

Company: San Diego Gas & Electric Company (U 902 M)  
Proceeding: 2024 General Rate Case  
Application: A.22-05-015 /-016 (consolidated)  
Exhibit: SDG&E-206

**REBUTTAL TESTIMONY OF  
RICK CHIAPA AND STEVE HRUBY  
(GAS TRANSMISSION OPERATIONS & CONSTRUCTION)**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



**May 2023**

## TABLE OF CONTENTS

I.	SUMMARY OF DIFFERENCES .....	1
II.	INTRODUCTION .....	1
	A.    Cal Advocates .....	2
III.	REBUTTAL TO PARTIES’ O&M PROPOSALS.....	2
	A.    Non-Shared Services O&M .....	2
IV.	REBUTTAL TO PARTIES’ CAPITAL PROPOSALS .....	2
	A.    Litigated Project Cost Memorandum Account (LPCMA).....	3
	1.    Cal Advocates .....	3
V.	MORENO COMPRESSOR MODERNIZATION (MCM) PROJECT .....	3
	A.    Post Test Year Removal of MCM Project .....	4
	1.    Cal Advocates .....	4
	2.    Removal of MCM Project from GRC.....	5
VI.	CONCLUSION.....	5
	 APPENDIX A – GLOSSARY OF TERMS .....	 RC-SH-A-1
	APPENDIX B – DATA REQUEST RESPONSES.....	RC-SH-B-1

**REBUTTAL TESTIMONY OF  
RICK CHIAPA AND STEVE HRUBY  
(GAS TRANSMISSION OPERATIONS AND CONSTRUCTION)**

**I. SUMMARY OF DIFFERENCES**

<b>TOTAL O&amp;M - Constant 2021 (\$000)</b>			
	<b>Base Year 2021</b>	<b>Test Year 2024</b>	<b>Change</b>
SDG&E	5,163	5,103	60
CAL ADVOCATES	5,163	5,103	60

<b>TOTAL CAPITAL - Constant 2021 (\$000)</b>					
	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>Total</b>	<b>Difference</b>
SDG&E	28,826	11,619	11,706	52,151	
CAL ADVOCATES	28,826	11,619	11,706	52,151	0

**II. INTRODUCTION**

This rebuttal testimony regarding San Diego Gas & Electric Company’s (SDG&E’s) request for Gas Transmission Operations and Construction addresses the following testimony from other parties:

- The Public Advocates Office of the California Public Utilities Commission (Cal Advocates) as submitted by Chauncey Quam (Exhibit CA-04), dated March 27, 2023.
- Cal Advocates as submitted by Greg Wilson (Exhibit CA-06), dated March 27, 2023.
- Cal Advocates as submitted by (L. Mark Waterworth) Exhibit CA-11), dated March 27, 2023.

As a preliminary matter, the absence of a response to any particular issue in this rebuttal testimony does not imply or constitute agreement by SDG&E with the proposal or contention made by these or other parties. The forecasts contained in SDG&E’s direct testimony were selected to reflect the most accurate expected level of expenditures anticipated at the time for 2022, 2023, and 2024.

SDG&E’s Non-Shared Operations and Maintenance (O&M) forecast for TY 2024 is uncontested. SDG&E requests that the Commission adopt its O&M forecast for TY 2024, of \$5,103,000. SDG&E’s Capital forecast for 2022, 2023, and 2024 is also uncontested. SDG&E

1 requests the Commission adopt its forecast for capital expenditures in 2022, 2023, and 2024 of  
2 \$28,826,000, \$11,619,000, and \$11,706,000, respectively, in furtherance of promoting the safety  
3 and reliability of delivering natural gas on its transmission system. Approval of the forecasts in  
4 this testimony will further SDG&E's continued objective of providing safe and reliable delivery  
5 of natural gas to customers at a reasonable cost.

6 **A. Cal Advocates**

7 The following is a summary of Cal Advocates' positions on Gas Transmission Operations  
8 and Construction<sup>1</sup>:

- 9 • Cal Advocates opposes the creation of a Litigated Project Cost  
10 Memorandum Account (LPCMA).
- 11 • Cal Advocates recommends that SDG&E's Moreno Compressor  
12 Modernization project be removed from PTY recovery.

13 **III. REBUTTAL TO PARTIES' O&M PROPOSALS**

14 **A. Non-Shared Services O&M**

<b>NON-SHARED O&amp;M - Constant 2021 (\$000)</b>			
	<b>Base Year 2021</b>	<b>Test Year 2024</b>	<b>Change</b>
SDG&E	5,163	5,103	60
CAL ADVOCATES	5,163	5,103	60

15 No party has opposed SDG&E's O&M forecast.

16 **IV. REBUTTAL TO PARTIES' CAPITAL PROPOSALS**

<b>TOTAL CAPITAL - Constant 2021 (\$000)</b>					
	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>Total</b>	<b>Difference</b>
SDG&E	28,826	11,619	11,706	52,151	
CAL ADVOCATES	28,826	11,619	11,706	52,151	0

17 No party has opposed SDG&E's Capital forecast.

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<sup>1</sup> Ex. CA-04 (Testimony of Chauncey Quam on behalf of Cal Advocates), March 27, 2023, at 15, 22;  
Ex. CA-06 (Testimony of Greg Wilson on behalf of Cal Advocates), March 27, 2023, at 13-14

1           **A. Litigated Project Cost Memorandum Account (LPCMA)**

2                   **1. Cal Advocates**

3           SDG&E has proposed to create a LPCMA to record capital-related costs associated with  
4 projects that are intended to qualify as a collectible project to be recovered from third-party  
5 customers (*e.g.*, Contributions in Aid of Construction from a local governmental entity) instead  
6 of ratepayers, but later are deemed by a court to be non-collectible from third-party customers.  
7 Cal Advocates opposes the creation of the LPCMA. Cal Advocates states, “given the rarity of  
8 these types of court-ordered classification reversals, it is Cal Advocates’ judgment that Sempra is  
9 not at a significant risk of experiencing systematic major unfunded capital costs,” and that this  
10 account “would not similarly track the costs that ratepayers had incurred for an eventual return to  
11 ratepayers.”<sup>2</sup> SDG&E disagrees with Cal Advocates and affirms that a LPCMA is needed to  
12 track project costs at the onset of a litigation that challenges the project classification. Cal  
13 Advocates’ arguments on this point are further addressed in Exhibit SDG&E-211 (Rebuttal  
14 Testimony of Oliva Reyes – Electric Distribution Capital, at OR-20 – OR-22).

15 **V. MORENO COMPRESSOR MODERNIZATION (MCM) PROJECT**

16           The MCM Project consists of two components: the Principal component and the  
17 Advanced Renewable Energy (ARE) component. The Principal component of the MCM Project  
18 includes the installation of new compression equipment at the Moreno Compressor Station to  
19 comply with South Coast AQMD’s RECLAIM sunset requirements, including South Coast  
20 AQMD Rule 1134 “Emissions of Oxides of Nitrogen from Stationary Gas Turbines” (amended  
21 in April 5, 2019), Rule 1110.2 “Emissions from Gaseous and Liquid-Fueled Engines” (amended  
22 in November 1, 2019), and Rule 1100 “Implementation Schedule for NOx Facilities” (amended  
23 in January 10, 2020). SDG&E estimates the Principal component will be placed into service in  
24 Q2 2026 followed by the ARE component in Q2 2028. Due to the expected completion date of  
25 the Principal component being forecasted beyond 2024, the associated revenue requirement is  
26 captured in the Post-Test Year Ratemaking (PTY) proposal sponsored by Melanie E. Hancock  
27 (Exhibit SDG&E-245, at MEH-8.).

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<sup>2</sup> Ex. CA-06 (Greg Wilson) at 13-14.

1 Cal Advocates is the only intervenor that provided comments and recommendations on  
2 the Moreno Compressor Station Modernization Project.

3 **A. Post Test Year Removal of MCM Project**

4 **1. Cal Advocates**

5 Cal Advocates recommends that SDG&E should be directed to remove this request from  
6 its PTY because delays may push it to the next GRC cycle.<sup>3</sup> Cal Advocates fails to note that  
7 SDG&E is under strict compliance deadlines mandated by South Coast Air Quality Management  
8 District (SCAQMD) to comply with Rule 1100, Implementation Schedule for NO<sub>x</sub> Facilities,  
9 Rule 1134, Emissions Oxides of Nitrogen from Stationary Gas Turbines, and Rule 1110.2,  
10 Emissions from Gaseous and Liquid-Fueled Engines as indicated in testimony.<sup>4</sup> SDG&E  
11 submitted a Permit to Construct (PTC) application with South Coast AQMD for the MCM  
12 Project on June 21, 2021. The PTC is expected to be approved within 24 to 30 months<sup>5</sup> of the  
13 submittal date and SDG&E will have 36 months from SCAQMD issuance of the PTC to  
14 complete the project to meet the emission limits specified in Rule 1134 and Rule 1110.2. This  
15 completion requirement falls within the PTY timeframe, hence the MCM Project revenue  
16 requirement should appropriately remain in PTY ratemaking.

17 Cal Advocates claims that there is little support within SDG&E's testimony or  
18 workpapers given the project's size.<sup>6</sup> On the contrary, SDG&E provided detailed information on  
19 project definition, scope, cost, schedule, and sustainability goals of the MCM Project in our  
20 direct testimony (Exhibit SDG&E-06, Gas Transmission Operations & Construction),  
21 Appendix B, Moreno Compressor Modernization Supplemental Project Description. Moreover,  
22 there is ample support for the PTY revenue requirement for the MCM project in the Post-Test  
23 Year testimony of Melanie E. Hancock (Exhibit SDG&E-45). SDG&E submitted the Moreno  
24 Compressor Modernization PTC application to the South Coast AQMD on June 21, 2021 (see

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<sup>3</sup> Ex. CA-20 (Testimony of Stacey Hunter on behalf of Cal Advocates), March 27, 2023, at 22.

<sup>4</sup> Ex. SDGE-06 (Prepared Direct Testimony of Rick Chiapa and Steve Hruby) at RC-SH-38.

<sup>5</sup> South Coast AQMD, by statute, issues permits within 18 months of the application being deemed complete. The Moreno schedule adds an additional 6-12 months to this timeframe in order to provide the agency time to complete the CEQA for a project of this complexity. The MCM project application was deemed complete July 2021.

<sup>6</sup> Ex. CA-20 (Stacey Hunter) at 22.

1 Appendix B).<sup>7</sup> Furthermore, as noted in Direct Testimony, the project was largely approved in  
2 the last GRC.<sup>8</sup>

## 3 **2. Removal of MCM Project from GRC**

4 Cal Advocates also argues that “With an estimated revenue requirement ... in 2027,  
5 which is larger than \$75M should require separate application.”<sup>9</sup> Cal Advocates does not  
6 recognize that the Commission has addressed this issue in the Decision 22-12-021, Adopting Gas  
7 Infrastructure General Order (GO), December 1, 2022. As indicated in that decision, the MCM  
8 Project is explicitly exempted from the requirements of filing a separate application due to  
9 project costs exceeding \$75M threshold per GO-177, Section IV (B) Compliance with Section  
10 IV(A)(1): “b. projects that have a scheduled in-service date occurring before January 1, 2024,  
11 and *projects for which an application for approval has been submitted to an air quality*  
12 *management district for compliance with an environmental rule prior to the effective date of this*  
13 *General Order.*”<sup>10</sup> SDG&E identified to the Commission, pursuant to Ordering Paragraph (OP)  
14 6 of D.22-12-021 and General Order (GO) 177, the MCM Project as one of the projects that meet  
15 specific criteria, including the requirements of GO-177 Section V(C)(2). In this submittal,  
16 SDG&E identified MCM Project as exempt from filing a separate application.

## 17 **VI. CONCLUSION**

18 To summarize, the TY2024 forecasted costs associated with the operation and  
19 maintenance of SDG&E’s gas transmission system as presented in Exhibit SDG&E-06 direct  
20 testimony and this rebuttal are reasonable and should be adopted by the Commission. The  
21 transmission O&M and Capital costs are reasonable and in alignment with SDG&E’s  
22 commitment toward sustaining safe and reliable service to customers while also striving to  
23 control operating expenses without compromising safety or regulatory compliance. The need for  
24 the Moreno Compressor Modernization Project was not disputed by any intervenor. Cal

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<sup>7</sup> See Appendix B.

<sup>8</sup> D.19-09-051 at 116-117.

<sup>9</sup> Ex. CA-20 (Stacey Hunter) at 22.

<sup>10</sup> CPUC, General Order 177, § IV.B.b., at 4, available at: [https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/administrative-law-judge-division/documents/general-orders/go\\_177\\_gas\\_infrastructure.pdf](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/administrative-law-judge-division/documents/general-orders/go_177_gas_infrastructure.pdf) (emphasis added).

1 Advocates' reasons for not adopting SDG&E's request for the MCM to be a PTY capital  
2 exception are baseless as (1) the Commission has already made a determination that MCM  
3 Project is exempt from filing a separate application under GO-177, and (2) the MCM Project's in  
4 service date falls within the PTY timeframe. Hence, the MCM Project revenue requirement  
5 should appropriately remain in PTY ratemaking.

6 This concludes our prepared rebuttal testimony.



**APPENDIX A**  
**GLOSSARY OF TERMS**

**APPENDIX A**  
**GLOSSARY OF TERMS**

<b><u>ACRONYM</u></b>	<b><u>DEFINITION</u></b>
AQMD	Air Quality Management District
ARE	Advance Renewable Energy
CPUC	California Public Utilities Commission
D.	Decision
GO	General Order
GRC	General Rate Case
LPCMA	Litigated Project Cost Memorandum Account
MCM	Moreno Compressor Modernization
NOx	Nitrogen Oxides
O&M	Operations and Maintenance
OP	Ordering Paragraph
PTC	Permit to Construct
PTY	Post-Test Year
RECLAIM	Regional Clean Air Incentive Market
SCAQMD	South Coast Air Quality Management District
SDG&E	San Diego Gas & Electric Company
SoCalGas	Southern California Gas Company
TY	Test Year

**APPENDIX B**

**San Diego Gas & Electric Company Moreno Valley Compressor Station (FID #004242)**

**Permit to Construct (PTC) Application Package for Modernization Project**



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**Estela de Llanos**  
Vice President, Clean Transportation, Sustainability  
& Chief Environmental Officer  
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San Diego, CA 92123  
tel: 619-699-5011  
email: [EDeLlanos@sdge.com](mailto:EDeLlanos@sdge.com)

June 21, 2021

Mr. [REDACTED]  
South Coast Air Quality Management District  
21865 Copley Ave.  
Diamond Bar, CA 91765

**Subject: San Diego Gas & Electric Company Moreno Valley Compressor Station (FID #004242) Permit to Construct (PTC) Application Package for Modernization Project**

Dear [REDACTED]:

Southern California Gas Company (SoCalGas), in partnership with San Diego Gas & Electric Company (SDG&E), is pleased to submit this Permit to Construct (PTC) application package for the Moreno Compressor Modernization (MCM) Project at the Moreno Valley Compressor Station (FID #004242). The purpose of the Project is to not only comply with South Coast Air Quality Management District (South Coast AQMD) Regional Clean Air Incentives Market (RECLAIM) Sunset requirements and achieve measurable and significant air quality benefits for Southern California, but also to advance environmental goals and help to accelerate California's transition to a clean energy future.

As you may know, both SDG&E and SoCalGas have recently set a goal of achieving net zero greenhouse (GHG) emissions in their respective operations and the energy delivered to our customers by 2045. The MCM Project aligns with SDG&E's and SoCalGas's climate goals, as well as those of the communities we serve, and advances California's ambitious climate action policies. The MCM Project will modernize the Moreno Valley Compressor Station, a critical energy infrastructure facility located in a designated Disadvantaged Community, to achieve compliance with the RECLAIM Sunset requirements in an innovative manner that also incorporates hydrogen and renewable energy as decarbonization technologies. Specifically, the proposed Project has been designed to comply with the requirements of South Coast AQMD Rule 1134 "Emissions of Oxides of Nitrogen from Stationary Gas Turbines," Rule 1110.2 "Emissions from Gaseous and Liquid-Fueled Engines," and Rule 1100 "Implementation Schedule for NOx Facilities," and also to include features that will reduce criteria air pollutants within a designated Disadvantaged Community.

Notably, SDG&E's Moreno Valley Compressor Station will be the first of its kind in California to integrate green hydrogen to fuel critical natural gas infrastructure. The MCM Project proposes to replace existing natural gas compressors with electric-driven

compressors and new, gas-fueled compressors that are capable of operating on hydrogen-blended fuel. Additionally, green hydrogen is expected to be produced onsite through electrolysis, using renewable electricity. The facility is expected to produce 750 kg of green hydrogen per day, which is equivalent to the amount of renewable energy required to fuel 300 homes per day, or fuel approximately 120 vehicles. The Project will also include a hydrogen refueling station, which will facilitate the two companies' transition to zero-emission fuel cell fleet vehicles, supporting the utilities' fleet conversion to 100-percent zero emissions by 2035. The MCM Project's new compressor equipment will reduce NOx emissions by approximately 70%, which is roughly equivalent to removing the NOx emissions from 36,000 passenger vehicles from the roads each year.

The Project includes five primary components: 1) compressor system upgrade with the installation of new Compressor Gas Turbines (CGT) and new electric motor-driven compressors equipment, including new ancillary equipment; 2) hydrogen electrolyzers and fuel blending equipment to integrate green hydrogen into compressor combustion fuel; 3) new green hydrogen vehicle fleet fueling station for company vehicles; 4) microgrid comprised of roof-mounted solar photovoltaic (PV) panels, an energy storage system, and hydrogen-fueled proton-exchange membrane (PEM) fuel cells to provide supplemental electricity; and 5) other site improvements, including two new compressor buildings and one new warehouse building.

To process this application, the following South Coast AQMD forms are included as part of this submittal:

- Form 400-A (CGTs Nos. 1 and 2 and their associated emission control systems) – *Application Form for Permit or Plan Approval*
- Form 400-A (Natural gas emergency engines Nos. 1 and 2 and their associated emission control systems) – *Application Form for Permit or Plan Approval*
- Form 400-A (RECLAIM/Title V Permit Amendment) – *Application Form for Permit or Plan Approval*
- Form 400-CEQA – *California Environmental Quality Act (CEQA) Applicability*
- Form 400-E-5 (Emission control systems for CGTs Nos. 1 and 2) – *Selective Catalytic Reduction (SCR) System, Oxidation Catalyst and Ammonia Catalyst*
- Form 400-E-12 (CGTs Nos.1 and 2) – *Gas Turbine*
- Form 400-E-13a (Natural gas emergency engines Nos. 1 and 2) - *Emergency Internal Combustion Engine*
- Form 400-PS (CGTs Nos. 1 and 2 & Natural gas emergency engines Nos. 1 and 2) - *Plot Plan and Stack Information Form*
- Form 400-XPP – *Express Permit Processing Request*
- Form 500-A2 – *Title V Application Certification*
- Manufacturer Equipment Data

Mr. [REDACTED]  
June 21, 2021  
Page 3

We are very excited to embark on this critical project that supports South Coast AQMD's mission to clean the air and protect the health of residents while continuing to provide clean, safe, and reliable gas and electric service to millions of Southern California residents while advancing our climate commitments.

Should you have any questions or require additional information, please contact [REDACTED], SoCalGas Air Quality Programs Manager, at [REDACTED] or [REDACTED]. The total fee associated with this submittal has been calculated according to Rule 301. Enclosed, please find a check in the amount of \$50,608.52

Sincerely,



Rodger Schwecke  
Senior Vice President and Chief  
Infrastructure Officer  
Southern California Gas Company and  
San Diego Gas & Electric Company



Estela de Llanos  
Vice President, Clean Transportation,  
Sustainability and Chief Environmental Officer  
San Diego Gas & Electric Company

**San Diego Gas &  
Electric Company**

**Moreno Compressor  
Station  
14601 Virginia Street  
Moreno Valley, CA  
92555**

**SCAQMD Facility ID:  
004242**

**June 2021**

**Prepared by:**



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**Applications for Permits to Construct:  
Moreno Compressor Modernization  
Project**

# **Applications for Permits to Construct: Moreno Compressor Modernization Project**

Prepared for:

San Diego Gas & Electric Company  
Moreno Compressor Station  
14601 Virginia Street  
Moreno Valley, CA 92555

SCAQMD Facility ID: 004242

June 2021



## Table of Contents

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Facility Information .....	2
1.1.1	<i>Facility Background Information .....</i>	<i>2</i>
1.1.2	<i>Facility Contact Information .....</i>	<i>3</i>
1.1.3	<i>Facility Location and Layout.....</i>	<i>3</i>
1.2	Proposed Permit Actions .....	4
<b>2.0</b>	<b>PROJECT DESCRIPTION .....</b>	<b>7</b>
2.1	Purpose, Need, and Objectives of Proposed Project .....	7
2.2	Overview .....	7
2.3	Proposed Modernization Project .....	8
2.3.1	<i>Existing Compressor Station.....</i>	<i>8</i>
2.3.2	<i>Compressor Station Improvements .....</i>	<i>8</i>
2.4	Transition to New Compression Equipment .....	9
<b>3.0</b>	<b>EQUIPMENT DESCRIPTION.....</b>	<b>10</b>
3.1	Compressor Gas Turbines .....	10
3.1.1	<i>Basic Equipment .....</i>	<i>10</i>
3.1.2	<i>Emission Control Equipment .....</i>	<i>10</i>
3.1.3	<i>Continuous Emissions Monitoring System.....</i>	<i>11</i>
3.1.4	<i>Operating Schedule.....</i>	<i>11</i>
3.2	Emergency Generators .....	12
3.2.1	<i>Basic Equipment .....</i>	<i>12</i>
3.2.2	<i>Control Equipment.....</i>	<i>12</i>
3.2.3	<i>Operating Schedule.....</i>	<i>13</i>
3.3	Ancillary Equipment.....	13
<b>4.0</b>	<b>EMISSIONS.....</b>	<b>14</b>
4.1	Compressor Gas Turbines .....	14
4.1.1	<i>Criteria Pollutants – Methodology.....</i>	<i>14</i>
4.1.2	<i>Startup/Shutdown.....</i>	<i>14</i>
4.1.3	<i>Sample NO<sub>x</sub> Emission Calculations.....</i>	<i>15</i>
4.1.4	<i>Summary of Criteria Pollutant Emissions .....</i>	<i>17</i>
4.1.5	<i>Toxic Air Contaminant Emissions – Methodology .....</i>	<i>17</i>
4.1.6	<i>Sample TAC Emission Calculations .....</i>	<i>18</i>
4.1.7	<i>TAC Emissions Summary.....</i>	<i>18</i>
4.2	Emergency Engines .....	19
4.2.1	<i>Criteria Pollutants – Methodology.....</i>	<i>19</i>
4.2.2	<i>Sample Emission Calculations.....</i>	<i>19</i>
4.2.3	<i>Summary of Criteria Pollutant Emissions .....</i>	<i>20</i>
4.2.4	<i>Toxic Air Contaminant Emissions – Methodology .....</i>	<i>21</i>
4.2.5	<i>Sample TAC Emission Calculations .....</i>	<i>21</i>
4.2.6	<i>TAC Emissions Summary.....</i>	<i>22</i>

<b>5.0</b>	<b>RULE COMPLIANCE EVALUATION.....</b>	<b>23</b>
5.1	Regulation II – Permits.....	23
5.1.1	<i>Rule 212, Standards for Approving Permits and Issuing Public Notice .....</i>	<i>23</i>
5.1.2	<i>Rule 218 Series, Continuous Emission Monitoring.....</i>	<i>24</i>
5.1.3	<i>Rule 219, Equipment Not Requiring a Written Permit Pursuant to Regulation II ..</i>	<i>24</i>
5.2	Regulation III – Fees; Rule 301, Permit Fees.....	24
5.3	Regulation IV – Prohibitions.....	25
5.3.1	<i>Rule 401, Visible Emissions.....</i>	<i>25</i>
5.3.2	<i>Rule 402, Nuisance .....</i>	<i>25</i>
5.3.3	<i>Rule 404, Particulate Matter Concentration .....</i>	<i>25</i>
5.3.4	<i>Rule 407, Liquid and Gaseous Air Contaminants .....</i>	<i>26</i>
5.3.5	<i>Rule 409, Combustion Contaminants .....</i>	<i>26</i>
5.3.6	<i>Rule 429, Startup and Shutdown Exemption Provisions for Oxides of Nitrogen ....</i>	<i>27</i>
5.3.7	<i>Rule 431.1, Sulfur Content of Gaseous Fuels.....</i>	<i>27</i>
5.4	Regulation IX – Standards of Performance for New Stationary Sources.....	27
5.5	Regulation X – National Emission Standards for Hazardous Air Pollutants.....	27
5.6	Regulation XI – Source Specific Standards .....	27
5.6.1	<i>Rule 1100, Implementation Schedule for NO<sub>x</sub> Facilities .....</i>	<i>27</i>
5.6.2	<i>Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines.....</i>	<i>28</i>
5.6.3	<i>Rule 1134, Emissions of NO<sub>x</sub> from Stationary Gas Turbines .....</i>	<i>28</i>
5.7	Regulation XIII – New Source Review.....	29
5.7.1	<i>Rule 1303, Requirements .....</i>	<i>29</i>
5.7.2	<i>Rule 1325, Federal PM<sub>2.5</sub> New Source Review Program .....</i>	<i>31</i>
5.8	Regulation XIV – Toxics and Other Non-Criteria Pollutants; Rule 1401, New Source Review for Air Toxics.....	32
5.9	Regulation XX – Regional Clean Air Incentives Market.....	32
5.9.1	<i>Rule 2004, Requirements .....</i>	<i>33</i>
5.9.2	<i>Rule 2005, New Source Review for RECLAIM.....</i>	<i>33</i>
5.9.3	<i>Rule 2012, Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO<sub>x</sub>) Emissions .....</i>	<i>35</i>
5.10	Regulation XXX – Title V Permits.....	35
5.11	California Requirements.....	36
5.11.1	<i>California Accidental Release Prevention (CalARP) Program.....</i>	<i>36</i>
5.11.2	<i>California Environmental Quality Act (CEQA).....</i>	<i>36</i>
5.12	Federal Requirements.....	36
5.12.1	<i>40 CFR 60, Subpart A – General Provisions.....</i>	<i>36</i>
5.12.2	<i>40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.....</i>	<i>37</i>
5.12.3	<i>40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines.....</i>	<i>37</i>
5.12.4	<i>40 CFR 63 Subpart A – General Provisions.....</i>	<i>38</i>
5.12.5	<i>40 CFR 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.....</i>	<i>38</i>
5.12.6	<i>40 CFR 63, Subpart ZZZZ – National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines .....</i>	<i>40</i>
5.12.7	<i>40 CFR 64 – Compliance Assurance Monitoring.....</i>	<i>40</i>

5.12.8 40 CFR Part 68 – Chemical Accident Prevention Provisions.....42

## List of Tables

Table 1-1: Contact Information .....	3
Table 1-2: SCAQMD Forms Accompanying This Application .....	4
Table 3-1: Equipment Information .....	10
Table 3-2: Control Equipment Specifications.....	11
Table 3-3: Operating Schedule .....	12
Table 3-4: Emergency Engine Specifications.....	12
Table 3-5: Control Equipment .....	12
Table 3-6: Operating Schedule .....	13
Table 3-7: Ancillary Project Equipment .....	13
Table 4-1: Criteria Pollutant Emission Factors.....	14
Table 4-2: Startup and Shutdown Hourly Emissions.....	15
Table 4-3: Summary of Criteria Pollutant Emissions – One CGT .....	17
Table 4-4: TAC Emission Factors .....	17
Table 4-5: Summary of TAC Emissions – One CGT.....	18
Table 4-6: Emergency Engine Criteria Pollutant Emission Factors .....	19
Table 4-7: Criteria Pollutant Emissions – One Emergency Engine.....	21
Table 4-8: Emergency Engine TAC Emission Factors.....	21
Table 4-9: Summary of TAC Emissions – One Emergency Engine .....	22
Table 5-1: Rule 212(g) Threshold Comparison .....	23
Table 5-2: Application Fees.....	24
Table 5-3: BACT Determination – Emergency, Spark Ignition Engine.....	30
Table 5-4: Summary of Health Risk Assessment Results – One CGT.....	32
Table 5-5: AQIA Results for NO <sub>2</sub> .....	34
Table 5-6: 40 CFR 60 Subpart JJJJ Emissions Standards – Emergency Engines .....	37
Table 5-7: Applicability Requirements for CAM.....	41
Table 5-8: Summary of CAM Rule Exemptions .....	41

## List of Figures

Figure 1-1: Aerial View of Moreno Compressor Station and Surrounding Area.....	6
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## **Appendices**

**APPENDIX A – SCAQMD APPLICATION FORMS**

**APPENDIX B – FACILITY LAYOUT DIAGRAM**

**APPENDIX C – EQUIPMENT INFORMATION**

**APPENDIX D – EMISSION CALCULATIONS**

**APPENDIX E – RULE 219 EXEMPTION ANALYSIS**

**APPENDIX F – SUPPLEMENTAL BACT INFORMATION**

**APPENDIX G – HEALTH RISK ANALYSIS WORKSHEETS**

**APPENDIX H – AMBIENT AIR QUALITY IMPACT ANALYSIS**

## Acronyms, Abbreviations, and Symbols

4SRB	Four-Stroke Rich Burn
30-DA	30-Day Average
AA	Annual Average
AAQS	Ambient Air Quality Standard
AB	Assembly Bill
A/N	Application Number
AQIA	Air Quality Impact Analysis
ASC	Ammonia slip catalyst
BACT	Best Available Control Technology
bhp	Brake Horsepower
Btu	British Thermal Unit
CalARP	California Accidental Release Prevention
CAM	Compliance Assurance Monitoring
CAAQS	California Ambient Air Quality Standard
CAS No.	Chemical Abstract Service Number
CEMS	Continuous Emissions Monitoring System
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGT	Compressor Gas Turbines
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide equivalents
Conc.	Concentration
CPUC	California Public Utilities Commission
DIA	Diameter
DLE	Dry Low Emissions
dscf	Dry Standard Cubic Feet
EDC	Electric-Driven Compressor
EPA	[United States] Environmental Protection Agency
FR	Federal Register
gal	Gallon
gr	Grain
GHG	Greenhouse Gas
H <sub>2</sub> O	Water
HAP	Hazardous Air Pollutant
HHV	Higher Heating Value
HIA	Acute Hazard Index
HIC	Chronic Hazard Index
hp	Horsepower
hr	Hour
HSC	Health and Safety Code
IC	Internal Combustion
ID	Internal Diameter

## Acronyms, Abbreviations, and Symbols

lb	Pound
lb-mol	Pound-Mole
MAC	Maximum Annual Controlled
MCM	Moreno Compressor Modernization
MCS	Moreno Compressor Station
MDAQMD	Mojave Desert Air Quality Management District
MDU	Maximum Daily Uncontrolled
MHC	Maximum Hourly Controlled
MHU	Maximum Hourly Uncontrolled
MICR	Maximum Individual Cancer Risk
MM	Million
mm Hg	Millimeters of Mercury
MT	Metric Ton
MV	Molar Volume
MW	Molecular Weight
MWe	Megawatt
N <sub>2</sub>	Nitrogen
N <sub>2</sub> O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standard
NSR	New Source Review
No.	Number
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
O <sub>2</sub>	Oxygen
NED	National Elevation Database
NESHAP	National Emission Standard for Hazardous Air Pollutants
NH <sub>3</sub>	Ammonia
NSCR	Non-Selective Catalytic Reduction
NSPS	New Source Performance Standard
PAH	Polycyclic Aromatic Hydrocarbon
PEM	Polymer Electrolyte Membrane
PGM	Precious Group Metal
PM <sub>10</sub>	Respirable Particulate Matter
PM <sub>2.5</sub>	Fine Particulate Matter
ppm	Parts per Million
ppmv	Parts per Million by Volume
ppmvd	Parts per Million by Volume, Dry
psi	Pounds per Square Inch
PTC	Permit to Construct
PTE	Potential to Emit
PV	Photovoltaic
RECLAIM	Regional Clean Air Incentives Market
RMP	Risk Management Plan

## Acronyms, Abbreviations, and Symbols

RTC	RECLAIM Trading Credit
SCAQMD	South Coast Air Quality Management District
scf	Standard Cubic Foot
scfm	Standard Cubic Feet per Minute
SCR	Selective Catalytic Reduction
SDG&E	San Diego Gas and Electric Company
SEA	Subsequent Environmental Assessment
sf	Square Foot
SI	Spark Ignition
SoCalGas	Southern California Gas Company
SO <sub>2</sub>	Sulfur Dioxide
SO <sub>x</sub>	Sulfur Oxides
TAC	Toxic Air Contaminant
TBD	To Be Determined
TPY	Tons per Year
USGS	United States Geological Society
VOC	Volatile Organic Compound
yr	Year
°C	Degrees Centigrade
°F	Degrees Fahrenheit
'	Foot
"	Inch
µg/m <sup>3</sup>	Micrograms per Cubic Meter
#	Number
%	Percent
§	Section

# Applications for Permits to Construct: Moreno Compressor Modernization Project

## 1.0 INTRODUCTION

San Diego Gas and Electric Company (SDG&E) proposes to modernize the Moreno Compressor Station through a series of facility enhancements. The Moreno Compressor Station is located at 14601 Virginia Street in the City of Moreno Valley, County of Riverside, California. SDG&E is the owner of the Moreno Compressor Station and Southern California Gas Company (SoCalGas) manages the operators of the facility.

SDG&E/SoCalGas are submitting this application package to request Permits to Construct (PTCs) for the proposed Moreno Compressor Modernization Project (MCM Project). The MCM Project involves installing new compression equipment at the Moreno Compressor Station to comply with South Coast Air Quality Management District (SCAQMD) Regional Clean Air Incentives Market (RECLAIM) Sunset requirements, including amended Rule 1134 “Emissions of Oxides of Nitrogen from Stationary Gas Turbines,” Rule 1110.2 “Emissions from Gaseous and Liquid-Fueled Engines,” and Rule 1100 “Implementation Schedule for NO<sub>x</sub> Facilities.”

The MCM Project includes the following major elements subject to permitting by the SCAQMD:

- Installation of two new natural gas 5,825 horsepower (hp) Solar Centaur Model 50 compressor gas turbines (CGTs), each with emissions control systems comprised of selective catalytic reduction (SCR) and oxidation catalyst. Each CGT will be equipped with a Continuous Emissions Monitoring System (CEMS)<sup>1</sup>; and
- Installation of two new natural gas-fired 824-hp Waukesha engine-driven emergency generators, each with an EmPact emissions control system which includes three-way non-selective catalytic reduction (NSCR) and an air fuel ratio controller.

Ancillary equipment will also be installed, including the following equipment not subject to permitting by the SCAQMD:

- Two electric-driven compressors (EDCs), each 4,000 hp;
- Hydrogen generation, storage, and blending equipment<sup>2</sup>;
- Hydrogen fueling station for company vehicles;
- Microgrid comprised of renewable electric generation sources, including roof-mounted solar photovoltaic (PV) panels, energy storage systems, and renewable hydrogen-fueled proton exchange membrane (PEM) fuel cells to generate electricity to support auxiliary and administrative electrical loads while reducing the need for on-site natural gas-fueled electricity generation;

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<sup>1</sup> CEMS applications will be submitted at a later date once the CEMS equipment has been selected.

<sup>2</sup> Proposal is to blend up to 10% hydrogen with natural gas; the “blended natural gas” will be California Public Utility Commission (CPUC)-quality natural gas per General Order 58A.



- Ancillary CGT support equipment including cooling towers, lube oil system, tanks and filter/separators; and
- Control, electrical, and instrumentation equipment.

The MCM Project includes decommissioning four existing Solar Saturn CGTs (SCAQMD Device IDs: D1, D2, D3, D4), three existing Clark compressor gas lean-burn engines (D5, D6, D7), and two existing Cooper compressor gas lean-burn engines (D8, D9). These compressors will be abandoned in place and the permits surrendered.<sup>3</sup> Four existing emergency generators (D12, D13, D14, D15) will also be decommissioned.

Construction of the MCM Project will begin upon issuance of the PTCs assuming all other required permits have been secured, with planned operation of the new CGTs, emergency generators, and ancillary equipment within 36 months of PTC issuance per Rule 1134(d)(4).<sup>4</sup>

The MCM Project will emit criteria pollutants and toxic air contaminants (TACs) that are associated with combustion of natural gas or blended natural gas in the CGTs and emergency engines. Criteria pollutants are comprised of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), respirable particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), and sulfur oxides (SO<sub>x</sub>). While these new devices will emit these air contaminants, the MCM Project will result in a facility-wide net emissions reduction of nonattainment air contaminants. The proposed Project will comply with applicable rules and regulations, including the Best Available Control Technology (BACT) requirements of Rule 1303 and the health risk standards of Rule 1401.

The MCM Project requires an amendment to the facility RECLAIM permit and a significant revision to the facility Title V permit. This application package includes a Project Description (Section 2), equipment descriptions for those devices that require SCAQMD permits (Section 3), emissions estimates (Section 4), and regulatory compliance review (Section 5). Supplemental information, including SCAQMD application forms, supplemental equipment information, emission calculations, an Air Quality Impact Analysis (AQIA), and health risk assessment, are provided as appendices.

Expedited permit processing is requested for these applications.

## 1.1 Facility Information

### 1.1.1 Facility Background Information

SDG&E's Moreno Compressor Station, located in Moreno Valley, boosts pressure into the SDG&E/SoCalGas natural gas transmission lines serving Riverside and San Diego Counties. The Moreno Compressor Station plays a critical role in providing safe and reliable natural gas to the customers and residents of San Diego County. The facility

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<sup>3</sup> The five lean-burn engines will be included in the Retirement Plan for Compressor Gas Lean-Burn Engine Replacement with CGTs that is being submitted to the SCAQMD in parallel with this PTC application package. The PTC applications for Cooper Nos. 8 and 9 retrofits (A/N 619557 and 619558) (to install SCR) submitted to the SCAQMD in February 2020 will be withdrawn.

<sup>4</sup> Per Rule 1134(d)(9)(B)(v), the owner or operator of a compressor gas turbine may submit a request to the Executive Officer for approval of an extension of up to 12 months to meet the NO<sub>x</sub> and ammonia limits specified in paragraph (d)(4) if they can demonstrate that actual facility NO<sub>x</sub> emissions will decrease by at least an average of 25% in the two years prior to the extension request in comparison to 2017 facility emissions.

delivers over 96% of the natural gas that is consumed in the San Diego County including residents, hospitals, schools, and power plants. The facility currently operates ten compressors with a combined 16,585 installed hp. The compressors include four 0.85 megawatt (MWe) Solar Saturn CGTs (i.e., 1,100-hp), three 995-hp Clark compressor gas lean-burn engines, two 3,000-hp Cooper compressor gas lean-burn engines, and one 3,200-hp Cooper compressor gas lean-burn engine. The Clarks and Coopers operate with oxidation catalysts. One of the Coopers will also operate with SCR<sup>5</sup> prior to operation of the MCM Project. The Solar Saturn CGTs operate without add-on emission controls. There are four emergency engines currently permitted to operate at the facility, with a combined 1,130 installed hp.

**1.1.2 Facility Contact Information**

SDG&E is the owner of the Moreno Compressor Station and SoCalGas manages the operators of the facility. The applicant contact information is provided in Table 1-1.

**Table 1-1: Contact Information**

<b>Applicant's Name:</b>	San Diego Gas & Electric
<b>Responsible Official Contact Information:</b>	[REDACTED] Field Operations Manager [REDACTED]
<b>Applicant Contact Information:</b>	[REDACTED] Air Quality Programs Manager [REDACTED]
<b>Facility Contact Information:</b>	[REDACTED] Senior Environmental Specialist [REDACTED]
<b>Facility ID:</b>	004242
<b>SIC Code:</b>	4923: Natural Gas Transmission And Distribution
<b>Mailing Address:</b>	P.O. Box 2300 Attn: Mariza Arnot SC9314 Chatsworth, CA 91313-2300
<b>Equipment Location:</b>	14601 Virginia Street Moreno Valley, CA 92555

**1.1.3 Facility Location and Layout**

The facility is located at 14601 Virginia Street in Moreno Valley, CA. Land use in the vicinity of the site is vacant land historically used for agricultural purposes. The nearest residential property is approximately 1.1 miles northeast of the facility. The nearest commercial/industrial property is approximately 1.5 miles north of the facility. There are

<sup>5</sup> An application to retrofit Cooper No. 10 with SCR was filed in February 2020. The PTC has not yet been issued, but the applicant anticipates that the SCR will be installed by the time these PTCs are issued.

no schools within 1,000 feet of the facility. An aerial photograph of the site and surrounding properties is provided as Figure 1-1. Detailed site diagrams are provided in Appendix B.

