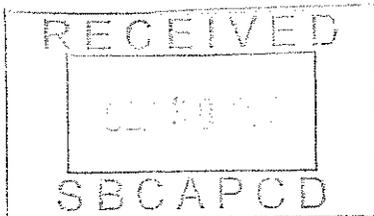


ExxonMobil Production
P.O. Box 4358
Houston, TX 77210-4358



ExxonMobil
Production

September 27, 2010

Santa Ynez Unit
Las Flores Canyon –
CPP Planned Bypass Mode
ATC/PTO Application

Mr. Ben Ellenberger
Santa Barbara County
Air Pollution Control District
260 North San Antonio Road, Suite A
Santa Barbara, California 93110

Dear Mr. Ellenberger:

ExxonMobil submits the following Authority to Construct/Permit to Operate (ATC/PTO) application to incorporate maintenance & testing operations of the Cogeneration Power Plant at Las Flores Canyon as a part of the Planned Bypass Mode of operations. As discussed further in the application, the anticipated maintenance and testing needs are in excess of the existing 2 hours/day permit limit for startup/shutdown operations. Therefore, ExxonMobil is seeking to increase the overall limit for operations routed primarily through the bypass stack, specifically to incorporate maintenance and testing.

ExxonMobil requests that the Emission Reduction Credit (ERC) Certificate being generated after ERC# 0188-0811 (DOI 042) was used on ATC 12682 and ATC 12682-01 be used offset the proposed increase. ExxonMobil has previously submitted an application to incorporate *De Minimis* projects onto permit using this same ERC certificate, however ExxonMobil is requesting that the offsets required for this CPP – Planned Bypass Mode project be used first, and a revised *De Minimis* application will be submitted to use the remaining amount of credit.

If you have any questions or comments please contact Katie Wilson at (281) 654-0742.

Sincerely,

Frank C. Betts
SYU Operations Superintendent

Enclosure

bx:

Sandra Combe, ExxonMobil (Port Hueneme)

Katie Wilson, ExxonMobil (Houston)

Bart Leininger, ALG (Camarillo)

Lisa Kiehl, ALG (Santa Rosa)



General Permit Application Form -01

Santa Barbara County Air Pollution Control District
PO Box 6447, Santa Barbara, CA 93160-6447

1. APPLICATION TYPE (check all that apply):

- Authority to Construct (ATC)
- Permit to Operate (PTO)
- ATC Modification
- PTO Modification
- Other (Specify) _____
- Transfer of Owner/Operator (use Form -01T)
- Emission Reduction Credits
- Increase in Production Rate or Throughput
- Decrease in Production Rate or Throughput

Previous ATC/PTO Number (if known) Part 70/PTO 5651

Yes No Are Title 5 Minor Modification Forms Attached? (this applies to Title 5 sources only and applies to all application types except ATCs and Emission Reduction Credits). Complete Title 5 Form -1302 A1/A2, B, and M. Complete Title 5 Form -1302 C1/C2, D1/D2, E1/E2, F1/F2, G1/G2 as appropriate. [http://www.sbcpd.org/eng/dl/appforms/t5-forms\(ver1.2\).pdf](http://www.sbcpd.org/eng/dl/appforms/t5-forms(ver1.2).pdf)

Mail the completed application to the APCD's Engineering & Compliance Division (ECD) at the address listed above.

2. FILING FEE:

A \$325 application filing fee must be included with each application. The application filing fee is COLA-adjusted every July 1st. Please ensure you are remitting the correct current fee (the current fee schedule is available on the APCD's webpage at: <http://www.sbcpd.org/fees.htm>). This filing fee will not be refunded or applied to any subsequent application. Payment may also be made by credit card by using the Credit Card Authorization Form at the end of this application.

3. IS YOUR PROJECT'S PROPERTY BOUNDARY LOCATED OR PROPOSED TO BE LOCATED WITHIN 1,000 FEET FROM THE OUTER BOUNDARY OF A SCHOOL? If yes, and the project results in an emissions increase, submit a completed Form -03 (*School Summary Form*) <http://www.sbcpd.org/eng/dl/appforms/apcd-03.pdf> Yes No

If yes, provide the name of school(s)

Address of school(s)

City Zip Code

4. DOES YOUR APPLICATION CONTAIN CONFIDENTIAL INFORMATION? If yes, please submit this information according APCD Policy & Procedure 6100-020 (*Handling of Confidential Information*). http://www.sbcpd.org/eng/dl/eng_p-and-p/6100-020.pdf. Applications not following this P&P will be returned. Yes No

FOR APCD USE ONLY				DATE STAMP
FID	1482	Permit No.	ATC/PTO	<div style="border: 2px solid black; padding: 5px; margin: 0 auto; width: 80%;"> <p style="text-align: center; margin: 0;">RECEIVED</p> <p style="text-align: center; margin: 0;">2-20-07</p> <p style="text-align: center; margin: 0;">SBCAPCD</p> </div>
Project Name	Las Flores Canyon			
Filing Fee	341.00	202.E? YES / NO		

Billed

5. COMPANY/CONTACT INFORMATION:

Owner Info		<input checked="" type="radio"/> Yes <input type="radio"/> No	Use as Billing Contact?
Company Name	ExxonMobil Production Company		
Doing Business As			
Contact Name	Kevin Bailey	Position/Title	Regulatory Compliance Supervisor
Mailing Address	P.O. Box 4358		
City	Houston	State	TX Zip Code 77210-4358
Telephone	281-654-1130	Fax	Email

Operator Info		<input checked="" type="radio"/> Yes <input type="radio"/> No	Use as Billing Contact?
Company Name	Same as Owner Information		
Doing Business As			
Contact Name		Position/Title	
Mailing Address			
City		State	Zip Code
Telephone		Fax	Email

Authorized Agent Info*		<input type="radio"/> Yes <input type="radio"/> No	Use as Billing Contact?
Company Name			
Doing Business As			
Contact Name		Position/Title	
Mailing Address			
City		State	Zip Code
Telephone		Fax	Email

*Use this section if the application is not submitted by the owner/operator. Complete APCD Form -01A (<http://www.sbcapcd.org/gen/forms/apcd-01a.pdf>). Owner/Operator information above is still required.

SEND PERMITTING CORRESPONDENCE TO (check all that apply):	
<input checked="" type="checkbox"/> Owner	<input checked="" type="checkbox"/> Operator
<input type="checkbox"/> Authorized Agent	<input type="checkbox"/> Other (attach mailing information)

6. GENERAL NATURE OF BUSINESS OR AGENCY:

Oil and gas exploration and production

7. EQUIPMENT LOCATION (Address):

Specify the street address of the proposed or actual equipment location. If the location does not have a designated address, please specify the location by cross streets, or lease name, UTM coordinates, or township, range, and section.

Equipment Address	12000 Calle Real		
City	Goleta	State	CA Zip Code 93117
Work Site Phone	8059614030		

Incorporated (within city limits) Unincorporated (outside city limits) Used at Various Locations

Assessors Parcel No(s):

8. PROJECT DESCRIPTION:

(Describe the equipment to be constructed, modified and/or operated or the desired change in the existing permit. Attach a separate page if needed):

See Attachment I - Define a maintenance & testing category of operations under the existing bypass mode operations for the Cogeneration Power Plant.

9. DO YOU REQUIRE A LAND USE PERMIT OR OTHER LEAD AGENCY PERMIT FOR THE PROJECT DESCRIBED IN THIS APPLICATION?: Yes No

A. If yes, please provide the following information

Agency Name	Permit #	Phone #	Permit Date

* The lead agency is the public agency that has the principal discretionary authority to approve a project. The lead agency is responsible for determining whether the project will have a significant effect on the environment and determines what environmental review and environmental document will be necessary. The lead agency will normally be a city or county planning agency or similar, rather than the Air Pollution Control District.

B. If yes, has the lead agency permit application been deemed complete and is a copy of their completeness letter attached?

Yes No

Please note that the APCD will not deem your application complete until the lead agency application is deemed complete.

C. If the lead agency permit application has not been deemed complete, please explain.

D. A copy of the final lead agency permit or other discretionary approval by the lead agency may be requested by the APCD as part of our completeness review process.

10. PROJECT STATUS:

A. Date of Equipment Installation

Upon permit issuance

B. Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for not obtaining a permit Yes No for this equipment/modification *and/or* have you installed this equipment without the required APCD permit(s)? If yes, the application filing is double per Rule 210.

C. Is this application being submitted due to the loss of a Rule 202 exemption? Yes No

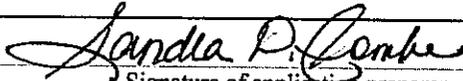
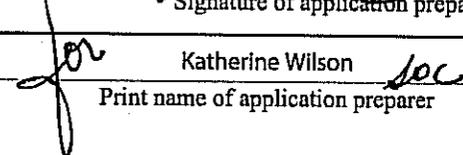
D. Will this project be constructed in multiple phases? If yes, attach a separate description of the nature and extent of each project phase, including the associated timing, equipment and emissions. Yes No

E. Is this application also for a change of owner/operator? If yes, please also include a completed APCD Form -01T. Yes No

11. APPLICANT/PREPARER STATEMENT:

The person who prepares the application also must sign the permit application. The preparer may be an employee of the owner/operator or an authorized agent (contractor/consultant) working on behalf of the owner/operator (an *Authorized Agent Form -01A* is required).

I certify pursuant to H&SC Section 42303.5 that all information contained herein and information submitted with this application is true and correct.

 Signature of application preparer	9/27/2010 Date
 Katherine Wilson Print name of application preparer	ExxonMobil Production Company Employer name

12. APPLICATION CHECKLIST (*check all that apply*)

- Application Filing Fee (Fee = \$325. The application filing fee is COLA adjusted every July 1st. Please ensure you are remitting the current fee.) As a convenience to applicants, the APCD will accept credit card payments. If you wish to use this payment option, please complete the attached *Credit Card Authorization Form* and submit it with your application.
- Existing permitted sources may request that the filing fee be deducted from their current reimbursable deposits by checking this box. Please deduct the filing fee from my existing reimbursement account.
- Form -01T (*Transfer of Owner/Operator*) attached if this application also addresses a change in owner and/or operator status from what is listed on the current permit. <http://www.sbcapcd.org/eng/dl/appforms/apcd-01t.pdf>
- Form -03 (*School Summary Form*) attached if the project's property boundary is within 1,000 feet of the outer boundary of a school (k-12) and the project results in an emissions increase. <http://www.sbcapcd.org/eng/dl/appforms/apcd-03.pdf>
- Information required by the APCD for processing the application as identified in APCD Rule 204 (*Applications*), the APCD's *General APCD Information Requirements List* (<http://www.sbcapcd.org/eng/dl/other/gen-info.pdf>), and any of the APCD's *Process/Equipment Summary Forms* (<http://www.sbcapcd.org/eng/dl/dl01.htm>) that apply to the project.
- Form -01A (*Authorized Agent Form*) attached if this application was prepared by and/or if correspondence is requested to be sent to an Authorized Agent (e.g., contractor or consultant). This form must accompany each application. <http://www.sbcapcd.org/eng/dl/appforms/apcd-01a.pdf>
- Confidential Information submitted according to APCD Policy & Procedure 6100-020.

13. NOTICE OF CERTIFICATION:

All applicants must complete the following Notice of Certification. This certification must be signed by the Authorized Company Representative representing the owner/operator. Signatures by Authorized Agents will not be accepted.

NOTICE of CERTIFICATION

I, Frank C. Betts, am employed by or represent
Type or Print Name of Authorized Company Representative

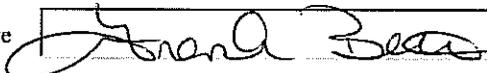
ExxonMobil Production Company (A Subsidiary of ExxonMobil Oil Corporation)
Type or Print Name of Business, Corporation, Company, Individual, or Agency

(hereinafter referred to as the applicant), and certify pursuant to H&SC Section 42303.5 that all information contained herein and information submitted with this application is true and correct and the equipment listed herein complies or can be expected to comply with said rules and regulations when operated in the manner and under the circumstances proposed. If the project fees are required to be funded by the cost reimbursement basis, as the responsible person, I agree that I will pay the Santa Barbara County Air Pollution Control District the actual recorded cost, plus administrative cost, incurred by the APCD in the processing of the application within 30 days of the billing date. If I withdraw my application, I further understand that I shall inform the APCD in writing and I will be charged for all costs incurred through closure of the APCD files on the project.

For applications submitted for Authority to Construct, modifications to existing Authority to Construct, and Authority to Construct/Permit to Operate permits, I hereby certify that all major stationary sources in the state and all stationary sources in the air basin which are owned or operated by the applicant, or by an entity controlling, controlled by, or under common control with the applicant, are in compliance, or are on approved schedule for compliance with all applicable emission limitations and standards under the Clean Air Act (42 USC 7401 *et seq.*) and all applicable emission limitations and standards which are part of the State Implementation Plan approved by the Environmental Protection Agency.

