non-Transferability

This limited warranty may not be transferred by the Customer to any third party.

#### Entire Agreement

This Warranty constitutes the complete and entire Warranty between Seller and Customer and supersedes any and all prior discussions, drafts, negotiations and correspondence relating to said Warranty and there are no verbal or written agreements, promises or understandings regarding Warranty terms that are not contained in this Warranty. This Warranty and all covenants, promises, conditions and understandings shall not be modified, altered or amended except by written agreement signed by both parties.

**THESE WARRANTIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY LAW OR CUSTOM, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.**

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### ATTACHMENT 3 – APPLICATION FEES CHECK

Equipment Item	Equipment ID	Quantity	Schedule	Fee	Total
<b>Permit Revision – Modification</b>					
CO Oxidation Catalyst	C23	1	C	\$3,927.10	\$3,927.10
CO Oxidation Catalyst	C32, C41, C50	3	C	\$1,963.55	\$5,890.65
<b>Subtotal</b>					<b>\$9,817.75</b>
50% fee for expedited processing per Rule 301(v)(1)					\$4,908.88
Title V Permit Revision Fee per Rule 301(l)(5)					\$2,042.42
<b>Total</b>					<b>\$16,769.05</b>

Southern California Edison Accounts Payable

P.O. Box 700, Rosemead, CA 91770

0043061913

OUR NUMBER	YOUR NUMBER	DATE	AMOUNT	ADJUST/DISCOUNT	NET AMOUNT
1904624317	040717	04/07/2017	16,769.05	0.00	16,769.05
Revise Title V and RECLAIM Permit					

THIS IS WATERMARKED PAPER - DO NOT ACCEPT WITHOUT NOTING WATERMARK - HOLD TO LIGHT TO VERIFY WATERMARK



EDISON  
INTERNATIONAL

SOUTHERN CALIFORNIA EDISON  
P.O.Box 700, Rosemead, California 91770

JPMorgan Chase Bank, N.A.  
Syracuse, NY

0043061913

SCE AND SUBSIDIARIES

Accounts Payable

50-937/213

April 25, 2017

\$16,769.05

DOLLARS

SIXTEEN THOUSAND SEVEN HUNDRED SIXTY-NINE & 05/100\*\*\*\*\*  
PAY TO THE  
ORDER OF

SOUTH COAST AQMD  
21865 COPLEY DR PO BOX 4944  
DIAMOND BAR CA 91765-0944

*DeWitt*

4-108 NEW 6/08

0043061913 021309379

601861560

004020510

HOLD TO LIGHT TO VERIFY "DOCUCHECK" CHAINLINK WATERMARK.

DO NOT ACCEPT IF WATERMARK IS ABSENT.  
KNOW YOUR ENDORSER. REQUIRE IDENTIFICATION.  
PLEASE ENDORSE HERE

X

DO NOT WRITE, STAMP OR SIGN BELOW  
RESERVED FOR FINANCIAL INSTITUTION USE



## ATTACHMENT B

### Draft New SCAQMD Conditions

**Draft New SCAQMD Conditions  
Southern California Edison, Facility ID 160437**

**D12.3**

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

The operator shall also install and maintain a device to continuously record the parameter being measured. Continuous monitoring shall be defined as measuring at least once every 15 minutes, except as allowed by Rule 2000. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

**\*The operator shall maintain the flow rate between X and Y gallons per hour.**

**D12.4**

The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the SCR catalyst.