## 1.2 Proposed Permit Actions

SDG&E/SoCalGas are requesting the following permit actions:

- PTCs for two Solar Centaur Model 50 CGTs;
- PTCs for two emission control systems for the CGTs, each consisting of an SCR and an oxidation catalyst;
- PTCs for two emergency generator engines;
- PTCs for two emission control systems for the emergency generator engines consisting of EmPact emissions control system which includes NSCR and air fuel ratio controller; and
- Facility RECLAIM/Title V Permit amendment.

The forms included with this submittal are listed in Table 1-2 and are provided in Appendix A.

**Table 1-2: SCAQMD Forms Accompanying This Application**

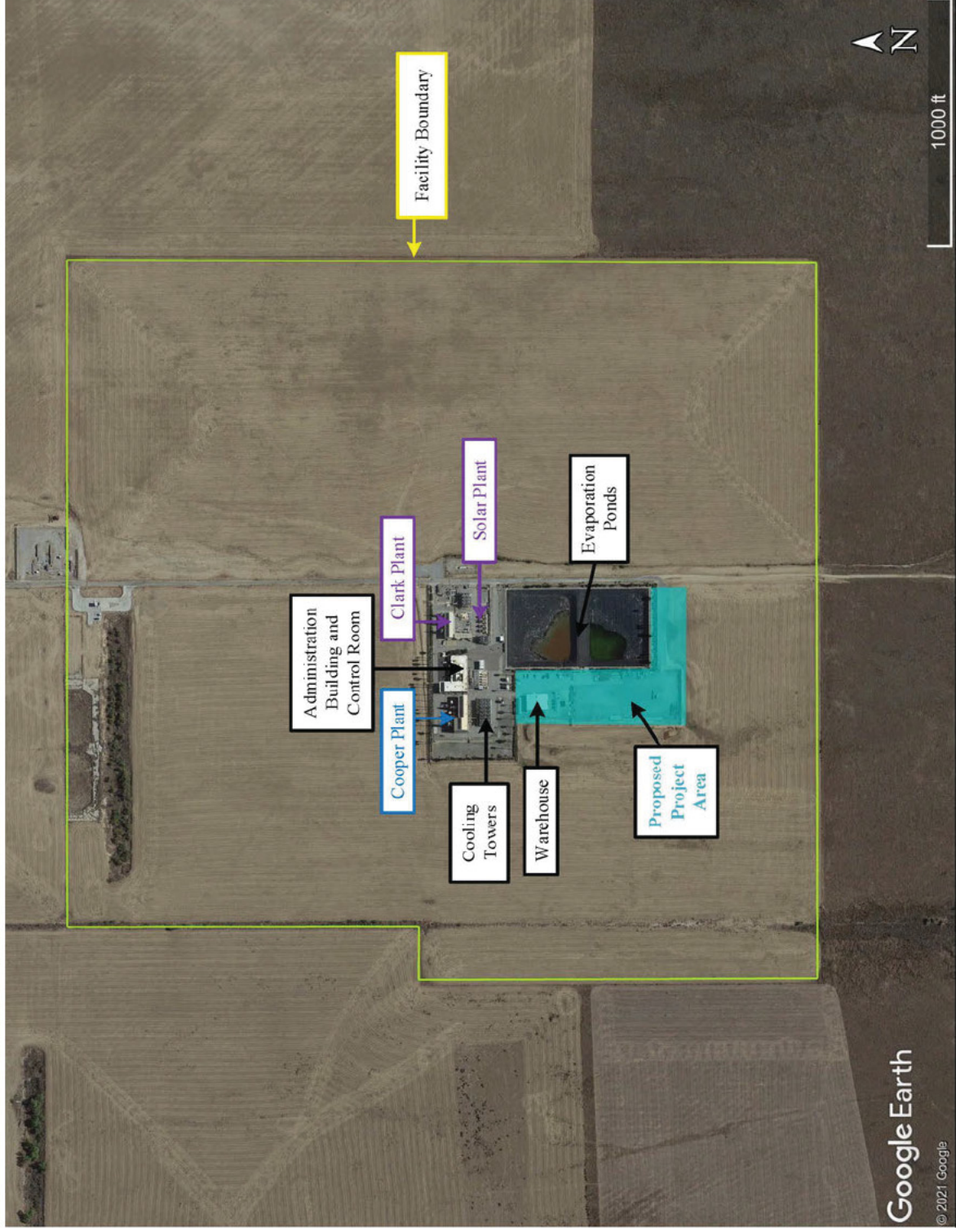
Device	Permit Action	Form	
		Form ID	Description
Compressor Gas Turbine No. 1	Permit Processing	400-A	Application Form for Permit or Plan Approval
		400-E-12	Gas Turbine
		400-PS	Plot Plan and Stack Information Form
Control System No. 1	Permit Processing	400-A	Application Form for Permit or Plan Approval
		400-E-5	Selective Catalytic Reduction (SCR) System and Oxidation Catalyst
Compressor Gas Turbine No. 2	Permit Processing	400-A	Application Form for Permit or Plan Approval
		400-E-12	Gas Turbine
		400-PS	Plot Plan and Stack Information Form
Control System No. 2	Permit Processing	400-A	Application Form for Permit or Plan Approval
		400-E-5	Selective Catalytic Reduction (SCR) System and Oxidation Catalyst
Emergency Engine No. 1	Permit Processing	400-A	Application Form for Permit or Plan Approval
		400-E-13a	Emergency Internal Combustion Engine
		400-PS	Plot Plan and Stack Information Form
EMPact Control System No. 1	Permit Processing	400-A	Application Form for Permit or Plan Approval
Emergency Engine No. 2	Permit Processing	400-A	Application Form for Permit or Plan Approval
		400-E-13a	Emergency Internal Combustion Engine
		400-PS	Plot Plan and Stack Information Form
EMPact Control System No. 2	Permit Processing	400-A	Application Form for Permit or Plan Approval
Facility Permit	Amendment	400-A	Application Form for Permit or Plan Approval
		500-A2	Title V Application Certification
Project	–	400-CEQA	California Environmental Quality Act (CEQA) Applicability

Applications for Permits to Construct: Moreno Compressor Modernization Project  
San Diego Gas & Electric Company Moreno Compressor Station

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Device	Permit Action	Form	
Expedited Permit Processing	–	400-XPP	Express Permit Processing Request

Figure 1-1: Aerial View of Moreno Compressor Station and Surrounding Area



## 2.0 PROJECT DESCRIPTION

SDG&E/SoCalGas propose to modernize the Moreno Compressor Station. The MCM Project will modernize aging equipment to comply with RECLAIM Sunset Landing Rule requirements, as well as install electrolyzers to produce green hydrogen to integrate into compressor combustion fuel, install a microgrid to produce renewable electricity, and provide hydrogen fueling for company vehicles.

### 2.1 Purpose, Need, and Objectives of Proposed Project

As part of its efforts to support California's climate change goals and to comply with SCAQMD's transition from RECLAIM to command-and-control regulations, SDG&E/SoCalGas are focused on demonstrable and measurable commitments to improve air quality and modernize the Moreno Compressor Station. The purpose of the MCM Project is to modernize the Moreno Compressor Station through the installation of new equipment and innovative technology that will achieve measurable reductions in NO<sub>x</sub> emissions, comply with SCAQMD regulations, and help California meet its climate commitment goals. The objectives of the MCM Project are:

- Achieve compliance with SCAQMD emission requirements in Rules 1134 (turbines) and 1110.2/1100 (stationary engines);
- Help California and SDG&E meet their climate commitments<sup>6</sup> by:
  - Installing on-site microgrid of renewable power generation sources, such as roof-mounted solar photovoltaic (PV) panels, energy storage systems, and renewable hydrogen-fueled PEM fuel cells;
  - Installing electrolyzers to produce green hydrogen;
  - Integrating green hydrogen into compressor combustion fuel; and
  - Reduce emissions from company fleet vehicles by providing green hydrogen to fuel vehicles.

### 2.2 Overview

The MCM Project includes five primary components: 1) compressor system upgrade with the installation of new CGT and EDC equipment including ancillary equipment; 2) hydrogen electrolyzers and fuel blending equipment to integrate green hydrogen into compressor combustion fuel; 3) new green hydrogen vehicle fleet fueling station for company vehicles; 4) microgrid comprised of roof-mounted solar PV panels, an energy storage system, and hydrogen-fueled PEM fuel cells to provide supplemental electricity; and 5) other site improvements, including two new compressor buildings and one new warehouse building.

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<sup>6</sup> See Assembly Bill 32, Global Warming Solutions Act of 2006 (September 27, 2006); Senate Bill 32, Global Warming Solutions Act of 2006: Emissions Limit (September 8, 2016); Executive Order B-30-15 (April 29, 2015); and Executive Order B-55-18 To Achieve Carbon Neutrality (September 10, 2018).

SDG&E supports California's aggressive sustainability goals and on March 23, 2021, SDG&E announced a climate pledge of reaching Net Zero GHG emissions by 2045. See <https://www.sdge.com/more-information/environment/sustainability-approach>. Likewise, SoCalGas has committed to achieve net-zero GHG emissions in its operation and delivery of energy by 2045. See [https://www.socalgas.com/sites/default/files/2021-03/SoCalGas\\_Climate\\_Commitment.pdf](https://www.socalgas.com/sites/default/files/2021-03/SoCalGas_Climate_Commitment.pdf).

## 2.3 Proposed Modernization Project

The following sections provide a description of the existing compressor station components and proposed improvements to the facility. Specific details regarding the new compression equipment are included in Section 3 of this application package.

### 2.3.1 Existing Compressor Station

The facility is comprised of three compressor plants with supporting auxiliary equipment and buildings. Currently, the station has compression equipment with a total of 16,585 hp (rated), which is used to flow and compress natural gas into portions of Riverside County served by SoCalGas and San Diego County served by SDG&E. A summary of the three existing compressor plant configurations is described below.

Clark Plant: The Clark Plant was installed in the 1950s and is housed in a building that contains three compressor gas lean-burn engines, each rated at 995 hp.

Solar Plant: The Solar Plant was constructed in the 1970s and is housed in a building that contains four compressor gas turbines, each rated at 0.85 MWe (1,100 hp).

Cooper Plant: The Cooper Plant was constructed in the 1990s and is housed in a building that contains two compressor gas lean-burn engines, each rated at 3,000 hp, and one compressor gas lean-burn engine rated at 3,200 hp.

Emergency Generators: There are currently four natural gas-fired emergency engine generators at the facility rated at 200 hp, 200 hp, 329 hp, and 400 hp.

Ancillary equipment such as cooling towers, lube oil systems, and filter/separators support operation of the facility. Materials such as spare parts are stored on-site in a warehouse building.

### 2.3.2 Compressor Station Improvements

The proposed compressor station improvements include decommissioning the Clark Plant, the Solar Plant, and the two smaller Cooper units. A new hybrid compression plant comprised of two compressor buildings will be installed and referred to as Plant 4. When complete, the combined capacity of Plant 4 and the one remaining Cooper unit will provide compression sufficient for the station. Hydrogen electrolyzers and fuel blending equipment will integrate green hydrogen into compressor combustion fuel and a new green hydrogen vehicle fleet fueling station will be installed for company vehicles. Additionally, a microgrid and emergency generators will be installed to support the electrical loads of the facility. The modernized facility will include the following new equipment and buildings:

- Two new natural gas-fired CGT, each rated at 5,825 hp, with post-combustion emission control systems within a new compressor building;
- Two new electric motor-driven reciprocating compressors, each rated at 4,000 hp, within a new compressor building;

- Two new natural gas-fired emergency engine generators, each rated at 824 hp;
- Ancillary equipment to support compression equipment;
- Green hydrogen generation, storage, and blending equipment;
- Microgrid consisting of roof-mounted solar PV panels, energy storage systems, and renewable hydrogen-fueled PEM fuel cells;
- Green hydrogen fueling station for company vehicles; and
- Replacement of the existing warehouse with a new building of similar size.

Detailed information regarding the specific compression equipment is included in Section 3 of this application.

The 10,000-gallon vessel storing 19% aqueous ammonia will be used to support the emission reduction equipment. This tank is currently being permitted (A/N 619560) per a PTC application submitted to SCAQMD in February 2020.

The MCM Project includes the integration of green hydrogen into the fuel stream for combustion in the new CGTs, the use of green hydrogen to fuel company fleet vehicles, and the use of green hydrogen to power fuel cells. Green hydrogen will be produced via the electrolysis of water which occurs through an electrochemical reaction. This reliable process can produce ultra-pure green hydrogen in a non-polluting manner when renewable electricity is used in the electrolysis process. Green hydrogen will be piped to a Blending Skid, which will blend green hydrogen produced in the electrolyzers with pipeline natural gas to produce blended natural gas for combustion in the CGTs. Green hydrogen will also be piped to a green hydrogen-fueled PEM fuel cell supporting the microgrid operation at the facility. The microgrid includes roof-mounted solar PV panels, energy storage systems, and green hydrogen-fueled PEM fuel cells. In addition, green hydrogen will be piped to a fleet fueling station. The green hydrogen fueling station would include compressed gaseous hydrogen cylinders for direct dispensing to vehicles.

Green hydrogen that is not immediately needed to support the on-site compressor equipment, PEM fuel cells, or fleet vehicles will be stored on-site in pressure vessels. Water used in the electrolyzers will be purified by a potable water purification system. The electrolysis process can generate heat and, as such, a cooling system is also proposed.

#### **2.4 Transition to New Compression Equipment**

SDG&E/SoCalGas anticipate maintaining the existing Clark and Cooper engines and Solar Saturn CGTs onsite as a contingency for six to twelve months after the new CGTs and EDCs become operational to verify successful operations under a variety of operating conditions.



### 3.0 EQUIPMENT DESCRIPTION

#### 3.1 Compressor Gas Turbines

##### 3.1.1 Basic Equipment

The MCM Project includes installing two new 5,825-hp Solar Centaur Model 50 natural gas-fired CGTs, each with emission control systems consisting of SCR and oxidation catalyst. Each CGT will be accompanied by a skid-mounted lube oil system, oil coolers, start system (with a variable speed electric motor), inlet air filter, inlet air and exhaust silencers, and exhaust stack. Each CGT will be equipped with a CEMS and CEMS shelter.

The proposed CGT will be equipped with Solar's SoLoNO<sub>x</sub> technology to control NO<sub>x</sub> emissions within the turbine itself. Dry low emissions (DLE) or lean-premix combustion reduces the conversion of atmospheric nitrogen to NO<sub>x</sub> by reducing the combustor's flame temperature. Since NO<sub>x</sub> formation rates are strongly dependent on flame temperature, lowering this temperature is an effective strategy for reducing NO<sub>x</sub> emissions. Lean combustion is enhanced by premixing the fuel and combustor airflows upstream of the combustor's primary zone. DLE eliminates the need for water or steam injection.

Equipment specifications are listed in Table 3-1. Additional equipment information, including manufacturer's brochures and specification sheets, is provided in Appendix C.

**Table 3-1: Equipment Information**

Parameter	Data
Make	Solar Turbines Inc.
Model	Centaur 50 6100S
Power	5,825 hp
Heat Rate	56.3 MMBtu/hr
Exhaust Temperature	840°F
Axial Exhaust	Yes
SoLoNO <sub>x</sub>	Yes
Stack Dimensions	64'-6" high 6'-0" diameter

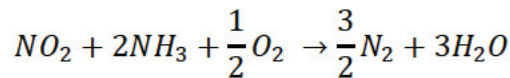
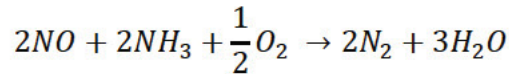
##### 3.1.2 Emission Control Equipment

The new Solar CGTs will each be equipped with an emissions control system comprised of an SCR and an oxidation catalyst. The catalyst housing at the CGT exhaust encloses the two catalyst beds. The first catalyst in the sequence is the oxidation catalyst, which is first in line due to the higher required operating temperature of the catalyst. The SCR catalyst follows. The NO<sub>x</sub> reducing agent will be 19% (by weight) aqueous ammonia, which will be supplied from an existing 10,000-gallon storage tank<sup>7</sup> (A/N 619560). The

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<sup>7</sup> An application has been filed with the SCAQMD for this tank. As of the date of submittal of this application for the MCM Project, the PTC has not been issued and the tank has not been installed. However, it is anticipated that the tank will be installed to support the Cooper No. 10 SCR in advance of approval of the MCM Project PTCs, thus for the purpose of the MCM Project, it will be existing.

aqueous ammonia is vaporized via the Aqueous Ammonia Vaporization Skid, comprised of a heater and a vaporizer. Ammonia vapor is introduced to the SCR catalyst bed via an ammonia injection grid located upstream of the SCR catalyst bed. The NO<sub>x</sub> reduction reaction takes place as the gases pass through the SCR catalyst chamber. Multiple chemical reactions occur when using ammonia in the SCR, including:



The control equipment specifications are summarized in Table 3-2; additional details are provided in Appendix C.

**Table 3-2: Control Equipment Specifications**

Catalyst	Proposed Catalyst Description
Oxidation Catalyst	BASF CAMEL, Platinum Braze metallic oxidation catalyst
SCR Catalyst	Cornmetech/CMHCDET, Titanium-Vanadium- Tungsten, Honeycomb Type

### 3.1.3 Continuous Emissions Monitoring System

A CEMS will be installed for NO<sub>x</sub> and O<sub>2</sub> in accordance with RECLAIM requirements (SCAQMD Rule 2012) or Rules 218, 218.1, 218.2 and 218.3, depending on when the facility exits RECLAIM. The NO<sub>x</sub> CEMS will control ammonia feed to the SCR using a feedback loop and the CO CEMS will be installed to monitor oxidation catalyst performance. The CEMS have not been specified yet and CEMS applications will be submitted at a later date.

### 3.1.4 Operating Schedule

The equipment operating schedule is shown in Table 3-3. As shown, the applicant is requesting up to 8 startups and shutdowns per day, 75 startups and shutdowns per month, and 900 startups and shutdowns per year, per CGT. Each startup and each shutdown are assumed to require 1 hour. The balance of time is assumed to be normal operations.

**Table 3-3: Operating Schedule**

Parameter	Daily	Monthly	Annual
Start up (each)	8	75	900
Startup Duration (hour/start)	1	1	1
Total Startup Duration (hours)	8	75	900
Shutdown (each)	8	75	900
Shutdown Duration (hour/start)	1	1	1
Total Shutdown Duration (hours)	8	75	900
Normal Operation (hours)	24	720	8,760

### 3.2 Emergency Generators

#### 3.2.1 Basic Equipment

The MCM Project includes installing two identical natural gas-fired emergency generator engines. Each engine is a Waukesha VHP Series Four, model F3524GSI, rated at 824 hp. The equipment specifications are summarized in Table 3-4; additional equipment information is provided in Appendix C.

**Table 3-4: Emergency Engine Specifications**

Parameter	Data
Make	Waukesha
Model	F3524GSI
Configuration	4SRB, turbocharged, aftercooled
Output Power	824 hp
Rated Fuel Consumption	7.32 MMBtu/hr (HHV)
Stack Height/Diameter	17'-2" H 11.64" Diameter with rain cap
Exhaust flow	4,126 acfm
Exhaust temperature	1185°F

#### 3.2.2 Control Equipment

The emergency engines will each be equipped with an EMPact emission control system including a three-way non-selective catalytic reduction (NSCR) catalyst and an air-to-fuel ratio controller. Oxygen (O<sub>2</sub>) sensors read pre- and post-catalyst exhaust composition to automatically adjust the engine's air-to-fuel ratio. Equipment specifications are summarized in Table 3-5. Additional control equipment information is provided in Appendix C.

**Table 3-5: Control Equipment**

Engine	Engine Controller	Proposed Catalyst Description
Waukesha 1	ESM2	Waukesha EMPact
Waukesha 2	ESM2	Waukesha EMPact

### 3.2.3 Operating Schedule

The operating schedule for the emergency engines is shown in Table 3-6.

**Table 3-6: Operating Schedule**

Parameter	Hr/Day	Hr/Month	Hr/Yr
Maintenance and Testing	1	4.2	50
Emergency Operation	24	–	200

### 3.3 Ancillary Equipment

The MCM Project includes the equipment listed in Table 3-7 in support of the new compression equipment; hydrogen production, storage, and use infrastructure; and the microgrid. These devices are not subject to permit by the SCAQMD; this list is provided for informational purposes to identify the full scope of the MCM Project.

**Table 3-7: Ancillary Project Equipment**

Description	Specification
Cooling Tower #5 (CGT)	TBD
Cooling Tower #6 (EDC)	TBD
Fresh Lube Oil Storage Tank (CGT Trains)	6'-0" ID x 15'-0" T/T; 3,600 gal
Fresh Lube Oil Storage Tank (EDC Trains)	6'-0" ID x 15'-0" T/T; 3,600 gal
Lube Oil Day Tank (CGT)	3'-0" ID x 5'-0" T/T; 300 gal
Lube Oil Day Tank (EDC)	3'-0" ID x 5'-0" T/T; 300 gal
Oily Waste Storage Tank	4'-0" ID x 10'-0" T/T; 1,065 gal
Brine Tank	TBD
Sulfuric Acid Tank (CT #5)	TBD
Sulfuric Acid Tank (CT #6)	TBD
Filter/Separator A	5'-0" DIA x 20'-0" T/T (Top Barrel); 2,940 gal 2'-0" DIA x 20'-0" T/T (Bottom Barrel); 470 gal
Filter/Separator B	5'-0" DIA x 20'-0" T/T (Top Barrel); 2,940 gal 2'-0" DIA x 20'-0" T/T (Bottom Barrel); 470 gal
Discharge Scrubber	5'-6" DIA x 10'-0" T/T; 2,100 gal
Condensate Drip Tank	5'-0" ID x 15'-0" T/T; 2,860 gal
Hydrogen Electrolyzers, Blending Skid, and Fueling Station (including cooling system)	TBD
Hydrogen Storage Pressure Vessels	90 horizontal tanks (34' T/T x 20" OD) 6 interior cascade tanks (7' T/T x 16" OD) 1 buffer tank (750 gal) 14 external storage horizontal tanks (TBD)
Potable Water Purification System	TBD
Microgrid comprised of roof mounted solar PV panels, energy storage systems, and renewable hydrogen-fueled PEM Fuel Cells	TBD

## 4.0 EMISSIONS

### 4.1 Compressor Gas Turbines

#### 4.1.1 Criteria Pollutants – Methodology

Emission standards are derived from rule requirements, the BACT determination (see Section 5.7.1), and manufacturer’s guarantees. The emission standards that are presented as concentrations [e.g., parts per million by volume, dry (ppmvd)] are converted to units of pounds per million standard cubic feet (lb/MMscf) according to Equation 1.

$$EF \left( \frac{lb}{MMscf} \right) = \left( \frac{ppm}{10^6} \right) \times HHV \times F - Factor \times Mol\ Wt \times \left( \frac{20.9}{20.9 - O_2\ Conc} \right) / MV \quad (Eq. 1)$$

Where:

HHV = Higher Heating Value (= 1,050 Btu/scf)

F-Factor = 8,710 scf/MMBtu

MW = Molecular weight

O<sub>2</sub> Conc = Oxygen correction (= 15%)

MV = Molar Volume (379 scf/lb-mol at 60°F)

Emission standards that are presented in units of pounds per million British thermal units (lb/MMBtu) are converted to units of lb/MMscf using Equation 2.

$$EF \left( \frac{lb}{MMscf} \right) = EF \left( \frac{lb}{MMBtu} \right) \times HHV \quad (Eq. 2)$$

The resulting emission factors are summarized in Table 4-1.

**Table 4-1: Criteria Pollutant Emission Factors**

Pollutant	Emission Standard	Emission Factor (lb/MMscf)	Basis
NO <sub>x</sub>	3.5 ppmvd @ 15% O <sub>2</sub>	13.76	Rule 1134
CO	8 ppmvd @ 15% O <sub>2</sub>	19.15	BACT
VOCs	4.3 ppmvd @ 15% O <sub>2</sub>	5.88	BACT
PM <sub>10</sub>	0.0066 lb/MMBtu (HHV)	6.93	Manufacturer’s Guarantee
SO <sub>x</sub>	0.0034 lb/MMBtu (HHV)	3.57	Manufacturer’s Guarantee

#### 4.1.2 Startup/Shutdown

Catalysts are not fully effective at emissions control until they are operating at temperature. Hourly emissions limits that must be met during normal operation cannot be met during a startup or shutdown. The startup sequence and attaining SoLoNO<sub>x</sub> combustion mode in the proposed CGTs takes three steps:

1. Purge-crank;
2. Ignition and acceleration to idle; and
3. Loading/thermal stabilization.

During the “purge-crank” step, rotation of the turbine shaft is accomplished with a starter motor to remove any residual fuel gas in the engine flow path and exhaust. During “ignition and acceleration to idle,” fuel is introduced into the combustor and ignited in a diffusion flame mode, and the engine rotor is accelerated to idle speed.

The third step consists of applying up to 50% load while allowing the combustion flame to transition and stabilize. Once 50% load is achieved, the turbine transitions to SoLoNO<sub>x</sub> combustion mode, and the engine control system begins to maintain the combustion primary zone temperature and limit pilot fuel to achieve the targeted NO<sub>x</sub>, CO, and VOCs emission levels. Startup to full control by the catalysts requires from 15 minutes to 1 hour, depending on the initial catalyst temperature.

Normal operational emissions limits for the CGTs may also not be achievable during shutdown because of the rapid transition of load, especially for NO<sub>x</sub> control with SCR systems that rely on ammonia injection. Typical, planned cooldown/shutdown duration varies by engine model. Once the shutdown process begins, the engine unloads and moves into a cooldown mode. Shutdown can sometimes be completed in just a few minutes but may take longer.

To simplify the daily and annual emission calculations and to provide hourly emissions for modeling purposes, all startups and all shutdowns are assumed to require one full hour. The duration of each step of startup and shutdown, along with NO<sub>x</sub>, CO, and VOCs emissions estimates for the various steps, are provided by the manufacturer. The CGTs are assumed to operate at full load for any portion of the startup or shutdown hour that a CGT operates with full catalyst control. PM<sub>10</sub> and SO<sub>x</sub> emissions are dependent on fuel flow only; PM<sub>10</sub> and SO<sub>x</sub> emissions are based on one hour of CGT operation at full load to ensure emissions are not underestimated. The hourly startup and shutdown emissions estimates are summarized in Table 4-2.

**Table 4-2: Startup and Shutdown Hourly Emissions**

Pollutant	Startup (lb/1-hr event)	Shutdown (lb/1-hr event)
NO <sub>x</sub>	1.91	0.99
CO	23.02	20.96
VOCs	3.28	4.29
PM <sub>10</sub>	0.37	0.37
SO <sub>x</sub>	0.19	0.19

#### 4.1.3 Sample NO<sub>x</sub> Emission Calculations

The NO<sub>x</sub> emission calculation methodology is explained below. The NO<sub>x</sub> emissions from one CGT are shown to illustrate the methodology and assumptions used in the calculations. The calculations for the remainder of the pollutants are similar; only the emission factor changes.

Average hourly uncontrolled and controlled emissions have no regulatory significance and are not calculated. Maximum hourly uncontrolled and maximum daily uncontrolled emissions have no regulatory significance and are not calculated.

Maximum Hourly Controlled (MHC)

Hourly controlled emissions (normal operations, i.e., not startup or shutdown hours) are based on the maximum fuel consumption rate and the controlled NO<sub>x</sub> emission factor (converted to units of lb/MMscf using the HHV of the fuel).

$$MHC \text{ (lb/hr)} = MMBtu/hr \times NO_x \text{ EF (lb/MMscf)} \div HHV \text{ (Btu/SCF)}$$

$$MHC = (56.3 \text{ MMBtu/hr} \times 13.76 \text{ lb/MMscf}) / 1,050 \text{ Btu/scf} = \underline{0.74 \text{ lb/hr}}$$

Maximum Daily Controlled (MDC)

Maximum daily controlled emissions would occur on a day during which the maximum of eight startups and eight shutdowns occur and the CGT runs at full load during the eight non-startup, non-shutdown hours. The maximum daily emissions rate is estimated as follows:

$$\text{Startup emissions} = 8 \text{ starts/day} \times 1 \text{ hr/start} \times 1.91 \text{ lb/start hr} = 15.27 \text{ lb/day}$$

$$\text{Shutdown emissions} = 8 \text{ stops/day} \times 1 \text{ hr/stop} \times 0.99 \text{ lb/stop hr} = 7.91 \text{ lb/day}$$

$$\text{Normal operating emissions} = 0.74 \text{ lb/hr} \times 8 \text{ hr/day} = 5.90 \text{ lb/day}$$

$$MDC = 15.27 \text{ lb/day} + 7.91 \text{ lb/day} + 5.90 \text{ lb/day} = \underline{29.08 \text{ lb/day}}$$

Average Annual (AA)

Average annual emissions were calculated based on maximum annual emissions which would occur during a year in which the maximum of 900 startups and 900 shutdowns occur, and the CGT runs at full load during the 6,960 non-startup, non-shutdown hours. The maximum annual emissions rate is estimated as follows:

$$\text{Startup emissions} = 900 \text{ starts/yr} \times 1 \text{ hr/start} \times 1.91 \text{ lb/start hr} = 1,717.46 \text{ lb/yr}$$

$$\text{Shutdown emissions} = 900 \text{ stops/yr} \times 1 \text{ hr/stop} \times 0.99 \text{ lb/stop hr} = 889.85 \text{ lb/yr}$$

$$\text{Normal operating emissions} = 0.74 \text{ lb/hr} \times 6,960 \text{ hr/year} = 5,135.90 \text{ lb/yr}$$

$$AA = 1,717.46 \text{ lb/yr} + 889.85 \text{ lb/yr} + 5,135.90 \text{ lb/yr} = \underline{7,743.21 \text{ lb/yr}}$$

30-Day Average (30-DA)

Thirty-day average monthly emissions were calculated based on maximum monthly emissions which would occur during a month in which the maximum of 75 startups and 75 shutdowns occur, and the CGT runs at full load during the 570 non-startup, non-shutdown hours. The maximum monthly emissions rate is estimated as follows:

$$\text{Startup emissions} = 75 \text{ starts/month} \times 1 \text{ hr/start} \times 1.91 \text{ lb/start hr} = 143.25 \text{ lb/month}$$

$$\text{Shutdown emissions} = 75 \text{ stops/month} \times 1 \text{ hr/stop} \times 0.99 \text{ lb/stop hr} = 74.25 \text{ lb/month}$$

$$\text{Normal operating emissions} = 0.74 \text{ lb/hr} \times 570 \text{ hr/month} = 421.8 \text{ lb/month}$$

$$\text{Monthly Total} = 143.25 \text{ lb/month} + 74.25 \text{ lb/month} + 421.8 \text{ lb/month} = 639.3 \text{ lb/month}$$

$$30\text{-DA} = 639.3 \text{ lb/month} / 30 \text{ day/month} = \underline{21.26 \text{ lb/day}}$$

#### 4.1.4 Summary of Criteria Pollutant Emissions

Criteria pollutant emissions for one CGT are summarized in Table 4-3; emissions for the second CGT are identical. Detailed calculations are provided in Appendix D.

**Table 4-3: Summary of Criteria Pollutant Emissions – One CGT**

Pollutant	MHC (lb/hr)	MDC (lb/day)	AA (lb/yr)	30-DA (lb/day)
NO <sub>x</sub>	0.74	29.08	7,743.21	21.26
CO	1.03	360.01	46,723.00	129.44
VOCs	0.32	63.12	9,012.05	24.93
PM <sub>10</sub>	0.37	8.92	3,255.04	8.92
SO <sub>x</sub>	0.19	4.59	1,676.84	4.59

#### 4.1.5 Toxic Air Contaminant Emissions – Methodology

TAC emissions will occur due to the combustion of natural gas in the CGTs. Emission factors for combustion contaminants are default emission factors from the SCAQMD Annual Emission Report program.<sup>8</sup> A control efficiency for the oxidation catalyst of 80% is applied to the published factors to estimate hourly and annual controlled TAC emissions. TAC emission factors are summarized in Table 4-4.

In addition, ammonia will be emitted via ammonia slip due to operation of the SCRs. The ammonia emission factor is calculated based on a BACT determination of 15 ppmv (see Section 5.7.1.1 and Appendix F). The concentration limit is converted to an emission factor using Equation 1 with the result being 21.81 lb/MMscf.

**Table 4-4: TAC Emission Factors**

Pollutant	CAS No.	Uncontrolled Emission Factor (lb/MMscf)
Benzene	71432	0.0122
1,3-Butadiene	106990	0.000439
Formaldehyde	50000	0.724
Naphthalene	91203	0.00133
Total PAHs (excl. naphthalene)	1151	0.000918
Acetaldehyde	75070	0.0408
Acrolein	107028	0.00653
Ammonia	7664417	21.81
Ethylbenzene	100414	0.0326
Propylene oxide	75569	0.0296
Toluene	108883	0.133
Xylene	1330207	0.0653

<sup>8</sup> South Coast Air Quality Management District, AB 2588 Quadrennial Air Toxics Emissions Inventory Reporting Procedures, Annual Emissions Reporting Program, June 2020, Appendix B, Table B-1.



#### 4.1.6 Sample TAC Emission Calculations

TAC emissions are calculated using the emission factors from Table 4-4. Sample calculations for benzene emissions from one CGT are presented below to illustrate the methods and assumptions used in the calculations. The calculations for the remaining TACs are similar.

##### Maximum Hourly Uncontrolled (MHU)

Hourly uncontrolled emissions are based on the maximum fuel consumption rate (converted to units of MMscf using the HHV of the fuel) and the uncontrolled emission factor.

$$MHU \text{ (lb/hr)} = MMBtu/hr \times NH_3 \text{ EF (lb/MMscf)} \div HHV \text{ (Btu/scf)}$$

$$MHU = (56.3 \text{ MMBtu/hr} \times 0.0122 \text{ lb/MMscf}) / 1,050 \text{ Btu/scf} = \underline{6.59 \text{ E-04 lb/hr}}$$

##### Maximum Hourly Controlled (MHC)

The controlled emissions are calculated by applying the control efficiency for the oxidation catalyst of 80% to the uncontrolled emissions.

$$MHC = MHU \times (1 - CE)$$

$$MHC = 6.59 \text{ E-04} \times (1 - 0.80) = \underline{1.32 \text{ E-04 lb/hr}}$$

##### Maximum Annual Controlled (MAC)

Annual emissions are based on the maximum hourly emissions for 8,760 hours per year.

$$MAC \text{ (lb/yr)} = MHC \times 8,760 \text{ hr/yr}$$

$$MAC = 1.32 \text{ E-04 lb/hr} \times 8,760 \text{ hr/yr} = \underline{1.15 \text{ lb/yr}}$$

#### 4.1.7 TAC Emissions Summary

TAC emissions are summarized for one CGT in Table 4-5; emissions for the second CGT are identical. Detailed emission calculations are provided in Appendix D.

**Table 4-5: Summary of TAC Emissions – One CGT**

Pollutant	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
Benzene	6.59E-04	1.32E-04	1.15E+00
1,3-Butadiene	2.37E-05	4.74E-06	4.12E-02
Formaldehyde	3.91E-02	7.82E-03	6.80E+01
Naphthalene	7.18E-05	1.44E-05	1.25E-01
Total PAHs (excl. Naphthalene)	4.96E-05	9.91E-06	8.62E-02
Acetaldehyde	2.20E-03	4.41E-04	3.83E+00
Acrolein	3.53E-04	7.05E-05	6.13E-01
Ammonia	1.18E+00	1.18E+00	1.02E+04
Ethylbenzene	1.76E-03	3.52E-04	3.06E+00
Propylene oxide	1.60E-03	3.20E-04	2.78E+00

Pollutant	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
Toluene	7.18E-03	1.44E-03	1.25E+01
Xylene	3.53E-03	7.05E-04	6.13E+00

## 4.2 Emergency Engines

### 4.2.1 Criteria Pollutants – Methodology

The engines will combust natural gas or blended natural gas and are expected to emit VOCs, NO<sub>x</sub>, CO, PM, and SO<sub>x</sub> during operation. The engine exhaust will be treated by an EMPact emissions control system including NSCR and AFRC. The BACT emission limits (see Section 5.7.1.2) were used for estimating emissions of VOCs, NO<sub>x</sub> and CO. PM and SO<sub>x</sub> emissions are estimated based on SCAQMD Annual Emissions Reporting program default emission factors for four-stroke, rich burn (4SRB), spark ignition, natural gas-fired engines.<sup>9</sup> Emission factors for the emergency engines are shown in Table 4-6.

**Table 4-6: Emergency Engine Criteria Pollutant Emission Factors**

Pollutant	Controlled Emission Factor	Units
NO <sub>x</sub>	0.15	g/bhp-hr
CO	0.6	g/bhp-hr
VOCs	0.15	g/bhp-hr
PM <sub>10</sub>	10.00	lb/MMscf
SO <sub>x</sub>	0.60	lb/MMscf

### 4.2.2 Sample Emission Calculations

Sample calculations are shown below for NO<sub>x</sub> emissions, which are based on the rated engine hp. Emission calculations for VOCs and CO are similar; only the emission factor changes.

Average hourly controlled emissions have no regulatory significance and are not calculated. Maximum hourly uncontrolled and maximum daily uncontrolled emissions have no regulatory significance and are not calculated.

#### Maximum Hourly Controlled (MHC)

$$MHC = \frac{0.15 \text{ g NO}_x}{\text{bhp} - \text{hr}} \times \frac{1 \text{ lb}}{453.6 \text{ g}} \times 824 \text{ bhp} = 0.27 \frac{\text{lb NO}_x}{\text{hr}}$$

#### Maximum Daily Controlled (MDC)

$$MDC = MHC \times 24 \text{ hr} = 6.54 \frac{\text{lb NO}_x}{\text{day}}$$

<sup>9</sup> South Coast Air Quality Management District, Annual Emissions Reporting, <http://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/combustion-emission-factors-2014.pdf?sfvrsn=8>

Average Annual (AA)

$$AA = MHC \times 200 \frac{hr}{yr} = 55.50 \frac{lb NO_x}{year}$$

30-Day Average (30-DA)

The 30-DA is based on the average maintenance and testing operation of 4.2 hours per month<sup>10</sup> divided by 30 days per month.

$$30-DA = MHC \times 4.2 \frac{hr}{month} \div 30 \text{ day/month} = 0.04 \frac{lb NO_x}{day}$$

Sample calculations are shown below for PM<sub>10</sub> emissions, which are based on the maximum fuel flow to the engines. Emission calculations for SO<sub>x</sub> are similar; only the emission factor changes. For these pollutants, controlled and uncontrolled emissions are equal.

Maximum Hourly Controlled (MHC)

$$MHC = \frac{10.00 \text{ lb PM}_{10}}{\text{mmscf}} \times 7.32 \frac{\text{mmBtu}}{\text{hr}} \div 1050 \text{ Btu/scf} = 0.07 \frac{\text{lb PM}_{10}}{\text{hour}}$$

Maximum Daily Controlled (MDC)

$$MDC = MHC \times 24 \text{ hr} = 1.67 \frac{\text{lb PM}_{10}}{\text{day}}$$

Average Annual (AA)

$$AA = MHC \times 200 \text{ hr/yr} = 13.91 \frac{\text{lb PM}_{10}}{\text{year}}$$

30-Day Average (30-DA)

The 30-DA is based on the average maintenance and testing operation of 4.2 hours per month divided by 30 days per month.

$$30-DA = MHC \times 4.2 \frac{hr}{month} \div 30 \text{ day/month} = 0.01 \frac{\text{lbs PM}_{10}}{\text{day}}$$

**4.2.3 Summary of Criteria Pollutant Emissions**

Table 4-7 summarizes criteria pollutant emissions from the operation of one emergency engine. Emissions from the second emergency generator engine are identical. Detailed emission calculations are provided in Appendix D.