Completed By: Katherine Wilson Title: Environmental Engineer

Date: Phone: 281-654-0742

Signature of Authorized Company Representative 

PLEASE NOTE THAT FAILURE TO COMPLETELY PROVIDE ALL REQUIRED INFORMATION OR FEES WILL RESULT IN YOUR APPLICATION BEING RETURNED OR DEEMED INCOMPLETE.

STATIONARY SOURCE SUMMARY (Form 1302-A1)

APCD: Santa Barbara County Air Pollution Control District

COMPANY NAME: ExxonMobil Production Company

➤ APCD USE ONLY ◀

APCD IDS Processing ID:

Application #:

Date Application Received:

Application Filing Fee*:

Date Application Deemed Complete:

I. SOURCE IDENTIFICATION

1. Source Name: Exxon - Santa Ynez Unit
2. Four digit SIC Code: 1311 USEPA AIRS Plant ID (for APCD use only): 1482
3. Parent Company (if different than Source Name): ExxonMobil Production Company
4. Mailing Address of Responsible Official: P.O. Box 4358, Houston, TX 77210
5. Street Address of Source Location (include Zip Code): 12100 Calle Real, Goleta, CA 93117
6. UTM Coordinates (if required) (see instructions):
7. Source located within: 50 miles of the state line Yes No
50 miles of a Native American Nation Yes No Not Applicable
8. Type of Organization: Corporation Sole Ownership Government Partnership Utility Company
9. Legal Owner's Name: ExxonMobil Production Company
10. Owner's Agent Name (if any): NA Title: Telephone #:
11. Responsible Official: Frank C. Betts Title: SYU Operations Superintendent Telephone #:805-961-4078
12. Plant Site Manager/Contact: Frank C. Betts Title: SYU Operations Superintendent Telephone #:805-961-4078
13. Type of facility: Oil and Gas Processing Facility
14. General description of processes/products: See Section 2 of Part 70 PTO 5651
15. Does your facility store, or otherwise handle, greater than threshold quantities of any substance on the Section 112(r) List of Substances and their Thresholds (see Attachment A)? Yes No
16. Is a Federal Risk Management Plan [pursuant to Section 112(r)] required? Not Applicable Yes No
(If yes, attach verification that Risk Management Plan is registered with appropriate agency or description of status of Risk Management Plan submittal.) *Verification regarding this submittal has already been submitted to the District.*

* Applications submitted without a filing fee will be returned to the applicant immediately as "improper" submittals

COMBUSTION EMISSION UNIT (Form 1302-C1)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

I. EMISSION UNIT DESCRIPTION

1. Equipment type: Gas Turbine Generator ATC/PTO Number:
2. Equipment description: Planned Bypass Mode – Maintenance & Testing
3. For piston ICEs: [] 2-stroke [] 4-stroke [X] NA
4. Equipment make, model & serial number: General Electric, Frame 6B
5. Maximum design process rate or maximum power input/output: 149 MMBtu/hr – Heat Input, 4 MW – Power Output
6. Primary use: Power Generation (Normal Mode), Planned Bypass Mode (Includes Startup/Shutdown and Maintenance & Testing)
7. Burner(s) design, operating temperature and capacity:
8. Control device(s) type and description (if any): SCR (when operated in Normal Mode or HRSG Mode)

II. OPERATIONAL INFORMATION

1. Operating schedule: 4 hours/day 32 hours/year
2. Exhaust gas properties (temperature, SCFM, %H₂O, %O₂ or %CO₂, % excess air):
3. Fuel specifications:

FUEL TYPE (name)	MAX ANNUAL USAGE** (ft ³ /yr, lb/yr, gal/yr)	HEATING VALUE (BTU/lb or BTU/gal)	SULFUR (%)
Pipeline Quality Natural Gas	3.67 MMscf/year	1,300 Btu/scf	24 ppmv

* Equipment may be grouped on a single form if it is of the same type and if the emissions are calculated the same way.
 ** List only if there is a permit restriction limiting annual fuel use below the theoretical maximum usage.

COMBUSTION EMISSION UNIT (Form 1302-C2)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

4. Emissions for Emission Units described on page(s): See Attachment I for additional details.

CRITERIA POLLUTANT EMISSIONS (tons per year)					
POLLUTANTS					
A. Emissions					
B. Pre-Modification Emissions¹					
C. Emission Change²					
D. Emission Limit³					
OTHER REGULATED AIR POLLUTANT EMISSIONS (tons per year) ⁴					
POLLUTANTS					
A. Emissions					
B. Pre-Modification Emissions¹					
C. Emission Change²					
D. Emission Limit³					

¹ For permit revisions only; emissions prior to project modification.
² Difference between Pre-Modification Emissions (Section B.) and Emissions (Section A.).
³ For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) corrected for dilution air, pounds per hour (lbs/hr), pounds per million BTU (lb/MMBTU, etc.) required by any applicable federal requirement.
⁴ HAP emissions must be determined, and those exceeding one ton per year from any emission unit category must also be quantified; if less than one ton per year, just list the HAPs emitted by name.

EXEMPT EMISSIONS UNITS (Form 1302-H)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

Are you claiming any emitting activities to be insignificant? (See definition at bottom of page)

YES ___ NO X

I. ACTIVITIES CLAIMED TO BE INSIGNIFICANT (Attach supporting calculations)

Activity	Description of Activity/Emission Units	Potential to Emit for each Pollutant
See existing insignificant activity list/discussion in current permit. Table 5.9 – Estimated Exempt Emissions		

Insignificant activities are defined in APCD Rule 1301 (definitions). For an activity to be considered insignificant emissions cannot exceed 2 tons per year potential to emit (PTE) any criteria pollutants, and 0.5 tons per year for any regulated HAP.

Note: Insignificant activities are not exempt from Part 70 requirements/permits.

COMPLIANCE PLAN (Form 1302-I1)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

I. PROCEDURE FOR USING FORM 1302-I

☞ This form shall be submitted as part of the SBCAPCD's Regulation XIII Application. The Responsible Official shall identify the applicable federal requirement(s) to which the source is subject. In the Compliance Plan (Form 1302-I), a Responsible Official shall identify whether the source identified in the SBCAPCD's Regulation XIII Application currently operates in compliance with all applicable federal requirements.

II. APPLICABLE FEDERAL REQUIREMENTS

Applicable Federal Requirement ¹		Affected Emission Unit	In compliance? (yes/no/exempt ³)	Effective Date ⁴
Regulatory Reference ²	Regulation Title ²			
See section 3 of existing Part 70/APCD PTO 5651. No additional requirements have been identified.				
1 Review APCD SIP Rules, NSPS, NESHAPS, and MACTs. 2 Regulatory Reference is the abbreviated citation (e.g. 40 CFR 60 Subpart OOO, APCD Rule 325.H) and Title is the prosaic title (e.g. NSPS Standards of Performance for Nonmetallic Mineral Processing Plants, Crude Oil Production and Separation, Inspection) 3 If exempt from applicable federal requirement, include explanation for exemption. 4 Indicate the date during the permit term that the applicable federal requirement will become effective for the emission unit.				

Other Applicable Federal Requirements ⁵	Affected Emission Unit	In compliance?	Effective Date
See Section 1 of existing Part 70/APCD PTO 5651 for a listing of ATC's issued to Las Flores Canyon.			
5 All environmentally significant permit conditions -- such as emission, operation, and throughput limitations or compliance monitoring conditions associated with such limitations -- listed in all authority to construct (ATC) permits issued to the Part 70 source are also applicable requirements.			

*** If more than one page is used, please ensure that "Santa Barbara APCD", stationary source name and "Form 1302-11" appear on each page. ***

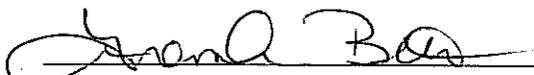
COMPLIANCE PLAN (Form 1302-I2)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

III. COMPLIANCE CERTIFICATION

Under penalty of perjury, I certify the following:

- Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s) with which the source is in compliance identified in form 1302-I1;**
- Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with the future-effective applicable federal requirement(s) identified in form 1302-I1, on a timely basis¹;**
- Based on information and belief formed after reasonable inquiry, the source identified in this application is not in compliance with the applicable federal requirement(s), identified in form 1302-I1, and I have attached a compliance plan schedule.²**



Signature of Responsible Official

30 Sept 10

Date

1. Unless a more detailed schedule is expressly required by the applicable federal requirement.
2. At the time of expected permit issuance, if the source expects to be out of compliance with an applicable federal requirement, the applicant is required to provide a compliance schedule with this application, with the following exception. A source which is operating under a variance that is effective for less than 90 days need not submit a Compliance Schedule. For sources operating under a variance, which is in effect for more than 90 days, the Compliance Schedule is the schedule that was approved as part of the variance granted by the hearing board.

The compliance schedule shall contain a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with this applicable federal requirement. For sources operating under a variance, the compliance schedule is part of the variance granted by the hearing board. The compliance schedule shall resemble, and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. For sources not operating under a variance, consult the Air Pollution Control Officer regarding procedures for obtaining a compliance schedule.

CERTIFICATION STATEMENT (Form 1302-M)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS PROCESSING ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

Identify, by checking off below, the forms and attachments that are part of your application. If the application contains forms or attachments that are not identified below, please identify these attachments in the blank space provided below. Review the instructions if you are unsure of the forms and attachments that need to be included in a complete application.

Forms included with application

Stationary Source Summary Form
 Total Stationary Source Emission For
 Compliance Plan Form
 Compliance Plan Certification Form
 Exempt Equipment Form
 Certification Statement Form

List other forms or attachments

APCD-05U

[] check here if additional forms listed on back

Attachments included with application

Description of Operating Scenarios
 Sample emission calculations
 Fugitive emission estimates
 List of Applicable requirements
 Discussion of units out of compliance with applicable federal requirements and, if required, submit a schedule of Compliance
 Facility schematic showing emission points
 NSR Permit
 PSD Permit
 Compliance Assurance monitoring protocols
 Risk management verification per 112(r)

I certify under penalty of law, based on information and belief formed after reasonable inquiry, that the information contained in this application, composed of the forms and attachments identified above, are true, accurate, and complete.

I certify that I am the responsible official, as defined in SBCAPCD's Regulation XIII, Rule 1301 or USEPA's 40 CFR Part 70.

Signature of Responsible Official  Date 30 Sept 10

Print Name of Responsible Official: Frank C. Betts

Title of Responsible Official and Company Name: SYU Operations Superintendent, ExxonMobil Production Company

CERTIFICATION STATEMENT
(Form 1302-M continued)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS PROCESSING ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

List Other Forms or Attachments (cont.)

Attachment I – Application Support Document



**EMISSION REDUCTION CREDITS - AUTHORIZATION OF ERC USE
APPLICATION FORM -05U**

The owner of an ERC Certificate that is registered in the APCD's Source Register must completely fill in this form and submit it to the APCD each time the ERC Certificate is "used". Please be specific as to the amount and type of ERCs "used" and which specific emission elements are the source of the ERCs being used. This form must be filled in for each ERC Certificate subject to use. An application filing fee per Rule 210 (Schedule F.1) is required.

1. SUMMARY INFORMATION

Certificate No: 0188-0811 Expiration Date: 08/2011

Certificate Owner Name(s): ExxonMobil Production Company

Company and Project Authorized to Use the ERCs: ExxonMobil Production Company
Incorporation of Maintenance & Testing operations to the CPP - Planned Bypass Mode

Total ERCs Authorized for Use (tons/qtr):	NO _x : <u>0.146</u>	SO _x : _____
	ROC: _____	PM ₁₀ : _____
	CO: _____	PM: _____

Company Official
Authorized to Release: Frank C. Betts
the ERCs: _____
Please Print Name

Signature

805-961-4078 (phone)
Phone and Fax Numbers

2. USE INFORMATION

Yes No Will the ERC Certificate be used in whole?

Yes No If partial use of the ERC Certificate is occurring, will the remaining ERCs belong to the original ERC Certificate owner? If No, then an ERC Certificate Transfer application must first be submitted and then an ERCs may be used by the new owner.

**ATTACHMENT I
ATC/PTO APPLICATION
Exxon – Santa Ynez Unit
PTO/PART 70 PERMIT NO. 5651**

INTRODUCTION

The Santa Ynez Unit (SYU) project develops production from three platforms (Platforms Hondo, Harmony, and Heritage) located offshore in the Santa Barbara Channel. The production is transported to shore through a subsea pipeline and treated in the Las Flores Canyon Oil & Gas Plant and the POPCO Gas Plant. A description of the operating processes at these facilities is provided in Section 2.0 of the corresponding PTO's. The electrical power needs of the three platforms and Las Flores Canyon are provided by the Cogeneration Power Plant (CPP) located at Las Flores Canyon. This Authority to Construct (ATC) / Permit to Operate (PTO) application proposes to modify an existing mode of operation in order to make additional allowances for maintenance and testing.