The operator shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

**\*The operator shall maintain the exhaust temperature at the inlet of the SCR between X and Y deg F.**

**D12.5**

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

The operator shall also install and maintain a device to continuously record the parameter being measured. Continuously record shall be defined as recording at least once every month and shall be calculated based upon the average of the continuous monitoring for that month. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

**\*The operator shall maintain the differential pressure across the SCR catalyst bed at no more than 5 inches water column.**

**\*D12.6**

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

**The operator shall also install and maintain a device to continuously record the differential pressure. Continuous monitoring shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months. The differential pressure shall not exceed X inches WC.**

**[Rule 1303(a)(1) – BACT]**

**\*D12.7**

**The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the CO catalyst.**

The operator shall also install and maintain a device to continuously record the temperature. Continuously record shall be defined as recording at least once every hour and shall be calculated based upon the 60 minute rolling average of the continuous monitoring for that hour. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months. The exhaust temp at the inlet of the CO catalyst shall be maintained between X and Y deg F.

[Rule 1303(a)(1) – BACT]

\*Draft amendments to existing permit language

\*Draft new permit language

## ATTACHMENT C

State of California Energy Resources Conservation and Development  
Commission: Order No. 16-0309-3 Approving Petition to Amend to  
Replace Hot Gas Path Components

With proposed amend language for CO catalyst descriptions.

## DOCKETED

<b>Docket Number:</b>	00-AFC-02C
<b>Project Title:</b>	Mountainview Power Plant - Compliance
<b>TN #:</b>	210701
<b>Document Title:</b>	Order Approving Petition to Amend to Replace Hot Gas Path Components
<b>Description:</b>	N/A
<b>Filer:</b>	Tiffani Winter
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Energy Commission
<b>Submission Date:</b>	3/14/2016 10:17:20 AM
<b>Docketed Date:</b>	3/14/2016

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512  
www.energy.ca.gov



## ENERGY COMMISSION FINDINGS

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Based on staff's analysis, the Energy Commission concludes that the proposed modifications will not result in any significant impacts to public health and safety, or to the environment. The Energy Commission finds that:

- The petition meets all the filing criteria of Title 20, section 1769 (a), of the California Code of Regulations, concerning post-certification project modifications;
- The modification will not change the findings in the Energy Commission's Final Decision, pursuant to Title 20, section 1755, of the California Code of Regulations;
- The project will remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code, section 25525;
- The modification proposed in the petition would increase the combined generating capability of all four turbines by approximately 48 MW and improve the heat rate of the entire plant;
- The proposed modifications would be beneficial to the public because the generating capability would increase by 48 MW, and Mountainview would continue to meet all existing heat input requirements and emission limits; and
- The proposed modification is justified because the AGP technology was not available at the time of the March 2001 Energy Commission Decision.
- With implementation of Condition of Certification **TRANS-8** regarding pilot notification and awareness, impacts on aviation safety from potential thermal plume air hazards from low-altitude overflight that would result from the proposed changes would continue to be less than significant.

## CONCLUSION AND ORDER

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The California Energy Commission hereby adopts staff's recommendations and approves the amended conditions of certification to the Commission Decision for the Mountainview Generating Station. New language is shown as **bold and underlined**.

## PROPOSED AND AMENDED CONDITIONS OF CERTIFICATION

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Staff recommends the following modifications to the Air Quality Conditions of Certification. **Bold underline** is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language. For convenience, a clean version of all the conditions reflecting the proposed changes that would become applicable to Mountainview follows the strikeout underline text in Appendix A.

**THE FOLLOWING CONDITIONS OF CERTIFICATION PERTAIN TO THE FOLLOWING EQUIPMENT:**



1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D18) (A/N 391557) No. 3-4A GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 475.7 177.1 MW (nominal at IOS conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B19) and a Heat Recovery Steam Generator (ID No. B20) with 135 MMBTU/HR Duct Burners (ID No. D24) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 3B). in common with Gas Turbine No. 3-2 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B22). Turbine 3A, the HRSG, and steam turbine are all identified as ID No. D18 (A/N 500208) and the duct burners are identified as ID No. D21 (A/N 578178). Equipment D18 and D21 are both connected to a CO oxidation catalyst, No. 3-1 (ID No. C23) (A/N 562528), with 240 185 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 3-2 (ID No. C24) (A/N 366454 562528), with 2,750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B25), and share a common stack, Stack No. 3A (ID No. S26), with a height of 200 feet and diameter of 18 feet. A CO oxidation catalyst (ID No. C23) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S26) (A/N 391557) No 3-1/3-2.

