SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Supplemental Negative Declaration for: Warren E&P, Inc. WTU Central Facility, New Equipment Project

State Clearinghouse No. 2009041083

August 2014

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CHAPTER 1 – PROJECT DESCRIPTION

1.1 INTRODUCTION

On July 19, 2011, the South Coast Air Quality Management District (SCAQMD) certified a Subsequent Mitigated Negative Declaration (SMND) and issued permits to Warren E&P, Inc. (Warren) for six Ingersoll-Rand MT-70 microturbines, an ultra-low NO_x Bekaert Clean Enclosed Burner® (Bekaert CEB®), refurbishment of the existing Heater-Treater No. 1 (HT#1) with a new ultra-low NO_x burner , the addition of a new Heater-Treater No. 2 (HT#2) with two ultra-low NO_x burners, a new gas compressor for future use with gas re-injection or gas sales, and a new backup vapor recovery system (2011 Project). This equipment has been constructed and is currently operating, except for the new gas compressor, at Warren's Wilmington Townlot Unit (WTU) Central Facility located in Wilmington, California. At the time of the approval of the 2011 SMND and issuance of the permits, Warren had pending applications on file with the State of California Division of Oil, Gas, and Geothermal Resources (DOGGR) seeking approval of two potential gas re-injection wells which were designed to reduce gas burning onsite. On April 30, 2012, Warren was informed by letter that the DOGGR would be unable to begin review of its applications for approval of gas re-injection wells for at least 24 months from the date of the letter. In addition, the microturbines are experiencing severe maintenance problems that often make them unavailable for sustained operation. Replacement of these microturbines is no longer possible because their particular model and size is no longer manufactured. Because of these changes, Warren proposes to implement gas sales without interim gas reinjection and to modify the gas handling component of the 2011 Project to facilitate gas sales.

Because the SCAQMD has primary approval authority over the currently proposed project, it has been designated the lead agency responsible for preparing the California Environmental Quality Act (CEQA) analysis for the proposed Project. As the lead agency for the modifications to the 2011 Project, the SCAQMD has prepared this Supplement to the 2011 SMND.

1.2 AGENCY AUTHORITY

CEQA, Public Resources Code §21000 *et seq.*, requires that the environmental impacts of proposed "projects" be evaluated and that feasible methods to reduce, avoid, or eliminate significant adverse impacts be identified and implemented. Warren's proposed modifications constitute a "project", as defined by CEQA. To fulfill the purpose and intent of CEQA, the SCAQMD, the "lead agency" for the proposed project, has prepared this Supplement to the 2011 SMND to address the potential environmental impacts associated with Warren's proposed project at the WTU Central Facility.

The lead agency is the public agency that has the principal responsibility for carrying out or approving a project that may have a significant adverse effect upon the environment (Public Resources Code §21067). Because the proposed project requires discretionary approval from the SCAQMD for modifications to existing stationary source equipment and for installation of new stationary source equipment, the SCAQMD has the greatest responsibility for supervising or approving the project as a whole. Therefore, the SCAQMD is the most appropriate public agency to act as the lead agency (CEQA Guidelines §15051(b)).

A Supplement is the appropriate CEQA document for the proposed project because only minor changes are proposed to the 2011 Project (CEQA Guidelines §15163). Further, a Supplement is appropriate because no potentially significant adverse impacts have been identified as a result of the incorporation of the proposed modifications to the 2011 Project (CEQA Guidelines §15163).

1.3 BACKGROUND

1.3.1 PREVIOUS SMND

On July 19, 2011, the SCAQMD certified a SMND for the 2011 Project. The SMND evaluated Warren's proposal for a gas re-injection system to inject excess oil field gas that could not be combusted in the microturbines and heater treaters into a deep underground formation once approval for such injection was obtained from the DOGGR. It evaluated an interim scenario involving combustion of oil field gas in the microturbines and the Bekaert CEB® during the period that the gas re-injection system was being constructed. The SMND also evaluated the environmental impacts of a gas sales project that Warren could implement if gas production reached levels that made gas sales economically feasible. The gas sales project analyzed in the SMND involved adding a gas conditioning system to treat the oil field gas so that it would meet Southern California Gas Company's (SoCalGas's) standards for transmission in its pipeline running beneath the Warren facility. The gas handling component of the 2011 SMND also added three new Ingersoll-Rand MT-70 microturbines to combust the tail gas produced from the gas conditioning system while the six existing MT-70 microturbines continued to combust oil field gas. During this time, the Bekaert CEB® would be kept in "ready standby" mode unless a problem arose with the microturbines and/or the gas re-injection/sales system.