BACKGROUND

The existing Part 70/APCD PTO 5651 for Las Flores Canyon allows for up to 2 hours/day, 6 hours/quarter, and 18 hours/year of startup/shutdown activities in which exhaust gases from the CPP are routed through the bypass stack. As described in condition 9.C.1(b)(xi), this allowance may include maintenance and testing operations as long as the load on the turbine does not exceed 4 MW.

Three times since 2005 ExxonMobil has performed maintenance on the Gas Turbine Generator (GTG) that required testing the GTG, out the bypass stack, for several hours. On these occasions ExxonMobil petitioned the District for, and received emergency variances to exceed the CPP start up limits of 2 hours per day, 6 hours per quarter and 18 hours per year. The following is a brief summary of the variances granted:

May 2005 (HB 72-05E) - ExxonMobil needed to conduct testing of the GTG at various loads (0% to 100%) to confirm key operating parameters that directly affect the safety and mechanical integrity of the gas turbine. This testing was conducted as a result of load gear modifications completed under ATC/PTO 11459 in April 2005. The testing conducted exceeded the permitted 2 hours/day, 6 hours/quarter, and 18 hours/year for CPP-Startup/Shutdown operations through the bypass stack.

March 2009 (HB 56-09E) – During the shutdown of the GTG for the planned turnaround, the mechanical over-speed test failed to perform properly. An emergency variance was approved for up to 8 hours of testing to adjust the mechanical over-speed linkage and repeat the test.

September 2009 (HB 84-09E) – ExxonMobil determined that incorrect parts had been installed during the March 2009 turnaround. The GTG needed to be shutdown in order to prevent potential damage to the GTG and replace the incorrect parts. A variance was granted authorizing ExxonMobil to exceed the Startup/Shutdown 6 hours/quarter limit.

**ATTACHMENT I
ATC/PTO APPLICATION
Exxon – Santa Ynez Unit
PTO/PART 70 PERMIT NO. 5651**

As a result of these events which exceeded the existing hourly limits, ExxonMobil has determined that maintenance and testing may be necessary on a more regular interval, and is seeking a permit modification to allow additional time for such maintenance and testing.

PROPOSED CHANGES

To alleviate these variance petitions in the future ExxonMobil is submitting this application for a permit modification to add a line item to Part 70/APCD PTO 5651 to allow maintenance and testing of the GTG primarily through the bypass stack at up to 4 megawatts load for up to four hours per day, eight hours per quarter, and thirty two hours per year.

Restructure the existing Cogeneration Power Plant - Startup/Shutdown Mode as follows:

- Add “Planned Bypass Mode” to Section 4.2.2 – Operating Modes of the permit. This mode will include both the existing “Startup/Shutdown” operations as well as the proposed “Maintenance & Testing” operations. As described above, the GTG will be operated in this mode at very low loads (no higher than 4 MW output) to conduct maintenance and testing. Exhaust gases from the GTG will primarily be routed through the bypass stack while operating in this mode, however exhaust may also be directed through the HRSG. Maintenance & Testing include, but are not limited to the following activities:
 - *Major Overhaul* – Inspect and replace combustion cans, fuel nozzles, turbine blades, etc. as necessary
 - *Hot Gas Path Inspection* – Inspect and replace combustion cans and fuel nozzles as necessary
 - *Timing adjustment of circuit breakers connecting GTG to SCE grid*
 - *Adjustment and troubleshooting of excitation equipment synchronization*
 - *GTG control system troubleshooting*
 - *GTG excitation system upgrade*
 - *GTG control system upgrade*
 - *Mechanical and electrical over-speed shutdown test*

- Add “Planned Bypass Mode – Maintenance & Testing” to Section 4.2.3 – Emission Factors of the permit. Due to the low temperature of the GTG, emission factors for NOx and CO are expected to be higher than under the Normal Mode. At the proposed maximum load (149 MMBtu/hr input) emissions would be based on the Startup/Shutdown Mode as well as values calculated by the GTG Control System:

NOx	ROC	CO	SOx	PM	PM10	Unit
0.242	0.0953	1.101	0.0034	0.0279	0.0223	lb/MMBtu

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- Update Section 5.3 – Permitted Emission Limits – Facility Totals, to include the CPP – Planned Bypass Mode: Startup/Shutdown and Maintenance & Testing Operations. The reasonable worst case scenario for short-term and long-term CPP emissions should be defined as follows:
 - **Hourly:** Planned Bypass Mode – Startup/Shutdown (NO_x, ROC, CO), Normal Operations Mode (SO_x, PM, PM₁₀)
 - **Daily:** Normal Operations Mode + (Planned Bypass Mode – Startup/Shutdown), + (Planned Bypass Mode – Maintenance & Testing)
 - **Quarterly:** Normal Operations Mode + (Planned Bypass Mode – Startup/Shutdown), + (Planned Bypass Mode – Maintenance & Testing)
 - **Annually:** Normal Operations Mode + (Planned Bypass Mode – Startup/Shutdown), + (Planned Bypass Mode – Maintenance & Testing)
- Revise Tables 5.1, 5.2, 5.3, and 5.4 to restructure the “Planned Startup/Shutdown Mode” to the “Planned Bypass Mode” with Startup/Shutdown as one subcategory and Maintenance & Testing as the second subcategory. See Appendix A for further details.
- Update Section 7 Emission Offset tables.
- Revise condition 9.C.1 to include the Planned Bypass Mode as follows:
 - 9.C.1 (a) (i) – *BACT* – Except during the Planned Bypass Mode (*Including Startup/Shutdown and Maintenance & Testing*), the emissions after control from the CPP shall not exceed the BACT limits listed in Table 4.2 (*BACT Performance Standards*). Compliance shall be based on annual source testing for all pollutants. In addition, CEMs shall be used to determine compliance with the NO_x and CO emission concentration limits in Table 9.1 below (parts per million volume dry at 3 percent oxygen). Compliance shall be based on 15-minute clock average values.
 - 9.C.1.(b) (ii) – ExxonMobil may only operate the CPP in one of the three modes (Normal Operations Mode, HRSG Mode, and *Planned Bypass Mode*) as defined in Section 4.2.2 of this permit. Compliance shall be based on the monitoring, recordkeeping, and reporting requirements of this permit.
 - 9.C.1. (b) (V) – *Usage Limits – Planned Bypass Mode - Startup/Shutdown* – ExxonMobil shall comply with the following usage limits:
 - 9.C.1 (b) (xi) *Bypass Stack* - The damper on the gas turbine bypass stack shall remain in a fully closed position except during the startup and shutdown of the

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turbine. During start-up, the damper on the bypass stack shall remain open only for the period from when the turbine is down to when it reaches 4 MW. In no case shall the damper on the bypass stack remain open for more than 120 minutes during any startup or shutdown period. If testing or maintenance is performed, the bypass damper may remain open if the load on the turbine does not exceed 4 MW. Leakage exhaust rate from the bypass stack during the Normal Operations Mode shall be assumed to be 1 percent of the exhaust flow rate from the turbine at all times. ExxonMobil shall implement an operations and maintenance program to ensure that the bypass damper is properly functioning at all times. Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit.

- 9.C.1. (b) (xii) – *Usage Limits – Planned Bypass Mode – Maintenance & Testing* – ExxonMobil shall comply with the following usage limits:
 - Gas Turbine Heat Input: 149 MMBtu/hr; 596 MMBtu/day; 1,192 MMBtu/qtr; 4,768 MMBtu/yr.
 - HRSG Heat Input: No fuel input is allowed to the HRSG.
 - Operating Hours: 4 hours/day; 8 hours/qtr; 32 hours/yr
 - Compliance shall be based on the monitoring, recordkeeping, and reporting requirements of this permit
- 9.C.1 (c) (i) Monitor the time the CPP operates in the Planned Bypass Mode which includes Startup/Shutdown operations and Maintenance & Testing operations.
- 9.C.1 (d) (ii) – *CPP Planned Bypass Mode* – Daily, quarterly, and annual records identifying the time and duration the CPP is in the *Planned Bypass Mode*.
 - Documentation (log) of actions taken by ExxonMobil to minimize emissions during each CPP testing event shall be maintained. This documentation shall include a timeline of each event showing: when the bypass stack is opened/closed (including duration), the turbine heat input, exhaust flow rates from the bypass and main stacks, MW produced by the gas turbine generator, and the concentration and mass emissions of NOx and CO. The log shall indicate the nature of the testing or maintenance being conducted.
 - The log shall separately identify periods of startup/shutdown from maintenance & testing.

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- Revise condition 9.C.10 to include Maintenance & Testing operations as follows:
 - 9.C.10 (a) (ii) – The length of time that the CPP was operated in the Planned Bypass mode, by day, quarter, and year. A copy of the Startup/Shutdown and Maintenance & Testing documentation logs for the reporting period.
- Update Table 10.13 – CPP and WGI Fuel Gas Limits to include the Planned Bypass Mode separated by Startup/Shutdown and Maintenance & Testing operations (See Appendix A).

COMPLIANCE WITH DISTRICT RULES AND REGULATIONS

The proposed project will comply with applicable SBC APCD rules and regulations, including rules outlined under Regulations II, III, VIII, and XIII. Compliance relative to the following rules and regulations are detailed below:

Rule 201 – Permits Required – This application satisfies the requirement to obtain an ATC/PTO in order to include Maintenance & Testing operations specifically as part of the Planned Bypass Mode allowed for GTG operations onto permit.

Rule 210 – Fees – ExxonMobil requests that any fees associated with the processing this application be billed to ExxonMobil's account.

Rule 802 – Nonattainment Review –

BACT: The revision to existing CPP operations to specifically incorporate Maintenance & Testing as part of the Planned Bypass Mode triggers BACT for NO_x and ROC (See Appendix A for emission calculations). The Cogeneration Power Plant (CPP) has previously triggered BACT for all nonattainment pollutants. BACT has been defined as follows:

- **NO_x** – *Steam injection and SCR (90% overall control)*
- **ROC** – *Use of pipeline quality natural gas as fuel, proper combustor operation*
- **SO_x** – *Use of pipeline quality natural gas as fuel, total sulfur content note to exceed 24 ppmv*
- **CO** – *Proper combustor operation*

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- *PM/PM₁₀ - Use of pipeline quality natural gas as fuel, proper combustor operation*

Due to the low temperature of the system during the Planned Bypass Mode, the SCR cannot operate. In addition, steam injected under this condition could result in an unstable flame which could lead to extinguishing the flame as the steam injection continues.

The EPA RBLC database and the California ARB BACT Clearinghouse were queried for potential emission controls associated with gas turbine operations in non-standard/low load situations. The ARB BACT Clearinghouse does not include any listings for gas turbines. EPA's database includes several hundred listings for both simple cycle and combined cycle gas turbines > 25 MW – however the determinations assume the gas turbine is operating under full load where the specified emission control systems operate most effectively. Such scenarios are not appropriate for the proposed testing mode.

General BACT guidelines for gas turbine operations have been defined by the South Coast Air Quality Management District (AQMD) and the Bay Area AQMD. As with the EPA RBLC, the guidelines assume the gas turbine, HRSG, and steam turbine have reached stable operations; it is under these conditions that the emission control devices have been designed to operate. The suggested emission limitations and control methods are not appropriate under the low load, low temperature scenario defined by the Planned Bypass Mode.

The only limitation found in a State Implementation Plan related to the proposed Maintenance & Testing, comes from Bay Area AQMD Regulation 9 – Rule 9 – Nitrogen Oxides from Stationary Gas Turbines. This rule defines a limit of 4 hours/day and no more than 48 hours in any 12 month period for minor inspection and maintenance work (Rule 9-9-115). This limit exempts the gas turbine from meeting the emission standards defined in the rule during such inspection and maintenance periods.

ExxonMobil will continue to use pipeline quality natural gas as fuel, proper combustor operation, and good work practices to minimize emissions and the time necessary to complete maintenance and testing.

AQIA: The emission increase associated with this project do not exceed the AQIA thresholds, therefore modeling is not required for the non-attainment pollutants.

Offsets: Offsets are required for this project as there is an increase to the quarterly and annual NO_x and ROC emissions associated with CPP operation. Offsets will be provided based on the increase to the worst case scenario as described in the following table:

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Table 1 Offsets Required for Proposed Incorporation of CPP – Planned Bypass Mode: Maintenance & Testing

Equipment Category	NO _x		ROC		CO		SO _x		PM		PM10	
	tpq	tpy	tpq	tpy	tpq	tpy	tpq	tpy	tpq	tpy	tpq	tpy
Cogeneration Power Plant	0.08	0.31	0.04	0.17	0.59	2.37	0.00	0.00	0.00	0.00	0.00	0.00
Offsets at 1.2:1 Distance ratio	0.094	0.375	0.052	0.209	/		0.000	0.000	0.000	0.000	0.000	0.000
Interpollutant Trading Ratio Applied	0.094	0.375	0.052	0.209	/		0.000	0.000	0.000	0.000	0.000	0.000
Total ERCs Needed from Broadbill	0.146	0.584							0.000	0.000	0.000	0.000
Available Credits from Broadbill (ERC 188-0811)	0.876	3.502							0.064	0.256	0.064	0.256
Remaining Credits	0.730	2.918							0.064	0.256	0.064	0.256

Notes:

¹NO_x credits can be used for ROC at a 1:1 Inter-pollutant Trading Ratio

²CO is an attainment pollutant, no offsets required under PSD rule

³The Normal Mode & Planned Bypass Mode used the same emission factors for SO_x, PM, and PM10, therefore there is no increase to emissions.