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D27) (A/N 391558) No. 3-2B GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 475.7 177.1 MW (nominal at IOS conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B28) and a Heat Recovery Steam Generator (ID No. B29) with 135 MMBTU/HR Duct Burners (ID No. D30) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 3B). in common with Gas Turbine No. 3-1 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B31). Turbine 3B, the HRSG, and steam turbine are all identified as ID No. D27 (A/N 578179) and the duct burners are identified as ID No. D30 (A/N 578179). Equipment D27 and D30 are both connected to a CO oxidation catalyst, No. 3-2 (ID No. C32) (A/N 562529), with 240 185 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 3-2 (ID No. C33) (A/N 366452 562529), with 2,750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B34), and share a common stack, Stack No. 3B (ID No. S35), with a height of 200 feet and diameter of 18 feet. a CO oxidation catalyst (ID No. C32) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S35) (A/N 391559) No 3-1/3-2.

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D36) (A/N 391559) No. 4-3A GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 475.7 177.1 MW (nominal at IOS conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B37) and a Heat Recovery Steam Generator (ID No. B38) with 135 MMBTU/HR Duct Burners (ID No. D39) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 4B). in common with Gas Turbine No. 4-4 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B40). Turbine 4A, the HRSG, and steam turbine are all identified as ID No. D36 (A/N 578180)

and the duct burners are identified as ID No. D39 (A/N 578180). Equipment D36 and D39 are both connected to a CO oxidation catalyst, No. 4-1 (ID No. C41) (A/N 562530), with 240 185 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 4-1 (ID No. C42) (A/N 366453 562530), with 2,750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B43), and share a common stack, Stack No. 4A (ID No. S44), with a height of 200 feet and diameter of 18 feet. A CO oxidation catalyst (ID No. C41) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S44) (A/N 391559) No 4-3/4-4.

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D45) (A/N 391560) No. 4-4B GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 175.7 177.1 MW (nominal at IOS conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B46) and a Heat Recovery Steam Generator (ID No. B47) with 135 MMBTU/HR Duct Burners (ID No. D48) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 4A). in common with Gas Turbine No. 4-3 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B49). Turbine 4B, the HRSG, and steam turbine are all identified as ID No. D45 (A/N 578181) and the duct burners are identified as ID No. D48 (A/N 578181). Equipment D45 and D48 are both connected to a CO oxidation catalyst, No. 4-2 (ID No. C50) (A/N 562531), with 240 185 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 4-2 (ID No. C51) (A/N 366454 562531), with 2750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B52), and share a common stack, Stack No. 4B (ID No. S53), with a height of 200 feet and diameter of 18 feet. A CO oxidation catalyst (ID No. C50) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S53) (A/N 391560) No 4-3/4-4.

## **THE FOLLOWING CONDITIONS OF CERTIFICATION PERTAIN TO THE FOLLOWING EQUIPMENT:**

Internal combustion engine, emergency power, diesel Caterpillar 3512B-LE2200, turbocharged, aftercooled, 2,200 2,155 BHP A/N 366455 500222 (ID. No. D5461)

## **THE FOLLOWING CONDITION OF CERTIFICATION PERTAINS TO THE GAS TURBINES, DUCT BURNERS AND EMERGENCY ENGINES**

**AQ-36 The following condition is applicable to each of the four combustion turbines (D19, D27, D36, D45):**

- A. The gas turbines shall not be operated unless the operator facility demonstrates to the District and CPM that the facility holds sufficient 114,412 pounds of NOx RTCs in its allocation account to offset the prorated annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the gas turbines shall not be**

operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient **107,552 pounds of NOx RTCs in an amount equal to the annual emission increase valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.**