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<sup>10</sup> Monthly maintenance and testing hours: 50 hr/yr ÷ 12 month/yr = 4.2 hr/month.

**Table 4-7: Criteria Pollutant Emissions – One Emergency Engine**

Pollutant	MHC (lb/hr)	MDC (lb/day)	AA (lb/yr)	30DA (lb/day)
NO <sub>x</sub>	0.27	6.54	54.50	0.04
CO	1.09	26.16	217.99	0.15
VOCs	0.27	6.54	54.50	0.04
PM <sub>10</sub>	0.07	1.67	13.91	0.01
SO <sub>x</sub>	0.0042	0.10	0.84	0.0006

#### 4.2.4 Toxic Air Contaminant Emissions – Methodology

TACs are emitted during the operation of the emergency engines. Emission factors for combustion contaminants are the published emission factors from the SCAQMD Annual Emission Report program for natural gas-fired 4SRB engines.<sup>11</sup> A control efficiency for the 3-way catalyst of 76%<sup>12</sup> is applied to derive controlled emissions. Table 4-8 summarizes the TAC emission factors.

**Table 4-8: Emergency Engine TAC Emission Factors**

Pollutant	CAS No.	Emission Factor (lb/MMscf)
Benzene	71432	1.61
1,3-Butadiene	106990	0.676
Formaldehyde	50000	20.9
Naphthalene	91203	0.099
Acetaldehyde	75070	2.85
Acrolein	107028	2.68
Ethylbenzene	100414	0.0253
Methanol	67561	3.12
Styrene	100425	0.0121
Toluene	108883	0.569
Xylene	1330207	0.199

#### 4.2.5 Sample TAC Emission Calculations

TAC emissions were calculated using the emission factors from Table 4-8. Sample calculations for benzene emissions from one emergency engine are presented below to

<sup>11</sup> South Coast Air Quality Management District, AB 2588 Quadrennial Air Toxics Emissions Inventory Reporting Procedures, Annual Emissions Reporting Program, June 2020, Table B-1, with the following adjustments: chlorinated compounds have been omitted because natural gas does not contain chlorine, and ammonia has been omitted as the system has no SCR and ammonia is unlikely to form in the oxidizing environment of the combustion chamber.

<sup>12</sup> Control Efficiency for catalyst on emergency engines is from San Joaquin Valley Air Pollution Control District, AB 2588 “Hot Spots” Air Toxics Profiles, District Toxic Profile # 240.

illustrate the methods and assumptions used in the calculations. The calculations for the remaining TACs are similar; only the emission factor changes.

**Maximum Hourly Uncontrolled (MHU)**

Hourly uncontrolled emissions are based on the maximum fuel consumption rate and the uncontrolled benzene emission factor (converted to units of MMscf using the HHV of the fuel).

$$MHU \text{ (lb/hr)} = MMBtu/hr \times EF \text{ (lb/MMscf)} \div HHV \text{ (Btu/scf)}$$

$$MHU = (7.32 \text{ MMBtu/hr} \times 1.61 \text{ lb/MMscf}) / 1,050 \text{ Btu/scf} = \underline{1.12 \text{ E-02 lb/hr}}$$

**Maximum Hourly Controlled (MHC)**

The controlled emissions are calculated by applying the 76% control efficiency for the NSCR to the uncontrolled emissions.

$$MHC = MHU \times (1 - CE)$$

$$MHC = 1.12 \text{ E-02} \times (1 - 0.76) = \underline{2.69 \text{ E-03 lb/hr}}$$

**Maximum Annual Controlled (MAC)**

Annual emissions are based on the maximum hourly emissions for 200 hours per year.

$$MAC = 2.69 \text{ E-03 lb/hr} \times 200 \text{ hr/yr} = \underline{0.539 \text{ lb/yr}}$$

**4.2.6 TAC Emissions Summary**

TAC emissions are summarized for one emergency engine in Table 4-9; emissions for the second emergency engine are identical. Detailed emission calculations are provided in Appendix D.

**Table 4-9: Summary of TAC Emissions – One Emergency Engine**

Pollutant	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
Benzene	1.12E-02	2.69E-03	5.39E-01
1,3-Butadiene	4.71E-03	1.13E-03	2.26E-01
Formaldehyde	1.46E-01	3.50E-02	7.00E+00
Naphthalene	6.90E-04	1.66E-04	3.31E-02
Acetaldehyde	1.99E-02	4.77E-03	9.54E-01
Acrolein	1.87E-02	4.49E-03	8.97E-01
Ethylbenzene	1.76E-04	4.23E-05	8.47E-03
Methanol	2.18E-02	5.22E-03	1.04E+00
Styrene	8.44E-05	2.03E-05	4.05E-03
Toluene	3.97E-03	9.52E-04	1.90E-01
Xylene	1.39E-03	3.33E-04	6.66E-02

## 5.0 RULE COMPLIANCE EVALUATION

### 5.1 Regulation II – Permits

#### 5.1.1 Rule 212, Standards for Approving Permits and Issuing Public Notice

Rule 212(c) requires public notice for:

- (c)(1) A project requesting installation of a new source or modification of an existing source, if the source is located within 1,000 feet of the outer boundary of a school;
- (c)(2) A project resulting in a new or modified facility with on-site emission increases exceeding any of the daily maximums from Rule 212(g); or
- (c)(3) A project requesting installation of a new source or modification of an existing source, if the emission increases result in exposure to Maximum Individual Cancer Risk (MICR) greater than or equal to the applicable thresholds in (c)(3)(A), or substances that pose a potential risk of nuisance.

As discussed in Section 1.1.3, the MCM Project sources are not located within 1,000 feet of the outer boundary of a school.

Rule 212(g) lists daily maximum emissions increases for criteria pollutants. The daily emissions increases are compared to the Rule 212(g) thresholds in Table 5-1. As shown, the daily emissions changes resulting from the MCM Project are reductions of NO<sub>x</sub>, CO, VOCs, and PM<sub>10</sub> and are less than the rule limits for SO<sub>x</sub>.

**Table 5-1: Rule 212(g) Threshold Comparison**

Pollutant	Rule 212(g) Threshold (lb/day)	Project Change <sup>13,14</sup> (lb/day)	Exceed Threshold? (Yes/No)
NO <sub>x</sub>	40	-14.33	No
CO	220	-447.26	No
VOCs	30	-0.67	No
PM <sub>10</sub>	30	-30.90	No
SO <sub>x</sub>	60	6.87	No

As explained in Section 5.8, the MCM Project would not result in MICR greater than or equal to the applicable thresholds in (c)(3)(A).

Because the MCM Project does not exceed any of the criteria for public notice, public notice is not required.

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<sup>13</sup> Project change is the post-project PTE less the pre-project emissions calculated per Rule 1306. For the Clarks and Solar Saturns, the pre-project emissions are BACT adjusted historic actuals [per 1306(d)(2)(B)]; for Coopers Nos. 8 and 9, the pre-project emissions are Rule-adjusted PTE [1306(d)(2)(A)]. Pre-project emissions from Cooper No. 10 are permitted emissions since the Cooper No. 10 retrofit is scheduled for completion prior to undertaking the MCM Project. The net project change is shown in Table D-4 in Appendix D.

<sup>14</sup> Emergency engines have been excluded from the threshold comparison.

**5.1.2 Rule 218 Series, Continuous Emission Monitoring**

The provisions of this rule do not apply to the proposed NO<sub>x</sub> or CO CEMS for the proposed combustion gas turbines. For NO<sub>x</sub>, the Rule 218 series do not apply since the facility is still subject to Regulation XX – “Regional Clean Air Incentives Market (RECLAIM)” until the facility exits RECLAIM. SDG&E/SoCalGas are proposing a NO<sub>x</sub> CEMS that meets the requirements of Rule 2012 to comply with RECLAIM requirements (see Section 5.9.3).

The CO CEMS is proposed to monitor the performance of the oxidation catalyst and not to ensure compliance with any rule limit; therefore, the CO CEMS is not subject to the requirements of the Rule 218 series per paragraph (b)(1)(B) of that rule. Specifically, if a unit is not subject to Rule 218(b)(1)(B), then it is not subject to Rules 218.1, 218.2, or 218.3.

**5.1.3 Rule 219, Equipment Not Requiring a Written Permit Pursuant to Regulation II**

The purpose of this rule is to identify equipment, processes, or operations that emit small amounts of air contaminants that shall not require written permits, unless such equipment, process, or operation is subject to subdivision (s) – Exceptions. In addition, exemptions from written permit requirements in this rule are only applicable if the equipment, process, or operation is in compliance with subdivision (t) of the Rule.

The MCM Project will consist of constructing and/or installing buildings and equipment in support of the new compression equipment. The list of equipment that does not require a permit, along with the Rule 219 permit exemption applicable to each device, is provided in Appendix E.

**5.2 Regulation III – Fees; Rule 301, Permit Fees**

The application processing fees were determined using Rule 301. The identical equipment discount available via Rule 301(e)(1)(E) is applied to one CGT with associated control system and one emergency engine with associated control system. SDG&E/SoCalGas requests Expedited Permit Processing for these applications. Application fees are summarized in Table 5-2.

**Table 5-2: Application Fees**

Equipment/Item	Rule 301 Description	Schedule	Requested Permit Action	Fee
Compressor Gas Turbine No. 1	Gas Turbine, <= 50 MW, other fuel	D	Permit Processing	\$8,058.23
Control System No. 1	Control Systems, two in series	C	Permit Processing	\$5,838.57
Compressor Gas Turbine No. 2	Gas Turbine, <= 50 MW, other fuel	D, identical	Permit Processing	\$4,029.12
Control System No. 2	Control Systems, two in series	C, identical	Permit Processing	\$2,919.29
Emergency Engine No. 1	IC Engine, Emergency	B	Permit Processing	\$3,691.30
EMPAc Control System No. 1	Non-Selective Catalytic Reduction	B	Permit Processing	\$3,691.30

Equipment/Item	Rule 301 Description	Schedule	Requested Permit Action	Fee
Emergency Engine No. 2	IC Engine, Emergency	B, identical	Permit Processing	\$1,845.65
EMPact Control System No. 2	Non-Selective Catalytic Reduction	B, identical	Permit Processing	\$1,845.65
Subtotal				\$31,919.11
XPP (Rule 301(V)(1))				\$15,959.55
Facility Permit Amendment (Rule 301, Table VII)				\$2,729.86
<b>Total</b>				<b>\$50,608.52</b>

### 5.3 Regulation IV – Prohibitions

#### 5.3.1 Rule 401, Visible Emissions

Rule 401 prohibits the discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or of such opacity as to obscure an observer’s view to a degree equal to or greater than does smoke described in subparagraph (b)(1)(A) of this rule.

The CGTs and emergency engines will burn natural gas or blended natural gas; therefore, visible emissions are not expected from these sources. Compliance is expected.

#### 5.3.2 Rule 402, Nuisance

Rule 402 prohibits the discharge of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The CGTs and emergency engines will burn natural gas or blended natural gas and will operate using emission controls for NO<sub>x</sub>, CO, VOCs, and organic TACs; therefore, nuisance is not expected due to the operation of these sources.

#### 5.3.3 Rule 404, Particulate Matter Concentration

Rule 404 prohibits discharge into the atmosphere of particulate matter in excess of the concentration at standard conditions shown in Table 404(a). The rule prohibits the discharge into the atmosphere, from any source, of particulate matter in excess of 450 milligrams per cubic meter (0.196 grain per cubic foot) in discharged gas calculated as dry gas at standard conditions.

The provisions of this rule do not apply to emissions resulting from the combustion of liquid or gaseous fuels in gas turbines.



The emergency engines each have emissions of 0.07 pounds per hour and combust 7.32 MMBtu per hour. The stack concentration of PM<sub>10</sub> is estimated as follows:

$$\text{Stack flow} = 7.32 \frac{\text{MMBtu}}{\text{hr}} \times 8,710 \frac{\text{scf}}{\text{MMBtu}} \times \frac{20.9}{(20.9 - 15)} = 225,852 \text{ scf/hr}$$

$$\text{Stack Concentration} = 0.07 \frac{\text{lb}}{\text{hr}} \times 7,000 \frac{\text{gr}}{\text{lb}} \div 225,852 \frac{\text{scf}}{\text{hr}} = 0.002 \text{ gr/dscf}$$

For a stack flow of 3,764 scfm (= 225,852 scf/hr / 60 min/hr), the rule limit is 0.117 gr/dscf. The stack concentration of PM<sub>10</sub> from the emergency engines is 0.002 gr/dscf; therefore, compliance is demonstrated.

#### **5.3.4 Rule 407, Liquid and Gaseous Air Contaminants**

Rule 407 prohibits the discharge into the atmosphere of CO exceeding 2,000 ppmv measured on a dry basis, averaged over 15 consecutive minutes, or sulfur compounds which would exist as liquid or gas at standard conditions, calculated as sulfur dioxide (SO<sub>2</sub>) and averaged over 15 consecutive minutes, exceeding 500 ppmv.

The provisions of this rule do not apply to emissions from stationary engines. The sulfur limits of this rule do not apply to equipment which is subject to the emission limits and requirements of source-specific rules in Regulation XI, or equipment which complies with the gaseous fuel sulfur content limits of Rule 431.1.

The CGTs will meet BACT emission limits for CO emissions of 8 ppmvd and, therefore, will comply with the CO limits of this rule. The CGTs are subject to Rule 1134 and Rule 431.1; therefore, the CGTs are not subject to the sulfur limits of this rule.

The stationary emergency engines are not subject to the provisions of Rule 407 pursuant to paragraph (b)(1) of this rule.

#### **5.3.5 Rule 409, Combustion Contaminants**

Rule 409 prohibits the discharge from the burning of fuel combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12% carbon dioxide (CO<sub>2</sub>) at standard conditions averaged over a minimum of 15 consecutive minutes.

This rule applies to the CGTs. The stack concentration is calculated as follows:

$$\text{Stack flow} = 56.30 \frac{\text{MMBtu}}{\text{hr}} \times 8,710 \frac{\text{scf}}{\text{MMBtu}} \times \frac{20.9}{(20.9 - 15)} = 1,737,084 \frac{\text{scf}}{\text{hr}}$$

$$\text{Stack Concentration} = 0.37 \frac{\text{lb}}{\text{hr}} \times 7,000 \frac{\text{gr}}{\text{lb}} \div 1,737,084 \frac{\text{scf}}{\text{hr}} = 0.0015 \text{ gr/dscf}$$

As shown, the stack concentration of 0.0015 gr/dscf is less than the rule limit of 0.1 gr/dscf. Therefore, compliance is demonstrated.

The provisions of this rule do not apply to emissions from the emergency engines.

### **5.3.6 Rule 429, Startup and Shutdown Exemption Provisions for Oxides of Nitrogen**

SDG&E/SoCalGas are requesting permit conditions in accordance with Rule 1134(d)(5); thus, the equipment will not be subject to the duration or number of startups or shutdowns specified in Rule 429. The requested number of startups/shutdowns is 8 per day, 75 per month, and 900 per year.

This rule does not apply to the emergency engines.

### **5.3.7 Rule 431.1, Sulfur Content of Gaseous Fuels**

The purpose of this rule is to reduce SO<sub>x</sub> emissions from the burning of gaseous fuels in stationary equipment requiring a Permit to Operate by the SCAQMD. This rule prohibits the transfer, sale, or offer for sale for use in the SCAQMD of natural gas containing sulfur compounds calculated as hydrogen sulfide in excess of 16 ppmv.

The proposed CGTs will combust natural gas or blended natural gas and will comply with the rule requirements.

## **5.4 Regulation IX – Standards of Performance for New Stationary Sources**

Regulation IX, New Source Performance Standards (NSPS), was adopted by reference to the appropriate section of the Code of Federal Regulations (CFR). These regulations are periodically updated to reflect actions published in the Federal Register (FR) by the United States Environmental Protection Agency (EPA). Applicability of and compliance with federal requirements are discussed in Section 5.12.

## **5.5 Regulation X – National Emission Standards for Hazardous Air Pollutants**

Regulation X, National Emission Standards for Hazardous Air Pollutants (NESHAP), was adopted by reference to Parts 61 and 63 of Title 40 of the CFR. These regulations are periodically updated to reflect actions published in the FR by the EPA. Applicability of and compliance with federal requirements are discussed in Section 5.12.

## **5.6 Regulation XI – Source Specific Standards**

### **5.6.1 Rule 1100, Implementation Schedule for NO<sub>x</sub> Facilities**

The purpose of this rule is to establish the implementation schedule for RECLAIM and former RECLAIM facilities that are transitioning to the command-and-control regulatory structure. This rule applies to any owner or operator of a RECLAIM or former RECLAIM facility that owns or operates equipment that meets the applicability provisions specified in Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines. Because the Moreno Compressor Station is a RECLAIM facility that operates engines that are subject to Rule 1110.2, Rule 1100 applies to the facility and the MCM Project.

Rule 1100 provides the implementation schedule for the Rule 1110.2 requirements applicable to the existing Cooper and Clark compressor engines. Specifically, Rule 1100(d)(3) provides that compressor gas lean-burn engines that are being retrofitted, submit a PTC application to the SCAQMD before July 1, 2021, to meet the applicable NO<sub>x</sub> concentration limit specified in Rule 1110.2 paragraph (d)(1) within 24 months of receiving the PTC. The PTC application for retrofitting Cooper No. 10 with SCR to meet the Rule 1110.2 emission limits was submitted in February 2020.

Alternatively, per Rule 1100(d)(4), the compressor engines may be retired in accordance with a detailed Retirement Plan that is submitted no later than July 1, 2021, and permanently removed from service pursuant to the implementation schedule in Rule 1134 paragraph (d)(4).

SDG&E/SoCalGas are submitting a Retirement Plan for the three Clark engines and two remaining Cooper engines per the installation schedule of the CGTs that are the subject of this application package. The Retirement Plan is being submitted under separate cover at the same time as this PTC application package.

### ***5.6.2 Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines***

Rule 1110.2 applies to stationary and portable engines rated over 50 hp and imposes NO<sub>x</sub>, VOC, and CO emission limits.

The provisions of this rule do not apply to emergency standby engines that have permit conditions limiting operation to 200 hours or less per year as determined by an elapsed operating time meter. SDG&E/SoCalGas are requesting a condition limiting emergency engine operations to 200 hours per year; thus, the emergency engines would not be subject to the Rule 1110.2 emission standards.

The existing Clark and Cooper engine compressors are subject to Rule 1110.2 requirements. An application for retrofitting Cooper No. 10 with SCR to meet the Rule 1110.2 emission limits was submitted in February 2020. SDG&E/SoCalGas is submitting a Retirement Plan for the three Clark engines and two remaining Cooper engines per the installation schedule of the CGTs that are the subject of this application package. The Retirement Plan is being submitted under separate cover at the same time as this PTC application package.

### ***5.6.3 Rule 1134, Emissions of NO<sub>x</sub> from Stationary Gas Turbines***

The purpose of this rule is to reduce emissions of NO<sub>x</sub> from stationary gas turbines. The provisions of this rule apply to all stationary gas turbines 0.3 MWe and larger.

This rule limits emissions from CGTs to 3.5 ppmvd NO<sub>x</sub> based on a 3-hour rolling averaging period. The MCM Project would replace the existing CGTs with new CGTs that meet these emission limits.

Emissions monitoring will comply with Rule 218 or Rule 2012 requirements, as appropriate; please see Section 5.9 for more details.

Rule 1134(d)(5) provides that no later than January 1, 2024, the permit will include limitations for duration, mass emissions, and/or number of startups, shutdowns, and tunings. SDG&E/SoCalGas have specified the number and duration of startups and shutdowns required for operation of the CGTs in Section 3 of this application and request that these values serve as the basis for the permit conditions.

SDG&E/SoCalGas submitted an application in February 2020 to retrofit one Cooper compressor engine in order to support compliance with Rule 1134(d)(9)(B)(v), which requires a “demonstration that actual facility NO<sub>x</sub> emissions will decrease by at least an average of 25% in the two years prior to the extension request in comparison to 2017 facility emissions.” Completing the SCR installation early on the Cooper No. 10 engine

compressor is intended to allow for the flexibility to seek up to an additional 12 months to meet the Rule 1134 NO<sub>x</sub> and ammonia emission limits for proposed CGTs.

## 5.7 Regulation XIII – New Source Review

This regulation sets forth pre-construction review requirements for new, modified, or relocated facilities to ensure that the operation of such facilities does not interfere with progress in attainment of the national ambient air quality standards (NAAQS), and that future economic growth within the SCAQMD is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors. In addition to nonattainment air contaminants, this regulation also limits emission increases of ammonia and Ozone-Depleting Compounds from new, modified, or relocated facilities by requiring the use of BACT.

### 5.7.1 Rule 1303, Requirements

The BACT, modeling, and offset requirements of Regulation XIII are addressed in this section for emissions of CO, VOCs, PM<sub>10</sub>, and SO<sub>x</sub>. Because the facility is still a RECLAIM facility, New Source Review requirements per Regulation XX for NO<sub>x</sub> are discussed in Section 5.9.

The MCM Project does not result in any facility-wide net emission increases of nonattainment pollutants as calculated per Rule 1306(d)(2). Therefore, the proposed Project does not trigger modeling or offset requirements per Rule 1303(b).

#### 5.7.1.1 Best Available Control Technology

##### Compressor Gas Turbines

CGTs are a unique class of gas turbines. Operations are characterized by variable and transient load requirements, which results in temperature fluctuation in the oxidation catalyst that is not experienced with other turbine applications (e.g., power plants). There are few other CGTs in operation in California. A recent permitting action at the SoCalGas Blythe facility (MDAQMD Federal Operating Permit No. 3101437) is the most recent, representative example of emission limits that have been permitted in California for the size and class of gas turbines proposed for the MCM Project. Consistent with the Blythe project and the existing units at the SoCalGas Wheeler Ridge facility, the BACT standards are 8 ppmvd for CO and 4.3 ppmvd for VOCs, each at 15% excess O<sub>2</sub>. An ammonia slip limit of 15 ppm is proposed. A more exhaustive discussion of the factors influencing the ability of the CGT to meet the proposed BACT emission limits is provided in Appendix F.

BACT for SO<sub>x</sub> and PM<sub>10</sub> is the use of natural gas fuel. Because the proposed CGTs will be fired on natural gas or blended natural gas, BACT is satisfied.

##### Emergency Engines

Because maximum daily uncontrolled emissions (MDU) of NO<sub>x</sub>, CO, VOCs, and PM<sub>10</sub> from the proposed emergency engines are predicted to exceed 1.0 pound per day, BACT would be required for those pollutants. The requirements, which are provided in the SCAQMD BACT Guidelines for Major Polluting Facilities, are provided in Table 5-3. As shown, the proposed emissions comply with BACT requirements.

**Table 5-3: BACT Determination – Emergency, Spark Ignition Engine**

Pollutant	BACT Standard <sup>15,16</sup>	Proposed Emission Limit	Complies? (Yes/No)
NO <sub>x</sub>	0.15 g/bhp-hr	0.15 g/bhp-hr	Yes
VOCs	0.15 g/bhp-hr	0.15 g/bhp-hr	Yes
CO	0.60 g/bhp-hr	0.60 g/bhp-hr	Yes
PM	Part C Clean Fuels Policy	Natural gas 10.00 lb/MMscf	Yes
SO <sub>x</sub>	Part C Clean Fuels Policy	Natural gas 0.60 lb/MMscf	Yes

### 5.7.1.2 Modeling

The modeling requirements for CO, VOC, PM<sub>10</sub>, and SO<sub>x</sub> are contained in Rule 1303(b)(1). This rule requires that a demonstration be provided for any new or modified source which results in a facility-wide net emission increase of any non-attainment air contaminant at a facility. As shown in Table 5-1 and Appendix D, the MCM Project does not result in a facility-wide net emission increase of any non-attainment air contaminant, i.e., PM<sub>10</sub> and VOC, and since CO and SO<sub>x</sub> are attainment pollutants, modeling is not required for CO, VOC, PM<sub>10</sub>, or SO<sub>x</sub>. Specifically, modeling is not required for the MCM Project for these four pollutants as follows:

- Rule 1303, Appendix A specifies that modeling of VOC and SO<sub>x</sub> emissions is not required.
- Modeling is not required for PM<sub>10</sub> because: 1) there is a large facility-wide net emission decrease for PM<sub>10</sub> and 2) the hourly emissions during normal operations are below the screening thresholds in Rule 1303 Appendix A, Table A-1 for combustion sources greater than 30 MMBtu per hour. Either of these two qualifications alone would suffice; thus, modeling is not required for PM<sub>10</sub>.
- Modeling is not required for CO because: 1) CO is an attainment pollutant, 2) there is a substantial facility-wide net emission decrease of CO, and 3) the hourly emissions during startup and shutdown, as well as normal operations, are below the screening thresholds in Rule 1303 Appendix A, Table A-1 for combustion sources greater than 30 MMBtu per hour. Any of these three qualifications would suffice alone; thus, modeling is not required for CO.

As discussed in Section 5 of this permit application package, pursuant to Rules 1304(a)(4) and 2005(k)(5), modeling is not required for emergency equipment that does not operate more than 200 hours per year. Operation of the proposed emergency generators will be

<sup>15</sup> SCAQMD BACT Determinations, Equipment Category – I.C. Engine - Emergency, Spark Ignition, Application No.: 359876, 10/2/1999 (Applicable to NO<sub>x</sub>, CO, VOC).

<sup>16</sup> SCAQMD BACT Guidelines, Part C, Clean Fuels Policy, February 5, 2021 (Applicable to PM<sub>10</sub> and SO<sub>x</sub>).

limited to 200 hours per year and, therefore, modeling is not required for the two new emergency engines.

#### 5.7.1.3 Offsets

The MCM Project does not result in a facility-wide net emission increase of any non-attainment air contaminant. Therefore, offsets are not required as specified in Rule 1303(b).

Furthermore, the MCM Project is being conducted solely to comply with SCAQMD rule requirements and does not result in an increase in maximum rating of the equipment. Therefore, the MCM Project is exempt from offset requirements per Rule 1304(c)(4).

Pursuant to Rule 1304(a)(4), offsets are not required for emergency standby equipment, provided the source does not operate more than 200 hours per year as evidenced by an engine-hour meter or equivalent method. The proposed emergency engines will be limited to operating 200 hours per year or less and will be equipped with engine-hour meters. Therefore, offsets are not required for the emergency engines.

#### 5.7.2 Rule 1325, Federal PM<sub>2.5</sub> New Source Review Program

This rule applies to any new major polluting facility, major modifications to a major polluting facility, and any modification to an existing facility that would constitute a major polluting facility in and of itself that will emit PM<sub>2.5</sub> or its precursors, as defined in the rule, located in areas federally designated pursuant to 40 CFR §81.305 as nonattainment for PM<sub>2.5</sub>.

A Major Polluting Facility means, on a pollutant-specific basis, any emissions source located in areas federally designated pursuant to 40 CFR 81.305 as nonattainment for PM<sub>2.5</sub>, including the South Coast Air Basin, which has actual emissions of or the potential to emit PM<sub>2.5</sub> or its precursors at or above 70 tons per year (TPY), per pollutant. The Moreno Compressor Station PM<sub>2.5</sub> PTE is currently 15.4 TPY<sup>17</sup>. Thus, the facility is not an existing major polluting facility.

With respect to major modifications, this rule applies on a pollutant-specific basis to emissions of PM<sub>2.5</sub> and its precursors in areas federally designated as nonattainment for PM<sub>2.5</sub>, for which: 1) the source is major, 2) the modification results in a significant increase, and 3) the modification results in a significant net emissions increase. The MCM Project is not a major modification to a major polluting facility since the facility is not an existing major polluting facility.

In terms of a modification that would constitute a major polluting facility in and of itself, the MCM Project will not emit PM<sub>2.5</sub> or its precursors (such as ammonia) greater than 70 TPY per pollutant. The MCM Project itself will reduce PM<sub>2.5</sub> emissions from the facility by approximately 3 tons per year (PTE basis). NO<sub>x</sub> is a precursor of PM<sub>2.5</sub>, and the proposed Project will have an approximate 9 TPY decrease in NO<sub>x</sub> PTE compared to the facility pre-project PTE. The increase in PTE for PM<sub>2.5</sub> precursors ammonia and SO<sub>x</sub> from the MCM Project will be about 7 TPY and 13 TPY, respectively. The net increase in PM<sub>2.5</sub> plus precursors will be approximately 8 TPY, PTE basis. An 8-ton increase does not constitute a major modification.

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<sup>17</sup> PM<sub>2.5</sub> is assumed to be equal to PM<sub>10</sub> emissions for combustion of natural gas.

In summary, the facility is not an existing major polluting facility for PM<sub>2.5</sub>, the MCM Project is not a major modification, and it will not cause a significant increase in emissions of PM<sub>2.5</sub> or its precursors. Therefore, the provisions of Rule 1325 do not apply to the MCM Project.

### 5.8 Regulation XIV – Toxics and Other Non-Criteria Pollutants; Rule 1401, New Source Review for Air Toxics

Rule 1401 imposes limits for MICR, cancer burden, and non-cancer acute and chronic hazard indices (HIA and HIC, respectively) from new permit units, relocations, or modifications to existing permit units that emit TACs listed in Table I of this rule. This rule establishes allowable risks for permit units requiring new permits pursuant to Rules 201 or 203.

The MCM Project is expected to result in TAC emissions from the combustion of natural gas, and ammonia emissions due to ammonia slip. Potential health risk impacts are evaluated using the Tier 2 methodology and the SCAQMD Risk Tool (V1.103) R040919 – South Coast AQMD Procedure 8.1. The distances to the nearest residential and commercial receptors are 1,800 meters and 2,400 meters, respectively. The nearest station with meteorological data is in Perris, CA.

A summary of Tier 2 risk results is provided in Table 5-4. Risk calculation worksheets are provided in Appendix G.

**Table 5-4: Summary of Health Risk Assessment Results – One CGT**

Risk Parameter	Result (unitless)	Rule 1401 Threshold (unitless)	Pass/Fail
MICR	2.25E-07	10E-06	Pass
Maximum Cancer Risk – Worker	7.68E-09	10E-06	Pass
HIA – residential	1.52E-03	1.0	Pass
HIA – worker	1.52E-03	1.0	Pass
HIC – residential	2.13E-03	1.0	Pass
HIC – worker	2.13E-03	1.0	Pass
8-hour HIC – residential	2.97E-04	1.0	Pass
8-hour HIC – worker	2.97E-04	1.0	Pass

Pursuant to Rule 1401, paragraph (g)(1)(F), emergency internal combustion engines that are exempt under Rule 1304 are exempt from Rule 1401.

### 5.9 Regulation XX – Regional Clean Air Incentives Market

RECLAIM is a market-based incentive program designed to allow facilities flexibility in achieving emission reduction requirements for NO<sub>x</sub> and SO<sub>x</sub> using methods which include, but are not limited to, add-on controls, equipment modifications, reformulated products, operational changes, shutdowns, and the purchase of RECLAIM Trading Credits (RTCs). The Moreno Compressor Station is a NO<sub>x</sub> RECLAIM facility.

The SCAQMD is transitioning RECLAIM facilities from the RECLAIM market-based program to a command-and-control regime. As such, SCAQMD released a second draft of the RECLAIM Transition Plan (Plan) on December 10, 2020. It is clear from this Plan that there are still many

issues to be resolved. The Plan indicates that EPA's position is that RECLAIM facilities cannot exit out of RECLAIM until all Landing Rules are approved by EPA. Therefore, the MCM Project must continue to comply with Rule 2005, New Source Review for RECLAIM, for NO<sub>x</sub> emissions, as well as Regulation XIII, New Source Review, for other criteria pollutants. The Plan also indicates that existing RECLAIM facilities must comply with the Landing Rules, once adopted, as well as continuing to comply with the RECLAIM rules.

Applicability of, and compliance with, the RECLAIM rules is discussed herein, assuming that the project occurs prior to the RECLAIM sunset.

#### **5.9.1 Rule 2004, Requirements**

Rule 2004 establishes the requirements for operating under the RECLAIM program. The Moreno Compressor Station is an existing RECLAIM facility. The administrative requirements of this rule are well known to the facility operators; continued compliance is expected.

#### **5.9.2 Rule 2005, New Source Review for RECLAIM**

Rule 2005 sets forth pre-construction review requirements for new facilities subject to the requirements of the RECLAIM program, for modifications to RECLAIM facilities, and for facilities which increase their allocation to a level greater than their starting allocation plus non-tradable RTCs. The purpose of this rule is to ensure that the operation of such facilities does not interfere with progress in attainment of the NAAQS and that future economic growth in the SCAQMD is not unnecessarily restricted.

##### **5.9.2.1 Best Available Control Technology**

BACT is defined as the most stringent emission limitation or control technique which:

- Has been achieved in practice for such category or class of source;
- Is contained in any state implementation plan approved by the EPA for such category or class of source; or
- Is any other emission limitation or control technique, including process and equipment changes of basic or control equipment, which is technologically feasible for such class or category of source or for a specific source, and cost-effective as compared to Air Quality Management Plan measures or adopted District rules.

Although Rule 1134 was adopted as a Best Available Retrofit Control Technology (BARCT) standard, SDG&E/SoCalGas is not aware of any more stringent standard that has been achieved in practice or is technologically feasible and cost-effective. Therefore, once Rule 1134 has been approved into the state implementation plan by EPA, the NO<sub>x</sub> emission limits of Rule 1134 (i.e., 3.5 ppmvd at 15% O<sub>2</sub>) will constitute BACT. SDG&E/SoCalGas are proposing to meet 3.5 ppm; therefore, BACT is satisfied. However, the applicant notes that this emission standard has not been achieved in practice for the CGTs as of the date of submittal of this application. A more exhaustive discussion of the factors influencing the ability of the CGT to meet the proposed BACT emission limits is provided in Appendix F.



As shown in Table 5-3, the proposed NO<sub>x</sub> emissions rate for the emergency engines complies with BACT requirements for engines of this size and duty.

### 5.9.2.2 Modeling

Although the hourly NO<sub>x</sub> emissions during normal operations (see Table 4-3) are less than the Rule 2005 Table A-1 Allowable Emissions for combustion sources greater than 30 MMBtu per hour, the hourly NO<sub>x</sub> emissions during startup and shutdown hours would exceed the Allowable Emissions from Table A-1. Therefore, an AQIA for NO<sub>x</sub> emissions was prepared for the new CGTs to evaluate startup and shutdown periods. The AQIA included both an analysis related to a significant change (increase) in air quality concentration for each CGT and startup/shutdown modeling analysis for evaluating compliance with the nitrogen dioxide (NO<sub>2</sub>) ambient air quality standards. An operating scenario involving one startup and one shutdown occurring within a 1-hour period, with the balance of operating time during that hour consisting of normal operations at 100% load represents the worst-case emissions scenario. The total NO<sub>x</sub> emissions for this scenario are 2.16 pounds per hour. The hourly emissions for a startup hour, an hour of normal operations, or during a shutdown hour are all lower than this proposed scenario and were not analyzed. Even though extremely conservative, the annual impact analysis assumed the worst-case hourly emission rate would occur every hour of the year, and the results were still below the ambient air quality standards.

The maximum 1-hour NO<sub>2</sub> concentration from either CGT was 17.62 µg/m<sup>3</sup>, which is below the significant change limit of 20 µg/m<sup>3</sup> in Rule 2005, Table A-2. As shown in Table 5-5, the worst-case hourly NO<sub>x</sub> emissions would not cause an exceedance of the California or National 1-hour or annual NO<sub>2</sub> standards. The modeling report is provided in Appendix H.

**Table 5-5: AQIA Results for NO<sub>2</sub>**

Averaging Time	Standard	Modeled Conc. (µg/m <sup>3</sup> )	Background Conc. (µg/m <sup>3</sup> )	Modeled + Background Conc. (µg/m <sup>3</sup> )	Ambient Air Quality Standard (µg/m <sup>3</sup> )	Exceed Standard?
1-Hour	National	17.62	102.82	120.44	188	No
	California	17.62	120.55	138.17	339	No
Annual	National	0.23	28.70	28.93	100	No
	California	0.23	26.79	27.02	57	No

### 5.9.2.3 Offsets

The Executive Officer may not approve an application for a facility permit amendment to authorize operation of a new or modified source which results in an emission increase as defined in subdivision (d), unless the applicant demonstrates that the facility holds sufficient RECLAIM Trading Credits (RTCs) to offset the annual emission increase for the first year of operation at a 1-to-1 ratio.

The post-MCM Project facility-wide NO<sub>x</sub> emissions (PTE basis) are estimated to be 24,147 pounds per year. The facility RTC holdings (as of August 15, 2019) for 2025 and

subsequent years is 56,333 pounds per year. Thus, the facility has sufficient RTC holdings for the first year of operation.

### **5.9.3 Rule 2012, Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO<sub>x</sub>) Emissions**

Rule 2012 establishes the monitoring, reporting, and recordkeeping requirements for NO<sub>x</sub> emissions under the RECLAIM program. The provisions of this rule apply to any RECLAIM NO<sub>x</sub> source, including, but not limited to, gas turbines.

A major NO<sub>x</sub> source means any gaseous-fueled equipment with a maximum rated capacity greater than or equal to 40 but less than 500 million Btu per hour and an annual heat input greater than 90 billion Btu per year and any gas turbine rated greater than or equal to 2.9 MWe, excluding any emergency standby equipment or peaking unit. With a heat rate of 56.30 MMBtu per hour, the proposed CGTs are major sources.

This rule requires that the facility permit holder of a major NO<sub>x</sub> source install, maintain, and operate a direct monitoring device for each major NO<sub>x</sub> source to continuously measure the concentration of NO<sub>x</sub> emissions and all other applicable variables specified in Table 2012-1 and Appendix A, Chapter 2, Table 2-A.<sup>18</sup>

The facility permit holder of a major NO<sub>x</sub> source must report emissions as follows:

- Install, maintain, and operate a reporting device to electronically report total daily mass emissions of NO<sub>x</sub> and daily status codes to the District Central NO<sub>x</sub> Station for each major NO<sub>x</sub> source. Such data shall be reported by 5:00 p.m. the following day.
- Submit Monthly Emissions Reports aggregating NO<sub>x</sub> emissions from all major sources within 15 days following the end of each calendar month.

A CEMS meeting the requirements of Rule 2012 and Appendix A will be installed to monitor NO<sub>x</sub> emissions from each CGT, using O<sub>2</sub> as the reference gas. Emissions will be reported daily and monthly, as required. An application for the CEMS will be submitted at a later date, once the CEMS equipment has been selected for the MCM Project.

## **5.10 Regulation XXX – Title V Permits**

Regulation XXX establishes the Title V permit program within the SCAQMD. The facility is a Title V facility. The MCM Project is a significant permit revision per Rule 3000(b)(31)(I) because the MCM Project will install new equipment that is subject to a NSPS pursuant to 40 CFR Part 60, or a NESHAP pursuant to 40 CFR Part 61 or 40 CFR Part 63. Specifically, the new CGTs will be subject to 40 CFR 60, Subpart KKKK.

For a significant permit revision, the Executive Officer shall issue a permit or deny a permit application within 18 months after receipt of a complete application pursuant to subdivision (c) of this rule.

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<sup>18</sup> The proposed NO<sub>x</sub> CEMS would be subject to Rules 218, 218.1, 218.2 and 218.3, or would be subject to Rule 2012, pursuant to RECLAIM, depending on when the RECLAIM sunset is completed relative to the installation date of the CGTs and associated CEMS.

## 5.11 California Requirements

### *5.11.1 California Accidental Release Prevention (CalARP) Program*

The purpose of the CalARP Program is to prevent the accidental release of regulated substances. The CalARP Program includes the federal Chemical Accident Prevention Provisions [Title 40, CFR Part 68] with certain additions specific to the state pursuant to Article 2, Chapter 6.95, of the Health and Safety Code (HSC). The list of regulated substances is found in Section 2770.5 of the regulation.

Stationary sources with more than a threshold quantity of a regulated substance are evaluated to determine the potential for, and impacts of, accidental releases from that covered process. Under conditions specified by the HSC, the owner or operator of a stationary source may be required to develop and submit a Risk Management Plan (RMP). The RMP components and submission requirements are identified in Article 3 of the rule.