⁴Available Credits from Broadbill - After used on HOWI ATC Mod

Rule 803 – Prevention of Significant Deterioration –

BACT: The revision to existing CPP operations to specifically incorporate Maintenance & Testing as part of the Planned Bypass Mode triggers BACT for CO, as the net emissions increase exceeds the 550 lb/day threshold defined in this rule for CO. As discussed in Rule 802, BACT has previously been defined for all criteria pollutants; specifically proper combustor operation for CO emissions. ExxonMobil will continue to tune the CPP to minimize CO emissions under all operating scenarios.

AQIA: An AQIA is also triggered for CO due to the proposed increases. ExxonMobil has included with this application a modeling protocol for APCD approval (See Appendix B).

Offsets: Rule 803 does not require offsets for CO emission increases.

Regulation XIII – Part 70 Operating Permit Program – The proposed change constitutes a minor Part 70 permit modification under Rule 1301. As required by Rule 1304 Section D.3, the Part 70 application forms for the proposed change are enclosed.

Appendices – Exxon – SYU CPP – Testing Mode

APPENDIX A
Emission Calculations

Appendices – Exxon – SYU CPP – Testing Mode

Table S.1: Operating Equipment Description
 ExxonMobil Las Flores Canyon Oil and Gas Plant
 Application to Modify Part 70/PTO 5651

Equipment Item	Description	Exxon ID #	Device Specifications			Usage Data			Maximum Operating Schedule					
			APOD Device No	Fuel	HHV	%S	Size	Units	Capacity	Units	Load	hr	day	qtr
Permitted Potential to Emit														
Combustion - Cogen Power Plant: Normal Operations Mode														
	Gas Turbine 38.63 MW	ZAN-2501	6385	NG	24	ppmv S	465,000 MMBtu/hr	460,350 MMBtu/hr	0.99	1	24	2,184	8,742	
	Heat Recovery Steam Generator	EAL-2601	7865	NG	24	ppmv S	345,000 MMBtu/hr	140,140 MMBtu/hr	0.41	1	24	2,184	8,742	
	Turbine Bypass Stack	ZAN-2501	7864	NG	24	ppmv S	1.0% of Turb Exh	4,650 MMBtu/hr	0.01	1	24	2,184	8,742	
Combustion - Cogen Power Plant: HRSG Only Mode														
	Heat Recovery Steam Generator	EAL-2601	7865	NG	24	ppmv S	345,000 MMBtu/hr	345,000 MMBtu/hr	1.000	1	24	2,184	8,742	
Combustion - Cogen Power Plant: Flare/Bypass Mode														
	Combined CPP + Bypass Stack (22 MW)	ZAN-2501/EAL-2601	7866	NG	24	ppmv S	100% of Turb Exh	308,821 MMBtu/hr	0.66	1	2	6	18	
	Bypass Stack (4 MW - No HRSG)	ZAN-2501		NG	24	ppmv S	100% of Turb Exh	149 MMBtu/hr	0.32	1	4	8	32	
Existing Worst Case Operating Basis														
	Combined CPP + Bypass Stack (22 MW)	ZAN-2501/EAL-2601	7866	NG	24	ppmv S	100% of Turb Exh	308,821 MMBtu/hr	0.66	1	2	6	18	
	Gas Turbine 38.63 MW	ZAN-2501	6385	NG	24	ppmv S	465,000 MMBtu/hr	460,350 MMBtu/hr	0.99	1	22	2,184	8,742	
	Heat Recovery Steam Generator	EAL-2601	7865	NG	24	ppmv S	345,000 MMBtu/hr	140,140 MMBtu/hr	0.41	1	22	2,184	8,742	
	Turbine Bypass Stack	ZAN-2501	7864	NG	24	ppmv S	1.0% of Turb Exh	4,650 MMBtu/hr	0.01	1	22	2,184	8,742	
Proposed Worst Case Operating Basis														
	Combined CPP + Bypass Stack (22 MW)	ZAN-2501/EAL-2601	7866	NG	24	ppmv S	100% of Turb Exh	308,821 MMBtu/hr	0.66	1	2	6	18	
	Bypass Stack (4 MW - No HRSG)	ZAN-2501		NG	24	ppmv S	100% of Turb Exh	149 MMBtu/hr	0.32	1	4	8	32	
	Gas Turbine 38.63 MW	ZAN-2501	6385	NG	24	ppmv S	465,000 MMBtu/hr	460,350 MMBtu/hr	0.99	1	18	2,176	8,710	
	Heat Recovery Steam Generator	EAL-2601	7865	NG	24	ppmv S	345,000 MMBtu/hr	140,140 MMBtu/hr	0.41	1	18	2,176	8,710	
	Turbine Bypass Stack	ZAN-2501	7864	NG	24	ppmv S	1.0% of Turb Exh	4,650 MMBtu/hr	0.01	1	18	2,176	8,710	

Appendices – Exxon – SYU CPP – Testing Mode

Table 5.2: Equipment Emission Factors
ExxonMobil Las Flores Canyon Oil and Gas Plant
Application to Modify Part 70/PTO 5651

Equipment Item	Description	Exxon ID #	APCD Device No	Emission Factors						Units	
				NOx	ROC	CO	SOx	PM	PM10		
Permitted Potential to Emit											
Combustion - Cogen Power Plant: Normal Operations Mode											
	Gas Turbine 38.63 MW	CPP/ZAN-2501	6585	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
	Heat Recovery Steam Generator	CPP/EAL-2601	7865	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
	Turbine Bypass Stack	CPP/ZAN-2501	7864	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
Combustion - Cogen Power Plant: HRSG Only Mode											
	Heat Recovery Steam Generator	CPP/EAL-2601	7865	0.0300	0.0095	0.2970	0.0034	0.0050	0.0040	0.0040	lb/MMMBtu
Combustion - Cogen Power Plant: Planned Bypass Mode											
SU/SD	Combined CPP + Bypass Stacks (22 MW)	ZAN-2501/EAL-2601	7866	0.2910	0.0953	0.5920	0.0034	0.0279	0.0223	0.0223	lb/MMMBtu
M&T	Bypass Stack (4 MW - No HRSG)	ZAN-2501		0.2416	0.0953	1.101	0.0034	0.0279	0.0223	0.0223	lb/MMMBtu
Existing Worst Case Operating Basis											
Bypass Mode - SU/SD											
	Combined CPP + Bypass Stacks (22 MW)	CPP/ZAN-2501/EAL-2601	7866	0.2910	0.0953	0.5920	0.0034	0.0279	0.0223	0.0223	lb/MMMBtu
	Gas Turbine 38.63 MW	CPP/ZAN-2501	6585	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
Normal Operations Mode											
	Heat Recovery Steam Generator	CPP/EAL-2601	7865	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
	Turbine Bypass Stack	CPP/ZAN-2501	7864	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
Proposed Worst Case Operating Basis											
Bypass Mode - SU/SD											
	Combined CPP + Bypass Stacks (22 MW)	CPP/ZAN-2501/EAL-2601	7866	0.2910	0.0953	0.5920	0.0034	0.0279	0.0223	0.0223	lb/MMMBtu
Bypass Mode - M&T											
	Bypass Stack (4 MW - No HRSG)	CPP/ZAN-2501		0.2416	0.0953	1.101	0.0034	0.0279	0.0223	0.0223	lb/MMMBtu
Normal Operations Mode											
	Gas Turbine 38.63 MW	CPP/ZAN-2501	6585	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
	Heat Recovery Steam Generator	CPP/EAL-2601	7865	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu
	Turbine Bypass Stack	CPP/ZAN-2501	7864	0.0272	0.0055	0.0260	0.0034	0.0158	0.0126	0.0126	lb/MMMBtu

Appendices – Exxon – SYU CPP – Testing Mode

Table 5.3: Short-Term Emissions
ExxonMobil Las Fibres Canyon, Oil and Gas Plant
Application to Modify Part 70/PTO 3651

Exhaust Item	Description	AFCID Device No	Exxon ID #	NOx		ROCl		CO		SOx		PM		Exhaustibility		
				lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day			
Permitted Potential to Emit																
Combustion - Cogen Power Plant: Normal Operations Mode																
	Gas Turbine 38.63 MW	6585		12.52	300.53	2.53	60.77	11.97	287.26	1.56	37.34	7.27	174.56	582	139.65	FE
	Heat Recovery Steam Generator	7865		3.81	91.48	0.77	18.50	3.64	87.45	0.47	11.37	2.21	53.14	1.77	42.51	NE
	Turbine Bypass Stack	7864		0.13	3.04	0.03	0.61	0.12	2.90	0.02	0.28	0.07	1.76	0.06	1.41	FE
				16.46	395.04	3.33	79.88	17.00	408.00	2.05	49.09	9.56	229.47	7.65	183.58	FE
Combustion - Cogen Power Plant: HRSO Only Mode																
	Heat Recovery Steam Generator	7865		10.35	243.40	3.28	78.66	17.00	408.00	1.17	27.99	1.73	41.40	1.38	33.12	FE
Combustion - Cogen Power Plant: Planned Bypass Mode																
SU/SD	Combined CPP + Bypass Stacks (22 MW)	7866		89.87	179.73	29.43	58.86	182.82	365.64	1.04	2.09	8.62	17.23	6.89	13.79	FE
M&T	Bypass Stack (4 MW - No HRSO)			36.00	144.00	14.30	56.80	164.00	676.00	0.50	2.01	4.16	16.63	3.33	13.20	FE
Existing Worst Case Emissions																
Bypass Mode - SU/SD																
	Combined CPP + Bypass Stacks (22 MW)	7866		89.87	179.73	29.43	58.86	182.82	365.64	1.04	2.09	8.62	17.23	6.89	13.79	FE
Normal Operations Mode																
	Gas Turbine 38.63 MW	6585		12.52	275.47	2.53	55.70	11.97	265.32	1.56	34.23	7.27	160.02	5.82	128.01	FE
	Heat Recovery Steam Generator	7865		3.81	83.86	0.77	16.96	3.64	80.16	0.47	10.42	2.21	48.71	1.77	38.97	FE
	Turbine Bypass Stack	7864		0.13	2.78	0.03	0.56	0.12	2.66	0.02	0.35	0.07	1.62	0.06	1.29	FE
	Max Hour and Day			89.87	541.85	29.43	132.08	182.82	711.78	2.05	47.09	9.56	227.58	7.65	182.06	FE
Proposed Worst Case Emissions																
Bypass Mode - SU/SD																
	Combined CPP + Bypass Stacks (22 MW)	7866		89.87	179.73	29.43	58.86	182.82	365.64	1.04	2.09	8.62	17.23	6.89	13.79	FE
Bypass Mode - M&T																
	Bypass Stack (4 MW - No HRSO)			36.00	144.00	14.20	56.80	164.00	676.00	0.50	2.01	4.16	16.63	3.33	13.20	FE
Normal Operations Mode																
	Gas Turbine 38.63 MW	6585		12.52	228.39	2.53	45.57	11.97	215.44	1.56	28.01	7.27	130.92	5.82	104.74	FE
	Heat Recovery Steam Generator	7865		3.81	68.61	0.77	13.87	3.64	65.59	0.47	8.53	2.21	39.86	1.77	31.88	FE
	Turbine Bypass Stack	7864		0.13	2.28	0.03	0.46	0.12	2.18	0.02	0.28	0.07	1.32	0.06	1.06	FE
	Max Hour and Day			89.87	620.01	29.43	175.57	182.82	1304.85	2.05	40.92	9.56	205.96	7.65	164.77	FE

Appendices – Exxon – SYU CPP – Testing Mode

Table 5.4: Long-Term Emissions
Exxon/Mobil Las Flores Catenon Oil and Gas Plant
Application to Modify Part 70/PTO 3651