~~The owner/operator shall limit the first year, defined as the first 12 months following initial operation, cumulative facility wide NOx emissions from all equipment to no more than 492,897 lbs/year.~~

~~The owner/operator shall prior to the beginning of all years subsequent to the first year (as defined above), hold a minimum of 464,338 lbs of NOx RTCs for the operation of all equipment at the facility.~~

~~In accordance with District Rule 2005 (f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the first compliance year.~~

**The following condition is applicable to each of the four duct burners (D21, D30, D39, D48):**

**B. The duct burner shall not be operated unless the facility holds 7,758 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the duct burner shall not be operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds 7,293 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.**

**The following condition is applicable to the emergency fire pump engine (D58):**

**C. The emergency fire pump IC engine shall not be operated unless the facility holds 841 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the emergency fire pump IC engine shall not be operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds 841 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.**

**The following condition is applicable to the emergency IC engine (D61):**

**D. The emergency IC engine shall not be operated unless the facility holds 1,549 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the emergency IC engine shall not be operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds 1,549 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.**

**Verification:** The project owner shall submit to the CPM copies of all RECLAIM reports filed with the District in each Quarterly Operational Report. (see AQ-8).

## **PROPOSED NEW CONDITION OF CERTIFICATION – TRAFFIC AND TRANSPORTATION**

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### **TRANS-8 Pilot Notification and Awareness**

The project owner shall initiate the following actions:

- Submit a letter to the Federal Aviation Administration (FAA) requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the Mountainview Generating Station and recommending avoidance of overflight of the project site below 1,000 feet above ground level (AGL). The letter should also request that the NOTAM be maintained in active status until the Los Angeles Sectional Chart and Airport Facility Directories (AFDs) identified below have been updated.
- Submit a letter to the FAA requesting a power plant depiction symbol be placed at the Mountainview Generating Station site location on the Los Angeles Sectional Chart with a notice to “avoid overflight below 1,000 feet AGL”.
- Submit a request to the San Bernardino International Airport Manager to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the Mountainview Generating Station and advising pilots to avoid direct overflight below 1,000 feet AGL as they approach or depart the airport.
- Submit a letter to the Southern California Terminal Radar Approach Control (TRACON) requesting that aerodrome remarks describing the location of the Mountainview Generating Station plant and advising against direct overflight below 1,000 feet AGL to the:
- FAA Airport/Facility Directory – Southwest U.S.
- Jeppesen Sanderson Inc. (Airway Manual Services - Western U.S. Airport Directory)
- Pilots Guide to California Airports

Verification: No later than 60 days after the project owner completes replacement of the Advanced Gas Path components, the project owner shall submit draft language for the letters of request to the FAA (including Southern California (TRACON) and San Bernardino International Airport) to the CPM for review and approval.

**IT IS SO ORDERED.**

CERTIFICATION

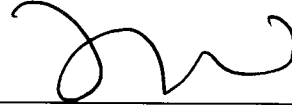
The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of an Order duly and regularly adopted at a meeting of the California Energy Commission held on March 9, 2016.

AYE: Weisenmiller, Douglas, McAllister, Hochschild, Scott

NAY: None

ABSENT: None

ABSTAIN: None



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Tiffani Winter  
Secretariat