1.3.2 SCAQMD PERMITTING

After certification of the SMND on July 19, 2011, the SCAQMD issued permits to Warren for the six existing Ingersoll-Rand MT-70 microturbines, a Bekaert CEB®, refurbishment of the existing HT#1 with a new ultra-low NO_x burner, the addition of a new HT#2 with two ultra-low NO_x burners, a new gas compressor for future use with gas re-injection, and a new backup vapor recovery system. The permits issued also required the removal of the existing Flare King flare and a previously operated water heater. The permits limited the monthly average oil production to 5,000 barrels per day and limited the amount of oil field gas that can be combusted in equipment on site to no more than 199,000,000 standard cubic feet of gas per 12 month rolling average in order to limit greenhouse gas (GHG) emissions to less than 10,000 metric tonnes of carbon dioxide equivalents (MT CO_2eq) per 12 month rolling average period.[1]

The permits issued by the SCAQMD on July 19, 2011, limited combustion of oil field gas in the Bekaert CEB® to no more than 50% of its rated capacity while the gas re-injection project was being constructed (except for certain times when oil field gas could not be combusted in the microturbines or other equipment), and approved the installation of a compressor to facilitate the re-injection of oil field gas.

[1] The 2011 SMND included mitigation measure MMAir-3, which referred to a calendar year for the limitation on GHG emissions; the 12 month rolling average period included in the permits is more stringent.

1.3.3 SEEKING DOGGR APPROVAL

The DOGGR is the agency with regulatory authority to approve gas reinjection wells into underground oil fields. At the time of the approval of the SMND and issuance of the permits, Warren had pending applications on file with the DOGGR seeking approval of two potential gas re-injection wells. Warren had previously obtained approval for these wells from the DOGGR in October 2008. However that permit expired in October 2010 before the SCAQMD could complete the environmental review of the project. The DOGGR required Warren to re-submit new applications, which was done on two separate occasions after the DOGGR changed its injection well requirements.

On April 30, 2012, Warren was informed by letter that the DOGGR would be unable to begin review of its applications for approval of gas re-injection wells for at least 24 months from the date of the letter. Because of this delay, the project analyzed in the 2011 SMND cannot be implemented exactly as described in the SMND. Specifically, the gas reinjection will not be implemented within the timeframe required by the SCAQMD Hearing Board (see Section 1.3.4).

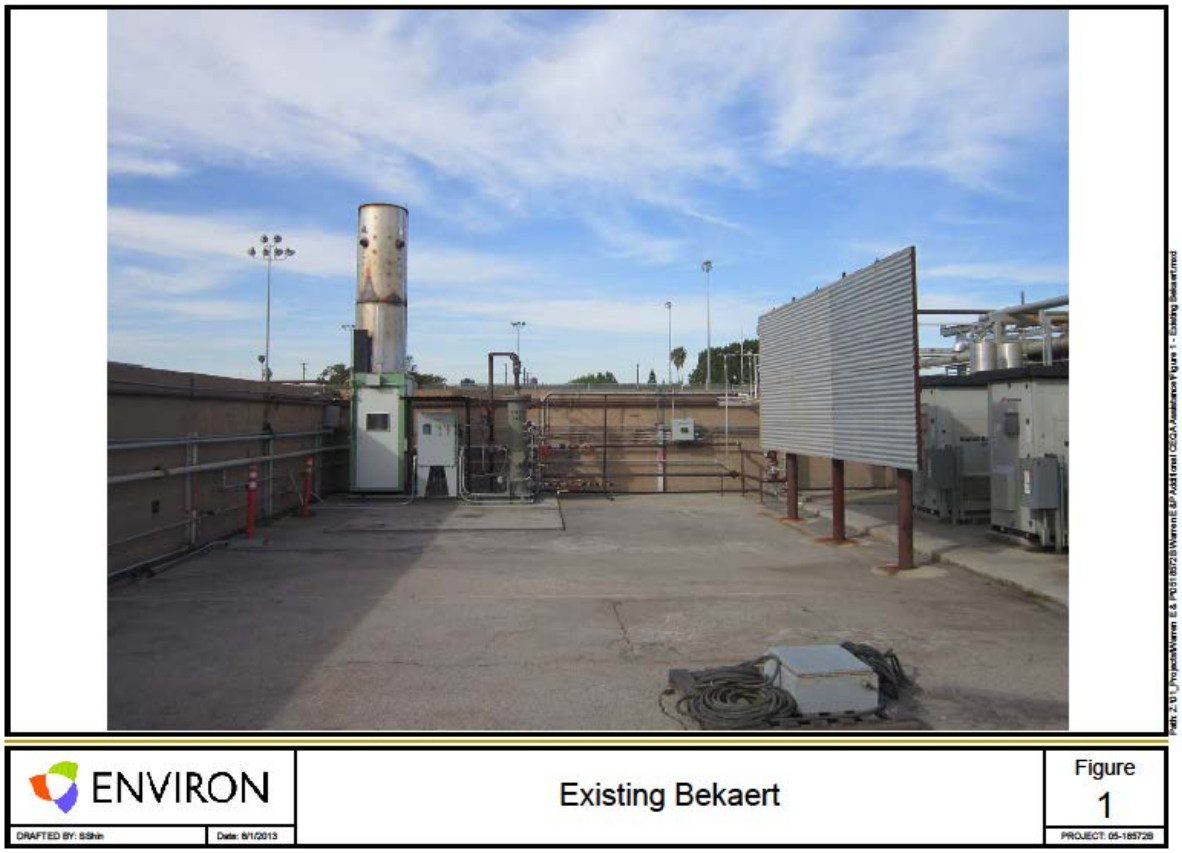
1.3.4 MODIFICATIONS TO ORDER FOR ABATEMENT