Equipment Item	Description	Exxon ID #	APCD Device No	NOx			RO2			SOx			PM			PM10			Federal		
				TPQ	TPY	TFQ	TPY	TFQ	TPY	TFQ	TPY	TFQ	TPY	TFQ	TPY	TFQ	TPY	TFQ		TPY	TFQ
Permitted Potential to Emit																					
Combustion - Cogen Power Plant: Normal Operations Mode																					
Gas Turbine 38.63 MW	CPP/ZAN-2501	6385		13.67	54.73	2.76	11.07	13.07	52.32	1.699	6.801	7.943	31.793	6.334	24.434						FE
Heat Recovery Steam Generator	CPP/EAL-2601	7865		4.16	16.66	0.84	3.37	3.98	15.93	0.517	2.070	2.418	9.678	1.934	7.743						NE
Turbine Bypass Stack	CPP/ZAN-2301	7864		0.14	0.55	0.03	0.11	0.13	0.53	0.017	0.069	0.080	0.321	0.064	0.257						FE
				17.84	71.39	3.61	14.44	18.56	74.31	2.22	8.87	10.36	41.47	8.29	33.18						FE
Combustion - Cogen Power Plant: HRSO Only Mode																					
Heat Recovery Steam Generator	CPP/EAL-2601	7865		11.30	43.24	3.58	14.33	18.56	74.31	1.27	5.10	1.88	7.54	1.51	6.03						FE
Combustion - Cogen Power Plant: Planned Bypass Mode																					
SU/SD	Combined CPP + Bypass Stacks (22 MW)	7866		0.27	0.81	0.09	0.26	0.55	1.65	0.00	0.01	0.03	0.08	0.02	0.06						FE
M&T	Bypass Stack (4 MW - No HRSO)	ZAN-2301		0.14	0.58	0.06	0.23	0.66	2.62	0.00	0.01	0.02	0.07	0.01	0.05						FE
Existing Worst Case Emissions																					
Bypass Mode - SU/SD																					
Gas Turbine 38.63 MW	CPP/ZAN-2301/EAL-2601	7866		0.27	0.81	0.09	0.26	0.55	1.65	0.00	0.01	0.03	0.08	0.02	0.06						
Heat Recovery Steam Generator	CPP/ZAN-2301	6385		13.67	54.73	2.76	11.07	13.07	52.32	1.70	6.80	7.94	31.79	6.33	24.43						
Turbine Bypass Stack	CPP/EAL-2601	7865		4.16	16.66	0.84	3.37	3.98	15.93	0.52	2.07	2.42	9.68	1.93	7.74						
Max Quarter and Year		7864		0.14	0.55	0.09	0.11	0.13	0.53	0.02	0.07	0.08	0.32	0.06	0.26						
				18.24	72.75	3.72	14.81	17.73	70.42	2.24	8.95	10.47	41.87	8.37	33.50						FE
Proposed Worst Case Emissions																					
Bypass Mode - SU/SD																					
Gas Turbine 38.63 MW	CPP/ZAN-2301/EAL-2601	7866		0.27	0.81	0.09	0.26	0.55	1.65	0.00	0.01	0.03	0.08	0.02	0.06						
Heat Recovery Steam Generator	CPP/ZAN-2301	6385		13.62	54.53	2.75	11.03	13.02	52.13	1.693	6.776	7.914	31.676	6.331	25.341						
Turbine Bypass Stack	CPP/EAL-2601	7865		4.15	16.60	0.84	3.36	3.96	15.87	0.515	2.063	2.409	9.643	1.927	7.714						
Max Quarter and Year		7864		0.14	0.55	0.09	0.11	0.13	0.53	0.017	0.068	0.080	0.320	0.064	0.256						
				18.32	73.07	3.77	14.99	18.32	72.79	2.23	8.93	10.45	41.78	8.36	33.43						FE

Appendices – Exxon – SYU CPP – Testing Mode

Comparison of Existing to Proposed Worst Case Scenario ExxonMobil Las Flores Canyon Oil and Gas Plant Application to Modify Part 70/PTO 5651

A. Hourly

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Cogeneration Power Plant - Normal Mode				2.05	9.56	7.65
Cogeneration Power Plant - Startup/Shutdown Mode	89.87	29.43	182.82			
Existing WCS (lb/hr)	89.87	29.43	182.82	2.05	9.56	7.65
Cogeneration Power Plant - Normal Mode				2.05	9.56	7.65
Cogeneration Power Plant - Planned Bypass Mode - SU/SD	89.87	29.43	182.82			
Proposed WCS (lb/hr)	89.87	29.43	182.82	2.05	9.56	7.65
Emission Change	0.00	0.00	0.00	0.00	0.00	0.00

B. Daily

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Cogeneration Power Plant - Normal Mode (22 hrs)	362.12	73.22	346.14	45.00	210.35	168.28
Cogeneration Power Plant - Startup/Shutdown Mode (2 hrs)	179.73	58.86	365.64	2.09	17.23	13.79
Existing WCS (lb/day)	541.85	132.08	711.78	47.09	227.58	182.06
Cogeneration Power Plant - Normal Mode (18 hrs)	296.28	59.91	283.21	36.82	172.10	137.68
Cogeneration Power Plant - Planned Bypass Mode - SU/SD (2 hrs)	179.73	58.86	365.64	2.09	17.23	13.79
Cogeneration Power Plant - Planned Bypass Mode - M&T (4 hrs)	144.00	56.80	656.00	2.01	16.63	13.30
Proposed WCS (lb/day)	620.01	175.57	1,304.85	40.92	205.96	164.77
Emission Change	78.16	43.49	593.07	(6.17)	(21.62)	(17.29)

C. Quarterly

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Cogeneration Power Plant - Normal Mode (2,184 hrs)	17.97	3.63	17.18	2.234	10.441	8.353
Cogeneration Power Plant - Startup/Shutdown Mode (6 hrs)	0.27	0.09	0.55	0.003	0.026	0.021
Max Quarterly	18.24	3.72	17.73	2.237	10.467	8.373
Cogeneration Power Plant - Normal Mode (2,176 hrs)	17.91	3.62	17.12	2.225	10.403	8.322
Cogeneration Power Plant - Planned Bypass Mode - SU/SD (6 hrs)	0.27	0.09	0.55	0.003	0.026	0.021
Cogeneration Power Plant - Planned Bypass Mode - M&T (8 hrs)	0.14	0.06	0.66	0.002	0.017	0.013
Max Quarterly	18.32	3.77	18.32	2.231	10.445	8.356
Emission Change	0.08	0.04	0.59	(0.01)	(0.02)	(0.02)

D. Annual

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Cogeneration Power Plant - Normal Mode (8,742 hrs)	71.95	14.55	68.77	8.94	41.79	33.43
Cogeneration Power Plant - Startup/Shutdown Mode (18 hrs)	0.81	0.26	1.65	0.01	0.08	0.06
Max Annual	72.75	14.81	70.42	8.95	41.87	33.50
Cogeneration Power Plant - Normal Mode (8,710 hrs)	71.68	14.49	68.52	8.91	41.64	33.31
Cogeneration Power Plant - Planned Bypass Mode - SU/SD (18 hrs)	0.81	0.26	1.65	0.01	0.08	0.06
Cogeneration Power Plant - Planned Bypass Mode - M&T (32 hrs)	0.58	0.23	2.62	0.01	0.07	0.05
Max Annual	73.07	14.99	72.79	8.93	41.78	33.43
Emission Change	0.31	0.17	2.37	(0.02)	(0.09)	(0.07)

Appendices – Exxon – SYU CPP – Testing Mode

Table 10.13: Fuel Use Limits
ExxonMobil Las Flores Canyon Oil and Gas Plant
Application to Modify Part 70/PTO 5651

CPP and WGI Fuel Gas Limits
ExxonMobil Las Flores Canyon Oil and Gas Plant
Application to Modify Part 70/PTO 5651

Cogeneration Power Plant	Fuel Use Limits			
	MMBtu/hr	MMBtu/day	MMBtu/qr	MMBtu/yr
Normal Op Mode:				
Gas Turbine	463.000	11,112	1,011,192	4,044,768
<u>HRSG</u>	137.510	3,300	300,322	1,204,918
Tandem GT and HRSG	600.510	14,412	1,311,514	5,249,686
<u>Bypass Stack</u>	4.630	111	10,112	40,448
TOTAL	605.140	14,523	1,321,626	5,290,134
HRSG Only Mode:				
Gas Turbine				
HRSG	345.000	8,280	753,480	3,015,990
Bypass Stack				
Planned Bypass Mode:				
SU/SD - Gas Turbine/HRSG	308.821	618	1,853	5,559
M&T - Gas Turbine	149.000	396	1,192	4,768
Waste Gas Incinerator				
	MMBtu/hr	MMBtu/day	MMBtu/qr	MMBtu/yr
All Modes	12.320	295.680	26,981	107,923

Appendices – Exxon – SYU CPP – Testing Mode

APPENDIX B
AQIA Modeling Protocol



APPENDIX B

EXXONMOBIL LAS FLORES CANYON COGENERATION POWER PLANT TESTING PROJECT DISPERSION MODELING PROTOCOL

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1.0 INTRODUCTION

1.1 Project Background

The ExxonMobil Santa Ynez Unit (SYU) Las Flores Canyon (LFC) Oil and Gas Treating Facilities are located at 12000 Calle Real, Goleta, California. ExxonMobil Corporation also owns and operates Pacific Offshore Pipeline Company (POPCO) Gas Plant at the same address. Though LFC and POPCO operate as one stationary source (SSID1482), the LFC operations are permitted under PTO/Part 70 5651, and POPCO operations are permitted under Permit to Operate (PTO)/Part 70 Permit 8092.

This modeling protocol is being submitted to the Santa Barbara County Air Pollution Control District (APCD, District) coincident with an Authority to Construct (ATC) application to implement the LFC cogeneration power plant (CPP) testing procedures modification project (project). ExxonMobil is proposing this project so that additional hours of testing the CPP can be performed than currently allowed under PTO 5651.

The ATC application covers the modifications to the CPP testing procedures. A detailed project description is provided in the ATC application.

1.2 Modeling Protocol Summary

ExxonMobil Corporation has retained the services of Ashworth Leininger Group (ALG) to prepare an air quality impact analysis (AQIA) for the proposed project. This document outlines the protocol proposed by ALG for the AQIA portions of the permit application. The modeling strategy described herein is intended to provide satisfactory estimates of ambient concentrations that will result from post-project CPP testing operations. The District has determined that post-project total concentrations and project incremental carbon monoxide (CO) concentrations must be estimated for 1-hour and 8-hour averaging periods. Nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and particulate matter (PM) will not be included in the modeling because their emissions will not increase on an hourly basis as a result of the project; additionally, except for CO, emissions are less than District Rule 802, Table 2 (pounds/day) thresholds for AQIA.

This document has been prepared in accordance with the APCD document *Modeling Guidelines for Air Quality Impact Analysis* (hereafter referred to the *Modeling Guidelines*) (APCD 1996) ALG will use the APCD-recommended ISCST3 dispersion model and methods described in the *Modeling Guidelines* to perform the modeling analyses. The remainder of this document addresses the following topics:

- Regulatory issues;
- Model selection;
- Model options;
- Post-project emissions development;



- Meteorological data;
- Receptors;
- Background concentrations;
- Applicable Ambient Air Quality Standards; and
- Air Quality Increments.

Emissions from the POPCO and LFC facilities were previously modeled to support Authorities to Construct (ATCs) 9047 and 5651 (Pawar 1996, 1999). More detailed information is provided in the Permits to Operate (PTOs)/Part 70 Permits for the facilities.



2.0 DISPERSION MODELING PROTOCOL

2.1 Regulatory Issues

As requested by the APCD, compliance with the National and California Ambient Air Quality Standards for CO will be addressed as part of the CPP testing project ATC application. The emission scenario will reflect post-project testing operations. Total concentrations will be estimated for 1-hour average and 8-hour average CO impacts. The estimated total concentrations, which will consist of model-predicted impacts due to post-modification facility wide emissions plus representative background concentrations, will be used to demonstrate compliance with applicable National and California Ambient Air Quality Standards (NAAQS and CAAQS) for CO. In addition, project incremental impacts will be calculated for 1- and 8-hour CO for comparison to the District's Rule 803, Table 3 Class II increments.

2.2 Model Selection

Per current District guidelines, the AQIA will be performed using the Industrial Source Complex Short-Term model (ISCST3, Version 02035) to meet the dispersion modeling requirements of the application. ISCST3 is appropriate for modeling multi-source emissions, and can account for point, area, and volume sources in simple, intermediate, and complex terrain.

2.3 Model Input Options

Input options to be used in the ISCST3 model will match the values outlined in the *Modeling Guidelines*, as they are applicable to the current modeling effort. These user-defined model options are summarized below, and will be defined in the Control Pathway card MODELOPT in the ISCST3 input files.

- Calculate concentrations (CONC);
- Use rural dispersion (RURAL);
- Use gradual plume rise (GRDRIS);
- Do not use buoyancy-induced dispersion (NOBID); and
- Do not use calms processing (NOCALM).

In addition to these user-defined options, the model will also employ the following options:

- Use stack-tip downwash;
- Do not use missing data processing routine;
- Use default wind profile exponents;



- Use default vertical potential temperature gradients; and
- Model impacts on simple and complex terrain, and perform intermediate terrain processing.

Consistent with past direction from the District, the effects of building downwash will not be included in the AQIA due to the large distance between the facility emission sources and the nearest receptors.

2.4 Point Source Emissions and Stack Parameters

2.4.1 Point source emissions

Project emissions are presented in Attachment B-1. The CPP testing mode emission rates (source name XTBYPASS) assume uncontrolled operation at 149 MMBtu/hr (4 MW output, no HRSG). For the 8-hour CO impacts, 4 hours of XTBYPASS emissions will be included for each 8-hour averaging period.