## ATTACHMENT D

### List of Property Owners and Occupants within 1,000 Feet of Plant Site



APN	MAIL TO NAME	MAIL TO STREET	MAIL TO CITY	MAIL TO ZIP
0167-501-04	CITY OF REDLANDS	30 CAJON ST	REDLANDS CA	92373
0167-501-11	OCCUPANT	2501 W SAN BERNARDINO AVE	REDLANDS CA	92374
0167-501-11	PROLOGIS-A3 CA III IP	60 STATE ST #1200	DENVER CO	80239
0167-511-09	2301 W SANBERNARDINO AVE IIVEST GRO	151 KALMUS OR #A102	COSTA MESA CA	92626
0167-511-09	OCCUPANT	2301 W SANBERNARDINO AVE	REDLANDS CA	92374
0167-511-11	CITY OF REDLANDS	PO BOX 3005	REDLANDS CA	92373
0167-551-06 0292-491-01 0292-491-05	SOUTHERN CALIFORNIA EDISON COMPANY	2492 W SAN BERNARDINO AVE	REDLANDS CA	92374
0167-551-08	DUKE REALTY LP	PO BOX 40509	INDIANAPOLIS IN	46240
0167-551-08	OCCUPANT	2300 W SAN BERNARDINO AVE	REDLANDS CA	92374
0167-551-09	OCCUPANT	1895 MARIGOLD AVE	REDLANDS CA	92374
0167-551-09	PACGWL LLC	4545 AIRPORT WAY	DENVER CO	80239
0167-671-03	OCCUPANT	2290 PALMETTO AVE	REDLANDS CA	92374
0167-671-03	OCCUPANT	2291 PALMETTO AVE	REDLANDS CA	92374
0167-671-03	OCCUPANT	2292 PALMETTO AVE	REDLANDS CA	92374
0167-671-03	OCCUPANT	2293 PALMETTO AVE	REDLANDS CA	92374
0167-671-03	OCCUPANT	2294 PALMETTO AVE	REDLANDS CA	92374
0167-671-03	PROLOGIS-A4 CA II LP	60 STATE ST # 1200	DENVER CO	80239
0167-672-03 0280-251-53 0280-251-63 0280-251-64 0292-011-40 0292-011-43	CITY OF RIVERSIDE	3900 MAIN ST	RIVERSIDE CA	92522
0280-251-23 0280-301-12 0280-302-22 0292-011-37 0292-011-42	SAN BERNARDINO CO FLOOD CONTROL DIST	825 E THIRD ST	SAN BERNARDINO CA	92415
0280-281-12	BRIAN & ROBERT HARBER	1880 E RIVERVIEW DR	SANBERNARDINO	92408
0280-281-12	OCCUPANT	1880 RIVERVIEW DR	SANBERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR#101	SANBERNARDINO O	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #102	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR#103	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #104	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW OR#105	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #106	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR 11107	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #108	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #109	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #110	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR#111	SANBERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR#112	SAN BERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR 11113	SANBERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR#114	SANBERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #115	SANBERNARDINO	92408
0280-281-13	OCCUPANT	1904 RIVERVIEW DR #116	SANBERNARDINO	92408
0280-281-13	MDM INVESTMENTS 1 LLC	1425 W FOOTHILL BLVD STE 300	UPLAND CA	91786
0280-281-14	1920 RIVERVIEW BUILDING LLC	2475 SUNSET DR	RIVERSIDE CA	92506
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #101	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #102	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #103	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #104	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR#105	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR#106	SAN	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #107	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #108	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #109	SANBERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #110	SANBERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR#111	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #112	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #113	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #114	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #115	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #116	SAN BERNARDINO	92408