The quantity of ammonia in storage for use in the SCRs will exceed the CalARP program threshold of 500 pounds. This 10,000-gallon storage tank containing 19% aqueous ammonia is currently being permitted (A/N 619560) per PTC application submitted to SCAQMD in February 2020. The facility is required to develop an RMP. SDG&E/SoCalGas are aware of and will comply with this requirement in a timely manner.

The total quantity of hydrogen stored on-site will be less than 10,000 pounds; therefore, the proposed hydrogen processes are not subject to the CalARP RMP requirements.

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

Many components of the MCM Project, such as the replacement of existing CGTs with new CGTs, and the replacement of compressor gas lean-burn engines with electric driven compressor engines, were analyzed by SCAQMD in the two Subsequent Environmental Assessments (SEAs) prepared each for the implementation of Rule 1134, and Rules 1110.2/1100. The completed Form 400-CEQA is included in Appendix A. Additional information is provided with the form, as appropriate.

## 5.12 Federal Requirements

### *5.12.1 40 CFR 60, Subpart A – General Provisions*

The provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

Subpart A contains the administrative requirements for any facility subject to other subparts. This subpart requires:

- Pre-construction review;
- Notification requirements;
- CEMS monitoring reports;
- Excess emissions reports; and
- Source test requirements.

The pre-construction review and notification requirements are satisfied via the SCAQMD permitting process. The CEMS performance and excess emissions reports for the CGTs per §60.7 of Subpart A must be submitted to EPA semiannually (with the Title V Semiannual Monitoring Report). Source tests required by the SCAQMD will satisfy the requirements of this subpart.

**5.12.2 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition engines as specified in paragraphs (a)(1) through (6) of the rule. The rule applies to spark ignition engines that are greater than 25 hp and were constructed after 2006, although later dates apply to specific engines.

The emergency engines are subject to this subpart. The emission standards of §60.4233 are listed in Table 5-6. As shown in Table 5-6, the controlled emission factors for NO<sub>x</sub>, CO, and VOCs satisfy the emission standards of §60.4233. Subpart JJJJ does not impose emission standards for PM<sub>10</sub> or SO<sub>x</sub>.

**Table 5-6: 40 CFR 60 Subpart JJJJ Emissions Standards – Emergency Engines**

Pollutant	Emission Standard (g/Bhp-hr)	Controlled Emission Factors (g/hp-hr)	Complies? (Yes/No)
NO <sub>x</sub>	2.0	0.15	Yes
VOCs	1.0	0.15	Yes
CO	4.0	0.6	Yes

Subpart JJJJ also establishes administrative requirements pursuant to §60.4245. These include notification requirements and recordkeeping requirements. Performance testing is not required. The applicant is aware of and will comply with the recordkeeping provisions of the rule.

**5.12.3 40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines**

This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines. This subpart applies to stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005. Stationary combustion turbines regulated under this subpart are exempt from the requirements of subpart GG.

The pollutants regulated by this subpart are NO<sub>x</sub> and SO<sub>2</sub>. For a new turbine firing natural gas that is greater than 50 MMBtu per hour and less than or equal to 850 MMBtu per hour, the NO<sub>x</sub> emission limit is 25 ppmv at 15% O<sub>2</sub>. The NO<sub>x</sub> emission limit may be verified via annual source test or via continuous emissions monitoring.

The SO<sub>2</sub> limit is 0.060 lb SO<sub>2</sub>/MMBtu heat input. Compliance can be demonstrated using the fuel quality characteristics in a current, valid purchase contract, tariff sheet or

transportation contract for the fuel, specifying that the total sulfur content for natural gas use in continental areas is 20 grains of sulfur or less per 100 standard cubic feet.

For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under this subpart, reports of excess emissions and monitor downtime must be submitted in accordance with §60.7(c). Excess emissions must be reported for all periods of unit operation, including startup, shutdown, and malfunction. For turbines using continuous emission monitoring, as described in §§60.4335(b) and 60.4345, an excess emission is any unit operating period in which the 4-hour or 30-day rolling average NO<sub>x</sub> emission rate exceeds the applicable emission limit in §60.4320. The rule specifies how 4-hour and 30-day rolling values must be calculated.

A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO<sub>x</sub> concentration, O<sub>2</sub> (or CO<sub>2</sub>) concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if this information is used for compliance purposes.

All reports required under §60.7(c) must be postmarked by the 30th day following the end of each 6-month period.

Compliance with the Rule 1134 and BACT NO<sub>x</sub> emission limit of 3.5 ppmvd at 15% O<sub>2</sub> ensures compliance with Subpart KKKK. Compliance will be verified by an initial source test and use of CEMS. Use of natural gas or blended natural gas ensures compliance with the SO<sub>2</sub> limit. SDG&E/SoCalGas are aware of and will comply with the semi-annual reporting requirements.

#### ***5.12.4 40 CFR 63 Subpart A – General Provisions***

Subpart A establishes the administrative requirements applicable to sources subject to source-specific NESHAPs. This subpart requires:

- Pre-construction review and notification;
- Performance Testing; and
- Notification requirements.

The pre-construction review and notification requirements are satisfied via the SCAQMD permitting process. Source tests required by the SCAQMD will satisfy the requirements of this subpart.

#### ***5.12.5 40 CFR 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines***

Subpart YYYY establishes national emission limitations and operating limitations for hazardous air pollutant (HAP) emissions from stationary combustion turbines located at major sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emission and operating limitations.

This subpart applies to any stationary combustion turbine located at a major source of HAP emissions. The facility is currently a major source of HAP. This subpart requires the following:

- Limit the concentration of formaldehyde to 91 parts per billion by volume, dry or less at 15 percent O<sub>2</sub>, except during turbine startup. The period of time for turbine startup is limited to 1 hour.
- The oxidation catalyst must be monitored to ensure compliance with the formaldehyde limit. The catalyst temperature is based on a 4-hour rolling average of the catalyst inlet temperature within the range suggested by the catalyst manufacturer. The catalyst inlet temperature data that is recorded during engine startup is not required to be used in the calculations of the 4-hour rolling average.
- An initial performance test must be conducted within 180 calendar days following startup, and annually thereafter.
- The following notifications are required:
  - A notification of intention to construct; the Initial Notification is due not later than 120 calendar days after the source becomes subject to subpart YYYY.
  - A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date;
  - A notification of the intent to conduct a performance test must be submitted to the Administrator in writing at least 60 calendar days before the performance test is initially scheduled to begin;
  - Before conducting a required performance test, a site-specific test plan must be submitted to the Administrator for approval;
  - For each performance test required to demonstrate compliance with the emission limitation for formaldehyde, a Notification of Compliance Status, including the performance test results, must be submitted before the close of business on the 60th calendar day following the completion of the performance test;
  - The operator must provide a notification of compliance status, signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with the relevant standard. The notification must be sent before the close of business on the 60th day following the completion of the relevant compliance demonstration activity specified in the relevant standard (unless a different reporting period is specified in the standard, in which case the letter must be sent before the close of business on the day the report of the relevant testing or monitoring results is required to be delivered or postmarked). The notification must list:
    - The methods that were used to determine compliance;
    - The results of any performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted;

- The methods that will be used for determining continuing compliance, including a description of monitoring and reporting requirements and test methods;
- The type and quantity of HAPs emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard;
- If the relevant standard applies to both major and area sources, an analysis demonstrating whether the affected source is a major source (using the emissions data generated for this notification);
- A description of the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant and the control efficiency (percent) for each control device (or method); and
- A statement by the owner or operator of the affected existing, new, or reconstructed source as to whether the source has complied with the relevant standard or other requirements.

The MCM Project will employ oxidation catalysts to achieve the formaldehyde emission limit, and temperature monitoring to ensure catalyst performance. This permit application process in the SCAQMD serves as the notice of construction, and the applicant will provide a notice of startup. The requirements related to source testing (notification, test protocol, notice of compliance) are typically imposed as permit conditions on the permit to operate. The operator intends to provide the notice of compliance annually with the Title V Annual Compliance Certification. Therefore, compliance with Subpart YYYY is expected.

#### ***5.12.6 40 CFR 63, Subpart ZZZZ – National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines***

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary reciprocating internal combustion engines (RICEs) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

Pursuant to §63.6590, a new or reconstructed emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) of the rule does not have to meet the requirements of this subpart and of subpart A of part 63, except for the initial notification requirements of §63.6645(f). This application serves as the initial notification; therefore, compliance is demonstrated.

#### ***5.12.7 40 CFR 64 – Compliance Assurance Monitoring***

Compliance assurance monitoring (CAM) is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act for large emission units that rely on pollution control device equipment to achieve compliance. Monitoring is

conducted to determine that control measures, once installed or otherwise employed, are properly operated and maintained so that they continue to achieve a level of control that complies with applicable requirements. The CAM approach establishes monitoring for the purpose of: (1) documenting continued operation of the control measures within ranges of specified indicators of performance (such as emissions, control device parameters, and process parameters) that are designed to provide a reasonable assurance of compliance with applicable requirements; (2) indicating any excursions from these ranges; and (3) responding to the data so that the cause or causes of the excursions are corrected.

The first step in the CAM process is the determination of the applicability of CAM to each emissions unit on a pollutant-specific basis. Section 64.2 of the CAM rule specifies the criteria for making this determination, and Table 5-7 summarizes the applicability requirements for Part 64. If the unit satisfies all of the applicability requirements listed in Table 5-7, the unit is subject to CAM. Otherwise, Part 64 does not apply to the emissions unit. It should be emphasized that the applicability determination is made on a pollutant-by-pollutant basis for each emissions unit.

**Table 5-7: Applicability Requirements for CAM**

Part 64 Reference	Requirement
§ 64.2(a)	Unit is located at major source that is required to obtain Part 70 or 71 permit.
§ 64.2(a)(1)	Unit is subject to emission limitation or standard for the applicable pollutant.
§ 64.2(a)(2)	Unit uses a control device to achieve compliance (See § 64.1 for definition of control device).
§ 64.2(a)(3)	Potential pre-control emissions of applicable pollutant from unit are at least 100 percent of major source amount.
§ 64.2(a)(b)	Unit is not otherwise exempt (See Table 5-8 for list of specific exemptions).

**Table 5-8: Summary of CAM Rule Exemptions**

Part 64 Reference	Exempted Emission Limits or Standards
§ 64.2(b)(1)(I)	Post-11/15/90 NSPS or NESHAP.
§ 64.2(b)(1)(ii)	Stratospheric ozone protection requirements.
§ 64.2(b)(1)(iii)	Acid Rain Program requirements.
§ 64.2(b)(1)(iv)	Emission limitations, standards, or other requirements that apply solely under an approved emission trading program.
§ 64.2(b)(1)(v)	Emissions cap that meets requirements of § 70.4(b)(12).
§ 64.2(b)(1)(vi)	Emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method that does not use an assumed control factor.



Emissions of SO<sub>x</sub> and NO<sub>x</sub> from the CGT are subject to a post-1990 NSPS (i.e., Subpart KKKK), so CAM is not applicable to NO<sub>x</sub> or SO<sub>x</sub> [per §64.2(b)(1)(I)]. There is no add-on control device for PM<sub>10</sub>, so CAM is not applicable to PM<sub>10</sub> [per §64.2(a)(2)].

The CGTs meet the CAM applicability requirements for CO and VOC emissions: 1) the CGT is located at facility that requires a Part 70 permit; 2) emission limits for CO and VOCs are assumed to be applicable (assumes that the SCAQMD will assign the BACT limit as permit conditions); 3) an oxidation catalyst is used for emissions control; 4) pre-control emissions exceed the major source threshold<sup>19</sup>; and 5) the unit does not qualify for an exemption.

SDG&E/SoCalGas plan to install a CO CEMS to monitor the performance of the oxidation catalyst. CO is a suitable surrogate for VOC; therefore, the CO CEMS is a suitable method of monitoring catalyst performance for VOC emissions control. The use of a CO CEMS satisfies the CAM requirements for CO and VOC emissions.

#### ***5.12.8 40 CFR Part 68 – Chemical Accident Prevention Provisions***

Title 40, Part 68 of the CFR implements the federal RMP requirements. The federal RMP requirements apply only to those processes that use aqueous ammonia at 20% or greater concentration. The proposed Project will use 19% aqueous ammonia; therefore, Part 68 does not apply.

The total quantity of hydrogen stored on-site will be less than 10,000 pounds and therefore, the proposed hydrogen processes are not subject to the federal RMP requirements.

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<sup>19</sup> The uncontrolled CO emissions are estimated at 459 TPY based on controlled emissions of 23 TPY (per CGT) and a control efficiency of 95%; the major source threshold for CO is 50 TPY. The uncontrolled VOC emissions are estimated at 22.5 TPY based on controlled emissions of 4.5 TPY (per CGT) and a control efficiency of 80%; the major source threshold for VOC is 15 TPY.

**APPENDIX A – SCAQMD APPLICATION FORMS**

Device	Form	
Compressor Gas Turbine No. 1	400-A	Application Form for Permit or Plan Approval
	400-E-12	Gas Turbine
	400-PS	Plot Plan and Stack Information Form
Control System No. 1	400-A	Application Form for Permit or Plan Approval
	400-E-5	Selective Catalytic Reduction (SCR) System and Oxidation Catalyst
Compressor Gas Turbine No. 2	400-A	Application Form for Permit or Plan Approval
	400-E-12	Gas Turbine
	400-PS	Plot Plan and Stack Information Form
Control System No. 2	400-A	Application Form for Permit or Plan Approval
	400-E-5	Selective Catalytic Reduction (SCR) System and Oxidation Catalyst
Emergency Engine No. 1	400-A	Application Form for Permit or Plan Approval
	400-E-13a	Emergency Internal Combustion Engine
	400-PS	Plot Plan and Stack Information Form
EMPact Control System No. 1	400-A	Application Form for Permit or Plan Approval
Emergency Engine No. 2	400-A	Application Form for Permit or Plan Approval
	400-E-13a	Emergency Internal Combustion Engine
	400-PS	Plot Plan and Stack Information Form
EMPact Control System No. 2	400-A	Application Form for Permit or Plan Approval
Facility Permit	400-A	Application Form for Permit or Plan Approval
	500-A2	Title V Application Certification
Project	400-CEQA	California Environmental Quality Act (CEQA) Applicability
Expedited Permit Processing	400-XPP	Express Permit Processing Request



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

Section C - Permit Mailing Address

4. Equipment Location Is: Fixed Location (checked) Various Location
4. Equipment Location Address: 14601 Virginia Street, Moreno Valley, CA 92555
Contact Name: Sr. Env. Specialist

5. Permit and Correspondence Information:
P.O. Box 2300, Mail Stop SC9314
Address: Chatsworth, CA 91313
Contact Name: Sr. Env. Specialist

Section D - Application Type

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

7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application: New Construction (checked)
7b. Facility Permits: Title V Application or Amendment (checked)
7c. Equipment or Process with an Existing/Previous Application or Permit: Administrative Change (checked)
Existing or Previous Permit/Application: If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Solar Centaur 50 Compressor Gas Turbine No. 1

10. For identical equipment, how many additional applications are being submitted with this application? 1

11. Are you a Small Business as per AQMD's Rule 102 definition? No (checked)

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? No (checked)

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas

14. What is your business primary NAICS Code? 486210

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? Yes (checked)

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

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: [Signature]

18. Title of Responsible Official: Field Operations Manager

19. I wish to review the permit prior to issuance. Yes (checked)

20. Print Name: [Redacted]

21. Date: 5/19/2021

22. Do you claim confidentiality of data? No (checked)

23. Check List: Authorized Signature/Date, Form 400-CEQA, Supplemental Form(s), Fees Enclosed

Table with columns: 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



# Form 400-E-12 Gas Turbine



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

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

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

## Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): SDG&E (Moreno Valley Compressor Station) Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242

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):  
14601 Virginia Street, Moreno Valley, CA  Fixed Location  Various Locations

## Section B - Equipment Description

Turbine	Manufacturer: <u>Solar</u> Model: <u>Centaur 50 6100S</u> Serial No.: <u>TBD</u>
	Size (based on Higher Heating Value - HHV):
	Manufacturer Maximum Input Rating: <u>56.30</u> MMBTU/hr _____ kWh
	Manufacturer Maximum Output Rating: _____ MMBTU/hr _____ kWh
Function (Check all that apply)	<input type="checkbox"/> Electrical Generation <input checked="" type="checkbox"/> Driving Pump/Compressor <input type="checkbox"/> Emergency Peaking Unit <input type="checkbox"/> Steam Generation <input type="checkbox"/> Exhaust Gas Recovery <input type="checkbox"/> Other (specify): _____
Cycle Type	<input checked="" type="radio"/> Simply Cycle <input type="radio"/> Regenerative Cycle <input type="radio"/> Combined Cycle <input type="radio"/> Other (specify): _____
Combustion Type	<input type="radio"/> Tubular <input type="radio"/> Can-Annular <input type="radio"/> Annular
Fuel (Turbine)	<input checked="" type="checkbox"/> Natural Gas <input type="checkbox"/> LPG <input type="checkbox"/> Digester Gas* <input type="checkbox"/> Landfill Gas* <input type="checkbox"/> Propane <input type="checkbox"/> Refinery Gas* <input checked="" type="checkbox"/> Other*: <u>blended natural gas</u> <small>* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).</small>
Heat Recovery Steam Generator (HRSG)	Steam Turbine Capacity: _____ MW Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F High Pressure Steam Output Capacity: _____ lb/hr @ _____ °F Superheated Steam Output Capacity: _____ lb/hr @ _____ °F
Duct Burner	Manufacturer: _____ Model: _____ Number of burners: _____ Rating of each burner (HHV): _____ Type: <input type="radio"/> Low NOx (please attach manufacturer's specifications) <input type="radio"/> Other: _____ Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	<input type="radio"/> Natural Gas <input type="radio"/> LPG <input type="radio"/> Digester Gas* <input type="radio"/> Landfill Gas* <input type="radio"/> Propane <input type="radio"/> Refinery Gas* <input type="radio"/> Other*: _____ <small>* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).</small>

**Form 400-E-12  
Gas Turbine**

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

**Section B - Equipment Description (Cont.)**

Selective Catalytic Reduction (SCR)\*       Selective Non-Catalytic Reduction (SNCR)\*

Oxidation Catalyst\*       Other (specify)\*: SCR and Oxidation Catalyst

Steam/Water Injection: Injection Rate: \_\_\_\_\_ lbs. water/lbs. fuel, or \_\_\_\_\_ mole water/mole fuel  
\* Separate application is required.

Capital Cost: \_\_\_\_\_ Installation Cost: \_\_\_\_\_ Annual Operating Cost: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_  
See form 400-E-5

Catalyst Dimensions: Length: \_\_\_\_\_ ft. \_\_\_\_\_ in. Width: \_\_\_\_\_ ft. \_\_\_\_\_ in. Height: \_\_\_\_\_ ft. \_\_\_\_\_ in.

Catalyst Cell Density: \_\_\_\_\_ cells/sq.in. Pressure Drop Across Catalyst: \_\_\_\_\_

Manufacturer's Guarantee: CO Control Efficiency: \_\_\_\_\_ % Catalyst Life: \_\_\_\_\_ yrs  
VOC Control Efficiency: \_\_\_\_\_ % Operating Temp. Range: \_\_\_\_\_ °F

Space Velocity (gas flow rate/catalyst volume): \_\_\_\_\_ Area Velocity (gas flow/wetted catalyst surface area): \_\_\_\_\_

VOC Concentration into Catalyst: \_\_\_\_\_ PPMVD@ 15%O<sub>2</sub> CO Concentration inot Catalyst: \_\_\_\_\_ PPMVD@ 15%O<sub>2</sub>

**Section C - Operation Information**

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O <sub>2</sub> , dry	lb/hour	PPM@15% O <sub>2</sub> , dry	lb/hour
ROG			4.3	0.32
NOx			3.5	0.74
CO			8	1.03
PM <sub>10</sub>				0.37
SOx				0.19
NH <sub>3</sub>			15	1.18

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

Reference (attach data):

- Manufacturer Emission Data     EPA Emission Factors     AQMD Emission Factors     Source Test

Stack Height: 64 ft. 6 in. Stack Diameter: 6 ft. 0 in.

Exhaust Temperature: 840 °F Exhaust Pressure: \_\_\_\_\_ inches water column

Exhaust Flow Rate: 84260 CFM Oxygen Level: 15.00 %

**Form 400-E-12  
Gas Turbine**

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

**Section C - Operation Information (cont.)**

Startup Data	No. of Startups per day: <u>8</u>	No. of Startups per year: <u>900</u>	Duration of each startup: <u>1</u> hrs.
--------------	-----------------------------------	--------------------------------------	---

Shutdown Data	No. of Shutdowns per day: <u>8</u>	No. of Shutdowns per year: <u>900</u>	Duration of each Shutdown: <u>1</u> hrs.
---------------	------------------------------------	---------------------------------------	--

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O <sub>2</sub> , dry	lb/hour	PPM@15% O <sub>2</sub> , dry	lb/hour
ROG		3.28		4.29
NOx		1.91		0.99
CO		23.02		20.96
PM <sub>10</sub>		0.37		0.37
SOx		0.19		0.19
NH <sub>3</sub>		1.18		1.18

Monitoring and Reporting

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

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

The following parameters will be continuously monitored:

NOx                       CO                                       O<sub>2</sub>

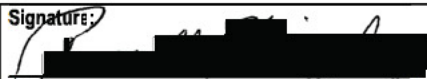
Fuel Flow Rate                       Ammonia Injection Rate                       Other (specify): \_\_\_\_\_

Ammonia Stack Concentration:                      Ammonia CEMS Make: \_\_\_\_\_  
Ammonia CEMS Model: \_\_\_\_\_

Operating Schedule	Normal: <u>24</u> hours/day <u>7</u> days/week <u>52</u> weeks/yr
	Maximum: <u>24</u> hours/day <u>7</u> days/week <u>52</u> 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: <u>05/03/2021</u>	Name: _____
	Title: _____	Company Name: <u>Yorke Engineering</u>	Phone #: _____ Fax #: _____
Contact Info	Name: _____	Phone #: _____	Fax #: _____
	Title: <u>Sr. Env. Specialist</u>	Company Name: <u>SoCalGas</u>	Email: _____

**THIS IS A PUBLIC DOCUMENT**

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

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



South Coast Air Quality Management District

# Form 400-PS Plot Plan And Stack Information Form

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

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

## Section A - Operator Information

**Facility Name** (Business Name of Operator To Appear On The Permit): SDG&E (Moreno Valley Compressor Station)      **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 004242

**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):  
14601 Virginia Street, Moreno Valley       **Fixed Location**       **Various Locations**

## Section B - Location Data

**Plot Plan** Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

**Location of Schools Nearby** **Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?**       Yes       No  
If yes, please provide name(s) of school(s) below:  
**School Name:** \_\_\_\_\_ **School Name:** \_\_\_\_\_  
**School Address:** \_\_\_\_\_ **School Address:** \_\_\_\_\_  
**Distance from stack or equipment vent to the outer boundary of the school:** \_\_\_\_\_ feet      **Distance from stack or equipment vent to the outer boundary of the school:** \_\_\_\_\_ feet  
**CA Health & Safety Code 42301.9:** "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

**Population Density**       Urban       Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

**Zoning Classification**       **Mixed Use Residential Commercial Zone (M-U)**       **Service and Professional Zone (C-S)**       **Medium Commercial (C-3)**  
 **Heavy Commercial (C-4)**       **Commercial Manufacturing (C-M)**

## Section C - Emission Release Parameters - Stacks, Vents

**Stack Data** **Stack Height:** 64.50 feet (above ground level)      **What is the height of the closest building nearest the stack?** 56 feet  
**Stack Inside Diameter:** 72.00 inches      **Stack Flow:** 84,260 acfm      **Stack Temperature:** 840 °F  
**Rain Cap Present:**       Yes       No      **Stack Orientation:**       Vertical       Horizontal  
If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):  
**Building #/Name:** See Attached Sheet      **Building #/Name:** \_\_\_\_\_  
**Building Height:** \_\_\_\_\_ feet (above ground level)      **Building Height:** \_\_\_\_\_ feet (above ground level)  
**Building Width:** \_\_\_\_\_ feet      **Building Width:** \_\_\_\_\_ feet  
**Building Length:** \_\_\_\_\_ feet      **Building Length:** \_\_\_\_\_ feet

**Receptor Distance From Equipment Stack or Roof Vents/Openings** **Distance to nearest residence or sensitive receptor\*:** 6,875 feet  
**Distance to nearest business:** 8,575 feet

**Building Information** **Are the emissions released from vents and/or openings from a building?**       Yes       No  
If yes, please provide:  
**Building #/Name:** \_\_\_\_\_ **Building Width:** \_\_\_\_\_ feet  
**Building Height:** \_\_\_\_\_ feet (above ground level)      **Building Length:** \_\_\_\_\_ feet

\*AQMD Rule 1470 defines SENSITIVE RECEPTOR as meaning any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.




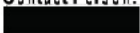


**Form 400-PS**

**Plot Plan And Stack Information Form**

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

**Section D - Authorization/Signature**

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

Signature of Preparer: 	Title of Preparer: Principal Engineer	Preparer's Phone #: 	Preparer's Email: 
Contact Person: 	Contact's Phone#: 	Date Signed: 05/03/2021	
Contact's Email: 	Contact's Fax#: _____		

THIS IS A PUBLIC DOCUMENT

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

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



**Form 400-PS – Supplemental Information**

<b>Building/Structure Description</b>	<b>Height (feet)</b>	<b>Dimensions - X (feet)</b>	<b>Dimensions - Y (feet)</b>
Cooper Compressor Building	40.6	Polygonal	
Maintenance Shop	25.8	106	46
Admin Building & Control Room	14.9	106	60
Cooling Tower #4	21.3	104	48
Cooling Tower #3	16.9	26	36
Cooling Tower #1	12.5	58	31
Clark Compressor Building	25.8	98	30
Auxiliary Building	18.1	69	25
Vessel Loading/Unloading Building 1	10.5	7	14
Vessel Loading/Unloading Building 2	13.2	35	14
Building East of Cooling Tower #3	8.8	77	32
Building South of Cooling Tower #3	10.1	23	18
New Warehouse Building	22	100	60
New EDC Building	56	64	154.5
New CGT Building	56	69	162

Notes:

1. Existing building heights determined from "Moreno Existing Buildings Plot Plan v1". Building dimensions determined from Google Earth.
2. New warehouse building dimensions provided by SoCalGas.
3. EDC and CGT building dimensions provided by SoCalGas.



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: Fixed Location (checked) Various Location
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
Sr. Env. Specialist
Contact Name Title
Phone # Ext. Fax #
E-Mail:

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
Sr. Env. Specialist
Contact Name Title
Phone # Ext. Fax #
E-Mail:

Section D - Application Type

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

7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application: New Construction (checked)
7b. Facility Permits: RECLAIM Facility Permit Amendment (checked)
7c. Equipment or Process with an Existing/Previous Application or Permit:
Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): SCR and Oxidation Catalyst controlling compressor gas turbine
10. For identical equipment, how many additional applications are being submitted with this application? 1

11. Are you a Small Business as per AQMD's Rule 102 definition? No (checked)
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? No (checked)

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? Yes (checked)
16. Are there any schools (K-12) within 1000 feet of the facility property line? No (checked)

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: [Signature]
18. Title of Responsible Official: Field Operations Manager
19. I wish to review the permit prior to issuance. Yes (checked)
20. Print Name:
21. Date: 5/19/2021
22. Do you claim confidentiality of data? No (checked)

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

Table with columns: 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-E-5 Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

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

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

#### Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): <u>SDG&amp;E (Moreno Valley Compressor Station)</u>	Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): <u>004242</u>
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): <u>14601 Virginia Street, Moreno Valley, CA</u> <input checked="" type="radio"/> Fixed Location <input type="radio"/> Various Locations	

#### Section B - Equipment Description

##### Selective Catalytic Reduction (SCR)

SCR Catalyst	Manufacturer: <u>Cornetech</u> Catalyst Active Material: <u>Titanium-Vanadium-Tungsten</u>
	Model Number: <u>CMHCDET</u> Type: <u>Honeycomb Type</u>
	Size of Each Layer or Module: L: <u>3</u> ft. <u>3.6</u> in.    W: <u>6</u> ft. <u>9.6</u> in.    H: <u>4</u> ft. <u>5</u> in.
	No. of Layers or Modules: <u>1</u> Total Volume: <u>70.6</u> cu. ft.      Total Weight: <u>4800</u> lbs.
Reducing Agent	<input type="radio"/> Urea <input type="radio"/> Anhydrous Ammonia <input checked="" type="radio"/> Aqueous Ammonia <u>19.00</u> %    Injection Rate: <u>15.3</u> lb/hr
Reducing Agent Storage *	Diameter: <u>8</u> ft.    Height: <u>24</u> ft. <u>2</u> in.    Capacity: <u>10000</u> gal Pressure Setting: <u>44.7</u> psia    * A separate permit may be needed for the storage equipment.
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>30772</u> per hour
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: <u>41.16</u> ft/hr
Manufacturer's Guarantee	NOx: <u>3.5</u> ppm    %O <sub>2</sub> : <u>15.00</u> NOx: _____ gm/bhp-hr    Ammonia Slip: <u>15</u> ppm @ <u>15.00</u> %O <sub>2</sub>
Catalyst Life	<u>5</u> years (expected)
Cost	Capital Cost: _____    Installation Cost: _____    Catalyst Replacement Cost: _____

##### Oxidation Catalyst

Oxidation Catalyst	Manufacturer: <u>BASF</u> Catalyst Active Material: <u>Platinum</u>
	Model Number: <u>CAMET</u> Type: <u>Brazed metallic oxidation</u>
	Size of Each Layer or Module: L: <u>2</u> ft.    W: <u>2</u> ft.    H: _____ ft. <u>2.45</u> in.
	No. of Layers or Modules: <u>12</u> Total Volume: <u>8.4</u> cu. ft.      Total Weight: <u>1000</u> lbs.
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>279543</u> per hour
Manufacturer's Guarantee	VOC: <u>4.3</u> ppm    VOC: _____ gm/bhp-hr    %O <sub>2</sub> : <u>15.00</u> CO: <u>8</u> ppm    CO: _____ gm/bhp-hr    %O <sub>2</sub> : <u>15.00</u>
Catalyst Life	<u>5</u> years (expected)
Cost	Capital Cost: _____    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: <u>None</u> 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: _____ <u>650</u> °F (from cold start) Maximum Temperature: _____ <u>840</u> °F Warm-up Time: _____ <u>1</u> hr. _____ min. (maximum)
Operating Schedule	Normal: _____ <u>24</u> hours/day _____ <u>7</u> days/week _____ <u>52</u> weeks/yr Maximum: _____ <u>24</u> hours/day _____ <u>7</u> days/week _____ <u>52</u> 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>[Signature]</u> Date: <u>05/03/2021</u> Title: _____ Company Name: <u>Yorke Engineering</u>	Name: _____ Phone #: _____ Fax #: _____ Email: _____	
Contact Info	Name: _____ Title: <u>Sr. Env. Specialist</u> Company Name: <u>SoCalGas</u>	Phone #: _____ Fax #: _____ Email: _____	

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



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: Fixed Location (checked) Various Location
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section D - Application Type

6. The Facility Is: Not In RECLAIM or Title V In RECLAIM In Title V In RECLAIM & Title V Programs (checked)
7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application:
New Construction (Permit to Construct) (checked)
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 \*
Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Solar Centaur 50 Compressor Gas Turbine No. 2
10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are \$500,000 or less OR a not-for-profit training center) No (checked) Yes
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: No (checked) Yes

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? No (checked) Yes
16. Are there any schools (K-12) within 1000 feet of the facility property line? No (checked) 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: [Signature]
18. Title of Responsible Official: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) No Yes (checked)
20. Print Name:
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.) No Yes (checked)

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

Table with columns: 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



# Form 400-E-12 Gas Turbine



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

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

## Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): SDG&E (Moreno Valley Compressor Station) Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242

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):  
14601 Virginia Street, Moreno Valley, CA       Fixed Location       Various Locations

## Section B - Equipment Description

Turbine	Manufacturer: <u>Solar</u> Model: <u>Centaur 50 6100S</u> Serial No.: <u>TBD</u>
	Size (based on Higher Heating Value - HHV):
	Manufacturer Maximum Input Rating: <u>56.30</u> MMBTU/hr _____ kWh
	Manufacturer Maximum Output Rating: _____ MMBTU/hr _____ kWh
Function (Check all that apply)	<input type="checkbox"/> Electrical Generation <input checked="" type="checkbox"/> Driving Pump/Compressor <input type="checkbox"/> Emergency Peaking Unit <input type="checkbox"/> Steam Generation <input type="checkbox"/> Exhaust Gas Recovery <input type="checkbox"/> Other (specify): _____
Cycle Type	<input checked="" type="radio"/> Simply Cycle <input type="radio"/> Regenerative Cycle <input type="radio"/> Combined Cycle <input type="radio"/> Other (specify): _____
Combustion Type	<input type="radio"/> Tubular <input type="radio"/> Can-Annular <input type="radio"/> Annular
Fuel (Turbine)	<input checked="" type="checkbox"/> Natural Gas <input type="checkbox"/> LPG <input type="checkbox"/> Digester Gas* <input type="checkbox"/> Landfill Gas* <input type="checkbox"/> Propane <input type="checkbox"/> Refinery Gas* <input checked="" type="checkbox"/> Other*: <u>blended natural gas</u> <small>* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).</small>
Heat Recovery Steam Generator (HRSG)	Steam Turbine Capacity: _____ MW Low Pressure Steam Output Capacity: _____ lb/hr @ _____ °F High Pressure Steam Output Capacity: _____ lb/hr @ _____ °F Superheated Steam Output Capacity: _____ lb/hr @ _____ °F
Duct Burner	Manufacturer: _____ Model: _____ Number of burners: _____ Rating of each burner (HHV): _____ Type: <input type="radio"/> Low NOx (please attach manufacturer's specifications) <input type="radio"/> Other: _____ Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	<input type="radio"/> Natural Gas <input type="radio"/> LPG <input type="radio"/> Digester Gas* <input type="radio"/> Landfill Gas* <input type="radio"/> Propane <input type="radio"/> Refinery Gas* <input type="radio"/> Other*: _____ <small>* (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).</small>

**Form 400-E-12  
Gas Turbine**

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

**Section B - Equipment Description (Cont.)**

Selective Catalytic Reduction (SCR)\*       Selective Non-Catalytic Reduction (SNCR)\*

Oxidation Catalyst\*       Other (specify)\*: SCR and Oxidation Catalyst

Steam/Water Injection: Injection Rate: \_\_\_\_\_ lbs. water/lbs. fuel, or \_\_\_\_\_ mole water/mole fuel

\* Separate application is required.

Capital Cost: \_\_\_\_\_ Installation Cost: \_\_\_\_\_ Annual Operating Cost: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

See form 400-E-5

Catalyst Dimensions: Length: \_\_\_\_\_ ft. \_\_\_\_\_ in. Width: \_\_\_\_\_ ft. \_\_\_\_\_ in. Height: \_\_\_\_\_ ft. \_\_\_\_\_ in.

Catalyst Cell Density: \_\_\_\_\_ cells/sq.in. Pressure Drop Across Catalyst: \_\_\_\_\_

Manufacturer's Guarantee: CO Control Efficiency: \_\_\_\_\_ % Catalyst Life: \_\_\_\_\_ yrs

VOC Control Efficiency: \_\_\_\_\_ % Operating Temp. Range: \_\_\_\_\_ °F

Space Velocity (gas flow rate/catalyst volume): \_\_\_\_\_ Area Velocity (gas flow/wetted catalyst surface area): \_\_\_\_\_

VOC Concentration into Catalyst: \_\_\_\_\_ PPMVD@ 15%O<sub>2</sub> CO Concentration inot Catalyst: \_\_\_\_\_ PPMVD@ 15%O<sub>2</sub>

**Section C - Operation Information**

Pollutants	Maximum Emissions Before Control *		Maximum Emissions After Control	
	PPM@15% O <sub>2</sub> , dry	lb/hour	PPM@15% O <sub>2</sub> , dry	lb/hour
ROG			4.3	0.32
NOx			3.5	0.74
CO			8	1.03
PM <sub>10</sub>				0.37
SOx				0.19
NH <sub>3</sub>			15	1.18

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

Reference (attach data):

- Manufacturer Emission Data       EPA Emission Factors       AQMD Emission Factors       Source Test

Stack Height: 64 ft. 6 in. Stack Diameter: 6 ft. 0 in.

Exhaust Temperature: 840 °F Exhaust Pressure: \_\_\_\_\_ inches water column

Exhaust Flow Rate: 84260 CFM Oxygen Level: 15.00 %

**Form 400-E-12  
Gas Turbine**

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

**Section C - Operation Information (cont.)**

<b>Startup Data</b>	No. of Startups per day: <u>8</u> No. of Startups per year: <u>900</u> Duration of each startup: <u>1</u> hrs.
---------------------	--

<b>Shutdown Data</b>	No. of Shutdowns per day: <u>8</u> No. of Shutdowns per year: <u>900</u> Duration of each Shutdown: <u>1</u> hrs.
----------------------	---

Pollutants	Startup Emissions		Shutdown Emissions	
	PPM@15% O <sub>2</sub> , dry	lb/hour	PPM@15% O <sub>2</sub> , dry	lb/hour
ROG		3.28		4.29
NOx		1.91		0.99
CO		23.02		20.96
PM <sub>10</sub>		0.37		0.37
SOx		0.19		0.19
NH <sub>3</sub>		1.18		1.18

<b>Monitoring and Reporting</b>	Continuous Emission Monitoring System (CEMS):    CEMS Make: <u>TBD</u> CEMS Model: <u>TBD</u>
	Will the CEMS be used to measure both on-line and startup/shutdown emissions? <input checked="" type="radio"/> Yes <input type="radio"/> No
	The following parameters will be continuously monitored:
	<input checked="" type="checkbox"/> NOx <input checked="" type="checkbox"/> CO <input checked="" type="checkbox"/> O <sub>2</sub>
	<input type="checkbox"/> Fuel Flow Rate <input checked="" type="checkbox"/> Ammonia Injection Rate <input type="checkbox"/> Other (specify): _____
	<input type="checkbox"/> Ammonia Stack Concentration:    Ammonia CEMS Make: _____ Ammonia CEMS Model: _____

<b>Operating Schedule</b>	Normal: <u>24</u> hours/day <u>7</u> days/week <u>52</u> weeks/yr
	Maximum: <u>24</u> hours/day <u>7</u> days/week <u>52</u> weeks/yr

**Section D - Authorization/Signature**

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

<b>Preparer Info</b>	Signature: <u>[Signature]</u> Date: <u>05/03/2021</u>	Name: _____
	Title: _____    Company Name: <u>Yorke Engineering</u>	Phone #: _____    Fax #: _____
<b>Contact Info</b>	Name: _____	Phone #: _____    Fax #: _____
	Title: <u>Sr. Env. Specialist</u> Company Name: <u>SoCalGas</u>	Email: _____

THIS IS A PUBLIC DOCUMENT

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

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





South Coast Air Quality Management District

# Form 400-PS Plot Plan And Stack Information Form

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

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

## Section A - Operator Information

<b>Facility Name</b> (Business Name of Operator To Appear On The Permit): SDG&E (Moreno Valley Compressor Station)	<b>Valid AQMD Facility ID</b> (Available On Permit Or Invoice Issued By AQMD): 004242
<b>Address where the equipment will be operated</b> (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 14601 Virginia Street, Moreno Valley	
<input checked="" type="radio"/> <b>Fixed Location</b> <input type="radio"/> <b>Various Locations</b>	

## Section B - Location Data

<b>Plot Plan</b>	Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.
<b>Location of Schools Nearby</b>	<p><b>Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?</b>    <input type="radio"/> Yes    <input checked="" type="radio"/> No</p> <p>If yes, please provide name(s) of school(s) below:</p> <p><b>School Name:</b> _____    <b>School Name:</b> _____</p> <p><b>School Address:</b> _____    <b>School Address:</b> _____</p> <p><b>Distance from stack or equipment vent to the outer boundary of the school:</b> _____ feet    <b>Distance from stack or equipment vent to the outer boundary of the school:</b> _____ feet</p> <p><b>CA Health &amp; Safety Code 42301.9:</b> "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.</p>
<b>Population Density</b>	<input type="radio"/> Urban <input checked="" type="radio"/> Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)
<b>Zoning Classification</b>	<input type="radio"/> <b>Mixed Use Residential Commercial Zone (M-U)</b> <input type="radio"/> <b>Service and Professional Zone (C-S)</b> <input type="radio"/> <b>Medium Commercial (C-3)</b> <input checked="" type="radio"/> <b>Heavy Commercial (C-4)</b> <input type="radio"/> <b>Commercial Manufacturing (C-M)</b>

## Section C - Emission Release Parameters - Stacks, Vents

<b>Stack Data</b>	<b>Stack Height:</b> 64.50 feet (above ground level)	<b>What is the height of the closest building nearest the stack?</b> 56 feet
	<b>Stack Inside Diameter:</b> 72.00 inches	<b>Stack Flow:</b> 84,260 acfm <b>Stack Temperature:</b> 840 °F
	<b>Rain Cap Present:</b> <input type="radio"/> Yes <input checked="" type="radio"/> No	<b>Stack Orientation:</b> <input checked="" type="radio"/> Vertical <input type="radio"/> Horizontal
	If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):	
	<b>Building #/Name:</b> See Attached Sheet	<b>Building #/Name:</b> _____
	<b>Building Height:</b> _____ feet (above ground level)	<b>Building Height:</b> _____ feet (above ground level)
	<b>Building Width:</b> _____ feet	<b>Building Width:</b> _____ feet
	<b>Building Length:</b> _____ feet	<b>Building Length:</b> _____ feet
<b>Receptor Distance From Equipment Stack or Roof Vents/Openings</b>	<b>Distance to nearest residence or sensitive receptor*:</b> 6,875 feet	<b>Distance to nearest business:</b> 8,575 feet
<b>Building Information</b>	<b>Are the emissions released from vents and/or openings from a building?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No	
	If yes, please provide:	
	<b>Building #/Name:</b> _____	<b>Building Width:</b> _____ feet
	<b>Building Height:</b> _____ feet (above ground level)	<b>Building Length:</b> _____ feet

\*AQMD Rule 1470 defines SENSITIVE RECEPTOR as meaning any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.