Emissions from the LFC turbine main stack (XTTURB) and startup/shutdown mode emissions from the CPP bypass stack (XTBYSUSD) will be zero in CPP testing mode. Therefore, these sources will not be included when modeling the 1-hour CO impacts. However, emissions from XTTURB and XTBYSUSD will be included for 2 hours each when modeling CO impacts for the 8-hour averaging period.

Emissions of other sources within the facilities unaffected by the CPP testing, which are included only in the modeling of total CO impacts, are based on the following:

- For the following LFC and POPCO sources, the current permit limit emissions will be used (see PTO/Part 70 Permit Nos. 5651 and 8092).
 - the LFC thermal oxidizer (XTPILOT and XTFLARE),
 - the POPCO Boilers A and B (POPBLRA and POPBLRB),
 - the POPCO thermal oxidizer (POPPILOT and POPFLARE), and
 - the LFC incinerator (XINCNR)
- For the following additional "unaffected" sources, emissions are calculated based on engine size or burner rating:
 - the LFC firewater pumps (XFRAPUMP and XFRBPUMP) and floodwater pump (XFLPUMP),
 - the POPCO firewater pumps (POPPMP1 and POPPMP2), and
 - the POPCO emergency electrical generators (POPEGEN1 and POPEGEN2),
 - the POPCO TEG Reboilers (POPTEG1 and POPTEG2).



- For the 1-hour CO modeling, emissions from emergency sources (firewater pumps, floodwater pump, and emergency electrical generators) will be included assuming all of these will be tested simultaneously.
- For the 8-hour CO modeling, the emission rates from the LFC and POPCO emergency pumps and generators will be scaled appropriately; i.e., 8-hour emissions will be scaled to 1/8th of the peak hourly emission rate.

These emissions are presented in Attachment B-2.

2.4.2 Stack Parameters

Stack parameters to be used in the AQIA are summarized in Table 1. The calculations of CPP Bypass stack parameters are provided in Attachment B-1. The temperature and velocity are based, respectively, on manufacturer's data and exhaust flow calculations.

The bases for the stack exhaust gas parameters for the unaffected sources are provided in Attachment B-2. The values are based on previous modeling analyses, except for the following:

- Bypass stack during startup/shutdown: The temperature and velocity are based, respectively, on manufacturer's data and exhaust flow calculations.
- Incinerator Stack: The temperature has been updated based on more recent source test data.
- Incinerator Stack: The velocity has been increased based on the tailgas rate from the material balance. Note that POPCO and LFC tailgas is incinerated in the ExxonMobil incinerator.
- POPCO Boilers: The exhaust temperatures used in the calculation of flow parameters were updated based on 2006 source test data. The 2006 source for Boiler A was conducted with at a higher than average firing rate, but much lower than rated firing rate.
- LFC and POPCO Thermal Oxidizers: The velocities are based on input from John Zink. The velocities assume 20 to 1 ratio of air to fuel on a volumetric basis.
- LFC and POPCO Emergency Equipment: The velocities for this equipment are calculated using an F-factor appropriate for the combustion sources.
- POPCO TEG Reboilers: The velocities for this equipment are calculated using an F-factor appropriate for the combustion sources. The temperatures are from reboiler data.

Stack coordinates used in past modeling were fine-tuned using Global Mapper (v11.0) and geocoded color imagery from the National Agriculture Imagery Program (NAIP) from the USDA Farm Service Agency. The locations of the modeled sources are shown in Figure 1.



2.5 Meteorological Data

Required meteorological data inputs to the ISCST3 model include hourly observations of wind speed, flow vector, and temperature, as well as sequential hourly values of Pasquill-Gifford stability class and mixing height. Meteorological data to be used were collected in LFC and were provided by the APCD in ISCST3 ASCII format covering the period from January 1 through December 31, 1989. There were no periods of missing data. The bimodal frequency distribution of wind data used for the AQIA is shown in Figure 2.

2.5.1 Treatment of Calms

Calms processing will not be employed, following the recommendations provided in the *Modeling Guidelines*. Wind speeds less than 1 m/s in the dataset will be set to 1 m/s.

2.5.2 Rural/Urban Classification

The surrounding land use within a 3 km area is classified primarily as rural. Therefore, rural dispersion coefficients will be used by ISCST3.

2.6 Receptor Grids and Elevated Terrain

Receptor grids have been defined using Universal Transverse Mercator (UTM) coordinates. Receptors have been placed along the ExxonMobil fence line at 100-meter resolution. A Cartesian grid has been developed and extends to distances between approximately 915 and 2,000 meters from the ExxonMobil fence line. The receptor spacing in the Cartesian grid is also 100 meters. Both receptor grids are shown in Figure 3. Once the maximum impact receptor is determined for each pollutant modeled, a refined run with 50-meter or less receptor spacing around the maximum impact receptor will be made to determine compliance with the CAAQS/NAAQS and Rule 803 increments.

Elevated terrain within the modeling domain has been digitized and is shown in Figure 4. All receptor locations and elevations were provided by the APCD from past modeling.

2.7 Background Concentrations

For the NAAQS/CAAQS analysis, background concentrations of CO will be added to the model-predicted impacts at each receptor. Ambient background concentrations of CO measured at the LFC monitoring station were obtained from the District and are summarized in Table 2. Adding these background concentrations to the modeled concentrations represents a conservative approach, since historical POPCO and ExxonMobil emissions may have contributed to the measured background levels.

2.8 Ambient Air Quality Standards

The CAAQS and NAAQS for CO are presented in Table 2. These standards are the maximum concentrations allowed in terms of total pollutant levels in ambient air. Compliance with the CAAQS and NAAQS will be based upon the total estimated air quality concentrations, which for each averaging period will be the sum of the modeled ambient impact resulting from operations



during testing mode plus the maximum background concentration measured at the LFC monitoring station.

2.9 Air Quality Increment Analysis

An air quality increment analysis will be performed as required in APCD Rule 803 for CO. Air quality increments are provided in Table 2. Only the emissions from the bypass stack during testing operations will be included in this analysis.

2.10 Submittals

ALG will submit the following materials to the APCD in a written report summarizing the results of the AQIA:

- Prior to executing any model runs, the electronic input files will be provided to the APCD for review and acceptance;
- ISCST3 output files (note that the input file will be echoed at the beginning of each output file);
and
- Any pre- and post-processing programs and spreadsheets.

Hardcopy will be provided for summary modeling output files only; the remaining input and output files and materials will be submitted on CD ROM.



TABLE 1: STACK PARAMETERS

Model ID	Stack Location		Stack Parameters			
	UTM Coordinates (m)	Base Elevation (m)	Stack Height (m)	Stack Temperature (K)	Exit Velocity (m/s)	Exit Diameter (m)
POPBLRA	771574., 3819465.	74.4	22.9	460.	6.24	1.055
POPBLRB	771574., 3819457.	74.4	22.9	460.	6.24	1.055
POPPILOT, POPFLARE	771557., 3819495.	74.4	38.1	310.	0.012	7.32
POPPMP1	771550., 3819552.	74.4	4.0	794.	38.14	0.16
POPPMP2	771559., 3819552.	74.4	4.0	794.	38.14	0.16
POPEGEN1	771644., 3819570.	74.4	4.0	794.	15.29	0.089
POPEGEN2	771581., 3819477.	74.4	4.0	794.	44.41	0.076
POPTEG1	771602., 3819363.	74.4	4.0	511.	2.99	0.41
POPTEG2	771543., 3819366.	74.4	4.0	511.	2.35	0.27
POEFRNC	771622., 3819387.	74.4	4.0	511.0	0.70	0.12
XFRAPUMP	771859., 3819585.	83.5	4.0	794.	47.00	0.20
XFRBPUMP	771853., 3819585.	83.5	4.0	794.	47.00	0.20
XFLPUMP	771856., 3819555.	83.5	4.0	794.	47.00	0.20
XTPILLOT, XTFLARE	771839., 3819540.	83.5	30.0	310.	0.010	10.4
XINCNR	771616., 3819523.	74.4	30.0	1127.	37.77	0.84
XTBYPASS	771818., 3819600.	83.5	20.0	592.	10.42	3.7
XPBYSUSD*	771818., 3819600.	83.5	20.0	825.	17.03	3.7
XTTURB*	771821., 3819564.	83.5	30.0	427.	13.4	3.7