APN	MAIL TO NAME	MAIL TO STREET	MAIL TO CITY	MAIL TO ZIP
0280-281-14	OCCUPANT	1920 RIVERVIEW OR#117	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR#118	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #119	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW OR #120	SAN BERNARDINO	92408
0280-281-14	OCCUPANT	1920 RIVERVIEW DR #121	SAN BERNARDINO	92408
0280-281-15	CADAMES INVESTMENT LLC	4813 HIDDEN MEADOW WAY	ANTELOPE CA	95843
0280-302-25				
0280-292-14	JOSE L & TERESA ALBA	1072 N H ST	SANBERNARDINO	92410
0280-292-14	OCCUPANT	1904 WALLACE CT	SAN BERNARDINO	92408
0280-292-15	ANNA MERVIN	1894 WALLACE CT	SAN BERNARDINO	92408
0280-292-16	LARIOS, JULIO CESAR	1886 WALLACE CT	SAN BERNARDINO	92408
0280-292-28	OCCUPANT	1905 RIVERVIEW DR	SAN BERNARDINO	92408
0280-292-28	THREE JS LP	6291 ORANGETHORPE AVE	BUENA PARK CA	90260
0280-293-11	OCCUPANT	1887 WALLACE CT	SAN BERNARDINO	92408
0280-293-11	CARL G & MARCY L WILSON	22613 PICO ST	GRAND TERRACE CA	92313
0280-312-18				
0280-293-12	JESUS ROJAS	1895 WALLACE CT	SAN BERNARDINO	92408
0280-293-13	ROBERTA CONTRERAS	1905 WALLACE CT	SANBERNARDINO	92408
0280-293-14	RUTH LANDEROS	1904 E SANBERNARDINO AVE	SANBERNARDINO	92408
0280-293-15	DAVID L RAMOS	1894 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0280-293-16	OCCUPANT	1886 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0280-293-16	SERRANO ISABEL FAMILY	1854 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0280-302-25	OCCUPANT	1990 RIVERVIEW DR	SAN BERNARDINO	92408
0280-312-06	1212 S MOUNTAIN VIEW LLC	1212 S MOUNTAIN VIEW AVE	SAN BERNARDINO CA	92408
0280-312-07				
0280-312-08				
0280-312-37				
0280-312-09	WJ REAL ESTATE #1 LLC	PO BOX 342	CALIMESA CA	92320
0280-312-10				
0280-312-11	DUKE, DEBORAH LYNN	445 IOWA AVE	RIVERSIDE CA	92507
0280-312-11	OCCUPANT	1280 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0280-312-13	JNHANASWI& KANIKA CHAKMA	1944 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0280-312-14	MARIAN LLAGUNO	1819 SUGAR PINE LN	COLTON CA	92324
0280-312-14	OCCUPANT	1934 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0280-312-15	FIORI, IRENE	606 NAOMI ST	REDLANDSCA	92374
0280-312-15	OCCUPANT	1924 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0280-312-16	JOE F & DORA VASQUEZ	1914 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0280-312-17	JOSHUA PARKER	1913 WALLACE CT	SANBERNARDINO	92408
0280-312-18	OCCUPANT	1923 WALLACE CT	REDLANDS CA	92373
0280-312-19	ARNULFO URIAS	1931WALLACE CT	SAN BERNARDINO	92408
0280-312-20	ALEX HEIM	2437 ADELIA AVE	SOUTH EL MONTE	91733
0280-312-20	OCCUPANT	1941WALLACE CT	SAN BERNARDINO	92408
0280-312-21	DWAYNE & DOROTHY LESLIE	1940 WALLACE CT	SAN BERNARDINO	92408
0280-312-22	OCCUPANT	1930 WALLACE CT	SAN BERNARDINO	92408
0280-312-22	SILVIA J MUNOZ	730 32ND ST	LOS ANGELES CA	90011
0280-312-23	PACITO T ALEGADO	1922 WALLACE CT	SAN BERNARDINO	92408
0280-312-24	ALDRIN T & MARYLINE L DEWRI	1912 WALLACE CT	SANBERNARDINO	92408
0280-312-27	MARCELINO M POBLANO	1994 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0280-312-28	JOSE M CADENA	1984 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0280-312-34	ATEF NAWAR	PO BOX 172	LOMA LINDA CA	92354
0280-312-35	FRANCISCO ZARAGOZA	1954 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0280-312-38	INLAND PROPERTY SOLUTIONS	334 BROOKSIDE AVE	REDLANDS CA	92734
0281-181-12	DAVID A MONTANEZ	307 IVY ST	SAN BERNARDINO	92408
0281-181-13	EXEQUIEL M PAJULIO	1905 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-181-14	ALBINO P CHAPARRO	1904 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-01	BRIAN T LAFFRANCHINI	1917 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-01	OCCUPANT	1915 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-02	OCCUPANT	1925 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-02	RICARDO HERNANDEZ	11434 STARLIGHT AVE	WHITTIER CA	90004
0281-191-03	DANIEL & LISA GONZALEZ	1935 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-04	OCCUPANT	1945 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-04	RORUN TOUTH	8 RAINIER CT	REDLANDS CA	92374
0281-191-05	ATANASIO & CONCEPCION GALVAN	1955 E SAN BERNARDINO AVE	SANBERNARDINO CA	92408
0281-191-06	OCCUPANT	1965 E SAN BERNARDINO AVE	SANBERNARDINO	92408
0281-191-06	COLLINS G ONUWAH JR	PO BOX 92	WALNUT CA	91788
0281-191-07	BILLY D & GEORGIA D MOFFET	1977 E SAN BERNARDINO AVE	SAN BERNARDINO	92408