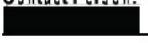


**Form 400-PS**

**Plot Plan And Stack Information Form**

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

**Section D - Authorization/Signature**

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

<b>Signature of Preparer:</b> 	<b>Title of Preparer:</b> Principal Engineer	<b>Preparer's Phone #:</b> 	<b>Preparer's Email:</b> 
<b>Contact Person:</b> 	<b>Contact's Phone#:</b> 	<b>Date Signed:</b> 05/03/2021	
<b>Contact's Email:</b> 	<b>Contact's Fax#:</b> _____		

**THIS IS A PUBLIC DOCUMENT**

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

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

**Form 400-PS – Supplemental Information**

<b>Building/Structure Description</b>	<b>Height (feet)</b>	<b>Dimensions - X (feet)</b>	<b>Dimensions - Y (feet)</b>
Cooper Compressor Building	40.6	Polygonal	
Maintenance Shop	25.8	106	46
Admin Building & Control Room	14.9	106	60
Cooling Tower #4	21.3	104	48
Cooling Tower #3	16.9	26	36
Cooling Tower #1	12.5	58	31
Clark Compressor Building	25.8	98	30
Auxiliary Building	18.1	69	25
Vessel Loading/Unloading Building 1	10.5	7	14
Vessel Loading/Unloading Building 2	13.2	35	14
Building East of Cooling Tower #3	8.8	77	32
Building South of Cooling Tower #3	10.1	23	18
New Warehouse Building	22	100	60
New EDC Building	56	64	154.5
New CGT Building	56	69	162

Notes:

1. Existing building heights determined from "Moreno Existing Buildings Plot Plan v1". Building dimensions determined from Google Earth.
2. New warehouse building dimensions provided by SoCalGas.
3. EDC and CGT building dimensions provided by SoCalGas.



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

Section C - Permit Mailing Address

4. Equipment Location Is: Fixed Location (checked) Various Location
4. Equipment Location Is: (For equipment operated at various locations, provide address of initial site.)
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
[Redacted] Sr. Env. Specialist
Contact Name Title
[Redacted]
Phone # Ext. Fax #
E-Mail: [Redacted]

5. Permit and Correspondence Information:
[ ] Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
[Redacted] Sr. Env. Specialist
Contact Name Title
[Redacted]
Phone # Ext. Fax #
E-Mail: [Redacted]

Section D - Application Type

6. The Facility Is: [ ] Not In RECLAIM or Title V [ ] In RECLAIM [ ] In Title V [X] In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application:
[X] 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 \*
Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number: \_\_\_\_\_
\* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
SCR and Oxidation Catalyst controlling compressor gas turbine
10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are \$500,000 or less OR a not-for-profit training center) [X] No [ ] Yes
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: [X] No [ ] Yes

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? [ ] No [X] Yes
16. Are there any schools (K-12) within 1000 feet of the facility property line? [X] 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: [Redacted Signature]
18. Title of Responsible Official: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) [ ] No [X] Yes
20. Print Name: [Redacted Name]
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.) [X] No [ ] Yes

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

Table with columns: 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-E-5 Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

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

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

#### Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): <u>SDG&amp;E (Moreno Valley Compressor Station)</u>	Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): <u>004242</u>
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): <u>14601 Virginia Street, Moreno Valley, CA</u> <input checked="" type="radio"/> Fixed Location <input type="radio"/> Various Locations	

#### Section B - Equipment Description

##### Selective Catalytic Reduction (SCR)

SCR Catalyst	Manufacturer: <u>Cornetech</u> Catalyst Active Material: <u>Titanium-Vanadium-Tungsten</u>
	Model Number: <u>CMHCDET</u> Type: <u>Honeycomb Type</u>
	Size of Each Layer or Module: L: <u>3</u> ft. <u>3.6</u> in.    W: <u>6</u> ft. <u>9.6</u> in.    H: <u>4</u> ft. <u>5</u> in.
	No. of Layers or Modules: <u>1</u> Total Volume: <u>70.6</u> cu. ft.      Total Weight: <u>4800</u> lbs.
Reducing Agent	<input type="radio"/> Urea <input type="radio"/> Anhydrous Ammonia <input checked="" type="radio"/> Aqueous Ammonia <u>19.00</u> %    Injection Rate: <u>15.3</u> lb/hr
Reducing Agent Storage *	Diameter: <u>8</u> ft.    in.    Height: <u>24</u> ft. <u>2</u> in.    Capacity: <u>10000</u> gal Pressure Setting: <u>44.7</u> psia    * A separate permit may be needed for the storage equipment.
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>30772</u> per hour
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: <u>41.16</u> ft/hr
Manufacturer's Guarantee	NOx: <u>3.5</u> ppm    %O <sub>2</sub> : <u>15.00</u> NOx: _____ gm/bhp-hr    Ammonia Slip: <u>15</u> ppm @ <u>15.00</u> %O <sub>2</sub>
Catalyst Life	<u>5</u> years (expected)
Cost	Capital Cost: _____    Installation Cost: _____    Catalyst Replacement Cost: _____

##### Oxidation Catalyst

Oxidation Catalyst	Manufacturer: <u>BASF</u> Catalyst Active Material: <u>Platinum</u>
	Model Number: <u>CAMET</u> Type: <u>Brazed metallic oxidation</u>
	Size of Each Layer or Module: L: <u>2</u> ft.    in.    W: <u>2</u> ft.    in.    H: _____ ft. <u>2.45</u> in.
	No. of Layers or Modules: <u>12</u> Total Volume: <u>8.4</u> cu. ft.      Total Weight: <u>1000</u> lbs.
Space Velocity	Gas Flow Rate/Catalyst Volume: <u>279543</u> per hour
Manufacturer's Guarantee	VOC: <u>4.3</u> ppm    VOC: _____ gm/bhp-hr    %O <sub>2</sub> : <u>15.00</u> CO: <u>8</u> ppm    CO: _____ gm/bhp-hr    %O <sub>2</sub> : <u>15.00</u>
Catalyst Life	<u>5</u> years (expected)
Cost	Capital Cost: _____    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: <u>None</u> 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: _____ <u>650</u> °F (from cold start) Maximum Temperature: _____ <u>840</u> °F Warm-up Time: _____ <u>1</u> hr. _____ min. (maximum)
Operating Schedule	Normal: _____ <u>24</u> hours/day _____ <u>7</u> days/week _____ <u>52</u> weeks/yr Maximum: _____ <u>24</u> hours/day _____ <u>7</u> days/week _____ <u>52</u> 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: <u>05/03/2021</u> Title: _____ Company Name: <u>Yorke Engineering</u> <u>Principal Engineer</u>	Name: _____ Phone #: _____ Fax #: _____ Email: _____
Contact Info	Name: _____ Title: <u>Sr. Env. Specialist</u> Company Name: <u>SoCalGas</u>	Phone #: _____ Fax #: _____ Email: _____

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



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: Fixed Location (selected) Various Location
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section D - Application Type

6. The Facility Is: Not In RECLAIM or Title V In RECLAIM In Title V In RECLAIM & Title V Programs (selected)
7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application:
New Construction (Permit to Construct) (selected)
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 \*
Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):
9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Emergency internal combustion engine No. 1, Waukesha, 824 Hp
10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 1
11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are \$500,000 or less OR a not-for-profit training center) No (selected) Yes
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: No (selected) Yes

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? No (selected) Yes
16. Are there any schools (K-12) within 1000 feet of the facility property line? No (selected) 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: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) No Yes (selected)
20. Print Name:
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.) No Yes (selected)

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

Table with columns: 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-E-13a**

**Emergency Internal Combustion Engine**



This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A

**Mail Application To:**  
SCAQMD  
P.O. Box 4944  
Diamond Bar, CA 91765

Tel: (909) 396-3385

[www.aqmd.gov](http://www.aqmd.gov)

Permit to be issued to (Business name of operator to appear on permit):  
SDG&E (Moreno Valley Compressor Station)

Street location where the equipment will be operated ( for equipment which will be moved to various location in SCAQMD's jurisdiction, please list the initial location site):  
14601 Virginia Street, Moreno Valley, CA

**Section A: Equipment Information**

Internal Combustion Engine	Manufacturer:	Waukesha	Model No.:	VHP - F3524GSI	Serial No.:	TBD
	EPA Family No.:		Date of Manufacture:	_____ (mm/dd/yyyy) For an ICE manufactured after 7/18/94, please provide manufacturer's specification.		
	Manufacturer Maximum Rating:	824 BHP @ 1200 RPM	Date of Installation:	_____ (mm/dd/yyyy)		

ICE Emergency Function

Electrical Generator   
 Fire Pump   
 Flood Control   
 Pump Driver   
 Compressor  
 Water Pump   
 Other \_\_\_\_\_

Type

Fixed site   
 Portable   
 How Is This Type of Equipment Used? (Check All That Apply)
 Within Facility   
 Off- Site   
 Rental

Fuel

Diesel Oil   
 LPG   
 Natural Gas   
 Other: \_\_\_\_\_

Cycle Type

Two Cycle   
 Four Cycle

Combustion Type

Lean Burn   
 Rich Burn

Engine Size

\_\_\_\_\_ 58 \_\_\_\_\_ liters

No. of Cylinders

Four   
 Six   
 Eight   
 Ten   
 Twelve   
 Sixteen   
 Other \_\_\_\_\_

Aspiration Type

Naturally Aspirated   
 Turbocharged   
 Turbocharged/Aftercooled

Air Pollution Control

Check all that apply:

<input type="checkbox"/> Selective Catalytic Reduction (SCR)*	<input type="checkbox"/> Catalytic Converter
<input type="checkbox"/> Selective Non-catalytic Reduction (SNCR)*	<input type="checkbox"/> Air/Fuel Ratio Controller
<input checked="" type="checkbox"/> Non-selective Catalytic Reduction (NSCR)	<input type="checkbox"/> No Controls
<input type="checkbox"/> Diesel Particulate Filter (DPF)	<input type="checkbox"/> Other (specify) _____

Manufacturer: Waukesha      Model No. EMPact

If already permitted, indicate Permit No. \_\_\_\_\_ Device No. \_\_\_\_\_ (RECLAIM and/or Title V Permits)

\* Separate application is required.

**Additional Information for Diesel Particulate Filter (DPF)**

Filter Efficiency: \_\_\_\_\_ %

CARB Certified?     Yes     No

If Yes, provide a copy of the CARB Verification Certificate, or provide the Verification No. \_\_\_\_\_

Installing a backpressure relief system?     Yes     No



**Section B: Operation Information**

<b>Fuel Consumption</b>	Maximum Load: _____ gal/hr OR <u>6971</u> cu ft/hr	Average Load: _____ gal/hr OR <u>6971</u> cu ft/hr
<b>Operating Schedule</b>	Normal: <u>1</u> hours/day <u>1</u> days/week <u>50</u> weeks/year	
	Maximum: _____ hours/day _____ days/week _____ weeks/year	
	Testing & Maintenance: <u>50</u> hours/year	

**Section C: Engine Data**

Is the engine EPA certified?

Yes Provide a copy of EPA's Engine Certification.

Choose one:  Tier I  Tier II  Tier III  Tier IV (Interim)  Tier IV

No Provide a copy of the Manufacturer's Emissions Data.

If manufacturer's emissions data is not available, provide available emissions data below. Provide supporting documents.

Carbon Monoxide (grams/bhp-hr)	Hydrocarbons (grams/bhp-hr)	Oxides of Nitrogen (grams/bhp-hr)	Hydrocarbons + Oxides of Nitrogen (grams/bhp-hr)	Particulate Matter (grams/bhp-hr)
0.6	0.15	0.15		




**Section D: Sensitive Receptors**

A. Distance from engine stack to the fence line of the nearest sensitive receptor (ie., long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools (K-12), playgrounds, child care centers, and athletic facilities):

Type of Facility	Name of Facility	Distance (feet)
Residence		>1000
Commercial		>1000
School		>1000

**Section E: Applicant Certification Statement**

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

SIGNATURE OF PREPARER: 	TITLE OF PREPARER: Principal Engineer	
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT : 	CONTACT PERSON'S TELEPHONE NUMBER 	DATE SIGNED: 05/03/2021

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



South Coast Air Quality Management District

# Form 400-PS Plot Plan And Stack Information Form

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

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

## Section A - Operator Information

**Facility Name** (Business Name of Operator To Appear On The Permit): SDG&E (Moreno Valley Compressor Station)      **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 004242

**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):  
14601 Virginia Street, Moreno Valley       **Fixed Location**       **Various Locations**

## Section B - Location Data

**Plot Plan** Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

**Location of Schools Nearby** **Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?**       Yes       No  
If yes, please provide name(s) of school(s) below:  
**School Name:** \_\_\_\_\_ **School Name:** \_\_\_\_\_  
**School Address:** \_\_\_\_\_ **School Address:** \_\_\_\_\_  
**Distance from stack or equipment vent to the outer boundary of the school:** \_\_\_\_\_ feet      **Distance from stack or equipment vent to the outer boundary of the school:** \_\_\_\_\_ feet  
**CA Health & Safety Code 42301.9:** "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

**Population Density**       Urban       Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

**Zoning Classification**       **Mixed Use Residential Commercial Zone (M-U)**       **Service and Professional Zone (C-S)**       **Medium Commercial (C-3)**  
 **Heavy Commercial (C-4)**       **Commercial Manufacturing (C-M)**

## Section C - Emission Release Parameters - Stacks, Vents

**Stack Data** **Stack Height:** 17.17 feet (above ground level)      **What is the height of the closest building nearest the stack?** 56 feet  
**Stack Inside Diameter:** 11.64 inches      **Stack Flow:** 4,126 acfm      **Stack Temperature:** 1,185 °F  
**Rain Cap Present:**       Yes       No      **Stack Orientation:**       Vertical       Horizontal  
If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):  
**Building #/Name:** See Attached Sheet      **Building #/Name:** \_\_\_\_\_  
**Building Height:** \_\_\_\_\_ feet (above ground level)      **Building Height:** \_\_\_\_\_ feet (above ground level)  
**Building Width:** \_\_\_\_\_ feet      **Building Width:** \_\_\_\_\_ feet  
**Building Length:** \_\_\_\_\_ feet      **Building Length:** \_\_\_\_\_ feet

**Receptor Distance From Equipment Stack or Roof Vents/Openings** **Distance to nearest residence or sensitive receptor\*:** 6,875 feet  
**Distance to nearest business:** 8,575 feet

**Building Information** **Are the emissions released from vents and/or openings from a building?**       Yes       No  
If yes, please provide:  
**Building #/Name:** \_\_\_\_\_ **Building Width:** \_\_\_\_\_ feet  
**Building Height:** \_\_\_\_\_ feet (above ground level)      **Building Length:** \_\_\_\_\_ feet

\*AQMD Rule 1470 defines SENSITIVE RECEPTOR as meaning any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

**Form 400-PS**

**Plot Plan And Stack Information Form**

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

**Section D - Authorization/Signature**

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

<b>Signature of Preparer:</b> [Redacted Signature]	<b>Title of Preparer:</b> Principal Engineer	<b>Preparer's Phone #:</b> [Redacted]	<b>Preparer's Email:</b> [Redacted]
<b>Contact Person:</b> [Redacted]	<b>Contact's Phone#:</b> [Redacted]	<b>Date Signed:</b> 05/03/2021	
<b>Contact's Email:</b> [Redacted]	<b>Contact's Fax#:</b> _____		

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

**Form 400-PS – Supplemental Information**

<b>Building/Structure Description</b>	<b>Height (feet)</b>	<b>Dimensions - X (feet)</b>	<b>Dimensions - Y (feet)</b>
Cooper Compressor Building	40.6	Polygonal	
Maintenance Shop	25.8	106	46
Admin Building & Control Room	14.9	106	60
Cooling Tower #4	21.3	104	48
Cooling Tower #3	16.9	26	36
Cooling Tower #1	12.5	58	31
Clark Compressor Building	25.8	98	30
Auxiliary Building	18.1	69	25
Vessel Loading/Unloading Building 1	10.5	7	14
Vessel Loading/Unloading Building 2	13.2	35	14
Building East of Cooling Tower #3	8.8	77	32
Building South of Cooling Tower #3	10.1	23	18
New Warehouse Building	22	100	60
New EDC Building	56	64	154.5
New CGT Building	56	69	162

Notes:

1. Existing building heights determined from "Moreno Existing Buildings Plot Plan v1". Building dimensions determined from Google Earth.
2. New warehouse building dimensions provided by SoCalGas.
3. EDC and CGT building dimensions provided by SoCalGas.



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: Fixed Location (selected) Various Location
14601 Virginia Street
Moreno Valley, CA 92555
City: Moreno Valley, State: CA, Zip: 92555
Contact Name: Sr. Env. Specialist, Title: Sr. Env. Specialist
Phone #, Ext., Fax #, E-Mail:

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Chatsworth, CA 91313
City: Chatsworth, State: CA, Zip: 91313
Contact Name: Sr. Env. Specialist, Title: Sr. Env. Specialist
Phone #, Ext., Fax #, E-Mail:

Section D - Application Type

6. The Facility Is: In RECLAIM & Title V Programs (selected)
7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application: New Construction (selected)
7b. Facility Permits: RECLAIM Facility Permit Amendment (selected)
7c. Equipment or Process with an Existing/Previous Application or Permit: Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): 3-Way non-selective catalytic reduction and air fuel ratio controller for Emergency Engine No. 1
10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are \$500,000 or less OR a not-for-profit training center) No (selected)
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: No (selected)

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? No (selected)
16. Are there any schools (K-12) within 1000 feet of the facility property line? No (selected)

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: [Signature]
18. Title of Responsible Official: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) No (selected)
20. Print Name: [Name]
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.) No (selected)

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

Table with columns: 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



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (X) Fixed Location ( ) Various Location
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
( ) Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V (X) In RECLAIM & Title V Programs
7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application:
(X) 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.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Emergency internal combustion engine No. 2, Waukesha, 824 Hp
10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are \$500,000 or less OR a not-for-profit training center) (X) No ( ) Yes
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: (X) No ( ) Yes

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (X) Yes
16. Are there any schools (K-12) within 1000 feet of the facility property line? (X) 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:
18. Title of Responsible Official: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (X) Yes
20. Print Name:
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.) (X) No ( ) Yes

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

Table with columns: 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-E-13a**

**Emergency Internal Combustion Engine**

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A

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

Permit to be issued to (Business name of operator to appear on permit):  
SDG&E (Moreno Valley Compressor Station)

Street location where the equipment will be operated ( for equipment which will be moved to various location in SCAQMD's jurisdiction, please list the initial location site):  
14601 Virginia Street, Moreno Valley, CA

**Section A: Equipment Information**

Internal Combustion Engine	Manufacturer:	Waukesha	Model No.:	VHP - F3524GSI	Serial No.:	TBD
	EPA Family No.:		Date of Manufacture:		(mm/dd/yyyy) For an ICE manufactured after 7/18/94, please provide manufacturer's specification.	
	Manufacturer Maximum Rating:	824 BHP @ 1200 RPM	Date of Installation:		(mm/dd/yyyy)	

ICE Emergency Function

Electrical Generator   
 Fire Pump   
 Flood Control   
 Pump Driver   
 Compressor  
 Water Pump   
 Other \_\_\_\_\_

Type

Fixed site   
 Portable   
 How Is This Type of Equipment Used? (Check All That Apply)
 Within Facility   
 Off- Site   
 Rental

Fuel

Diesel Oil   
 LPG   
 Natural Gas   
 Other: \_\_\_\_\_

Cycle Type

Two Cycle   
 Four Cycle

Combustion Type

Lean Burn   
 Rich Burn

Engine Size

\_\_\_\_\_ 58 \_\_\_\_\_ liters

No. of Cylinders

Four   
 Six   
 Eight   
 Ten   
 Twelve   
 Sixteen   
 Other \_\_\_\_\_

Aspiration Type

Naturally Aspirated   
 Turbocharged   
 Turbocharged/Aftercooled

Air Pollution Control

Check all that apply:

Selective Catalytic Reduction (SCR)\*   
 Catalytic Converter  
 Selective Non-catalytic Reduction (SNCR)\*   
 Air/Fuel Ratio Controller  
 Non-selective Catalytic Reduction (NSCR)   
 No Controls  
 Diesel Particulate Filter (DPF)   
 Other (specify) \_\_\_\_\_

Manufacturer: Waukesha    Model No. EMPact

If already permitted, indicate Permit No. \_\_\_\_\_ Device No. \_\_\_\_\_ (RECLAIM and/or Title V Permits)

\* Separate application is required.

**Additional Information for Diesel Particulate Filter (DPF)**

Filter Efficiency: \_\_\_\_\_ %

CARB Certified?     Yes     No

If Yes, provide a copy of the CARB Verification Certificate, or provide the Verification No. \_\_\_\_\_

Installing a backpressure relief system?     Yes     No

**Section B: Operation Information**

<b>Fuel Consumption</b>	Maximum Load: _____ gal/hr OR <u>6971</u> cu ft/hr	Average Load: _____ gal/hr OR <u>6971</u> cu ft/hr
<b>Operating Schedule</b>	Normal: _____ hours/day _____ days/week _____ weeks/year	
	Maximum: _____ hours/day _____ days/week _____ weeks/year	
	Testing & Maintenance: <u>50</u> hours/year	

**Section C: Engine Data**

Is the engine EPA certified?

Yes Provide a copy of EPA's Engine Certification.

Choose one:  Tier I  Tier II  Tier III  Tier IV (Interim)  Tier IV

No Provide a copy of the Manufacturer's Emissions Data.

If manufacturer's emissions data is not available, provide available emissions data below. Provide supporting documents.

Carbon Monoxide (grams/bhp-hr)	Hydrocarbons (grams/bhp-hr)	Oxides of Nitrogen (grams/bhp-hr)	Hydrocarbons + Oxides of Nitrogen (grams/bhp-hr)	Particulate Matter (grams/bhp-hr)
0.6	0.15	0.15		

**Section D: Sensitive Receptors**

A. Distance from engine stack to the fenceline of the nearest sensitive receptor (ie., long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools (K-12), playgrounds, child care centers, and athletic facilities):

Type of Facility	Name of Facility	Distance (feet)
Residence		>1000
Commercial		>1000
School		>1000

**Section E: Applicant Certification Statement**

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

<b>SIGNATURE OF PREPARER:</b> [Signature]	<b>TITLE OF PREPARER:</b> Principal Engineer	
<b>CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT :</b> [Redacted]	<b>CONTACT PERSON'S TELEPHONE NUMBER</b> [Redacted]	<b>DATE SIGNED:</b> 05/03/2021

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Form 400-PS
Plot Plan And Stack Information Form

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

Section A - Operator Information

Facility Name (Business Name of Operator To Appear On The Permit): SDG&E (Moreno Valley Compressor Station)
Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242

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):
14601 Virginia Street, Moreno Valley
Fixed Location (selected) Various Locations

Section B - Location Data

Plot Plan: Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby: Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? No (selected)
School Name: School Address:
Distance from stack or equipment vent to the outer boundary of the school: Distance from stack or equipment vent to the outer boundary of the school:
CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density: Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.) (selected)

Zoning Classification: Heavy Commercial (C-4) (selected)
Mixed Use Residential Commercial Zone (M-U) Service and Professional Zone (C-S) Medium Commercial (C-3)
Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data: Stack Height: 17.17 feet (above ground level) What is the height of the closest building nearest the stack? 56 feet
Stack Inside Diameter: 11.64 inches Stack Flow: 4,126 acfm Stack Temperature: 1,185 F
Rain Cap Present: Yes (selected) No Stack Orientation: Vertical (selected) Horizontal
If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):
Building #/Name: See Attached Sheet Building #/Name:
Building Height: Building Height:
Building Width: Building Width:
Building Length: Building Length:

Receptor Distance From Equipment Stack or Roof Vents/Openings: Distance to nearest residence or sensitive receptor\*: 6,875 feet
Distance to nearest business: 8,575 feet

Building Information: Are the emissions released from vents and/or openings from a building? No (selected)
If yes, please provide:
Building #/Name: Building Width:
Building Height: Building Length:

\*AQMD Rule 1470 defines SENSITIVE RECEPTOR as meaning any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

**Form 400-PS**

**Plot Plan And Stack Information Form**

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**Section D - Authorization/Signature**

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

Signature of Preparer: [Redacted]	Title of Preparer: Principal Engineer	Preparer's Phone #: [Redacted]	Preparer's Email: [Redacted]
Contact Person: [Redacted]	Contact's Phone#: [Redacted]	Contact's Fax#: [Redacted]	Date Signed: 05/03/2021
Contact's Email: [Redacted]			

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**Form 400-PS – Supplemental Information**

<b>Building/Structure Description</b>	<b>Height (feet)</b>	<b>Dimensions - X (feet)</b>	<b>Dimensions - Y (feet)</b>
Cooper Compressor Building	40.6	Polygonal	
Maintenance Shop	25.8	106	46
Admin Building & Control Room	14.9	106	60
Cooling Tower #4	21.3	104	48
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Notes:

1. Existing building heights determined from "Moreno Existing Buildings Plot Plan v1". Building dimensions determined from Google Earth.
2. New warehouse building dimensions provided by SoCalGas.
3. EDC and CGT building dimensions provided by SoCalGas.



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.



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Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: Fixed Location (checked) Various Location
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
Alison Wong Sr. Env. Specialist
Contact Name Title
(213) 604-4534 Phone # Ext. Fax #
E-Mail: awong2@socalgas.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
Alison Wong Sr. Env. Specialist
Contact Name Title
(213) 604-4534 Phone # Ext. Fax #
E-Mail: awong2@socalgas.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 (checked)
7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application: New Construction (Permit to Construct) (checked)
7b. Facility Permits: RECLAIM Facility Permit Amendment (checked)
7c. Equipment or Process with an Existing/Previous Application or Permit: Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): 3-Way non-selective catalytic reduction and air fuel ratio controller for Emergency Engine No. 2
10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process) 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are \$500,000 or less OR a not-for-profit training center) No (checked) Yes
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#: No (checked) Yes

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? No (checked) Yes
16. Are there any schools (K-12) within 1000 feet of the facility property line? No (checked) 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: [Redacted]
18. Title of Responsible Official: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) No (checked) Yes
20. [Redacted]
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.) No (checked) Yes

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

Table with columns: 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



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): SDG&E (Moreno Valley Compressor Station)
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: Fixed Location (selected) Various Location
14601 Virginia Street
Street Address
Moreno Valley, CA 92555
City Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
Check here if same as equipment location address
P.O. Box 2300, Mail Stop SC9314
Address
Chatsworth, CA 91313
City State Zip
Contact Name: Sr. Env. Specialist
Title
Phone # Ext. Fax #
E-Mail:

Section D - Application Type

6. The Facility Is: Not In RECLAIM or Title V, In RECLAIM, In Title V, In RECLAIM & Title V Programs (selected)
7. Reason for Submitting Application (Select only ONE):
7a. New Equipment or Process Application:
7b. Facility Permits: Title V Application or Amendment (selected)
7c. Equipment or Process with an Existing/Previous Application or Permit:
Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number.

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Facility Permit Amendment for Moreno Compressor Modernization Project
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)
12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Pipeline Transportation of Natural Gas
14. What is your business primary NAICS Code? (North American Industrial Classification System) 486210
15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator?
16. Are there any schools (K-12) within 1000 feet of the facility property line?

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: Field Operations Manager
19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.)
20. Print Name:
21. Date: 5/19/2021
22. Do you claim confidentiality of data? (If Yes, see instructions.)

23. Check List: Authorized Signature/Date, Form 400-CEQA, Supplemental Form(s) (i.e., Form 400-E-xx), Fees Enclosed

Table with columns: 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



# Form 500-A2 Title V Application Certification



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

### Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): SDG&E (Moreno Valley Compressor Station)

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 004242

3. This Certification is submitted with a (Check one):

- a.  Title V Application (Initial, Revision or Renewal)
- b.  Supplement/Correction to a Title V Application
- c.  MACT Part 1

4. Is Form 500-C2 included with this Certification?  Yes  No

### Section II - Responsible Official Certification Statement

Read each statement carefully and check each that applies – You must check 3a or 3b.

#### 1. For Initial, Permit Renewal, and Administrative Application Certifications:

- a.  The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,
  - i.  except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.
  - ii.  except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).
- b.  The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.

#### 2. For Permit Revision Application Certifications:




- a.  The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.

#### 3. For MACT Hammer Certifications:

- a.  The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j).
- b.  The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

### Section III - Authorization/Signature

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statement and information in this document and in all attached application forms and other materials are true, accurate, and complete.

1. Signature of Responsible Official: 	2. Title of Responsible Official: Field Operations Manager
3. Print Name: 	4. Date: 5/19/2021
5. Phone #: 	6. Fax #:

7. Address of Responsible Official:  
P.O. Box 2300, Mail Stop SC9314 Chatsworth CA 91313  
 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	
<p><i>For Acid Rain Facilities Only:</i> 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.</p>	
1. Signature of Designated Representative or Alternate:	2. Title of Designated Representative or Alternate:
3. Print Name of Designated Representative or Alternate:	4. Date:
5. Phone #:	6. Fax #:
7. Address of Designated Representative or Alternate:	
<p style="text-align: right;">CA</p> <hr/> <p>Street # _____ City _____ State _____ Zip _____</p>	



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

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

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

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project <sup>1</sup> has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines § 15060(a)]. Form 400-CEQA and the instructions for guidance on completing this form are available at <http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms> or <http://www.aqmd.gov/home/permits/permit-application-forms>. 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 Form 400-CEQA is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385.

Section A – Facility Information	
1. Facility Name (Business Name of Operator to Appear on the Permit): SDG&E (Moreno Valley Compressor Station)	2. SCAQMD Facility ID: 4242
3. Project Description: Moreno Compressor Modernization Project	

Section B – Review For Exemption From Further CEQA Action		
Check "Yes" or "No" as applicable. If "Yes" is checked for any question in Section B, skip Section C and proceed to page 2 and complete Section D - Signatures.		
	Yes	No
1.	<input type="radio"/>	<input checked="" type="radio"/>
A request for a change of operator only (without equipment or process change modifications)?		
2.	<input type="radio"/>	<input checked="" type="radio"/>
A functionally identical permit unit replacement with no increase in equipment unit rating or emissions?		
3.	<input type="radio"/>	<input checked="" type="radio"/>
A change of daily VOC permit limit to a monthly VOC permit limit?		
4.	<input type="radio"/>	<input checked="" type="radio"/>
Equipment damaged as a result of a disaster during state of emergency?		
5.	<input type="radio"/>	<input checked="" type="radio"/>
A Title V (e.g., SCAQMD Regulation XXX) permit renewal without equipment or process change modifications?		
6.	<input type="radio"/>	<input checked="" type="radio"/>
A Title V administrative permit revision?		
7.	<input type="radio"/>	<input checked="" type="radio"/>
The conversion of an existing permit into an initial Title V permit?		

Section C – Review of Impacts Which May Trigger Further CEQA Review		
Check "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
1.	<input checked="" type="radio"/>	<input type="radio"/>
Is this project specifically evaluated in a previously certified or adopted CEQA document? If "Yes" is checked, attach a copy of the signed Notice of Determination to this form.		
2.	<input type="radio"/>	<input checked="" type="radio"/>
Is this project specifically exempted from CEQA by another entity (e.g., city or agency)? If "Yes" is checked, attach a copy of the signed Notice of Exemption or other documentation from the entity to this form.		
3.	<input type="radio"/>	<input checked="" type="radio"/>
Is this project part of a larger project? If "Yes" is checked, attach a separate sheet to briefly describe the larger project.		
4.	<input type="radio"/>	<input checked="" type="radio"/>
Will the 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 listed on Form 400-CEQA, Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention [ <a href="http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms">http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms</a> ]? If "Yes" is checked, attach a separate sheet to identify each hazardous material and corresponding quantity to be transported, stored, or used.		
5.	<input checked="" type="radio"/>	<input type="radio"/>
Will the project emit any air toxic listed on Form 400-CEQA, Table 2 - Other Air Toxics and Their Screening Levels [ <a href="http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms">http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms</a> ] <sup>2</sup> ? If "Yes" is checked, attach a separate sheet to identify each air toxic and corresponding quantity to be emitted.		
6.	<input checked="" type="radio"/>	<input type="radio"/>
Will the project require any demolition, excavation, and/or grading construction activities that encompass an area exceeding 20,000 square feet?		

<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> Form 400-CEQA, Table 2 – Other Air Toxics and Their Screening Levels, contains a list of air toxics that either do not have a cancer potency (CP) or reference exposure level (REL) approved by the Office of Environmental Health Hazards Assessment (OEHA) or have a combination of OEHA-approved and non-approved CPs or RELs.

RC-SH-B93





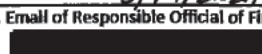



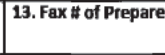
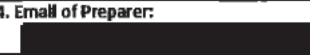


**Section C – Review of Impacts Which May Trigger Further CEQA (concluded)**

	Yes	No	
7.	<input checked="" type="radio"/>	<input type="radio"/>	Will the project utilize a boiler, engine, or other combustion equipment that uses fuel (e.g., gasoline, diesel, natural gas, liquefied petroleum gas (LPG), or landfill gas)? If "Yes" is checked, then the applicant will need to calculate the amount of GHGs from fuel use via on the Greenhouse Gas (GHG) online estimator ( <a href="http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms">http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms</a> ), and attaching the printout or by conducting hand calculations and providing the documentation. Refer to the Instructions for Form 400-CEQA for guidance.
8.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project utilize other types of equipment not addressed in Question 7 that require the use of, or will generate, any chemicals listed on Form 400-CEQA, Table 3 - Greenhouse Gases ( <a href="http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms">http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms</a> )? If "Yes" is checked, attach a separate sheet to identify each equipment unit, the chemical name(s), and the quantity of each chemical identified.
9.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project include the open outdoor storage of dry bulk solid materials that could generate dust? If "Yes" is checked, include a plot plan with the application package.
10.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project result in or make worse noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements? For example, landfills, materials recovery/recycling facilities (MRF), and compost materials or other types of greenhouse (e.g., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to SCAQMD Rule 402 – Nuisance.
11.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project cause an increase of emissions from marine vessels, trains and/or airplanes?
12.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project increase demand for potable water at the facility by more than 262,820 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) a project that generates steam; 2) a project that uses water as part of operating air pollution control equipment; 3) a project that requires water as part of the production process; 4) a project that requires a new, or the expansion of an existing, sewage treatment facility, new water lines, sewage lines, sewage hook-ups etc.; 5) a project where the water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; 6) a project that requires new or the expansion of existing, water supply and conveyance facilities; and, 7) a project that requires water to hydrotest pipelines, storage tanks etc. for structural integrity.
13.	<input checked="" type="radio"/>	<input type="radio"/>	Will the project create an increase in the mass inflow of effluents to a public wastewater treatment facility that would require a new, or revision to an existing, National Pollutant Discharge Elimination System (NPDES) or other related permit at the facility?
14.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project result in the need for more than 350 new employees?
15.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project result in an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?
16.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project result in an increase in customer traffic by more than 700 visits per day?
17.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project result in temporary or permanent noise or vibration in excess of what is allowed by the applicable local noise ordinance?
18.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project create a permanent need for new or additional solid waste disposal? Check "No" if the projected potential amount of solid waste to be generated by the project is less than five tons per day.
19.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project create a permanent need for new or additional hazardous waste disposal? Check "No" if the projected potential amount of hazardous wastes to be generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
20.	<input type="radio"/>	<input checked="" type="radio"/>	Will the project include equipment that after installation or modification will change the visual character of the site and its surroundings or block views?
21.	<input checked="" type="radio"/>	<input type="radio"/>	Will the project have equipment that will create a new source of external lighting that will be visible at the property line?

**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: Field Operations Manager	
3. Print Name of Responsible Official of Firm: 		4. Date Signed: 5/19/2021	
5. Phone # of Responsible Official of Firm: 	6. Fax # of Responsible Official of Firm: 	7. Email of Responsible Official of Firm: 	
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: 		11. Date Signed: 05/03/2021	
12. Phone # of Preparer: 	13. Fax # of Preparer: 	14. Email of Preparer: 	

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

# Form 400-CEQA Attachment

This attachment contains supplemental information required by the Form 400-CEQA.

### C.1: CEQA Document

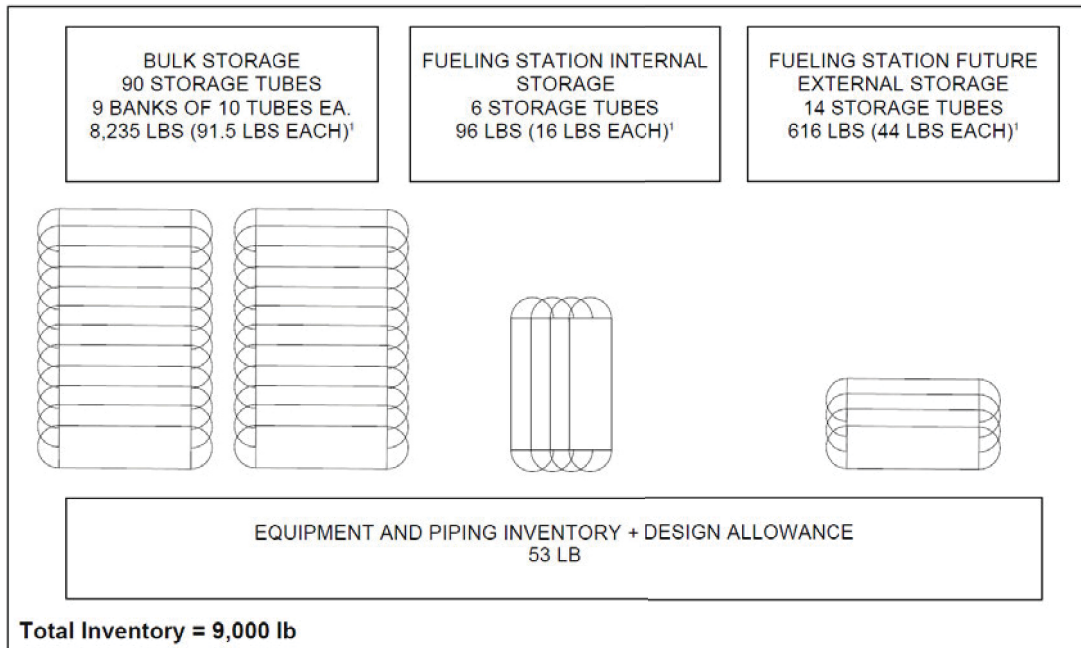
As described in the Moreno Compressor Modernization Project (“MCM Project”) application package, the underlying CEQA documents for this project are the South Coast AQMD’s Final Subsequent Environmental Assessments (SEAs) for Amended Rule 1110.2 “Emissions from Gaseous and Liquid-Fueled Engines,” and Rule 1100 “Implementation Schedule for NOx Facilities” (SCH# 2016071006); and Rule 1134 “Emissions of Oxides of Nitrogen from Stationary Gas Turbines” (SCH# 2016071006). Because these are South Coast AQMD documents, signed Notices of Determinations are not attached.