*XTBYSUSD and XTTURB are not included in the 1-hour average CO modeling

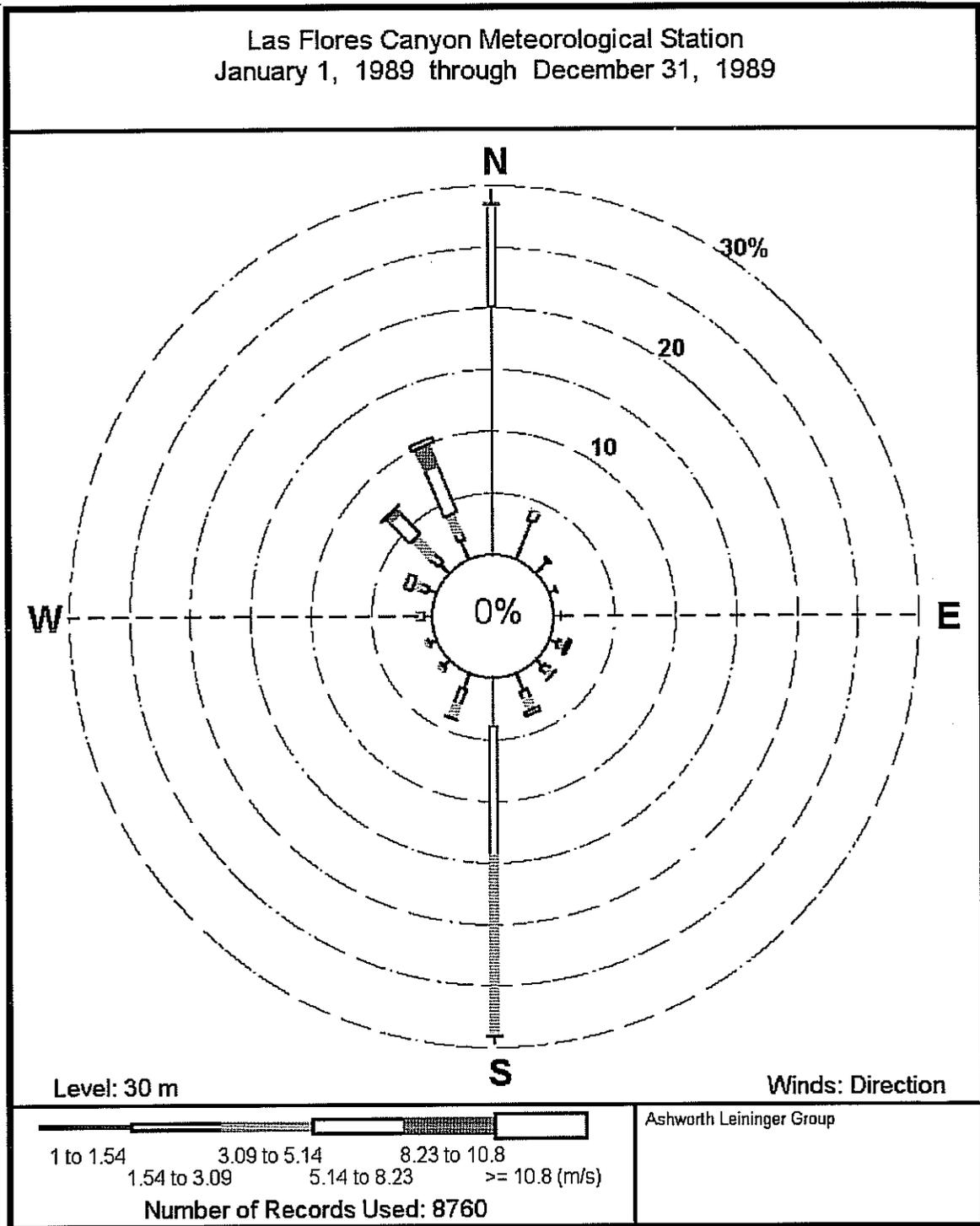


FIGURE 2: WIND ROSE ANALYSIS

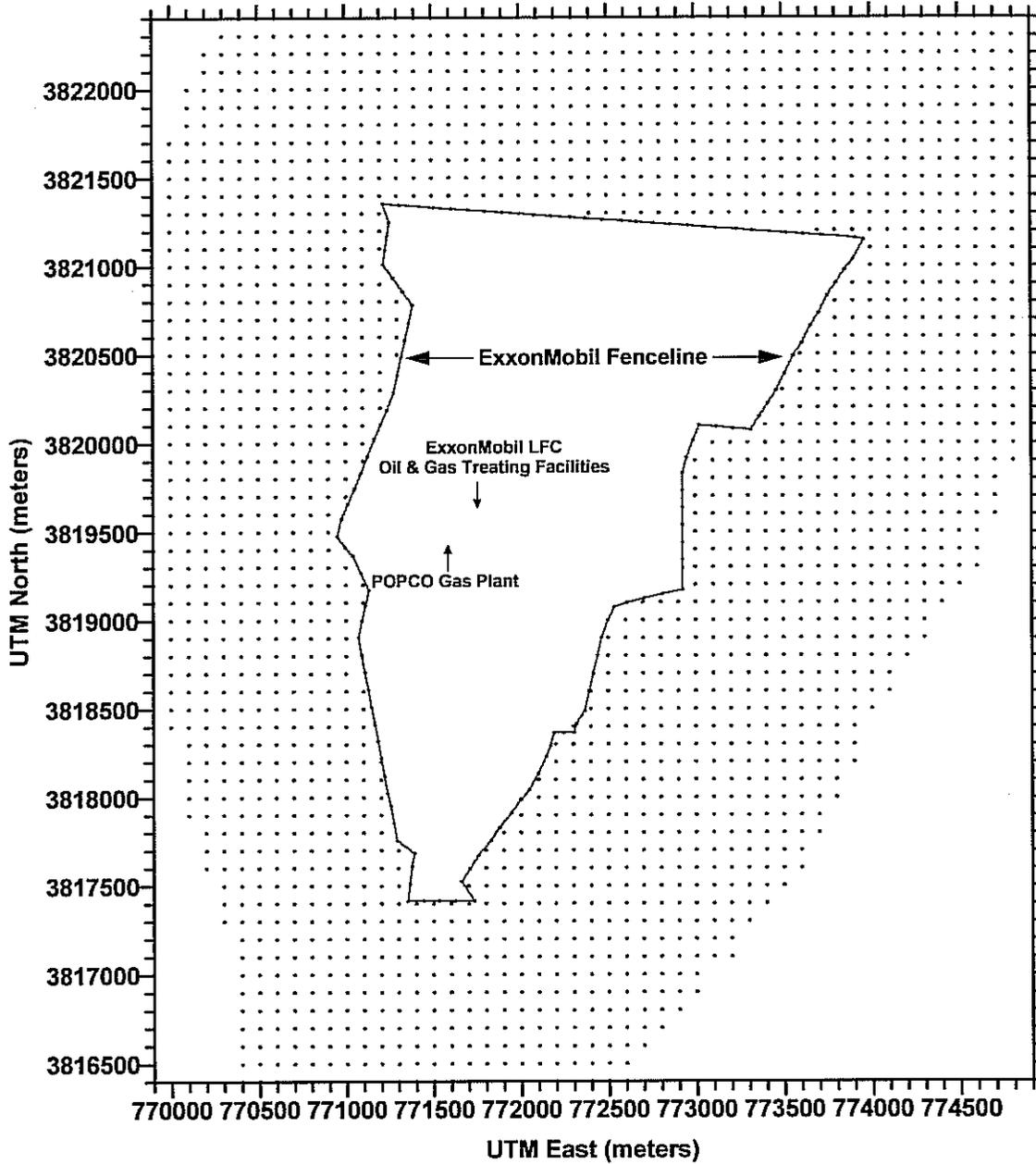


FIGURE 3: RECEPTOR NETWORK

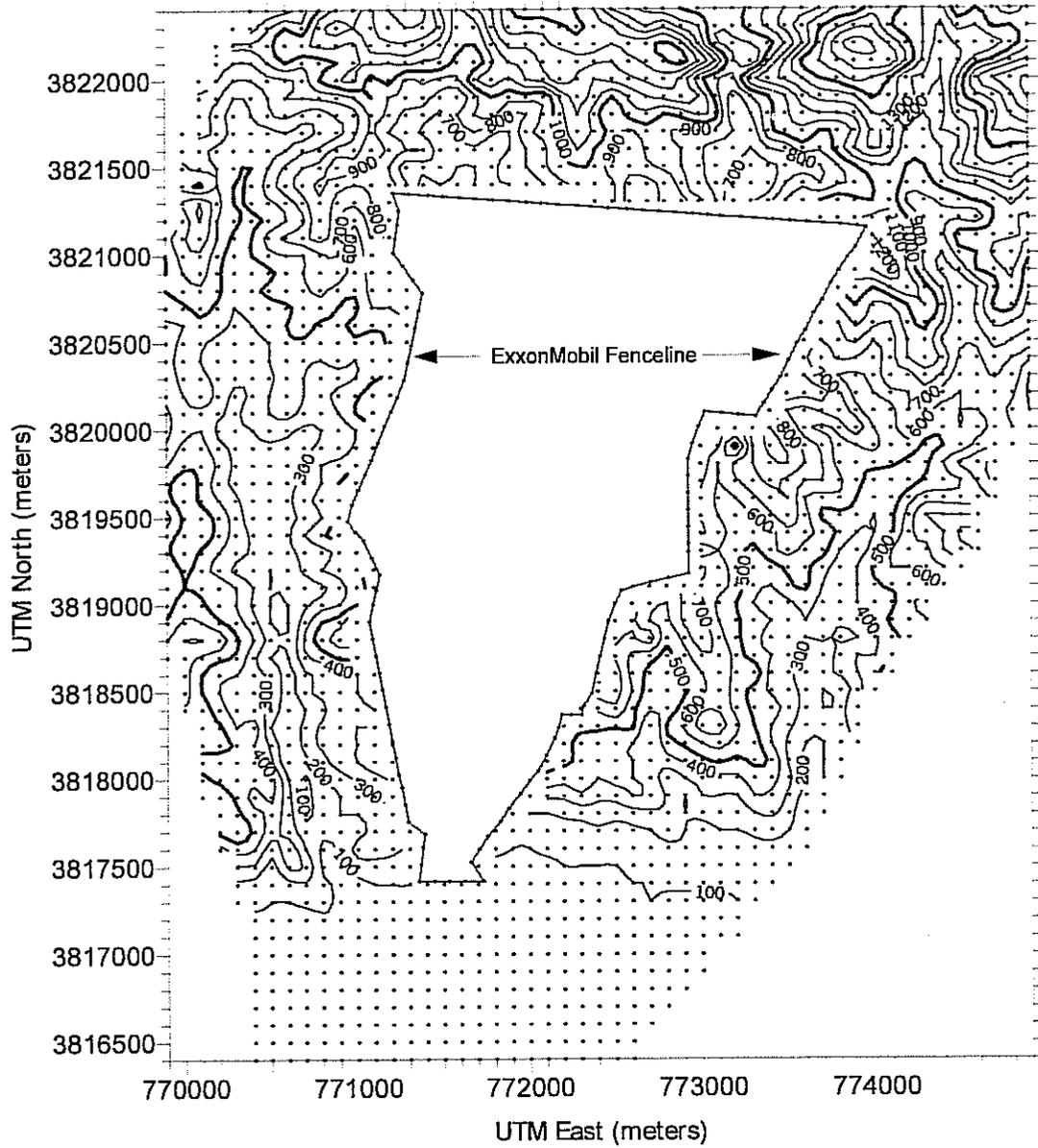


FIGURE 4: RECEPTOR ELEVATION CONTOURS (FEET)



TABLE 2: BACKGROUND CONCENTRATIONS AND AMBIENT THRESHOLDS

Pollutant	Averaging Period	Background Concentration¹ (ppm)	Background Concentration² ($\mu\text{g}/\text{m}^3$)	Ambient Air Quality Standard ($\mu\text{g}/\text{m}^3$)	Air Quality Increment ($\mu\text{g}/\text{m}^3$)
CO	1-Hour	0.7	827.7	23,000 ³	10,000
	8-Hour	0.7	827.7	10,000 ⁴	2500

¹ Provided by Santa Barbara County APCD.

² Conversion from ppb to $\mu\text{g}/\text{m}^3$ performed at standard conditions of 1 atm and 60 degrees F

³ California Ambient Air Quality Standard

⁴ National Ambient Air Quality Standard



3.0 REFERENCES

- Pawar 1996. Exxon NO₂ 1-Hour Maximum Impact, Internal Memorandum to Ray McCaffrey, July 12, 1996, Santa Barbara County Air Pollution Control District.
- Pawar 1999. Exxon NO₂ 1-Hour Maximum Impact, Internal Memorandum to Mike Goldman, May 21, 1999, Santa Barbara County Air Pollution Control District.
- Santa Barbara County Air Pollution Control District (APCD). 1996 Modeling Guidelines for Air Quality Impact Analysis.

ATTACHMENT B-1

Project Modeled Emissions and Stack Parameters

Turbine Bypass Stack CO Emission Rates – Testing Mode ("XTBYPASS")

Energy Input Rate 149 MMBTU/hr.
Max operation/8 hours 4 hours

	Emission Factor (lb/MMBTU)	Emission Rate (lb/hour)
CO - 1 hour	1.1007	164.0
CO - 8 hour	1.1007	82.0

Source: Proposed Worst-Case Operating Basis (Table 5-2 of application)

Bypass Stack (XTBYPASS) Release Parameters during Testing Mode

Firing Rate: 149 MMBtu/hour

Turbine load: 11%

Calculate exhaust flow rate using Method 19:

$$8710 \text{ scf/MMBtu} \times 149 \text{ MMBtu/hour} \times 20.9/(20.9 - 17) = 6.955 \text{ MMscf/hour}$$

Note: Oxygen content of exhaust (17%) estimated based on manufacturer's data.

Temperature interpolated from manufacturer's data:

- Temperature at 0% load: 524°F (full speed no load test)
- Temperature at 25% load: 711°F
- Temperature at 11% load: 606°F (interpolated)

Adjust standard flow rate for actual temperature:

$$6.955 \text{ MMscf/hour} \times (460 + 606)/(460 + 60) = 14.258 \text{ MMcf/hour}$$

Stack Diameter: 12.14 ft.

Calculate Stack Exit Velocity:

$$\begin{aligned} V_{\text{stack}} &= \text{Flow rate}/(\pi \times \text{Radius}^2) \\ &= 14.258 \text{ MMcf/hour}/(3.14159 \times (12.14 \text{ ft}/2)^2) \\ &= 0.12318 \text{ MMft/hour} \\ &= 123,180 \text{ ft/hour} \\ &= 34.22 \text{ ft/sec} \end{aligned}$$

ATTACHMENT B-2

Baseline Sources Modeled Emissions and Stack Parameters

Turbine Bypass Stack CO Emission Rates -- Startup/Shutdown ("XTBYSUSD")

Source	Energy Input Rate (MMBTU/hr)	Emission Factor (lb/MMBTU)	Emission Rate (lb/hr)	Hours Operation per 8 Hours w/ Testing	8-Hour Average Emission Rate (lb/hr)
GTG	308.82	0.592	182.82	2	45.71

Source: Proposed Worst-Case Operating Basis (Table 5-2 of application)
Note: XTBYSUSD emissions not included in 1-hour modeling

Turbine Main Stack CO Emission Rates -- Worst-Case Operation w/ Control ("XTTURB")

Source	Energy Input Rate (MMBTU/hr)	Emission Factor (lb/MMBTU)	Emission Rate (lb/hr)	Hours Operation per 8 Hours w/ Testing	8-Hour Average Emission Rate (lb/hr)
GTG	460.35	0.026	11.97	2	2.99
HRSG	140.14	0.026	3.64	2	0.91
Total (XTTURB)					3.90

Source: Proposed Worst-Case Operating Basis (Table 5-2 of application)

Note: XTTURB emissions not included in 1-hour modeling

Bypass Stack Release Parameters during SU/SD Mode (XTBYSUSD)

Firing Rate: 309 MMBtu/hour

Calculate exhaust flow rate using Method 19:

$$8710 \text{ scf/MMBtu} \times 309 \text{ MMBtu/hour} \times 20.9/(20.9 - 14) = 8.152 \text{ MMscf/hour}$$

Note: Oxygen content of exhaust (14%) estimated based on manufacturer's data.

Temperature – manufacturer's data: 1025°F @ 75% load

Adjust standard flow rate for actual temperature:

$$8.152 \text{ MMscf/hour} \times (460 + 1025)/(460 + 60) = 23.280 \text{ MMcf/hour}$$

Stack Diameter: 12.14 ft.