APN	MAIL TO NAME	MAIL TO STREET	MAIL TO CITY	MAIL TO ZIP
0281-191-07	OCCUPANT	1975 E SANBERNARDINO AVE	SAN BERNARDINO	92408
0281-191-10	OCCUPANT	1356S MOJNTAINVIEW AVE	SAN BERNARDINO	92408
0281-191-10	MARK SZYMANSKI	26925 LADERA ST	REDLANDS CA	92373
0281-191-11				
0281-191-19				
0281-191-12	ISRAEL LANDAZURI	1974 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-13	1964 COOLEY AVENUE LLC	3902 BANYON ST	IRVINE CA	92606
0281-191-13	OCCUPANT	1964 E COOLEY AVE #A	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #B	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #C	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #D	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #E	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #F	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #G	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #H	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #I	SAN BERNARDINO	92408
0281-191-13	OCCUPANT	1964 E COOLEY AVE #J	SAN BERNARDINO	92408
0281-191-14	MARY JEAN D MURATALLA	1954 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-15	ERMELINDA HERNADEZ	2563 MILLBRAE ST	DUARTE CA	91010
0281-191-15	OCCUPANT	1944 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-16	OCCUPANT	1934 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-16	ROSEMARY VEGA	1795 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-17	SOKHENG B CHIV	1924 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-18	DORA VILLA IRUST	1914 E COOLEY AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #1	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #2	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #3	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #4	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #5	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #6	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #7	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #8	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE #9	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-191-19	OCCUPANT	1995 E SAN BERNARDINO AVE	SAN BERNARDINO	92408
0281-192-02	ALFRED M & ANDREA L LOPEZ	1923 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-02	OCCUPANT	1925 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-03	OCCUPANT	1935 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-03	RICKY ANDERSON	1955 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-04	JOHN ULIBARRI	1955 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-05	CATARINA R SALDANA	1965 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-07	JUDITH F HOLGUIN	1979 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-26	SEVERA WOODS	1424 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0281-192-28	EDWARD P & CAROL A	PO BOX 515	CALIMESA CA	92320
0281-192-28	OCCUPANT	1428 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0281-192-29	GREGORIO MAMANI	PO BOX 149	LOMA LINDA CA	92354
0281-192-29	OCCUPANT	1432 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0281-192-31	ANHTUAN VO	1444 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0281-192-35	AN DANG QUACH	1420 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0281-192-38	KIEM L NA	1985 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-39	JOSE GALVEZ	1989 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-43	IOAN CRAINET	1438 S MOUNTAIN VIEW AVE	SAN BERNARDINO	92408
0281-192-44	EDUARD VARGA	1975 E COOLEY AVE	SAN BERNARDINO	92408
0281-192-45	NOREEN AHMED	1969 E COOLEY AVE	SAN BERNARDINO	92408
0292-011-26	FRANK BAYO	387 MAGNOLIA AVE #103-524	CORONA CA	92879
0292-491-01	OCCUPANT	2350 W SAN BERNARDINO AVE	REDLANDS CA	92374
0292-491-05	OCCUPANT	2492 W SAN BERNARDINO AVE	REDLANDS CA	92374