### C.4: Hazardous Materials

One 10,000 gallon tank to store 19% aqueous ammonia is being permitted for the Moreno Compressor Station under a Permit to Construct (PTC) application submitted in February 2020 (A/N 619560). The MCM Project will require aqueous ammonia deliveries to the site to support operation of the Selective Catalytic Reduction (SCR) units on the two Combustion Gas Turbines (CGTs). The CGTs will not require an additional onsite aqueous ammonia storage tank. A Risk Management Plan for compliance with CalARP requirements is being prepared and will be submitted in a timely manner to the Certified Unified Permitting Agency (CUPA).

The MCM Project will also introduce green hydrogen generation and storage at the site. However, as shown in the figure below, the hydrogen storage will be below the 10,000-pound threshold quantity in Form 400-CEQA, Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention. All other substances on the list that are stored or used onsite will also be present in quantities below the threshold quantities Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention.

**Summary of Planned Hydrogen Storage Inventory**



Note 1: Actual number of tubes to be confirmed based on selected supplier and tube size. Storage amount indicated are per FIBA catalog values. Bulk storage estimate based on 34 ft Type 1 tubes. Fueling station internal storage based on 7 ft Type 2 tubes. Fueling station future cascade storage tubes based on 18.5 ft Type 2 tubes.

## Form 400-CEQA Attachment

### C.5: Toxic Air Contaminants

Please refer to Appendix G of the MCM Project application package for a list of Toxic Air Contaminants (TACs) and potential emissions from the new equipment. Appendix G includes a health risk screening assessment which demonstrates that the MCM Project is not expected to cause significant health risk impacts.

### C.6: Construction Activities

A facility plot plan including MCM Project details is provided in Appendix B of the MCM Project application package. The MCM Project will require demolition, excavation, and grading activities in an area exceeding 20,000 square feet.

### C.7: Greenhouse Gas (GHG) Emissions

The MCM Project involves the installation of two new permitted CGTs and two new permitted emergency generators. In addition, the MCM Project involves the installation of 1) electrolyzers to produce green hydrogen; 2) a microgrid comprised of PV solar panels for onsite generation of electricity, an energy storage system, and Proton Exchange Membrane (PEM) fuel cells; 3) a green hydrogen fueling station for company fleet vehicles; 4) a blending skid to blend green hydrogen into the natural gas to create blended natural gas that will fuel the new CGTs; and 5) two Electric Driven Compressors (EDCs). The electrolyzers will be powered with 100% green renewable energy through Southern California Edison's (SCE) Green Rate program to produce green hydrogen, and hence will not contribute to GHG emissions.

Certain project components will result in the reduction of GHG emissions, including:

- The fueling of fleet vehicles with green hydrogen;
- Fueling the new turbine driven compressors with blended natural gas (blended with green hydrogen); and
- The use of green renewable energy from the microgrid's on-site solar generation and green hydrogen fuel cell generation to help power the facility's auxiliary and administrative electrical demands.

As shown in Table C.7-1, the MCM Project's projected actual operational GHG emissions will be 19,893 MT/yr CO<sub>2</sub>e. The projected emissions for the new CGTs, the EDCs, and Cooper 10 were estimated using the anticipated duration of use on a yearly basis because CEQA requires a GHG analysis to compare "existing physical conditions without the [] Project and the conditions expected to be produced by the project" (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 328).

Table C.7-1 also summarizes the amortized GHG emissions due to project construction. There will be minimal GHG emissions from construction activities, which have been estimated to total approximately 1,200 MT/year of CO<sub>2</sub>e, or 40 MT/year, when amortized over 30 years. For operation of this equipment, the projected actual GHG emissions were estimated for the proposed CTGs and Cooper No. 10. Although the MCM Project involves the installation of electrolyzers and two Electric Driven Compressors (EDCs), the electrolyzers will be powered with 100% green renewable energy, and hence will not contribute to GHG emissions.

The actual reported operational GHG emissions for the Moreno Compressor Station (based on the average of 2020 and 2019 operating conditions) are then subtracted from the total projected actual operational GHG emissions and amortized project construction emissions to provide a net GHG emissions increase of

## Form 400-CEQA Attachment

4,000 MT/yr CO<sub>2</sub>e associated with the MCM Project. Note the net GHG emissions do not include the GHG reductions from the following project components as they have not yet been quantified: 1) The use of the microgrid’s on-site solar generation and green hydrogen fuel cell generation; 2) the fueling of fleet vehicles with green hydrogen fuel cells; and 3) the blending of green hydrogen into the natural gas that will fuel the new turbine driven compressors.

*Table C.7-1 Current and Projected Greenhouse Gas Emissions*

<b>Moreno Compressor Modernization Project - Net GHGs</b>	
<b>Annual Greenhouse Gas Emissions</b>	<b>MT/year CO<sub>2</sub>e</b>
Amortized Project Construction Emissions (30 years)	40
Post-Project Operational Emissions	19,893
<b>Total Projected Actual Emissions</b>	<b>19,933</b>
Less Pre-Project Operational Emissions (2019-2020)	(15,933)
<b>Net GHG Emissions<sup>1,2</sup></b>	<b>4,000</b>
South Coast AQMD GHG Significance Threshold	10,000
Project’s GHG Net Emissions Increase is Significant?	<b>No</b>

<sup>1.</sup> GHG emissions are based on CARB global warming potential and other standard factors.

<sup>2.</sup> Net GHG emissions do not include the GHG reductions from the following project components as they have not yet been quantified: i) displacement of indirect GHG emissions via microgrid by replacing grid purchased electricity with onsite PV solar electricity generation and PEM fuel cells; ii) fueling of company fleet vehicles with green hydrogen, and iii) fueling of the new CTGs with blended natural gas (blended with green hydrogen).

The pre-Project permitted combustion compressor equipment (3 Clark and 3 Cooper engines and 4 Solar Saturn turbines) has a combined total of 16,585 horsepower (hp), while the proposed post-Project combustion compressor equipment (2 CGTs and the remaining Cooper No. 10) will have a combined total of 14,850 hp. The Moreno Compressor Station is expected to be operated roughly as much before and after the new equipment is installed. The South Coast AQMD’s Final SEAs for Amended Rules 1110.2, 1100 and 1134 indicated that GHG emissions are not expected to increase significantly related to the implementation of these rules. Because the total hp of the combustion equipment for the MCM Project will be less than the current permitted combustion equipment and because the EDCs will be used some of the time (in lieu of the combustion equipment), it is reasonable to expect that the future actual GHG emissions will remain about the same as the current GHG emissions due to station operation.

As shown in the table, a minimal GHG emissions increase is projected and is well below the South Coast AQMD’s 10,000 MT/year of CO<sub>2</sub>e significance threshold. Even though there is a projected net emissions increase in GHG emissions shown for future operations, the Project will be implemented to minimize future GHG emissions as follows:

- The aging combustion equipment, some from the 1950’s, will be replaced with new state of the art compressor equipment and emergency generators;
- Rooftop photovoltaic (PV) solar panels will be installed on site along with green hydrogen fuel cell generation and energy storage to provide the electricity needed for the facility auxiliary needs;
- EDCs (with minimal fugitive GHG emissions) will be installed to replace some of the combustion equipment;

## Form 400-CEQA Attachment

- The installation of a hydrogen fueling station at this site will allow the conversion of fleet vehicles from gasoline fueled vehicles to hydrogen vehicles, which have zero tail pipe GHG emissions (since the hydrogen will be produced using renewable electricity).
- Using a blended natural gas in combustion equipment produces less GHG emissions than using natural gas.

### **C.12: Water Demand**

Water for the facility is provided by the Eastern Municipal Water District (EMWD). Current water demand is correlated to ambient air temperature, which can range from a recorded low in January 2013 of 29.4°F to a record high of 115°F in September 2020; normal ranges are between 54.3°F to 80.3°F (Weather Currents 2020). The higher the ambient air temperature, the more cooling water is required to maintain equipment operation. Based on available billing data from EMWD compiled by SoCalGas plant operators, the peak water demand occurs in summer months with August as the highest demand averaging 19,525 gallons per day (August 2019). During cooler months, facility water use drops as low as an average of 86 gallons per day (March 2020). While water demand would likely decrease for cooling of turbines because of improved technologies and fewer units onsite, water demand would increase by up to approximately 11,500 gallons a day principally to serve the two electrolyzers feeding the green hydrogen systems. About half of the 11,500 gallons per day (up to 6,840 gallons) would be used for the fuel cells, but could be less depending on turbine fuel consumption and microgrid power use. This water demand would coincide with low energy demand days during which water demand for cooling is lower currently. As such, water demand would increase, but not by 262,820 gallons or more per day, or such that it would be anticipated to result in an upgrade to existing water supply infrastructure.

### **C.13: Water Discharge Permit Revisions**

The MCM Project will not create a substantial increase in the mass discharge of effluents that would require new or expanded public wastewater treatment facilities. However, the MCM Project will be required to obtain coverage under the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ) since there will be a disturbance greater than 1 acre. As part of this coverage a Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented during construction activities.

The City of Moreno Valley follows Riverside County direction for NPDES and Water Quality Management Plan (WQMP) requirements. All projects in unincorporated Riverside County are required to complete the appropriate WQMP Applicability Checklist to confirm whether WQMP requirements apply. It is anticipated that the MCM Project will require submittal of a WQMP for approval by the County of Riverside Transportation Department prior to entitlements. Final WQMP requirements will be approved by the Transportation Department prior to issuance of any building or grading permit. WQMP requirements are separate from the requirements for temporary impacts during the construction phase, which will be covered by the construction SWPPP. As part of the WQMP, it is proposed that stormwater will be collected onsite and directed into a water retention basin to be located in the southeastern portion of the MCM Project site. Two concrete culverts will ultimately direct water offsite. Landscape and Low Impact Development (LID) features will be incorporated for stormwater management to the extent feasible. Erosion and sediment control will be conducted in accordance with industry Best Management Practices (BMPs) and the construction SWPPP, which will be filed with the Regional Water Quality Control Board (RWQCB) via the state's online SMARTS system.

## Form 400-CEQA Attachment

Processed water from facility operations is discharged into two onsite, lined evaporation ponds totaling approximately 3.89 acres in size total. The evaporation ponds are approximately 10 feet deep and can hold up to 1.2 million gallons each. The existing evaporation ponds are subject to Revised Waste Discharge Requirements (WDR) for San Diego Gas & Electric Company, Moreno Compressor Station Brine Ponds Order No. 96-80, issued by the Santa Ana Regional Water Quality Control Board. The MCM Project is anticipated to change the quality and/or quantity of the process water discharged to these evaporation ponds. As a result of this change, it is very likely that the existing WDR will need to be revised.

Additionally, the MCM Project will be covered by the Statewide General NPDES Order For Discharges From Natural Gas Utility Construction, Operations, And Maintenance Activities Order WQ 2017-0029-DWQ. This General Order authorizes planned, emergency, and unplanned discharges from, but not limited to, hydrostatic testing of existing and new natural gas facilities and site dewatering related to excavation, construction, testing, maintenance and/or repair of natural gas facilities.

### **C.20: Visual Character and Views**

The proposed project would add two new compressor buildings and replace the warehouse with one of similar size within the existing Moreno Compressor Station, however these buildings are comparable in size to the existing buildings, located within the existing Public Facilities designated lands, and would not require significant alteration to the site topography. Because the existing Moreno Station is the most visible vertical facility in the vicinity that is otherwise characterized by open space and agricultural use, and no distinctive features of the landscape would be altered or the character of the site otherwise changed, the proposed project components would not dominate public views or alter the visual character of the site.

### **C.21: New External Lighting At The Property Line**

The proposed project would be consistent with City of Moreno Valley General Plan Policies 2.10.7 and 2.10.8, as new sources of on-site exterior lighting would be installed to provide supplemental down-facing security and safety lighting around the structures to facilitate nighttime use of areas by staff. While additional lighting is proposed, and would be visible at the property line, it would be consistent with that present at the existing facility.



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 91765-0944

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

**Section A - Operator Information**

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

SDG&E (Moreno Valley Compressor Station)

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

004242

**Section B - Equipment Location Address**

3.  Fixed Location  Various Location  
(For equipment operated at various locations, provide address of initial site.)

14601 Virginia Street

Street Address

Moreno Valley, CA 92555

City State Zip

[Redacted] Sr. Env. Specialist

Contact Name Title

Phone # Ext. Fax #

E-Mail

**Section C - Permit Mailing Address**

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

P.O. Box 2300, Mail Stop SC9314

Address

Chatsworth, CA 91313

City State Zip

[Redacted] Sr. Env. Specialist

Contact Name Title

Phone # [Redacted] [Redacted]

awong2@socalgas.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: [Redacted]

6. Title of Responsible Official:

Field Operations Manager

7. Print Name of Responsible Official: [Redacted]

8. Date: 5/19/2021

9. Phone #: [Redacted]

10. Fax #:

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 #

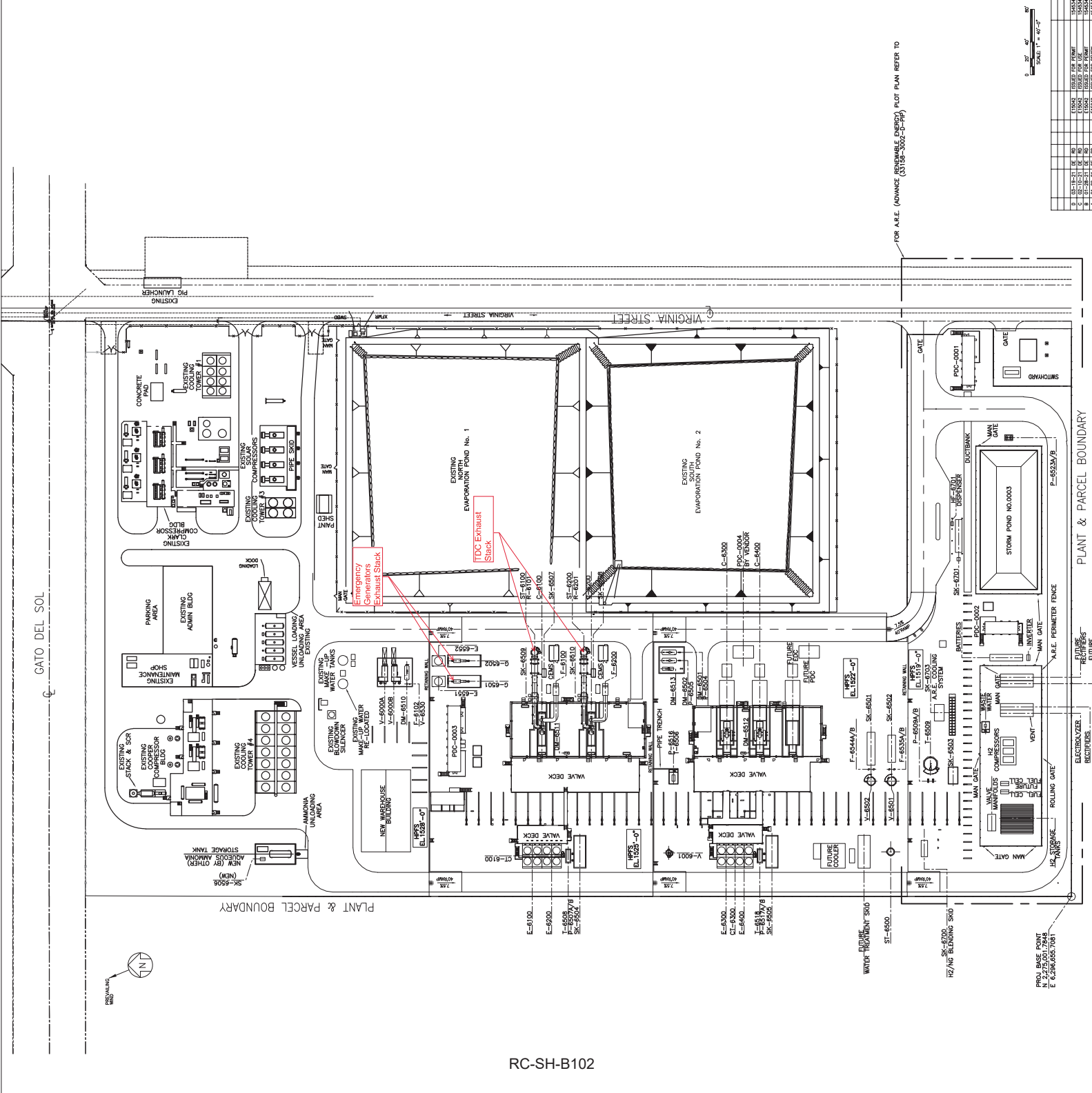
## APPENDIX B – FACILITY LAYOUT DIAGRAM



DRAWING NO.	REFERENCE DRAWING DESCRIPTION
33158-1002-D-PPP	ARE PLOT PLAN
33158-1004-E-PPP	EQUIPMENT LOCATION DRAWING INDEX

EQUIPMENT LIST (NEW)	DESCRIPTION
VENDOR PACKAGE	TDC TRAIN 1 GAS COMPRESSOR
C-6100	TDC TRAIN 2 GAS COMPRESSOR
CTD-6100	TURBINE WASH WATER COLLECTION TANK TRAIN 1
T-6101	LUBE OIL COOLER
C-6206	GAS COMPRESSOR TURBINE COLLECTION TANK TRAIN 2
(HOLD 1)	INLET AIR FILTER
CTD-6200	DISCHARGE BOTTLE
F-6300	EDC TRAIN 2 GAS COMPRESSOR
V-6302A/B	DISCHARGE BOTTLE
V-6302B/B	SUCTION BOTTLE
V-6401A/B	DISCHARGE BOTTLE
V-6402A/B	UTILITY AIR COMPRESSOR
C-6504A/B	UTILITY AIR COMPRESSOR
E-6540	UTILITY AIR COOLER
F-6541	UTILITY AIR COOLER
F-6542	UTILITY AIR COOLER
F-6543A/B	DRYER INLET FILTER/COALESCE
V-6521	CYCLING AIR SEPARATOR
V-6521	INSTRUMENT AIR COOLER
SK-6502	INSTRUMENT AIR PACKAGE
D-6505A/B	INSTRUMENT AIR COOLER
F-6530	INLET FILTER
F-6531A/B	INLET FILTER
F-6532	DRYER INLET FILTER/COALESCE
F-6533A/B	DRYER INLET FILTER/COALESCE
V-6510	OL/GAS SEPARATOR
V-6511	OL/GAS SEPARATOR
SK-6503	WATER SOFTENER SKID
T-6507	BRINE TANK
V-6507A/B	WATER TREATMENT VESSEL
SK-6504	WATER TREATMENT SKID (TDC)
T-6510	SULFURIC ACID TANK (CT #5)
P-6510	SULFURIC ACID INJECTION PUMP (TDC)
P-6512	BROODIE INJECTION PUMP (TDC)
T-6512	SULFURIC ACID TANK (CT #6)
T-6513	BROODIE TANK (CT #6) PUMP (EDC)
P-6522	BROODIE INJECTION PUMP (EDC)
SK-6506	AQUEOUS AMMONIA TRANSFER PUMP SKID
F-6503A/B	AMMONIA VAPORIZER HEATER TRAIN 1
SK-6507	DILUTION AIR BLOWER SKID
B-6511A/B	AMMONIA VAPORIZER HEATER TRAIN 1
H-6511	DILUTION AIR INTAKE FILTER TRAIN 1
B-6521A/B	AMMONIA VAPORIZER HEATER TRAIN 2
H-6521	DILUTION AIR INTAKE FILTER TRAIN 2
F-6511A/B	AMMONIA VAPORIZER HEATER TRAIN 2
H-652	CATALYST TEMPERING AIR BLOWER SKID
SK-6509	CATALYST TEMPERING AIR BLOWER SKID
F-6511A/B	TEMPERING AIR INTAKE FILTER/SILENCER
SK-6510	CATALYST TEMPERING AIR BLOWER SKID
F-6511A/B	TEMPERING AIR INTAKE FILTER/SILENCER
F-6511A/B	TEMPERING AIR INTAKE FILTER/SILENCER
SK-6700	H2/N2 BLENDING SKID
EXCHANGERS	
E-6100	DISCHARGE COOLER
E-6200	DISCHARGE COOLER
E-6300	DISCHARGE COOLER
E-6400	DISCHARGE COOLER
E-6500	EMERGENCY GENERATOR LUB OIL COOLER
E-6502	EMERGENCY GENERATOR LUB OIL COOLER
CT-6100	COOLING TOWER #1 (TDC)
CT-6300	COOLING TOWER #2 (EDC)
VESSELS	
V-6000A	FUEL TANK
V-6000B	FUEL TANK
V-6001	INSTRUMENT AIR RECEIVER
V-6501	INSTRUMENT AIR RECEIVER
V-6502	EMERGENCY GENERATOR FUEL GAS FILTER
V-6503	EMERGENCY GENERATOR FUEL GAS FILTER
T-6508	COMPRESSOR BUILDING DRAIN SUMP TANK
T-6509	SOFT WATER TANK
D-6510	COOLING WATER SUMP TANK (EDC)
D-6511	COOLING WATER SUMP TANK (TDC)
DM-6502	FRESH LUBE OIL STORAGE DRUM (EDC TRAINS)
DM-6510	COMPENSATE DRIP TRAP
DM-6511	LUBE OIL DRAIN (EDC)
DM-6512	LUBE OIL DRAIN (EDC)
DM-6513	ONLY WASTE STORAGE DRUM
FLMES	
P-6504	LUBE OIL CHARGE PUMP (TDC TRAINS)
P-6507A/B	COOLING TOWER CIRCULATION PUMP (TDC)
P-6509A/B	SOFT WATER PUMP
P-6517A/B	COOLING TOWER CIRCULATION PUMP (EDC)
P-6523A/B	STORM WATER SUMP PUMP
MISC.	
F-6100	CLEANING INTAKE AIR FILTER
F-6200	SELF CLEANING INTAKE AIR FILTER
F-6534A/B	INSTRUMENT AIR OUTLET FILTER
F-6534B/B	INSTRUMENT AIR OUTLET FILTER
G-6501	EMERGENCY GENERATOR
G-6502	EMERGENCY GENERATOR
R-6201	CATALYST HOUSING
ST-6100	TURBINE EXHAUST STACK
ST-6200	TURBINE EXHAUST STACK

1. TAG NUMBER.



NO.	DATE	DESCRIPTION
1	03-11-21	ISSUED FOR PERMIT
2	03-23-21	ISSUED FOR PERMIT
3	03-23-21	ISSUED FOR PERMIT
4	03-23-21	ISSUED FOR PERMIT
5	03-23-21	ISSUED FOR PERMIT
6	03-23-21	ISSUED FOR PERMIT
7	03-23-21	ISSUED FOR PERMIT
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14	03-23-21	ISSUED FOR PERMIT
15	03-23-21	ISSUED FOR PERMIT
16	03-23-21	ISSUED FOR PERMIT
17	03-23-21	ISSUED FOR PERMIT
18	03-23-21	ISSUED FOR PERMIT
19	03-23-21	ISSUED FOR PERMIT
20	03-23-21	ISSUED FOR PERMIT

RC-SH-B102

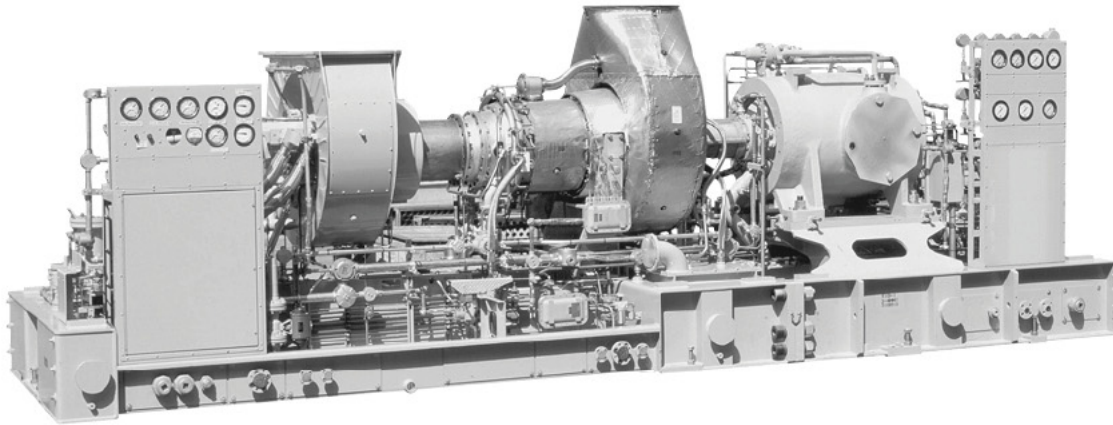
## **APPENDIX C – EQUIPMENT INFORMATION**

**Appendix C.1 – Solar Centaur 50 Compressor Gas Turbines**

**Appendix C.2 – Waukesha Emergency Engines**

**Appendix C.1 – Solar Centaur 50 Compressor Gas Turbines**

Powering the Future Through Sustainable, Innovative Energy Solutions



### TURBINE DESIGN FEATURES

The Centaur® 50 is one of Solar's flagship products meeting customer expectations for power, efficiency and durability for over three decades. This gas turbine boasts an expansive range of fuel flexibility, and today's Centaur 50 offers best-in-class, low emissions capability through our SoLoNOx™ combustion system. The industrial design of the gas turbine provides high reliability with low lifecycle cost.



### DIGITAL INTEGRATION

InSight Platform™, Solar's proprietary digital technology foundation, is integrated throughout this product and ready to connect in the field. InSight Platform provides an entire ecosystem of tools and capabilities that provide real-time diagnostics and analytics to Solar's Customer Service network, and performance metrics to the equipment owners and operators.



### PACKAGE DESIGN FEATURES

The power and speed of the Centaur 50 are designed to drive Solar's extensive line of midstream and upstream centrifugal gas compressors, either directly or via a speed increasing gearbox. With the Centaur, Solar continues the legacy of offering compact packages which incorporate all major support systems such as fuel system, lubrication system, start system and control system – all of which are fully tested prior to shipment.



### CUSTOMER SERVICES

Solar's worldwide service organization is dedicated to your success. Our culture of customer care is the foundation of our commitment to the highest quality customer experience. With more than 60 service locations around the world, we are committed to ensuring reliable, efficient performance that precisely fits your requirements.

# Solar® Turbines

A Caterpillar Company

Powering the Future Through Sustainable, Innovative Energy Solutions

## SOLONOX DRY LOW EMISSIONS TECHNOLOGY

Solar Turbines is a leader in pollution-prevention technology. Since the introduction of SoLoNOx™ in 1992, our dry low emissions technology advancements have prevented the production of more than 5.8 MM tons of NOx emissions. This represents a reduction of 75-90% from conventional combustion baselines for natural gas fuel.

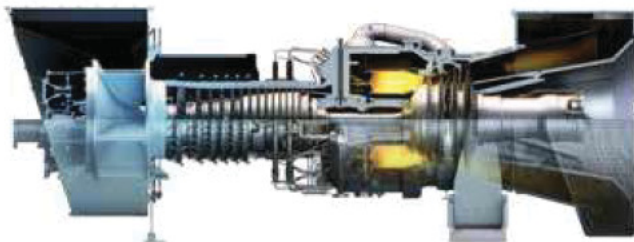
Solar has unrivaled experience within the industry with more than 3500 SoLoNOx gas turbines with over 312 million operating hours located around the world.

Fuel options include natural gas, ultra low sulfur diesel (ULSD), associated gases, LPG and kerosene.

Low NOx Emissions Warranty: Pipeline natural gas emissions available at 9, 15, 25 or 38 ppm NOx @15% O2 on select models. ULSD emissions levels range from 58 to 96 ppm NOx @15% O2 on select models.

Wide Low NOx Emissions Operating Range: Single shaft 50-100% load, two shaft 40-100% load down to low ambient temperatures.

Available warranty emissions levels, operating range, and ambient temperature range vary by product and rating. Please contact Solar for more information.



### Dry Low Emissions 101

DLE (dry low emissions) or lean-premix combustion reduces the conversion of atmospheric nitrogen to NOx by reducing the combustor's flame temperature. Since NOx formation rates are strongly dependent on flame temperature, lowering this temperature is an effective strategy for reducing NOx emissions. Lean combustion is enhanced by premixing the fuel and combustor airflows upstream of the combustory primary zone. DLE eliminates the need for water or steam injection or exhaust cleanup, which benefits the environment at a lower cost.

### Additional Information

Internet: [www.solarturbines.com](http://www.solarturbines.com)

Email: [infocorp@solarturbines.com](mailto:infocorp@solarturbines.com)

Phone: +1-619-544-5352

# Solar Turbines

A Caterpillar Company

## PREDICTED ENGINE PERFORMANCE

Customer <b>SoCalGas</b>	
Job ID <b>Moreno Valley</b>	
Run By [REDACTED]	Date Run <b>3-Mar-21</b>
Engine Performance Code <b>REV. 4.20.1.25.13</b>	Engine Performance Data <b>REV. 0.1</b>

Model <b>CENTAUR 50-6100S</b>
Package Type <b>CS/MD</b>
Match <b>59F MATCH</b>
Fuel System <b>GAS</b>
Fuel Type <b>SD NATURAL GAS</b>

### DATA FOR MINIMUM PERFORMANCE

Elevation	feet	<b>1540</b>
Inlet Loss	in H2O	<b>4.0</b>
Exhaust Loss	in H2O	<b>4.0</b>
Accessory on GP Shaft	HP	<b>15.5</b>
Engine Inlet Temperature	deg F	<b>30.0</b>
Relative Humidity	%	<b>60.0</b>
Driven Equipment Speed	RPM	<b>16500</b>
Specified Load	HP	<b>FULL</b>
Net Output Power	HP	<b>5825</b>
Fuel Flow	mmBtu/hr	<b>50.81</b>
Heat Rate	Btu/HP-hr	<b>8723</b>
Therm Eff	%	<b>29.170</b>

*\*Note: Fuel flow based on LHV. LHV is 939.2 Btu/scf and HHV is 1041.2 Btu/scf. Fuel flow based on HHV is 56.3 MMBtu/hr.*

**Appendix C.2 – Waukesha Emergency Engines**



**MORENO VALLEY - MORENO VALLEY, CALIFORNIA**

**VHP - F3524GSI**

WPI FC 713-551-0714 CAMP@WPI.COM

Power Generation

ENGINE SPEED (rpm):	1200	NOx SELECTION (g/bhp-hr):	0.15
DISPLACEMENT (in3):	3520	COOLING SYSTEM:	JW, IC + OC
COMPRESSION RATIO:	8:1	INTERCOOLER WATER INLET (°F):	130
IGNITION SYSTEM:	ESM2	JACKET WATER OUTLET (°F):	180
EXHAUST MANIFOLD:	Water Cooled	JACKET WATER CAPACITY (gal):	49
COMBUSTION:	Rich Burn, Turbocharged	AUXILIARY WATER CAPACITY (gal):	8
ENGINE DRY WEIGHT (lbs):	16000	LUBE OIL CAPACITY (gal):	72
AIR/FUEL RATIO SETTING:	0.38% CO	MAX. EXHAUST BACKPRESSURE (in. H2O):	18
ENGINE SOUND LEVEL (dBA)	101	MAX. AIR INLET RESTRICTION (in. H2O):	15
IGNITION TIMING:	ESM2 Controlled	EXHAUST SOUND LEVEL (dBA)	110
FREQUENCY (Hz):	60	PHASE:	3
GENERATOR TYPE:	Synchronous	PHASE ROTATION:	T1-T2-T3

**SITE CONDITIONS:**

FUEL:	"A"	ALTITUDE (ft):	1540
FUEL PRESSURE RANGE (psig):	30 - 50	MAXIMUM INLET AIR TEMPERATURE (°F):	120
FUEL HHV (BTU/ft3):	1,026.5	FUEL WKI:	93.5
FUEL LHV (BTU/ft3):	928.0		

**SITE SPECIFIC TECHNICAL DATA**

POWER RATING	UNITS	104% OVERLOAD SITE DATA (See note 18)	MAX RATING AT 100 °F AIR TEMP	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE OF 120 °F		
				100%	75%	56%
CONTINUOUS ENGINE POWER	BHP	858	840	824	618	464
OVERLOAD	% 2/24 hr	Note 18	10	4	-	-
ELECTRICAL EFFICIENCY (LHV)	%	30.3	30.2	30.1	28.9	26.9
GENERATOR OUTPUT	kWe	608	595	584	438	329
GENERATOR KVA	kVA	760	744	730	548	411

*based on 95% generator efficiency at 0.8 PF, no auxiliary engine driven equipment*

**FUEL CONSUMPTION**

FUEL CONSUMPTION (LHV)	BTU/bhp-hr	7985	8006	8033	8378	8996
FUEL CONSUMPTION (HHV)	BTU/bhp-hr	883.3	8856	8886	9268	9952
FUEL FLOW	SCFM	123	121	119	93	75

*based on fuel analysis LHV*

**HEAT REJECTION**

JACKET WATER (JW)	BTU/hr x 1000	2142	2075	2083	1690	1422
LUBE OIL (OC)	BTU/hr x 1000	329	312	325	297	276
INTERCOOLER (IC)	BTU/hr x 1000	169	143	163	114	75
EXHAUST	BTU/hr x 1000	1853	1852	1778	1328	1040
RADIATION	BTU/hr x 1000	305	337	301	276	262

**EMISSIONS (CATALYST OUT):**

NOx (NO + NO2)	g/bhp-hr	0.15	0.15	0.15	0.15	0.15
CO	g/bhp-hr	0.60	0.60	0.60	0.60	0.60
NM,NEHC (VOC)	g/bhp-hr	0.15	0.15	0.15	0.15	0.15
CO2	g/bhp-hr	507	508	510	530	568
CO2e	g/bhp-hr	516	517	519	542	582
CH2O	g/bhp-hr	0.00	0.001	0.001	0.001	0.001
CH4	g/bhp-hr	0.37	0.38	0.37	0.46	0.57

**AIR INTAKE / EXHAUST GAS**

INDUCTION AIR FLOW	SCFM	1255	1233	1213	949	765
EXHAUST GAS MASS FLOW	lb/hr	5840	5735	5644	4415	3560
EXHAUST GAS FLOW	ACFM	4288	4208	4126	3134	2483
EXHAUST TEMPERATURE	°F	1192	1191	1185	1137	1109

*at exhaust temp, 14.5 psia*

**HEAT EXCHANGER SIZING<sup>12</sup>**

TOTAL JACKET WATER CIRCUIT (JW)	BTU/hr x 1000	2429	2362
TOTAL AUXILIARY WATER CIRCUIT (IC + OC)	BTU/hr x 1000	566	553

**COOLING SYSTEM WITH ENGINE MOUNTED WATER PUMPS**

JACKET WATER PUMP MIN. DESIGN FLOW	GPM	225
JACKET WATER PUMP MAX. EXTERNAL RESTRICTION	psig	15
AUX WATER PUMP MIN. DESIGN FLOW	GPM	48
AUX WATER PUMP MAX. EXTERNAL RESTRICTION	psig	22

All data provided per the conditions listed in the notes section on page three.  
 Data Generated by EngCalc Program Version 4.1 NNIO Waukesha Gas Engines, Inc.  
 3/5/2021 12:08 PM



**MORENO VALLEY - MORENO VALLEY, CALIFORNIA**

**VHP - F3524GSI**

WPI FC 713-551-0714 CAMPAF@WPI.COM

Power Generation

**FUEL COMPOSITION**

<u>HYDROCARBONS:</u>		<u>Mole or Volume %</u>	FUEL:	"A"
Methane	CH4	94.45	FUEL PRESSURE RANGE (psig):	30 - 50
Ethane	C2H6	3.59	FUEL WKI:	93.5
Propane	C3H8	0.27	FUEL SLHV (BTU/ft3):	911.83
Iso-Butane	I-C4H10	0.02	FUEL SLHV (MJ/Nm3):	35.86
Normal Butane	N-C4H10	0.03	FUEL LHV (BTU/ft3):	927.98
Iso-Pentane	I-C5H12	0.01	FUEL LHV (MJ/Nm3):	36.49
Normal Pentane	N-C5H12	0.01	FUEL HHV (BTU/ft3):	1026.53
Hexane	C6H14	0.01	FUEL HHV (MJ/Nm3):	40.37
Heptane	C7H16	0	FUEL DENSITY (SG):	0.59
Ethene	C2H4	0		
Propene	C3H6	0		
	SUM HYDROCARBONS	98.39		
<u>NON-HYDROCARBONS:</u>				
Nitrogen	N2	0.84		
Oxygen	O2	0		
Helium	He	0		
Carbon Dioxide	CO2	0.79		
Carbon Monoxide	CO	0		
Hydrogen	H2	0		
Water Vapor	H2O	0		
	TOTAL FUEL	100.02		

Standard Conditions per ASTM D3588-91 [60 F and 14.696psia] and ISO 6976:1996-02-01[25, V(0:101.325)].  
 Based on the fuel composition, supply pressure and temperature, liquid hydrocarbons may be present in the fuel. No liquid hydrocarbons are allowed in the fuel. The fuel must not contain any liquid water. Waukesha recommends both of the following:  
 1) Dew point of the fuel gas to be at least 20 F (11 C) below the measured temperature of the gas at the inlet of the engine fuel regulator.  
 2) A fuel filter separator to be used on all fuels except commercial quality natural gas.  
 Refer to the 'Fuel and Lubrication' section of 'Technical Data' or contact the Waukesha Application Engineering Department for additional information on fuels, or LHV and WKI\* calculations.  
 \* Trademark of INNIO Waukesha Gas Engines Inc.

**FUEL CONTAMINANTS**

Total Sulfur Compounds	0 % volume	Total Sulfur Compounds	0 µg/BTU
Total Halogen as Chloride	0 % volume	Total Halogen as Chloride	0 µg/BTU
Total Ammonia	0 % volume	Total Ammonia	0 µg/BTU
<u>Siloxanes</u>		Total Siloxanes (as Si)	0 µg/BTU
Tetramethyl silane	0 % volume		
Trimethyl silanol	0 % volume		
Hexamethyldisiloxane (L2)	0 % volume		
Hexamethylcyclotrisiloxane (D3)	0 % volume		
Octamethyltrisiloxane (L3)	0 % volume		
Octamethylcyclotetrasiloxane (D4)	0 % volume		
Decamethyltetrasiloxane (L4)	0 % volume		
Decamethylcyclopentasiloxane (D5)	0 % volume		
Dodecamethylpentasiloxane (L5)	0 % volume		
Dodecamethylcyclohexasiloxane (D6)	0 % volume		
Others	0 % volume		

*Calculated fuel contaminant analysis will depend on the entered fuel composition and selected engine model.*

No water or hydrocarbon condensates are allowed in the engine. Requires liquids removal.