Calculate Stack Exit Velocity:

$$\begin{aligned} V_{\text{stack}} &= \text{Flow rate}/(\pi \times \text{Radius}^2) \\ &= 23.280 \text{ MMcf/hour}/(3.14159 \times (12.14 \text{ ft}/2)^2) \\ &= 0.20112 \text{ MMft/hour} \\ &= 201,112 \text{ ft/hour} \\ &= 55.87 \text{ ft/sec} \end{aligned}$$

MODEL INPUT PARAMETERS - EMISSIONS, TEMPERATURE, AND VELOCITY
 EXXONMOBIL LFC/POPCO BASELINE EMISSIONS

Equipment	CO - 1 hour		Stack Parameters		Remarks
	(lb/hr)	(g/s)	Ts (K)	Vs (m/s)	
POPBLRA	2.893	0.3771	460	6.24	Emissions are from PTO 8092; Vs is calculated on attached sheet; Ts is based on measured temp at Boiler A
POPBLRB	2.893	0.3771	460	6.24	Emissions are from PTO 8092; Vs is calculated on attached sheet; Ts is based on measured temp at Boiler A
POPPILOT	0.031	0.0040	310	0.012	Emissions are from PTO 8092; Ts is the same as XTPILLOT; Vs is calculated on attached sheet
POPFLARE	0.013	0.0016	310	0.012	Emissions are from PTO 8092; Ts is the same as XTPILLOT; Vs is calculated on attached sheet
POPMP1	2.898	0.3635	784	38.14	Emissions and Vs calculated on attached sheet; Ts is assumed to be same as LFCFRBPUMP.
POPMP2	2.898	0.3535	784	38.14	Emissions and Vs calculated on attached sheet; Ts is assumed to be same as LFCFRBPUMP.
POPGEN1	0.347	0.0438	784	15.29	Emissions and Vs calculated on attached sheet; Ts is assumed to be same as LFCFRBPUMP.
POPGEN2	0.741	0.0934	784	44.41	Emissions and Vs calculated on attached sheet; Ts is assumed to be same as LFCFRBPUMP.
POPTEG1	0.099	0.0125	511	2.99	Emissions and Vs calculated on attached sheet; Ts is based on actual temp at TEC Rabollers
POPTEG2	0.173	0.0218	511	2.35	Emissions and Vs calculated on attached sheet; Ts is based on actual temp at TEC Rabollers
POPRNC	0.004	0.0005	511	0.70	Emissions and Vs calculated on attached sheet; Ts and Vs are from prior modeling
XFRBPUMP	0.785	0.1002	784	47.00	Emissions calculated on attached sheet; Ts and Vs are from prior modeling
XFRAPUMP	0.768	0.1002	784	47.00	Emissions calculated on attached sheet; Ts and Vs are from prior modeling
XFLPUMP	0.396	0.0499	310	0.010	Emissions are from PTO 5651; Ts is from prior modeling; Vs is calculated on attached sheet
XTPILLOT	0.164	0.0207	310	0.010	Emissions are from PTO 5651; Ts is from prior modeling; Vs is calculated on attached sheet
XINCNR	1.134	0.1429	1127	37.77	Ts is based on actual temp; Vs is calculated from material balance with a 28% contingency per current permit
XTTURB	15.62	1.9681	427	13.40	Emissions calculated on attached sheet; Ts and Vs are from prior modeling
XTBYSUSD	182.82	23.035	825	17.03	Emissions calculated on attached sheet; Ts and Vs shown on attached sheet

Equipment	CO - 8 hour		Stack Parameters		Remarks
	(lb/hr)	(g/s)	Ts (K)	Vs (m/s)	
POPBLRA	2.893	0.3771	460	6.235	Emissions are assumed to be the same as peak hour.
POPBLRB	2.893	0.3771	460	6.235	Emissions are assumed to be the same as peak hour.
POPPILOT	0.031	0.0040	310	0.012	Emissions are assumed to be the same as peak hour.
POPFLARE	0.013	0.0016	310	0.012	Emissions are assumed to be the same as peak hour.
POPMP1	0.351	0.0442	784	38.145	Emissions are assumed to be 1/8 of peak hour values.
POPMP2	0.351	0.0442	784	38.145	Emissions are assumed to be 1/8 of peak hour values.
POPGEN1	0.043	0.0055	784	15.286	Emissions are assumed to be 1/8 of peak hour values.
POPGEN2	0.093	0.0117	784	44.413	Emissions are assumed to be 1/8 of peak hour values.
POPTEG1	0.099	0.0125	511	2.990	Emissions are assumed to be the same as peak hour.
POPTEG2	0.173	0.0218	511	2.348	Emissions are assumed to be the same as peak hour.
POPRNC	0.004	0.0005	511	0.70	Emissions are assumed to be the same as peak hour.
XFRBPUMP	0.069	0.0125	784	47.000	Emissions are assumed to be 1/8 of peak hour values.
XFRAPUMP	0.069	0.0125	784	47.000	Emissions are assumed to be 1/8 of peak hour values.
XFLPUMP	0.066	0.0121	784	47.000	Emissions are assumed to be 1/8 of peak hour values.
XTPILLOT	0.396	0.0499	310	0.010	Emissions are assumed to be the same as peak hour.
XINCNR	0.164	0.0207	310	0.010	Emissions are assumed to be the same as peak hour.
XTTURB	1.134	0.1429	1127	37.767	Emissions are assumed to be the same as peak hour.
XTBYSUSD	3.91	0.4920	427	13.400	Emissions are assumed to be 1/4 of peak hour values.
	46.71	5.758	825	17.028	Emissions are assumed to be 1/4 of peak hour values.

Notes:
 POPPILOT emissions are based on the pilot only line item in PTO 8092
 POPFLARE emissions are based on planned continuous line items in PTO 8092
 XTPILLOT emissions are based on the pilot/purge line item in PTO 5651
 XINCNR emissions are based on planned continuous line items in PTO 5651
 XINCNR emissions are based on w/ merox line item per the current permit limit

EMISSIONS CALCULATIONS AND VELOCITIES FOR BASELINE SOURCES
LFC - CPP Testing Mode Modeling – Input Data

LFC Firewater Pump A Calculation (XFRAPUMP)

Capacity	238 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	3.69
ROC	0.0025	0.29
CO	0.0067	0.79
SOx	0.0000	0.00
PM	0.0022	0.26
PM10	0.0022	0.26

Operation limited to 1/2 hour period per test; 26 hours/year.

LFC Firewater Pump B Calculation (XFRBPUMP)

Capacity	238 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	3.69
ROC	0.0025	0.29
CO	0.0067	0.79
SOx	0.0000	0.00
PM	0.0022	0.26
PM10	0.0022	0.26

Operation limited to 1/2 hour period per test; 26 hours/year.

LFC Floodwater Pump Calculation (XFLPUMP)

Capacity	230 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	3.56
ROC	0.0025	0.28
CO	0.0067	0.77
SOx	0.0000	0.00
PM	0.0022	0.25
PM10	0.0022	0.25

Operation limited to 1/2 hour period per test; 20 hours/year.

EMISSIONS CALCULATIONS AND VELOCITIES FOR BASELINE SOURCES
LFC - CPP Testing Mode Modeling -- Input Data

POPCO Firewater Pump No. 1 (POPPMP1)

Capacity	420 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	13.02
ROC	0.0025	1.04
CO	0.0067	2.81
SOx	0.0000	0.01
PM	0.0022	0.93
PM10	0.0022	0.93

Operation limited to 200 hours/year.

POPCO Firewater Pump No. 2 (POPPMP2)

Capacity	420 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	13.02
ROC	0.0025	1.04
CO	0.0067	2.81
SOx	0.0000	0.01
PM	0.0022	0.93
PM10	0.0022	0.93

Operation limited to 200 hours/year.

POPCO Emergency Generator (POPEGEN1)

Capacity	52 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	1.61
ROC	0.0025	0.13
CO	0.0067	0.35
SOx	0.0000	0.00
PM	0.0022	0.11
PM10	0.0022	0.11

Operation limited to 20 hours/year.

EMISSIONS CALCULATIONS AND VELOCITIES FOR BASELINE SOURCES
LFC - CPP Testing Mode Modeling -- Input Data

POPCO Emergency Generator - Instrument Air (POPEGEN2)

Capacity	111 hp	
	Emission Factor	Emissions - Peak
	lb/bhp-hr.	lb/hr.
NOx	0.0310	3.44
ROC	0.0025	0.27
CO	0.0067	0.74
SOx	0.0000	0.00
PM	0.0022	0.24
PM10	0.0022	0.24

Operation limited to 20 hours/year.

POPCO Boiler A (POPBLRA)

Capacity	41 MMBTU/hr.	
	Emission Factor	Emissions - Peak
	lb/MMBTU	lb/hr.
NOx	0.036	1.48
ROC	0.00098	0.04
CO	0.073	2.99
SOx	0.0028	0.11
PM	0.00898	0.37
PM10	0.00853	0.35

POPCO Boiler B (POPBLRB))

Capacity	41 MMBTU/hr.	
	Emission Factor	Emissions - Peak
	lb/MMBTU	lb/hr.
NOx	0.036	1.48
ROC	0.00098	0.04
CO	0.073	2.99
SOx	0.0028	0.11
PM	0.00898	0.37
PM10	0.00853	0.35

EMISSIONS CALCULATIONS AND VELOCITIES FOR BASELINE SOURCES
LFC - CPP Testing Mode Modeling – Input Data
POPCO TEG Reboiler E-121 (POPTEG1)

Capacity	1.2 MMBTU/hr.	
	Emission Factor	Emissions - Peak
	lb/MMBTU	lb/hr.
NOx	0.098	0.12
ROC	0.0054	0.01
CO	0.0824	0.10
SOx	0.0133	0.02
PM	0.0075	0.01
PM10	0.0075	0.01

POPCO TEG Reboiler E-251 (POPTEG2)

Capacity	2.1 MMBTU/hr.	
	Emission Factor	Emissions - Peak
	lb/MMBTU	lb/hr.
NOx	0.098	0.21
ROC	0.0054	0.01
CO	0.0824	0.17
SOx	0.0133	0.03
PM	0.0075	0.02
PM10	0.0075	0.02

POPCO Air Furnace (POPFRNC)

Capacity	0.05 MMBTU/hr.	
	Emission Factor	Emissions - Peak
	lb/MMBTU	lb/hr.
NOx	0.098	0.0049
ROC	0.0054	0.0003
CO	0.0824	0.0041
SOx	0.0133	0.0007
PM	0.0075	0.0004
PM10	0.0075	0.0004

EMISSIONS CALCULATIONS AND VELOCITIES FOR BASELINE SOURCES
LFC - CPP Testing Mode Modeling – Input Data

Thermal Oxidizer Velocity Calculations

	Fuel Gas Flow SCFH	Air Flow SCFH	Total Stack Flow M3/sec.	Diameter m	Velocity m/s
POPPILOT AND POPFLARE	3111	62221	0.51	7.32	0.012
XPILOT AND XFLARE	4959	99180	0.82	10.4	0.010

According to John Zink, pilot/purge/planned continuous operations will result in an air flow of approximately 20:1.
 Flaring events result in air flows between 20 and 40:1.
 Total stack flow will equal approximately air flow plus fuel gas flow.

IC Engine Velocity Calculations

F-factor (dscf/MMBTU)	9190		
Diesel heat content (MMBTU/gal)	0.137		
Temperature (K)	794		
O2 content (%)	4		
	POPPMP1&2	POPGEN1	POPGEN2
Engine Size (hp)	420	52	111
BSFC (gal/bhp-hr.)	0.055	0.055	0.055
Fuel Consumption @ Max (gal/hr)	23.10	2.86	6.11
Fuel Consumption (MMBTU/hr)	3.17	0.39	0.84
Unadjusted flow rate (scfh)	29090	3602	7688
Adjusted for Temperature (acfh)	78831	9760	20834
Adjusted for Oxygen (acfh)	97489	12070	25765
(acfm)	1625	201	429
Vol. Flow (cu.m/sec)	0.77	0.09	0.20
Stack Diameter (in)	6.30	3.50	3.00
Stack XS Area (sq.m)	0.0201	0.0062	0.0046
Exit Velocity (m/s)	38.1	15.3	44.4

POPCO TEG Reboiler and Furnace Velocity Calculations

F-factor (dscf/MMBTU)	8710		
Temperature (K)	511		
O2 content (%)	4		
	POPTEG1	POPTEG2	POPFRNC
Rated Capacity (MMBTU/hr.)	1.2	2.1	0.05
Unadjusted flow rate (scfh)	10452	18291	436
Adjusted for Temperature (acfh)	18218	31881	759
Adjusted for Oxygen (acfh)	22530	39427	939
(acfm)	375	657	16
Vol. Flow (cu.m/sec)	0.18	0.31	0.01
Stack Diameter (in)	10.81	16.14	4.55
Stack XS Area (sq.m)	0.0592	0.1320	0.0105
Exit Velocity (m/s)	3.0	2.3	0.7

EMISSIONS CALCULATIONS AND VELOCITIES FOR BASELINE SOURCES
LFC - CPP Testing Mode Modeling – Input Data
POPCO Boilers Velocity Calculations

F-factor (dscf/MMBTU)	8710	
Temperature (K)	460 2006 Source Test (45% of rating)	
O2 content (%)	4	
	POPBLRA	POPBLRB
Rated Capacity (MMBTU/hr.)	41	41
Unadjusted flow rate (scfh)	357110	357110
Adjusted for Temperature (acfh)	560651	560651
Adjusted for Oxygen (acfh)	693349	693349
(acfm)	11556	11556
Vol. Flow (cu.m/sec)	5.45	5.45
Stack Diameter (in)	41.53	41.53
Stack XS Area (sq.m)	0.8741	0.8741
Exit Velocity (m/s)	6.2	6.2