**NOTES**

1. All data is based on engines with standard configurations unless noted otherwise.
2. Power rating is adjusted for fuel, site altitude, and site air inlet temperature, in accordance with ISO 3046/1 with tolerance of  $\pm 3\%$ .
3. Fuel consumption is presented in accordance with ISO 3046/1 with a tolerance of  $-0 / +5\%$  at maximum rating. Fuel flow calculation based on fuel LHV and fuel consumption with a tolerance of  $-0/+5\%$ . For sizing piping and fuel equipment, it is recommended to include the 5% tolerance.
4. Heat rejection tolerances are  $\pm 30\%$  for radiation, and  $\pm 8\%$  for jacket water, lube oil, intercooler, and exhaust energy.
5. Emission levels for engines with Waukesha supplied 3-way catalyst are given at catalyst outlet flange. For all other engine models, emission levels are given at engine exhaust outlet flange prior to any after treatment. Values are based on a new engine operating at indicated site conditions, and adjusted to the specified timing and air/fuel ratio at rated load. Catalyst out emission levels represent emission levels the catalyst is sized to achieve. Manual adjustment may be necessary to achieve compliance as catalyst/engine age. Catalyst-out emission levels are valid for the duration of the engine warranty. Emissions are at an absolute humidity of 75 grains H<sub>2</sub>O/lb (10.71 g H<sub>2</sub>O/kg) of dry air. Emission levels may vary subject to instrumentation, measurement, ambient conditions, fuel quality, and engine variation. Engine may require adjustment on-site to meet emission values, which may affect engine performance and heat output. NO<sub>x</sub>, CO, THC, and NMHC emission levels are listed as a not to exceed limit, all other emission levels are estimated. CO<sub>2</sub> emissions based on EPA Federal Register/Vol. 74, No. 209/Friday, October 30, 2009 Rules and Regulations 56398, 56399 (3) Tier 3 Calculation Methodology, Equation C-5.
6. Air flow is based on undried air with a tolerance of  $\pm 7\%$ .
7. Exhaust temperature given at engine exhaust outlet flange with a tolerance of  $\pm 50^{\circ}\text{F}$  ( $28^{\circ}\text{C}$ ).
8. Exhaust gas mass flow value is based on a "wet basis" with a tolerance of  $\pm 7\%$ .
9. Inlet air restrictions based on full rated engine load. Exhaust backpressure based on 158 PSI BMEP and 1200 RPM. Refer to the engine specification section of Waukesha's standard technical data for more information.
10. Cooling circuit capacity, lube oil capacity, and engine dry weight values are typical.
11. Fuel must conform to Waukesha's "Gaseous Fuel Specification" S7884-7 or most current version. Fuel may require treatment to meet current fuel specification.
12. Heat exchanger sizing values given as the maximum heat rejection of the circuit, with applied tolerances and an additional 5% reserve factor.
13. Fuel volume flow calculation in english units is based on 100% relative humidity of the fuel gas at standard conditions of 60°F and 14.696 psia (29.92 inches of mercury; 101.325 kPa).
14. Fuel volume flow calculation in metric units is based on 100% relative humidity of the fuel gas at a combustion temperature of 25°C and metering conditions of 0°C and 101.325 kPa (14.696 psia; 29.92 inches of mercury). This is expressed as [25, V(0;101.325)].
15. Engine sound data taken with the microphone at 1 m (3.3 ft) from the side of the engine at the approximate front-to-back centerline. Microphone height was at intake manifold level. Engine sound pressure data may be different at front, back and opposite side locations. Exhaust sound data taken with microphone 1 meter (3.3 ft) away and 1 meter (3.3 ft) to the side of the exhaust outlet.
16. Due to variation between test conditions and final site conditions, such as exhaust configuration and background sound level, sound pressure levels under site conditions may be different than those tabulated above.
17. Cooling system design flow is based on minimum allowable cooling system flow. Cooling system maximum external restriction is defined as the allowable restriction at the minimum cooling system flow.
18. Continuous Power Rating: The highest load and speed that can be applied 24 hours per day, seven days per week, 365 days per year except for normal maintenance at indicated ambient reference conditions and fuel. It is permissible to operate the engine at the indicated overload power, for two hours in every 24 hour period.
19. emPact emission compliance available for entire range of operable fuels; however, fuel system and/or O<sub>2</sub> set point may need to be adjusted in order to maintain compliance.
20. In cold ambient temperatures, heating of the engine jacket water, lube oil and combustion air may be required. See Waukesha Technical Data.
21. Available Turndown Speed Range refers to the constant torque speed range available. Reduced power may be available at speeds outside of this range. Contact application engineering.

**SPECIAL REQUIREMENTS**

Site conditions over 100 °F or 1500 ft may require a special generator or radiator. Contact Application Engineering.

## APPENDIX D – EMISSION CALCULATIONS

Table D-1: Emission Factors and Operating Information

Device Description	Operating Mode	Rating (Hp)	Heat Rate (MMBTU/hr)	Annual Hours in Mode (hr/yr)	Annual Fuel Usage (mmcf/yr)	Emission Factors (ppm)				Emission Factors (lb/mmcf)				
						CO	NOx	VOC	SO <sub>x</sub>	CO	NOx	PM <sub>10</sub>	VOC	
New Solar 1	Natural gas turbine - normal load	5825	56.30	6,960	373.19	8.0	3.5	4.3	19.15	13.76	6.93	3.57	5.88	
	Start Up			900	See SU-SD Table									
	Shutdown			900	See SU-SD Table									
New Solar 2	Total New Solar 1			8,760	373.19	---	---	---	---	---	---	---	---	
	Natural gas turbine - normal load	5825	56.30	6,960	373.19	8.0	3.5	4.3	19.15	13.76	6.93	3.57	5.88	
	Start Up			900	See SU-SD Table									
	Shutdown	900	See SU-SD Table											
	Total New Solar 2			8,760	373.19	---	---	---	---	---	---	---	---	

Device Description	Operating Mode	Rating (Hp)	Heat Rate (MMBTU/hr)	Annual Hours (hr/yr)	Annual Fuel Usage (mmcf/yr)	Emission Factors (gr/BHP-hr)				Emission Factors (lb/mmcf)			
						CO	NOx	VOC	SO <sub>x</sub>	CO	NOx	PM <sub>10</sub>	VOC
Gen New 1	---	824	7.32	200	1.39	0.60	0.15	0.15	---	---	10.00	0.60	---
Gen New 2	---	824	7.32	200	1.39	0.60	0.15	0.15	---	---	10.00	0.60	---

**Project Parameters**

Parameter	Data	Unit of Measure	Reference/Comments
oxygen basis	15	%	SCAQMD Rule 1134
Fuel Gas HHV	1050	Btu/scf	RECLAIM
Heat Rate - Emergency Generators	8886	Btu/Hp-hr @HHV	Per Waukesha spec sheet
Starts/Stops	900	per year	
Starts/Stops	75	per month	
Starts/Stops	8	per day	
Start Duration	1	hrs/startup	
Stop Duration	1	hrs/shutdown	
Emergency Engine Operation	1	hr/day	Maximum operation
Emergency Engine Operation	24	hr/day	Calculated, assumes 50 test hours/year
Emergency Engine Operation	42	hr/mo	

**Turbine Emission Factors**

PM10 EF - Turbine	0.0066	lb/MMBtu	Manf Guarantee (based on AP-42 emission factors)
PM10 EF Turbine	6.93	lb/MMscf	Calculated
SOx EF - turbine	0.0034	lb/MMBtu	Manf Guarantee (based on AP-42 emission factors)
SOx EF - turbine	3.57	lb/MMscf	Calculated

**Emergency Engine Emissions Information**

NOx	0.15	gm/BHP-hr	SCAQMD BACT A/N 359876
VOC	0.15	gm/BHP-hr	SCAQMD BACT A/N 359876
CO	0.60	gr/BHP-hr	SCAQMD BACT A/N 359876
PM10	10.00	lb/MMscf	<a href="http://www.scaqmd.gov/docs/default-source/planning/annual-emission-reporting/combustion-emission-factors-2014.pdf?sfvrsn=8">http://www.scaqmd.gov/docs/default-source/planning/annual-emission-reporting/combustion-emission-factors-2014.pdf?sfvrsn=8</a>

**Constants and Conversion Factors**

MW CO	28	lb/lb-mol	Constant
MW NOx	46	lb/lb-mol	Constant
MW VOC	16	lb/lb-mol	Constant
Standard Molar Volume	379	scf/lb-mol	Constant
Dry Fd Factor	8710	dsf/MMBtu	40 CFR 60 App B
conversion factor	453.592	g/lb	Constant
Conversion factor	2000	lb/ton	Constant
Hours per Year	8760	hours/yr	Constant
Hours per month	720	hours/month	Constant
Hours per day	24	hours/day	Constant

Table D-1: PTE Emissions with Controls Applied

Device Description	Hourly Emissions (lb/hr)					Maximum Daily Emissions (lb/day)					30-DA Emissions (lb/day)				
	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC
New Solar 1	1.03	0.74	0.37	0.19	0.32	8.21	5.90	2.97	1.53	2.52	19.51	14.02	7.06	3.64	5.99
	23.02	1.91	0.37	0.19	3.28	184.13	15.27	2.97	1.53	26.24	57.54	4.77	0.93	0.48	8.20
	20.96	0.99	0.37	0.19	4.29	167.67	7.91	2.97	1.53	34.35	52.40	2.47	0.93	0.48	10.74
New Solar 2	1.03	0.74	0.37	0.19	0.32	8.21	5.90	2.97	1.53	2.52	19.51	14.02	7.06	3.64	5.99
	23.02	1.91	0.37	0.19	3.28	184.13	15.27	2.97	1.53	26.24	57.54	4.77	0.93	0.48	8.20
	20.96	0.99	0.37	0.19	4.29	167.67	7.91	2.97	1.53	34.35	52.40	2.47	0.93	0.48	10.74
	---	---	---	---	---	360.01	29.08	8.92	4.59	63.12	129.44	21.26	8.92	4.59	24.93
	---	---	---	---	---	360.01	29.08	8.92	4.59	63.12	129.44	21.26	8.92	4.59	24.93

Device Description	Hourly Emissions (lb/hr)					Maximum Daily Emissions (lb/day)					30-DA Emissions (lb/day)				
	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC
Gen New 1	1.09	0.27	0.07	0.0042	0.27	26.16	6.54	1.67	0.10	6.54	0.15	0.04	0.01	0.0006	0.04
Gen New 2	1.09	0.27	0.07	0.0042	0.27	26.16	6.54	1.67	0.10	6.54	0.15	0.04	0.01	0.0006	0.04

Table D-1: PTE Emissions with Controls Applied

Device Description	Emissions (lb/year)				Emissions (ton/yr)					
	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	
New Solar 1	7145.60	5135.90	2586.20	1332.28	2194.72	3.57	2.57	1.29	0.67	1.10
	20715.00	1717.46	334.42	172.28	2952.45	10.36	0.86	0.17	0.09	1.48
	18862.40	889.85	334.42	172.28	3864.88	9.43	0.44	0.17	0.09	1.93
	46723.00	7743.21	3255.04	1676.84	9012.05	23.362	3.872	1.628	0.838	4.506
New Solar 2	7145.60	5135.90	2586.20	1332.28	2194.72	3.57	2.57	1.29	0.67	1.10
	20715.00	1717.46	334.42	172.28	2952.45	10.36	0.86	0.17	0.09	1.48
	18862.40	889.85	334.42	172.28	3864.88	9.43	0.44	0.17	0.09	1.93
	46723.00	7743.21	3255.04	1676.84	9012.05	23.362	3.872	1.628	0.838	4.506

Device Description	Emissions (lb/year)				Emissions (ton/yr)					
	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	
Gen New 1	217.99	54.50	13.95	0.84	54.50	0.11	0.03	0.01	0.0004	0.03
Gen New 2	217.99	54.50	13.95	0.84	54.50	0.11	0.03	0.01	0.0004	0.03

Table D-2: TAC Potential to Emit - Solar Turbines

Pollutant	CAS No.	Emission Factor <sup>1</sup> (lb/MMSCF)	Turbine #1			Turbine #2		
			MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
Benzene	71432	0.0122	6.59E-04	1.32E-04	1.15E+00	6.59E-04	1.32E-04	1.15E+00
1,3-Butadiene	106990	0.000439	2.37E-05	4.74E-06	4.12E-02	2.37E-05	4.74E-06	4.12E-02
Formaldehyde	50000	0.724	3.91E-02	7.82E-03	6.80E+01	3.91E-02	7.82E-03	6.80E+01
Naphthalene	91203	0.00133	7.18E-05	1.44E-05	1.25E-01	7.18E-05	1.44E-05	1.25E-01
Total PAHs (excluding Naphthalene)	1151	0.000918	4.96E-05	9.91E-06	8.62E-02	4.96E-05	9.91E-06	8.62E-02
Acetaldehyde	75070	0.0408	2.20E-03	4.41E-04	3.83E+00	2.20E-03	4.41E-04	3.83E+00
Acrolein	107028	0.00653	3.53E-04	7.05E-05	6.13E-01	3.53E-04	7.05E-05	6.13E-01
Ammonia	766417	21.81	1.18E+00	1.18E+00	1.02E+04	1.18E+00	1.18E+00	1.02E+04
Ethylbenzene	100414	0.0326	1.76E-03	3.52E-04	3.06E+00	1.76E-03	3.52E-04	3.06E+00
Propylene oxide	75569	0.0296	1.60E-03	3.20E-04	2.78E+00	1.60E-03	3.20E-04	2.78E+00
Toluene	108883	0.133	7.18E-03	1.44E-03	1.25E+01	7.18E-03	1.44E-03	1.25E+01
Xylene	1330207	0.0653	3.53E-03	7.05E-04	6.13E+00	3.53E-03	7.05E-04	6.13E+00

Table D-3: TAC Potential to Emit - New Emergency Generator Engines

Pollutant	CAS No.	Emission Factor <sup>2</sup> (lb/MMSCF)	Emergency Gen New 1			Emergency Gen New 2		
			MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
Benzene	71432	1.61	1.12E-02	2.69E-03	5.39E-01	1.12E-02	2.69E-03	5.39E-01
1,3-Butadiene	106990	0.676	4.71E-03	1.13E-03	2.26E-01	4.71E-03	1.13E-03	2.26E-01
Formaldehyde	50000	20.9	1.46E-01	3.50E-02	7.00E+00	1.46E-01	3.50E-02	7.00E+00
Naphthalene	91203	0.099	6.90E-04	1.66E-04	3.31E-02	6.90E-04	1.66E-04	3.31E-02
Acrolein	107028	2.68	1.99E-02	4.49E-03	8.97E-01	1.87E-02	4.49E-03	8.97E-01
Ethylbenzene	100414	0.0253	1.76E-04	4.23E-05	8.47E-03	1.76E-04	4.23E-05	8.47E-03
Methanol	67561	3.12	2.18E-02	5.22E-03	1.04E+00	2.18E-02	5.22E-03	1.04E+00
Styrene	100425	0.0121	8.44E-05	2.03E-05	4.05E-03	8.44E-05	2.03E-05	4.05E-03
Toluene	108883	0.969	3.97E-03	9.52E-04	1.90E-01	3.97E-03	9.52E-04	1.90E-01
Xylene	1330207	0.199	1.39E-03	3.33E-04	6.66E-02	1.39E-03	3.33E-04	6.66E-02

Date and Parameters	Solar #1	Solar #2	Em Gen 1	Em Gen 2
CE Ox Cat for Organic TAC <sup>3</sup>	80%	80%	76%	76%
Maximum Hourly Heat Rate (MMBtu/hr)	56.30	56.30	7.32	7.32
Heat Rate (MMSCF/hr)	0.054	0.054	0.007	0.007
Maximum Heat Rate (MMSCF/yr)	469.70	469.70	1.39	1.39

- Notes:**
- Emission Factors for Compressor Gas Turbines: South Coast Air Quality Management District, AB 2588 Quadrennial Air Toxics Emissions Inventory Reporting Procedures, Annual Emissions Reporting Program, June 2020, Table B-1
  - Emission Factors for Emergency Engine: South Coast Air Quality Management District, AB 2588 Quadrennial Air Toxics Emissions Inventory Reporting Procedures, Annual Emissions Reporting Program, June 2020, Table B-1, with the following adjustments: all chlorinated compounds have been omitted because natural gas does not contain chlorine and ammonia has been omitted as ammonia is not added to the exhaust (i.e., no SCR), and ammonia is unlikely to form in the oxidizing environment of the combustion chamber
  - Control efficiency for the compressor gas turbines is provided by manufacturer. Control Efficiency for catalyst on emergency engines: San Joaquin Valley Air Pollution Control District, AB 2588 "Hot Spots" Air Toxics Profiles, District Toxic Profile ID 240

Ammonia slip emission factor	21.81 lbs/MMSCF
Ammonia slip concentration	15 ppm
HHV	1050 Btu/scf
F-Factor	8710 scf/MMBtu
MW	1701 lbs/lb-mol
MV	379 scf/lb-mol
O2 Correction	15 %

**Table D-4: Rule 1306(d)(2)(A) Contemporaneous Reductions**

Device	Emissions Basis	Emissions (lb/day)					
		NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>	SO <sub>x</sub>	
<b>Pre-Project PTE</b>							
Clark#1	BACT-adjusted historic actual	2.15	29.23	2.00	1.94	0.03	
Clark#2	BACT-adjusted historic actual	1.92	26.18	1.80	1.73	0.03	
Clark#3	BACT-adjusted historic actual	1.94	26.45	1.81	1.75	0.03	
Saturn#4	BACT-adjusted historic actual	1.62	2.26	0.69	0.82	0.41	
Saturn#5	BACT-adjusted historic actual	1.59	2.22	0.68	0.80	0.40	
Saturn#6	BACT-adjusted historic actual	1.63	2.27	0.70	0.82	0.42	
Saturn#7	BACT-adjusted historic actual	1.50	2.09	0.64	0.75	0.38	
Cooper 8	Rule-adjusted PTE	22.24	307.73	21.10	20.06	0.31	
Cooper 9	Rule-adjusted PTE	22.24	307.73	21.10	20.06	0.31	
Cooper 10	Permit Limit	23.73	322.87	22.14	21.39	0.33	
<b>Pre-Project PTE</b>		<b>80.58</b>	<b>1,029.02</b>	<b>72.67</b>	<b>70.13</b>	<b>2.64</b>	
<b>Post-Project PTE</b>							
Solar #1	Proposed PTE (30-DA)	21.26	129.44	24.93	8.92	4.59	
Solar #2	Proposed PTE (30-DA)	21.26	129.44	24.93	8.92	4.59	
Cooper 10	Permit Limit	23.73	322.87	22.14	21.39	0.33	
<b>Post-Project PTE</b>		<b>66.25</b>	<b>581.76</b>	<b>72.00</b>	<b>39.23</b>	<b>9.52</b>	
<b>Net Emission Increase</b>		<b>-14.33</b>	<b>-447.26</b>	<b>-0.67</b>	<b>-30.90</b>	<b>6.87</b>	
Offset Requirement (lb/day)		<b>0.00</b>	N/A	<b>0.00</b>	<b>0.00</b>	N/A	

**Notes:**

1 Because emergency equipment is exempt from the offset requirement per Rule 1304, emissions from emergency equipment are excluded from this analysis



Table D-5: Rule 1306-Adjusted Historic Emissions for Equipment to be Removed From Service

SCAQMD Permit Number	SCAQMD Device ID Number	Equipment Description	Rating (Hp)	2019 Fuel (mmcf/yr)	2020 Fuel (mmcf/yr)	2-Year Historic Actual Avg Fuel (mmcf/yr)	2-Year Average Days of Operation	Emission Factor Source <sup>1,2</sup>	BACT Adjusted Emission Factors <sup>1</sup> (lb/mmcf)				2-Year Rule 1306-Adjusted Actual Emissions (lb/yr)				2-Year Rule 1306-Adjusted Actual Emissions (lb/day)						
									CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	VOC
500090	D5	Clark#1	995	4.18	16.18	10.18	103	AER	588.57	43.25	39.00	0.60	40.36	2995.86	220.16	198.51	3.05	205.43	29.23	2.15	1.94	0.03	2.00
500091	D6	Clark#2	995	4.45	19.75	12.10	136	AER	588.57	43.25	39.00	0.60	40.36	3560.19	261.63	235.91	3.63	244.13	26.18	1.92	1.73	0.03	1.80
500092	D7	Clark#3	995	5.66	22.02	13.84	154	AER	588.57	43.25	39.00	0.60	40.36	4073.87	299.38	269.94	4.15	279.35	26.45	1.94	1.75	0.03	1.81
01302E	D1	Saturn#4	1100	16.77	38.67	27.72	118	AER	19.15	13.76	6.93	3.50	5.88	265.40	190.75	96.05	48.51	81.51	2.26	1.62	0.82	0.41	0.69
01302E	D2	Saturn#5	1100	16.21	23.13	19.67	85	AER	19.15	13.76	6.93	3.50	5.88	188.33	135.36	68.16	34.42	57.84	2.22	1.59	0.80	0.40	0.68
01302E	D3	Saturn#6	1100	17.52	34.92	26.22	111	AER	19.15	13.76	6.93	3.50	5.88	251.01	180.42	90.85	45.88	77.10	2.27	1.63	0.82	0.42	0.70
01302E	D4	Saturn#7	1100	15.01	19.18	17.10	79	AER	19.15	13.76	6.93	3.50	5.88	165.69	117.65	59.24	29.92	50.28	2.09	1.50	0.75	0.38	0.64

3729.15

Data and Parameters	Unit of Measure	Reference/Comments
Rule 1306 Discount Factor	---	Rule 1306
MW CO	lb/lb-mol	Constant
MW VOC	lb/lb-mol	Constant
Standard Molar Volume	scf/lb-mol at 60°F	Constant
Dry Fd Factor	ds/MMBtu	40 CFR 60 App B
oxygen basis	%	SCAQMD Rule 1134
Fuel Gas HHV	Btu/scf	RECLAIM
CO Conc - Turbines - BACT	ppm	Blythe
CO EF - CO - BACT	lbs/MMscf	Calculated
VOC Conc - Turbines - BACT	ppm	Blythe
VOC EF - BACT	lbs/MMscf	Calculated
Conversion	Hp/MW	1341.00

**Notes:**

- 1 No BACT adjustments to PM10 or SOx emission factors
- 2 Rule 1306 Adjustment includes a 50% discount due to operation less than 180 days per year

Table D-6: Cooper 8 & 9 Rule-Adjusted PTE

SQAQMD Application No.	Equipment Description	Rating	Heat Rate (MMBTU/hr)	Annual Usage (hrs/yr)	Annual Fuel Usage (mmcf/yr)	Emission Factors (ppm)			Emission Factors (lb/mmcf or as shown)						Emissions (lb/day)						Emissions (lb/year)					
						CO	NO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	SO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	SO <sub>x</sub>	VOC
539440	Copper 8	3,000 Hp	22.50	8,760	187.71	250	11	30	598.36	43.25	39.00	0.60	41.03	307.73	22.24	20.06	0.31	21.10	112,320	8,119	7,321	113	7,702			
539326	Copper 9	3,000 Hp	22.50	8,760	187.71	250	11	30	598.36	43.25	39.00	0.60	41.03	307.73	22.24	20.06	0.31	21.10	112,320	8,119	7,321	113	7,702			

Data and Parameters	Unit of Measure	Reference/Comments
Fuel Gas HHV	Btu/scf	RECLAIM
Conversion factor	lb/ton	Constant
Operating Days per year	days/year	Assumption
Hours per day	hours/day	Assumption
MW CO	lb/lb-mol	
MW NO <sub>x</sub>	lb/lb-mol	
MW VOC	lb/lb-mol	
Standard Molar Volume	scf/lb-mol	at 60°F
Dry Fd Factor	dsf/MMBtu	
oxygen basis	%	
NO <sub>x</sub> Conc - Engines - R1110.2	ppm	
NO <sub>x</sub> EF - Engines - R1110.2	lbs/MMscf	
VOC Conc - Engines - R1110.2	ppm	
VOC EF - Engines - R1110.2	lbs/MMscf	
CO Conc - Engines - R1110.2	ppm	
CO EF - Engines - R1110.2	lbs/MMscf	

**Notes:**

1. The AER is assumed to use emission factors that represent PTE. This was verified via the permit limits when possible, but for some sources and pollutants, this was not possible (e.g., the Cooper engines do not have a permitted NO<sub>x</sub> EF).

Table D-7: Cooper No. 10 Permitted PTE

SCAQMD Application No.	Equipment Description	Rating	Heat Rate (MMBTU/hr)	Annual Usage (hrs/yr)	Annual Fuel Usage (mmcf/yr)	Emission Factors (ppm)			Emission Factors (lb/mmcf)			Emissions (lb/day)			Emissions (lb/year)								
						CO	NO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	SO <sub>x</sub>	CO	NO <sub>x</sub>	SO <sub>x</sub>	CO	NO <sub>x</sub>	SO <sub>x</sub>	CO	NO <sub>x</sub>	SO <sub>x</sub>	VOC		
500096	Cooper 10	3,200 Hp	24.00	8,760	200.23	250	11	30	588.57	43.25	39.00	0.60	40.36	322.87	23.73	21.39	0.33	22.14	117849	8660	7809	120	8081

Data and Parameters	Measure	Unit of	Reference/Comments
Fuel Gas HHV	Btu/scf	RECLAIM	
Conversion factor	lb/ton	Constant	
Hours per day	hours/day	Assumption	
Days per year	day/year	Assumption	
MW CO	lb/lb-mol		
MW NOx	lb/lb-mol		
MW VOC	lb/lb-mol		
Standard Molar Volume	scf/lb-mol	at 60°F	
Dry Fd Factor	dsf/MMBtu		
oxygen basis	%		
Hours per Year	hours/yr		
NOx Conc - Engines - R1110.2	ppm		
NOx EF - Engines - R1110.2	lbs/MMscf		

## APPENDIX E – RULE 219 EXEMPTION ANALYSIS

## Appendix E Rule 219 Exemption Analysis

**Table E-1: Rule 219 Permit Exemptions**

Equipment	Rule 219 Exemption
Cooling Tower #5 (CGT)	R219(d)(3)(B): Applies if cooling tower is not used for evaporative cooling of process water, barometric jets, barometric condensers with no chromium compounds.
Cooling Tower #6 (EDC)	R219(d)(3)(B): Applies if cooling tower is not used for evaporative cooling of process water, barometric jets, barometric condensers with no chromium compounds.
Fresh Lube Oil Storage Tank (CGT Trains)	R219(m)(7): Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and control equipment used to exclusively vent such equipment.
Fresh Lube Oil Storage Tank (EDC Trains)	R219(m)(7): Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and control equipment used to exclusively vent such equipment.
Lube Oil Day Tank (CGT)	R219(m)(7): Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and control equipment used to exclusively vent such equipment.
Lube Oil Day Tank (EDC)	R219(m)(7): Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and control equipment used to exclusively vent such equipment.
Oily Waste Storage Tank	R219(m)(5): Equipment used exclusively for transferring VOC containing liquids, materials containing VOCs, or compressed gases into containers of less than 225 liters (60 gallons) capacity, except equipment used for transferring more than 4,000 liters (1,057 gallons) of materials per day with a vapor pressure greater than 25.8 mm Hg (0.5 psia) at operating conditions.
Brine Tank	R219(m)(1)(c): Equipment used exclusively for the storage and transfer of fresh, commercial, or purer grades of: Water based solutions of salts or sodium hydroxide.
Sulfuric Acid Tank (CT #5)	R219(m)(1)(A): Equipment used exclusively for the storage and transfer of fresh, commercial, or purer grades of: Sulfuric acid or phosphoric acid with an acid strength of 99 percent or less by weight.
Sulfuric Acid Tank (CT #6)	R219(m)(1)(A): Equipment used exclusively for the storage and transfer of fresh, commercial, or purer grades of: Sulfuric acid or phosphoric acid with an acid strength of 99 percent or less by weight.
Filter/Separator A	R219(m)(4): Equipment used exclusively for the storage including dispensing of unheated VOC containing materials with an initial boiling point of 150°C (302°F) or greater, or with an organic vapor pressure of 5 mm Hg (0.1 psi) absolute or less at 21.1°C (70°F). This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons).
Filter/Separator B	R219(m)(4): Equipment used exclusively for the storage including dispensing of unheated VOC containing materials with an initial boiling point of 150°C (302°F) or greater, or with an organic vapor pressure of 5 mm Hg (0.1 psi)

Applications for Permits to Construct: Moreno Compressor Modernization Project  
 San Diego Gas & Electric Company Moreno Compressor Station

Equipment	Rule 219 Exemption
	absolute or less at 21.1°C (70°F). This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons).
Discharge Scrubber	R219(m)(7): Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and control equipment used to exclusively vent such equipment.
Condensate Drip Tank	R219(m)(4): Equipment used exclusively for the storage including dispensing of unheated VOC containing materials with an initial boiling point of 150°C (302°F) or greater, or with an organic vapor pressure of 5 mm Hg (0.1 psi) absolute or less at 21.1°C (70°F). This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons).
Hydrogen Electrolyzers, Blending Skid, and Fueling Station (with cooling system)	R219(d)(2): Refrigeration units except those used as is or in conjunction with air pollution control equipment. (cooling system)
Hydrogen Storage Pressure Vessels	R219(m)(17): Equipment used for material storage where no venting occurs during filling or normal use.
Microgrid comprised of roof mounted solar PV panels, energy storage systems, and renewable hydrogen-fueled PEM Fuel Cells	R219(b)(5): Fuel cells, which produce electricity in an electro-chemical reaction and use phosphoric acid, molten carbonate, proton exchange membrane, or solid oxide technologies and associated heating equipment, provided the heating equipment: (A) does not use a combustion source; or (B) notwithstanding paragraph (b)(2), is fueled exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof, including heaters that have a rated maximum heat input capacity of greater than 2,000,000 Btu per hour, provided that the supplemental heat used is 90,000 therms per year or less and provided a filing pursuant to Rule 222 is submitted to the Executive Officer.

**APPENDIX F – SUPPLEMENTAL BACT INFORMATION**

**Appendix F – Supplemental BACT Information**

There are several challenges associated with successfully applying SCR to turbine-driven natural gas pipeline compressors. As a result, a special class and category of “Compressor Gas Turbine” (CGT) was established in Rule 1134 with a combined emission limit of 3.5 ppm NO<sub>x</sub> and 10 ppm ammonia slip, both at 15% oxygen and over a three-hour rolling average. This limit was obtained from a permit for a natural gas pipeline compressor station in Maryland. The station was never built, so this combination of NO<sub>x</sub> and ammonia slip limits has not been achieved in practice. As a result, Rule 1134 includes provisions to allow extra time to demonstrate compliance. This is needed not only for the initial source test, but also to observe turbine and SCR performance over a variety of ambient and pipeline conditions, specifically variations in natural gas pipeline suction pressure, discharge pressure, and flow. Because they are simple cycle and variable load, CGTs are commonly compared to turbine-driven electric power peaker generators (“Peakers”) but there are significant differences which have been summarized in Table F-1. Some of these differences and other challenges are discussed in the sections following the table.

**Table F-1: Comparison of Compressor Gas Turbines to Peaker Turbines**

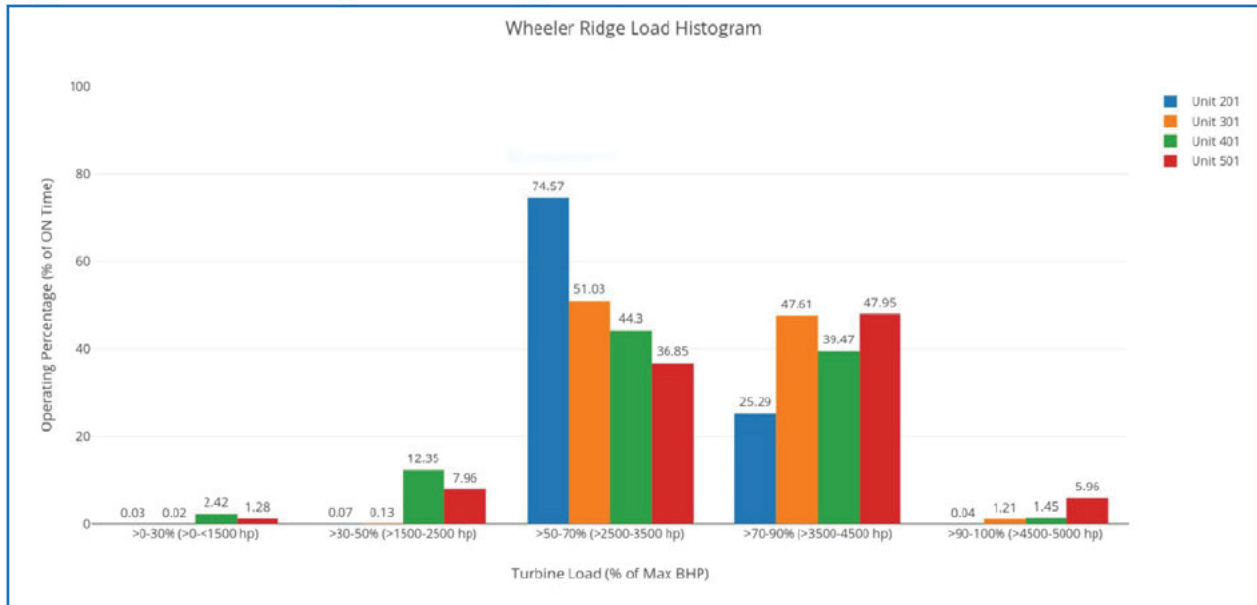
Characteristic	CGT	Peaker
Cycle	Simple	Simple
Load	Variable	Variable
Load range	30-95%	90-95%
Speed	Variable	Fixed
Cycling On/Off	Highly variable from multiple times per day to weekly	Most often daily
Ability to reduce load	Load cannot be reduced without loss of pipeline flow	Periods of lower load can be used to reduce average emissions
Shaft	Double	Single

***Wide Load Range Compared to Peakers***

The natural gas pipeline supplies fuel to both baseline electrical-generating stations and to Peakers, especially during scorching hot summer days when Peakers are turned on to meet air conditioning demand. In addition, purchasers of natural gas who use the combined SDG&E/SoCalGas natural gas system to deliver gas to their respective facilities create even greater variability with respect to the operation of the CGTs. Customers decide where the gas will be received into the combined system based on the price paid for the gas. As a result, certain compressor stations may need to cycle more than others, depending on gas delivery points along California’s border. Load variation of CGTs are wider than Peakers. Peakers most often operate at high loads, over 90 percent, while CGTs have wider variability ranging from 30 to 95 percent load. See example load distribution histogram for SoCalGas’s Wheeler Ridge compressor station provided as Figure F-1.



**Figure F-1: Wheeler Ridge Load Histogram - All Units**



The compressors must handle typical loads, but also have extra capacity to handle peak loads so that natural gas service is not curtailed whenever natural gas purchasers and shippers utilize the gas pipeline system. Industrial, commercial and residential customers throughout Southern California rely on natural gas fuel for power generation and heating, among many other uses.

Additionally, mechanical drive applications require multiple units to share the load, whereas power generating units can operate independently. The loads of two centrifugal compressors operating together need to be close to the same load to avoid surge and damage. This is another reason lower load operation is observed in CGTs more often than power generating turbines.

***Load variability warrants higher NO<sub>x</sub> limits for load transitions.***

SCR systems require tuning to perform properly. This includes ensuring the proper distribution of ammonia in the gas stream and uniform gas velocity through the catalyst, as well as determining the proper ammonia flow to meet the NO<sub>x</sub> emissions limit for all process conditions. The ammonia-flow control system adjusts for changes in NO<sub>x</sub> mass emissions caused by load changes. As compression needs change, so does the fuel flow rate. Higher load results in higher fuel rates, causing higher exhaust flow-rates at higher temperatures, and higher NO<sub>x</sub> mass flow rates. Thus, the ammonia injection control system must continuously respond to these changes. For example, as load varies, the control system must respond to both the fuel supply signal (feedforward) and the CEMS NO<sub>x</sub> signal (feedback).

For power generation, the gas turbine and generator are on a single shaft that operates at a constant speed to maintain power frequency. Inlet guide vanes in the turbine are adjusted to help control combustion pressure and temperature. This allows the aerodynamics of the turbine's gas producer and power turbine to be optimized more easily. For mechanical drive applications, the power turbine runs at the speed required by the driven equipment, but the gas producer runs at a different speed to match combustion air needs. Small compromises that might be needed in the aerodynamic design and control of combustion are a lot more challenging because pressure and temperature are

not as predictable and vary more. At higher loads, combustion is controlled by blowing off excess air. At lower loads, the gas generator cannot produce enough combustion air, so NO<sub>x</sub> increases as the pilot burner is used. Although air-fuel ratio control has improved greatly in recent years, with so little SCR experience in natural gas compression, it is uncertain how this variability will affect SCR performance.

With Peakers, if emissions go slightly high for a short period of time, the operator typically has the ability to back off on the load for a while to lower the average below the limit. Power plants elsewhere on the grid can make up for the loss. While there are multiple compressor stations along a pipeline, it is not necessarily possible for another station to make up for a loss of compression, so the compressor load cannot be reduced. Also, making up for losses in pipeline throughput are not implemented as quickly as power on the grid.

Also, the effect of transients on ammonia flow control systems needs to be considered. There is a lag in response time since the CEMS measurement is more than a minute behind load changes. When wide variations occur, the control system is consistently lagging, and the result is over- or under-injection of ammonia and increased variation on stack NO<sub>x</sub> and ammonia slip. It is uncertain how the ammonia control system will respond to the dynamic ammonia flow requirements of the compressors, especially during load transients.

***Higher NO<sub>x</sub> concentrations occur below 50% load as Dry Low NO<sub>x</sub> combustion phases out***

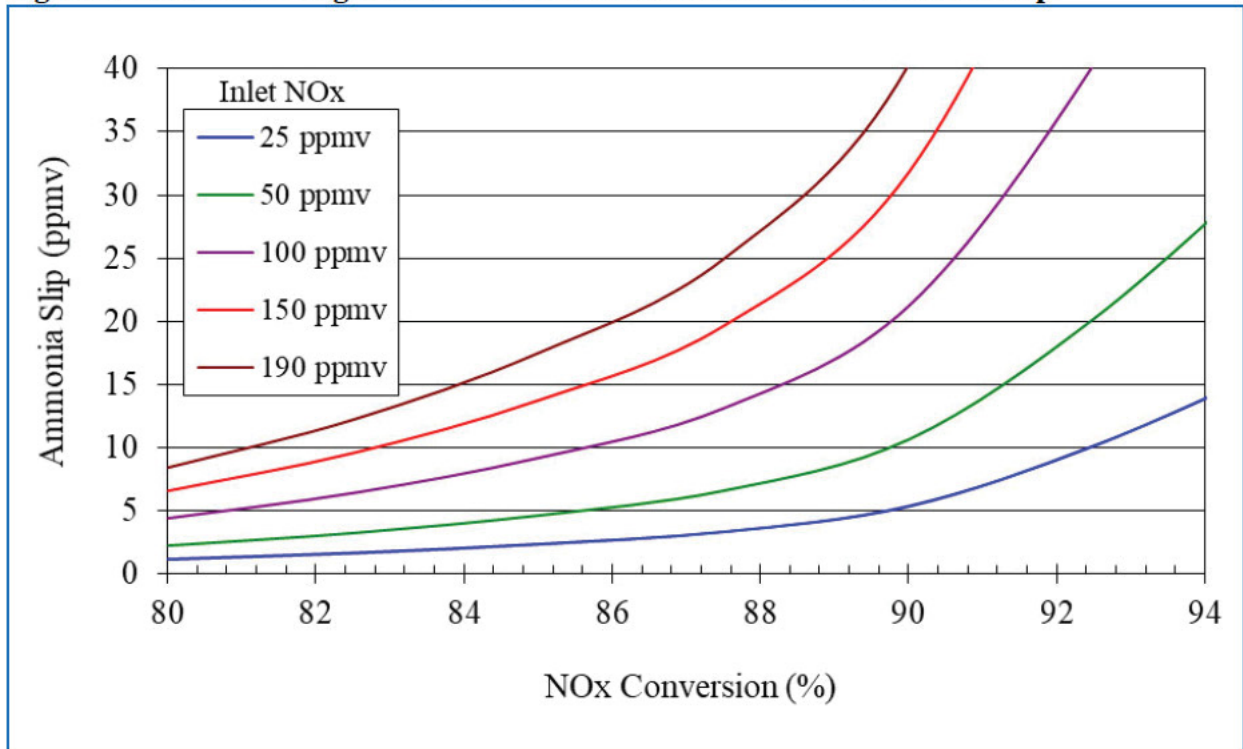
For better SCR performance, turbines with Dry-Low-NO<sub>x</sub> combustion controls are used so that NO<sub>x</sub> concentration going into the catalyst is lower, for example 25 ppm at 15% oxygen; however, below 50% load down to 30% load, NO<sub>x</sub> is only controlled to 42 ppm at 15% oxygen. Exhaust flow is reduced and, therefore, catalyst space velocity is lower. But still, a much higher reduction is needed to meet the NO<sub>x</sub> limit.

As shown in Figure F-2, when operating above 50% load, to achieve an emission limit of 3.5 ppm, an 86% reduction in NO<sub>x</sub> is required (25 ppm to 3.5 ppm). Under these conditions, an ammonia slip limit of less than 5 ppm is expected. However, when operating between 30 and 50% load, to achieve a 3.5 ppm emission limit, a 91.7% reduction is required (42 ppm to 3.5 ppm); an ammonia slip limit of 15 ppm is needed.

While PG&E's Kettleman City Compressor Station has a 10 ppm ammonia slip, the NO<sub>x</sub> limit is 8 ppm steady state and 12 ppm transitional state which is much higher than the Rule 1134 limit of 3.5 ppm. SoCalGas's Wheeler Ridge Compressor Station turbines have a 20 ppm ammonia slip limit.

Note that Figure F-2 is based on steady-state conditions; NO<sub>x</sub> and/or ammonia may spike during load transients. Without any compressor turbines running at these limits, it is unknown whether or not the 3-hour rolling period is long enough to average out spikes. Compliance margin should be considered when selecting an ammonia slip limit.

**Figure F-2: Effect of Engine Exit NO<sub>x</sub> on NO<sub>x</sub> Conversion and Ammonia Slip**



Source: SoCalGas/Envirox

### Consideration of Ammonia Slip Catalyst

Ammonia slip catalyst (ASC) is a catalyst designed to convert ammonia to nitrogen (N<sub>2</sub>). This technology uses a precious group metal (PGM) on the catalyst. In the past, the ASC used platinum for its formulation. Platinum is a strong catalyst for oxidation and the primary PGM in an oxidation catalyst. At the higher operating temperature of 840°F (448°C), selectivity of reaction changes. At this temperature ammonia is oxidized to NO<sub>x</sub> instead of N<sub>2</sub>. In a presentation to SCAQMD in 2015, Johnson Matthey reported the conversion of ammonia oxidation to NO<sub>x</sub> at temperatures above 425°C and generally recommended against using ASC above 425°C (797°F).<sup>20</sup> Given the high NO<sub>x</sub> conversion requirement for Rule 1134 compliance, any oxidation of ammonia to NO<sub>x</sub> would make the design NO<sub>x</sub> removal unachievable. Also, NO<sub>x</sub> created from oxidized ammonia interferes with the control system. The Programmable Logic Controller controlling SCR operation would over-inject ammonia to compensate, creating even more NO<sub>x</sub> and resulting in an uncontrollable system.

In recent years new ASC formulations were developed using a strategic addition of palladium with the platinum. The goal with this formulation is to control the selectivity of the ammonia oxidation and promote the desired ammonia destruct reaction toward the creation of N<sub>2</sub> and not N<sub>2</sub>O or NO<sub>x</sub>. While lab results demonstrate this change in selectivity, palladium can be poisoned rapidly by sulfur compounds present in the flue gas stream, even at low levels due to odorant in natural gas. Poisoning of the palladium by sulfur and phosphorous will reduce the selectivity toward the

<sup>20</sup> <http://www.aqmd.gov/docs/default-source/Agendas/aqmp/control-strategy-symposium/pm2-5-miller.pdf?sfvrsn=2>

creation of  $N_2$ , and the ASC would revert back to  $N_2O$  or  $NO_x$  formation. For the above reasons, ASC is an unproven technology with significant technical concerns and, therefore, is not being proposed at this time.

**APPENDIX G – HEALTH RISK ANALYSIS WORKSHEETS**

**TIER 1/TIER 2 SCREENING RISK ASSESSMENT DATA INPUT**

*(Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.103*

Application Deemed Complete Date	04/15/21
A/N	TBD
Facility Name	SDG&E Fac ID 4242

1. Stack Data	Input	Units
Hours/Day	24	hrs/day
Days/Week	7	days/wk
Weeks/Year	52	wks/yr
Control Efficiency	0.000	
Does source have T-BACT?	YES	
Source type (Point or Volume)	P	P or V
Stack Height or Building Height	64.5	feet
Building Area	5000	ft <sup>2</sup>
Distance-Residential	1800	meters
Distance-Commercial	2400	meters
Meteorological Station	Perris	
Project Duration (Short term options: 2, 5, or 9 years; Else 30 years)	30	years

**Conversion Units (select unit)**

From  feet

To  meter

Source Type	Other
Screening Mode (NO = Tier 1 or Tier 2; YES = Tier 3)	NO

**FOR SOURCE TYPE OTHER THAN BOILER, CREMATORY, ICE, PRESSURE WASHER, OR SPRAY BOOTH, FILL IN THE USER DEFINED TABLE BELOW**

Fac Name: SDG&E Fac ID 4242 A/N: TBD

TAC Code	Compound	Emission Rate (lbs/hr)	Molecular Weight	R1 - Uncontrolled (lbs/hr)	Efficiency Factor (Fraction range 0-1)	R2-Controlled (lbs/hr)
B1	Benzene	1.32E-04	78.11	1.32E-04	0.00000	0.00013176
B12	1,3-Butadiene	4.74E-06	54.09	4.74E-06	0.00000	4.7412E-06
F2	Formaldehyde	7.82E-03	30.03	7.82E-03	0.00000	0.0078192
P62	Naphthalene	1.44E-05	128.1732	1.44E-05	0.00000	0.000014364
P41	Polycyclic Aromatic Hydrocarbon (PAH)	9.91E-06	302.37	9.91E-06	0.00000	9.9144E-06
A1	Acetaldehyde	4.41E-04	44.06	4.41E-04	0.00000	0.00044064
A3	Acrolein	7.05E-05	56.06	7.05E-05	0.00000	0.000070524
A9	Ammonia	1.18E+00	17.03	1.18E+00	0.00000	1.17774
E3	Ethyl Benzene	3.52E-04	106.16	3.52E-04	0.00000	0.00035208
P71	Propylene Oxide	3.20E-04	58.08	3.20E-04	0.00000	0.00031968
T3	Toluene	1.44E-03	92.13	1.44E-03	0.00000	0.0014364
X1	Xylenes (Mixed Isomers)	7.05E-04	106.2	7.05E-04	0.00000	0.00070524

EMISSIONS ARE ENTERED ON THE EMISSIONS WORKSHEET OR ON ONE OF EQUIPMENT WORKSHEETS  
 INPUT PARAMETERS ENTERED ON THE EMISSIONS SHEET ARE USED FOR TIERS 1 AND TIER 2 ANALYSES

**TIER 2 SCREENING RISK ASSESSMENT REPORT**  
 (Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.1.03

A/N: TBD

Fac: SDG&E Fac ID 4242

Application deemed complete date: 4/15/2021

**1. Stack Data**

Equipment Type Other

Combustion Eff 0.0

With T-BACT

Operation Schedule 24 hrs/day  
7 days/week  
52 weeks/year

Stack Height 64.5 ft

Distance to Residential 1800 m

Distance to Commercial 2400 m

Meteorological Station Perris

**2. Tier 2 Data**

Dispersion Factors tables	Point Source
For Chronic X/Q	Table 6
For Acute X/Q max	Table 6.4

**Dilution Factors**

Receptor	X/Q ( $\mu\text{g}/\text{m}^3$ )/(tons/yr)	X/Qmax ( $\mu\text{g}/\text{m}^3$ )/(lbs/hr)
Residential	0.07	2.82
Commercial - Worker	0.07	2.82

**Intake and Adjustment Factors**

Year of Exposure	Residential	Worker
Combined Exposure Factor (CEF) - Table 4	30	55.86
Worker Adjustment Factor (WAF) - Table 5	1	1.00





**4. Emission Calculations**

Compound	R1 (lbs/hr)	R2 (lbs/hr)	R1 (lbs/day)	R2 (lbs/day)	R2 (lbs/yr)	R2 (tons/yr)
Benzene	1.32E-04	1.32E-04	3.16E-03	3.16E-03	1.15E+00	5.76E-04
1,3-Butadiene	4.74E-06	4.74E-06	1.14E-04	1.14E-04	4.14E-02	2.07E-05
Formaldehyde	7.82E-03	7.82E-03	1.88E-01	1.88E-01	6.83E+01	3.42E-02
Naphthalene	1.44E-05	1.44E-05	3.45E-04	3.45E-04	1.25E-01	6.27E-05
Polycyclic Aromatic Hydrocarbon (PAH)	9.91E-06	9.91E-06	2.38E-04	2.38E-04	8.66E-02	4.33E-05
Acetaldehyde	4.41E-04	4.41E-04	1.06E-02	1.06E-02	3.85E+00	1.92E-03
Acrolein	7.05E-05	7.05E-05	1.69E-03	1.69E-03	6.16E-01	3.08E-04
Ammonia	1.18E+00	1.18E+00	2.83E+01	2.83E+01	1.03E+04	5.14E+00
Ethyl Benzene	3.52E-04	3.52E-04	8.45E-03	8.45E-03	3.08E+00	1.54E-03
Propylene Oxide	3.20E-04	3.20E-04	7.67E-03	7.67E-03	2.79E+00	1.40E-03
Toluene	1.44E-03	1.44E-03	3.45E-02	3.45E-02	1.25E+01	6.27E-03
Xylenes (Mixed Isomers)	7.05E-04	7.05E-04	1.69E-02	1.69E-02	6.16E+00	3.08E-03
<b>Total</b>	<b>1.19E+00</b>	<b>1.19E+00</b>	<b>2.85E+01</b>	<b>2.85E+01</b>	<b>1.04E+04</b>	<b>5.19E+00</b>

**TIER 2 RESULTS**

**5a. MICR**

MICR Resident = CP (mg/(kg-day))<sup>-1</sup> \* Q (ton/yr) \* (X/Q) Resident \* CEF Resident \* MP Resident \* 1e-6 \* MWAF  
 MICR Worker = CP (mg/(kg-day))<sup>-1</sup> \* Q (ton/yr) \* (X/Q) Worker \* CEF Worker \* MP Worker \* WAF Worker \* 1e-6 \* MWAF

Compound	Residential	Commercial
Benzene	2 73E-09	2 25E-10
1,3-Butadiene	5 89E-10	4 86E-11
Formaldehyde	3 40E-08	2 80E-09
Naphthalene	3 57E-10	2 94E-11
Polycyclic Aromatic Hydrocarbon (PAH)	1 85E-07	4 37E-09
Acetaldehyde	9 13E-10	7 53E-11
Acrolein		
Ammonia		
Ethyl Benzene	6 34E-10	5 23E-11
Propylene Oxide	8 61E-10	7 10E-11
Toluene		
Xylenes (Mixed Isomers)		
<b>Total</b>	<b>2.25E-07</b>	<b>7.68E-09</b>
	<b>PASS</b>	<b>PASS</b>

**5b. Is Cancer Burden Calculation Needed (MICR > 1E-6)?** NO

New X/Q at which MICR<sub>70yr</sub> is one-in-a-million [(µg/m<sup>3</sup>)/(tons/yr)]:  
 New Distance, interpolated from X/Q table using New X/Q (meter):  
 Zone Impact Area (km<sup>2</sup>):  
 Zone of Impact Population (7000 person/km<sup>2</sup>):  
**Cancer Burden:**

**6. Hazard Index Summary**

$HIA = [Q(lb/hr) * (X/Q)_{max} * MWAf ] / Acute REL$   
 $HIC = [Q(ton/yr) * (X/O) * MP * MWAf] / Chronic REL$   
 $HIC\ 8-hr = [Q(ton/yr) * (X/Q) * WAF * MWAf] / 8-hr\ Chronic\ REL$

Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Alimentary system (liver) - AL		5 38E-08		Pass	Pass	Pass
Bones and teeth - BN				Pass	Pass	Pass
Cardiovascular system - CV				Pass	Pass	Pass
Developmental - DEV	1 42E-05	2 24E-06	1 61E-07	Pass	Pass	Pass
Endocrine system - END		5 38E-08		Pass	Pass	Pass
Eye	1 52E-03	3 08E-07		Pass	Pass	Pass
Hematopoietic system - HEM	1 38E-05	1 34E-05	1 34E-05	Pass	Pass	Pass
Immune system - IMM	1 38E-05			Pass	Pass	Pass
Kidney - KID		5 38E-08		Pass	Pass	Pass
Nervous system - NS	2 00E-07	1 77E-06		Pass	Pass	Pass
Reproductive system - REP	1 42E-05	2 24E-06		Pass	Pass	Pass
Respiratory system - RESP	1 12E-03	2 13E-03	2 97E-04	Pass	Pass	Pass
Skin				Pass	Pass	Pass

A/N: TBD Application deemed complete date: 04/15/21

**6a. Hazard Index Acute - Resident**  
 $HIA = [Q(\text{lb/hr}) * (X/Q)_{\text{max resident}} * \text{MWAFF}] / \text{Acute REL}$

Compound	HIA - Residential									
	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Benzene			1.38E-05		1.38E-05	1.38E-05		1.38E-05		
1,3-Butadiene			2.03E-08	4.01E-04				2.03E-08		
Formaldehyde				2.64E-06					2.64E-06	
Naphthalene				7.96E-05					7.96E-05	
Polycyclic Aromatic Hydrocarbon (PAH)				1.04E-03					1.04E-03	
Acetaldehyde				2.91E-07				2.91E-07		
Acrolein				1.09E-07			1.09E-07			
Ammonia				9.04E-08			9.04E-08			
Ethyl Benzene			2.91E-07					2.91E-07		
Propylene Oxide			1.09E-07				1.09E-07			
Toluene									1.09E-07	
Xylenes (Mixed Isomers)									9.04E-08	
<b>Total</b>			1.42E-05	1.52E-03	1.38E-05	1.38E-05	2.00E-07	1.42E-05	1.12E-03	

6a. Hazard Index Acute - Worker

$$HIA = [Q(\text{lb/hr}) * (X/Q)\text{max Worker} * M\text{WAF}] / \text{Acute REL}$$

A/N: TBD

Application deemed complete date: 04/15/21

Compound	HIA - Commercial									
	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Benzene			1.38E-05		1.38E-05	1.38E-05		1.38E-05		
1,3-Butadiene			2.03E-08					2.03E-08		
Formaldehyde				4.01E-04						
Naphthalene										
Polycyclic Aromatic Hydrocarbon (PAH)										
Acetaldehyde				2.64E-06					2.64E-06	
Acrolein				7.96E-05					7.96E-05	
Ammonia				1.04E-03					1.04E-03	
Ethyl Benzene			2.91E-07					2.91E-07		
Propylene Oxide			1.09E-07				1.09E-07			
Toluene				9.04E-08			9.04E-08			
Xylenes (Mixed Isomers)										
<b>Total</b>			1.42E-05	1.52E-03	1.38E-05	1.38E-05	2.00E-07	1.42E-05	1.12E-03	

A/N: TBD Application deemed complete date: 04/15/21

**6b. Hazard Index Chronic - Resident**  
 HIC = [Q(ton/yr) \* (X/Q) Resident \* M(WAF) / Chronic REL

HIC - Residential													
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene				7.25E-07			1.34E-05				7.25E-07	2.66E-04 4.88E-07	
1,3-Butadiene													
Formaldehyde													
Naphthalene												9.62E-07 6.16E-05	
Polycyclic Aromatic Hydrocarbon (PAH)												1.80E-03	
Acetaldehyde													
Acrolein													
Ammonia	5.38E-08			5.38E-08	5.38E-08				5.38E-08		5.38E-08	3.26E-06 1.46E-06	
Ethyl Benzene													
Propylene Oxide													
Toluene				1.46E-06		3.08E-07				1.46E-06 3.08E-07	1.46E-06	3.08E-07	
Xylenes (Mixed Isomers)													
<b>Total</b>	5.38E-08			2.24E-06	5.38E-08	3.08E-07	1.34E-05		5.38E-08	1.77E-06	2.24E-06	2.13E-03	

A/N: TBD Application deemed complete date: 04/15/21

**6b. Hazard Index Chronic - Worker**

HIC = [Q(ton/yr) \* (X/Q) \* MP Chronic Worker \* MWAF] / Chronic REL

HIC - Commercial													
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene				7.25E-07			1.34E-05				7.25E-07	2.66E-04 4.88E-07	
1,3-Butadiene													
Formaldehyde													
Naphthalene												9.62E-07 6.16E-05 1.80E-03	
Polycyclic Aromatic Hydrocarbon (PAH)													
Acetaldehyde													
Acrolein													
Ammonia	5.38E-08			5.38E-08	5.38E-08				5.38E-08		5.38E-08		
Ethyl Benzene													
Propylene Oxide													
Toluene				1.46E-06		3.08E-07				1.46E-06 3.08E-07	1.46E-06	1.46E-06 3.08E-07	
Xylenes (Mixed Isomers)													
<b>Total</b>	5.38E-08			2.24E-06	5.38E-08	3.08E-07	1.34E-05		5.38E-08	1.77E-06	2.24E-06	2.13E-03	

Application deemed complete date: 04/15/21

A/N: TBD

6c. 8-hour Hazard Index Chronic - Resident  
 HIC 8-hr = [Q(ton/yr) \* (X/Q) / Resident \* WAF] / 8-hr Chronic REL

Compound	HIC - Residential												
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene													
1,3-Butadiene													
Formaldehyde												2.66E-04	
Naphthalene													
Polycyclic Aromatic Hydrocarbon (PAH)												4.49E-07	
Acetaldehyde												3.08E-05	
Acrolein													
Ammonia													
Ethyl Benzene													
Propylene Oxide													
Toluene													
Xylenes (Mixed Isomers)													
<b>Total</b>				1.61E-07								1.34E-05	2.97E-04



A/N: TBD Application deemed complete date: 04/15/21

**6c. 8-hour Hazard Index Chronic - Worker**  
 HIC 8-hr = [Q(ton/yr) \* (X/Q) Worker \* WAF Worker \* MWAF] / 8-hr Chronic REL

Compound	HIC - Commercial												
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene				1.61E-07			1.34E-05					2.66E-04	
1,3-Butadiene												4.49E-07	
Formaldehyde												3.08E-05	
Naphthalene													
Polycyclic Aromatic Hydrocarbon (PAH)													
Acetaldehyde													
Acrolein													
Ammonia													
Ethyl Benzene													
Propylene Oxide													
Toluene													
Xylenes (Mixed Isomers)													
<b>Total</b>				1.61E-07			1.34E-05					2.97E-04	

## APPENDIX H – AMBIENT AIR QUALITY IMPACT ANALYSIS

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# **Appendix H**

## **Air Quality Impact Analysis for Moreno Compressor Modernization Project**

**San Diego Gas & Electric Company  
Moreno Compressor Station  
14601 Virginia Street  
Moreno Valley, CA 92555**

**SCAQMD Facility ID: 004242**

**May 2021**

## Table of Contents

1.0	INTRODUCTION .....	1
1.1	Facility Location.....	1
1.2	MCM Project Overview.....	1
1.3	Modeling Requirements.....	2
2.0	MODELING METHODOLOGY .....	4
2.1	Air Dispersion Model.....	4
2.2	Meteorological Data .....	4
2.3	Urban/Rural Dispersion Option.....	4
2.4	Terrain Options and Modeling Domain .....	5
2.5	Receptors.....	6
2.6	Buildings .....	6
2.7	Source Parameters .....	6
2.8	Background Concentrations.....	7
3.0	AQIA RESULTS SUMMARY .....	10
3.1	Permit Unit Significant Change Analysis .....	10
3.2	Air Quality Impact Analysis .....	10
3.3	Conclusion .....	10

## List of Tables

Table 2-1.	Nearby Building/Structure Dimension Information.....	6
Table 2-2:	Emission Sources and Release Parameters .....	8
Table 2-3:	Background Air Quality Data.....	8
Table 3-1:	Rule 2005 Results per Permit Unit for NO <sub>2</sub> .....	10
Table 3-2:	AAQS Results .....	11

## List of Figures

Figure 1-1:	Project Property Location .....	2
Figure 2-1:	Land Use Types Within 3 Kilometers of the MCS .....	5
Figure 2-2:	AERMOD Facility Layout.....	9

## Attachments

ATTACHMENT 1 – AQIA ELECTRONIC MODELING FILES

# Air Quality Impact Analysis for Moreno Compressor Modernization Project

## 1.0 INTRODUCTION

Yorke Engineering, LLC (Yorke) prepared this Air Quality Impact Analysis (AQIA) in support of the Permit to Construct (PTC) application package for submittal to the South Coast Air Quality Management District (SCAQMD) for the proposed Moreno Compressor Modernization (MCM) Project. San Diego Gas and Electric Company (SDG&E) and Southern California Gas Company (SoCalGas), as wholly owned subsidiaries of Sempra Energy, propose to modernize the Moreno Compressor Station (MCS).

The scope of the MCM Project is to install two new compressor gas turbines (CGTs) and two electric motor driven compressors (EDCs), and remove the four existing CGTs and five of the six existing compressor gas lean-burn engines. Additionally, the four existing natural gas-fired emergency generators will be replaced with two new natural gas-fired emergency generators. An application for retrofitting the sixth compressor gas lean-burn engine with a Selective Catalytic Reduction (SCR) system was submitted to the SCAQMD in February 2020 and this Cooper No. 10 compressor gas lean-burn engine will remain on site. The post-project combustion sources will be comprised of the two new CGTs, two new emergency generators, and one retrofit compressor gas lean-burn engine.

### 1.1 Facility Location

The facility is located at 14601 Virginia Street in Moreno Valley, CA. The property consists of a total of 19.28 acres. Land use in the vicinity of the site is vacant land historically used for agricultural purposes. The nearest residential property is approximately 1,800 meters northeast of the facility. The nearest current commercial/industrial property is approximately 2,400 meters north of the facility. There are no schools within 1,000 feet of the facility. An aerial photograph of the site and surrounding properties is provided as Figure 1-1.

### 1.2 MCM Project Overview

The proposed MCM Project includes the following major elements subject to permit by the SCAQMD:

- Installation of two new 5,825 horsepower (hp) Solar Centaur Model 50 natural gas fired CGTs, each with emission control systems comprised of Selective Catalytic Reduction (SCR) and oxidation catalyst; and
- Installation of two new 824-hp Waukesha emergency engine generators, each with EmPact emissions control system which includes three-way non-selective catalytic reduction (NSCR) and an air fuel ratio controller.

The MCM Project also involves the shutdown and removal of the four existing CGTs, five of the six existing compressor gas lean-burn engines, and the four existing natural gas-fired emergency generators. The replacement of most of the existing compression equipment (all but one of the existing compressor engines) and all four of the existing emergency generators with new CGTs

and emergency generators with emissions control systems leads to net emissions decrease of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), and respirable particulate matter (PM<sub>10</sub>) and a small net increase of sulfur oxides (SO<sub>x</sub>) emissions. The small increase in SO<sub>x</sub> emissions is due to the difference in SO<sub>x</sub> emission factors for turbines as compared to engines. The emissions calculations are discussed in Section 4 and Appendix D of the PTC application package.

**Figure 1-1: Project Property Location**



### 1.3 Modeling Requirements

The facility is a RECLAIM facility and hence the modeling requirements for NO<sub>x</sub> emissions from the new CGTs are contained in Rule 2005, *New Source Review for RECLAIM*. Although there is a facility-wide decrease in NO<sub>x</sub> emissions, Rule 2005(d) defines an emissions increase as occurring at the individual source/emissions unit. For the purposes of this rule, the new CGTs must be assessed as new equipment with a post-project potential to emit (PTE) that is greater than the pre-project emissions of each unit (i.e., zero), and hence an emissions increase.

Rule 2005(b)(1)(B) requires a demonstration that the operation of any emission source located at the new or relocated facility will not cause a violation nor make significantly worse an existing violation of the state or national ambient air quality standards at any receptor location in the

District. The methodology to be used for the modeling demonstration is provided in Appendix A to this rule, including Table A-1 that provides a Screening Analysis option. Table A-1 indicates that it is “for Combustion Sources less than 40 Million BTUs per hour.” Although the proposed CGTs are 56.30 MMBtu per hour, it is our understanding based on SCAQMD modeling guidance (Engineering Division Policy and Procedures, Regulation XIII Screening Analysis for Modeling, November 26, 1991), that even for combustion sources that are greater than 40 MMBtu per hour, Table A-1 can be used for screening as long as the maximum hourly emission rates are below the levels for combustion sources greater than 30 MMBtu/hour. The hourly NO<sub>x</sub> emissions during normal operations are less than the Rule 2005 Table A-1 Allowable Emissions for combustion sources greater than 30 MMBtu per hour, and modeling is not required for normal operating hours.

However, the hourly NO<sub>x</sub> emissions may exceed the Allowable Emissions from Table A-1 during start-up and shutdown hours because the add-on emission control systems are not effective during those periods. Therefore, an air quality impact analysis (AQIA) was prepared for evaluating compliance with the Nitrogen Dioxide (NO<sub>2</sub>) significant change limits contained in Rule 2005, Table A-2 and the National and California Ambient Air Quality Standards (NAAQS and CAAQS).

As explained in Section 5.7.1.2 of the application, modeling is not required for CO, VOC, PM<sub>10</sub> or SO<sub>x</sub> from the CGT, and modeling is not required for emergency engines.

Therefore, this report documents the AQIA completed for NO<sub>x</sub> emissions from the CGTs proposed for the MCM Project. The inputs used for the modeling are discussed in Section 2. Section 3 provides the modeling results. Modeling files are provided along with this report.

## 2.0 MODELING METHODOLOGY

Modeling of NO<sub>x</sub> emissions was conducted for New Source Review (NSR) to demonstrate that the MCM Project will not cause a violation or make significantly worse an existing violation of any applicable ambient air quality standards. Modeling was performed to demonstrate that each of the new permit unit's emissions will not result in a significant change in the air quality concentration per Rule 2005. Modeling was also conducted to demonstrate that new MCM Project NO<sub>x</sub> emissions plus background concentrations will be less than the NAAQS or CAAQS.

### 2.1 Air Dispersion Model

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) version 19191 was used for this analysis. It was implemented through the Lakes Environmental Software (Lakes) interface, AERMOD View™, Version 9.9.0.

AERMOD is a steady-state plume dispersion model that incorporates air dispersion calculations based on planetary boundary layer turbulence structure and scaling concepts. Using emission rates, exhaust parameters, terrain characteristics, and meteorological inputs, AERMOD calculates downwind pollutant concentrations at specified receptor locations. AERMOD is recommended by both the United States Environmental Protection Agency (EPA) and the SCAQMD for stationary source air dispersion modeling projects.

The maximum AERMOD-predicted NO<sub>2</sub> concentration was conservatively used, instead of the design value, for comparison to the NAAQS and for the CAAQS. The 1-hour and annual NAAQS followed the EPA Tier 1 technique outlined in the EPA NO<sub>2</sub> clarification memo (EPA 2014), that assumes complete conversion of all NO<sub>x</sub> to NO<sub>2</sub>.

### 2.2 Meteorological Data

AERMOD-ready pre-processed meteorological (MET) data files obtained from the SCAQMD were used for this AQIA. To determine the most representative MET station, the locations and wind roses were reviewed for the following nearby stations: Banning Airport, Perris and Riverside Airport.

The Perris MET station was chosen due to its proximity (10 miles southwest) and similar wind patterns to the location of the facility in Moreno Valley. The wind rose of the Perris MET station has predominantly north-northwest (NNW) and south-south east (SSE) wind patterns which are similar to the winds in Moreno Valley. The MET data files for Perris contained data for the years 2010 through 2011 and 2014 through 2016.

### 2.3 Urban/Rural Dispersion Option

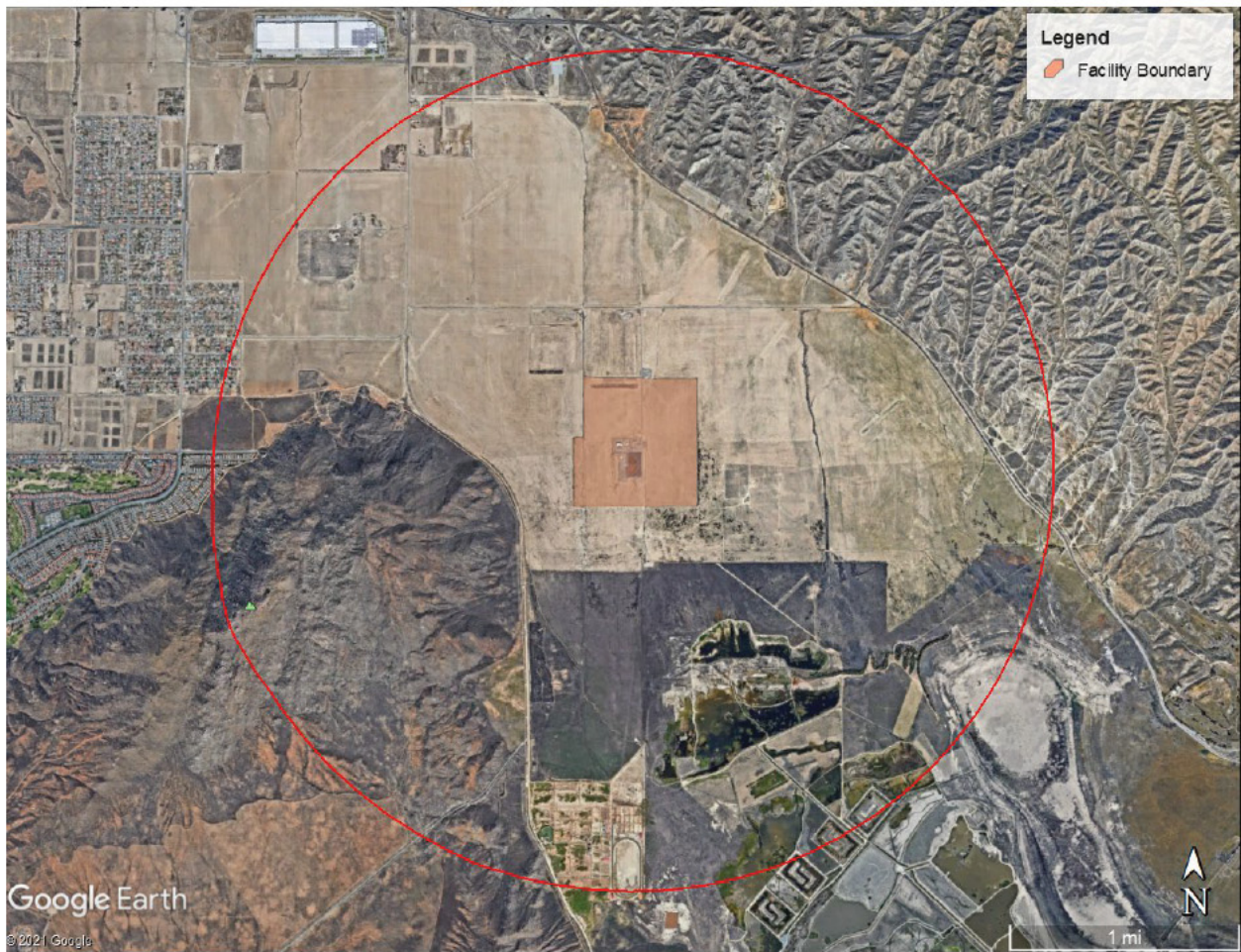
AERMOD allows for the use of urban or rural dispersion coefficients. The determination of whether the facility is in an urban or rural area followed the Auer method noted in the References section of 40 CFR Part 51 Appendix W. The Auer method requires drawing a circle with a 3-kilometer radius centered on the centroid of the emission source locations and classifying the land use types within the circle as urban or rural according to a set of criteria. If 50% or more of the land use types within the circle meet the urban criteria (I1-Heavy Industrial, I2-Light-Moderate Industrial, C1-Commercial, R2 and R3-Compact Residential), the facility is considered to be in an urban area. Rural criteria are R1-Common Residential, R4-Estate Residential, A1-Metropolitan



Natural, A2-Agricultural, A3-Undeveloped (Grass/Weeds), A4-Undeveloped (Heavily Wooded), and A5-Water Surfaces.

Figure 2-1 shows the area within 3 kilometers of the MCS. More than 50% of the land use types within the circle meet the criteria to be classified as rural. Therefore, the AERMOD modeling used rural dispersion coefficients.

**Figure 2-1: Land Use Types Within 3 Kilometers of the MCS**



## 2.4 Terrain Options and Modeling Domain

The AERMOD runs used the regulatory default elevated terrain option. Terrain data were imported directly into AERMOD View™ using the WebGIS import feature. The terrain data were from the United States Geological Survey (USGS) National Elevation Dataset (NED) and had a spatial resolution of approximately 30 meters (1 arcsecond). The terrain data files were processed by AERMOD View™ using AERMAP Version 18081 and elevations were assigned to receptors, buildings, and emission sources accordingly.

## 2.5 Receptors

An aerial map of the facility was used to establish the facility boundary. A multi-tier Cartesian receptor grid was used for this analysis. The gridded receptors included:

- Fence line receptors spaced every 10 meters;
- 50-meter spacing from the center of site out to 800 meters;
- 100-meter spacing from the center of site out to 2,000 meters; and
- 250-meter spacing from the center of site out to 3,500 meters.

## 2.6 Buildings

Relevant on-site buildings and structures were included in all modeling runs using the dimensional data shown in Table 2-1 at the locations shown in blue on Figure 2-2. Building downwash effects were assessed using Building Profile Input Program for PRIME (BPIP/PRIME).

**Table 2-1. Nearby Building/Structure Dimension Information**

Building/Structure Description	Height (feet)	Dimensions - X (feet)	Dimensions - Y (feet)
Cooper Compressor Building	40.6	Polygonal	
Maintenance Shop	25.8	106	46
Admin Building & Control Room	14.9	106	60
Cooling Tower #4	21.3	104	48
Cooling Tower #3	16.9	26	36
Cooling Tower #1	12.5	58	31
Clark Compressor Building	25.8	98	30
Auxiliary Building	18.1	69	25
Vessel Loading/Unloading Building 1	10.5	7	14
Vessel Loading/Unloading Building 2	13.2	35	14
Building East of Cooling Tower #3	8.8	77	32
Building South of Cooling Tower #3	10.1	23	18
New Warehouse Building	22	100	60
New EDC Building	56	64	154.5
New CGT Building	56	69	162

Notes:

1. Existing building heights determined from "Moreno Existing Buildings Plot Plan v1". Building dimensions determined from Google Earth.
2. New warehouse building dimensions provided by SoCalGas.
3. EDC and CGT building dimensions provided by SoCalGas.

## 2.7 Source Parameters

The exhaust stacks of each emission source were modeled as point sources and were sited in AERMOD using an aerial map and engineering drawings. The release parameters for each exhaust

stack are presented in Table 2-2, and stack locations are shown on Figure 2-2. The maximum 1-hour NO<sub>x</sub> emission rate shown in Table 2-2 was used in both the 1-hour and annual modeling. Use of the maximum 1-hour emission rate for every hour is extremely conservative for the annual emission basis. For instance, the annualized NO<sub>x</sub> emission rate for the two CGTs is 0.74 pounds per hour, and hence annual results are likely to be approximately 34% of the concentrations predicted in this analysis. The emission calculation details are provided in Section 4 of the permit application.

## **2.8 Background Concentrations**

Dispersion modeling to evaluate compliance with the NAAQS and CAAQS requires the use of measured air pollutant concentrations to account for the contributions of regional emissions, i.e., emission sources not explicitly included in the model simulations. This section describes the available monitoring data used to represent the “background” air quality in the facility area and explains the process by which data from specific monitoring stations were selected to represent background levels for each averaging time for NO<sub>2</sub>.

CARB iADAM monitoring data for the most recent 3-year period (2017-2019), were selected from the Riverside-Rubidoux station as the most representative site. The Riverside-Rubidoux station was chosen due to its upwind proximity and similar topography to the facility compared to the other available sites which included Banning, Lake Elsinore, Mira Loma and Palm Springs.

The maximum concentrations over the most recent 3-year period were used as conservative representations of background air quality conditions. Use of this method effectively assumes that the highest recently recorded pollutant concentrations for each averaging period are occurring during every such period over the meteorological input record. This high-static background is then paired with modeled results.

Background concentrations for NO<sub>2</sub> are presented in Table 2-3 for the representative monitoring station location.

Air Quality Impact Analysis for Moreno Compressor Modernization Project  
San Diego Gas & Electric Moreno Compressor Station

**Table 2-2: Emission Sources and Release Parameters**

Source ID	Base Elevation (m)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Exit Temperature (°K)	Maximum 1-Hour Emission Rate (g/s)	UTM Easting (m)	UTM Northing (m)
CGT1	465.74	19.66	1.83	15.14	722.04	0.27	488,682.79	3,752,130.32
CGT2	465.52	19.66	1.83	15.14	722.04	0.27	488,682.99	3,752,112.95

**Table 2-3: Background Air Quality Data**

Pollutant	Averaging Time	Standard	Monitoring Station Location	Ambient Background Data (µg/m <sup>3</sup> )				Ambient Air Quality Standard	Exceed Std?	Background Concentration Notes
				2017	2018	2019	Selected Background Conc.			
NO <sub>2</sub>	1-Hour	National	Riverside-Rubidoux	110.79	96.63	101.03	102.82	188	No	The design value (= 3-year average of 98th percentile of 1-hr daily max) Highest of most recent 3 years. Highest of most recent 3 years. Highest of most recent 3 years.
		California	Riverside-Rubidoux	120.55	105.24	107.15	120.55	339	No	
	National	Riverside-Rubidoux	28.70	26.79	26.79	28.70	100	No		
	California	Riverside-Rubidoux	26.79	26.79	26.79	26.79	57	No		

Notes: Data from CARB iADAM: Air Quality Data Statistics (<https://arb.ca.gov/adam>).

**Figure 2-2: AERMOD Facility Layout**



### 3.0 AQIA RESULTS SUMMARY

Dispersion modeling for NO<sub>2</sub> was conducted for the new CGTs for the MCM Project. Results by permit unit and project (both CGTs) for NO<sub>x</sub> are presented in the sections below. See discussion in Section 1.3 for the selection of pollutants.

#### 3.1 Permit Unit Significant Change Analysis

For demonstrating compliance with Rule 2005, NO<sub>2</sub> concentrations per permit unit were compared to the Rule 2005 significant change in air quality concentration thresholds.

The significant change thresholds from Rule 2005 Table A-2 for 1-hour and annual NO<sub>2</sub> concentrations are 20.0 and 1.0 micrograms per cubic meter (µg/m<sup>3</sup>), respectively. The hourly emission rate for both the 1-hour and annual results are based on one start and one stop in a single hour, and the balance of the hour assumed to be normal operations at 100% load. The results of the NO<sub>2</sub> analysis by permit unit are presented in Table 3-1. The predicted NO<sub>2</sub> concentrations from each permit unit are below the Significant Change Thresholds; therefore, compliance with Rule 2005 is demonstrated.

**Table 3-1: Rule 2005 Results per Permit Unit for NO<sub>2</sub>**

Source	NO <sub>2</sub> Maximum 1-hour Concentration (µg/m <sup>3</sup> )	Significant Change Concentration 1-hour (µg/m <sup>3</sup> )	Exceed Standard?	NO <sub>2</sub> Annual Concentration (µg/m <sup>3</sup> )	Significant Change Concentration Annual (µg/m <sup>3</sup> )	Exceed Standard?
CGT1	8.79	20.0	No	0.11	1.0	No
CGT2	8.90	20.0	No	0.11	1.0	No

Note: Maximum per source is not additive since the peak impact per source may occur at different locations and during different times.

#### 3.2 Air Quality Impact Analysis

For demonstrating compliance with the CAAQS and NAAQS, maximum concentrations from the project were combined with ambient background concentrations.

The project NO<sub>2</sub> concentrations combined with ambient background concentrations are less than the CAAQS and NAAQS; therefore, the MCM Project is not expected to cause or contribute to a violation of a CAAQS or NAAQS. The results summary of the AAQS analysis are presented in Table 3-2.

#### 3.3 Conclusion

Modeling for NO<sub>2</sub> emissions was performed in accordance with Rule 2005. Applicable short- and long-term averaging periods were analyzed, and all concentration impacts were below the Rule 2005 Significant Change Thresholds and CAAQS/NAAQS. Modeling files are provided electronically with this analysis.

**Table 3-2: AAQS Results**

Pollutant	Averaging Time	Standard	Modeled Concentration ( $\mu\text{g}/\text{m}^3$ )	Background Concentration ( $\mu\text{g}/\text{m}^3$ )	Modeled + Background Concentration ( $\mu\text{g}/\text{m}^3$ )	Ambient Air Quality Standard ( $\mu\text{g}/\text{m}^3$ )	Exceed Standard?
NO <sub>2</sub>	1-Hour	National	17.62	102.82	120.44	188	No
		California	17.62	120.55	138.17	339	No
	Annual	National	0.23	28.70	28.93	100	No
		California	0.23	26.79	27.02	57	No