On September 28, 2011, the SCAQMD Hearing Board (Hearing Board) modified the previously issued order for abatement after a public hearing and pursuant to a stipulation by the SCAQMD and Warren. The modified order required Warren to complete the installation of the gas re-injection system by no later than August 15, 2012. Additionally, it required Warren to notify the SCAQMD and the Hearing Board if it obtained any information that would lead Warren to believe that it could not commence gas re-injection by August 15, 2012; to meet and confer with SCAQMD staff; and to petition the Hearing Board for modification of the order for abatement within specified time periods. It also required Warren to either provide information regarding when gas re-injection could commence or, if Warren believed gas re-injection could not be done, present a plan to the Hearing Board for the most expeditious way to handle excess oil field gas other than combusting it on site.

After Warren received the DOGGR letter on April 30, 2012, stating that there would be a delay in the gas reinjection wells permitting process (see Section 1.3.3), Warren provided that information to the SCAQMD, met and conferred with SCAQMD staff, and petitioned the Hearing Board for a further modification of the order for abatement within the time periods specified by the Hearing Board in its September 28, 2011, order. On September 20, 2012, the Hearing Board further modified the order for abatement (pursuant to a stipulation by Warren and the SCAQMD) to require Warren to implement a gas sales project within 407 days after the SCAQMD issues all permits for that gas handling project. Warren has contracted with SoCalGas for the design of the gas metering station and plans to use the compressor previously purchased, and gas conditioning system proposed, for proper incorporation of the gas into the SoCalGas pipeline. Additionally, Warren has provided the SCAQMD with a commitment to construct and operate the gas sales project as soon as practicable after permits are issued.

1.3.5 CURRENT STATUS OF PROJECT FROM 2011 SMND

Warren has constructed the Bekaert CEB® and removed the Flare King flare (see Figure 1 for a picture of the Bekaert CEB® at the site). Warren has installed HT#2, refurbished HT#1, removed the old water heater, constructed the new compressor, and constructed the backup vapor recovery system. Warren has conducted source tests on the Bekaert CEB®, Microturbine No. 3 (approved by the SCAQMD as representative of the six identical microturbines) and HT#1. Testing of HT#2 was completed in the 2nd quarter of 2013 and the report was submitted to the SCAQMD on May 17, 2013.



1.3.6 MICROTURBINES OPERATION – PERFORMANCE ISSUES

The six existing Ingersoll-Rand MT-70 microturbines have been operating continuously since October 2007, have been decreasing in efficiency and run-time, and have reached the end of their useful life. They are regularly experiencing outages, during which the excess gas is sent to the Bekaert CEB® as stated in the 2011 SMND and provided in the existing permits. Parts and service are difficult to obtain and will eventually be unavailable for purchase. Thus, they cannot be relied upon for long-term combustion of tail gas necessary for gas sales. These microturbines are no longer manufactured and, thus, new units are not available to burn the tail gas from the gas conditioning system. As a result, the equipment used to combust excess process and tail gas

will need to be changed to account for the fact that the existing microturbines will not be available to combust the tail gas from the conditioning system in the future.

1.3.7 CURRENT OPERATIONS

The WTU Central facility's primary function is to produce and process crude oil, gas, and water from subsurface wells. Equipment at the WTU Central facility is used to separate the crude oil, gas, and water into separate streams. The crude oil is sold and transported through a pipeline to a petroleum refinery. The water is re-injected into the underground oil production zones to enhance oil production and to prevent ground subsidence as required by DOGGR. A portion of the produced gas is used onsite as fuel for existing heater treaters and microturbines. The remainder of the gas, including gas from the primary (and backup) vapor recovery system is combusted in a Bekaert CEB®. The average oil production rate in August 2013 was 3,450 barrels per day.

1.4 PROJECT DESCRIPTION

1.4.1 SUMMARY OF THE NEW PROJECT VS. THE 2011 PROJECT

For the reasons described above in Section 1.3.6, the gas sales system analyzed in the 2011 SMND cannot be implemented exactly as described. Specifically, changes are being proposed to the excess gas and tail gas handling components of the 2011 Project. Warren is proposing to remove the six existing microturbines and not install the three proposed microturbines (2011 Project). Warren is proposing to add one additional Bekaert CEB® to replace the six existing microturbines to burn tail gas from the conditioning system or oil field gas when the gas sales system is down for any reason. The Bekaert CEB® units are needed to match the operational redundancy in the 2011 Project.[2] No changes are proposed for HT #2.[3] No changes are being proposed to the gas sales component that would change the previous analysis. In order to ensure the continuing sales of the product gas, and not have to resort to burning as a means of product gas disposal, a permit condition will be added to the burner permits requiring the continuing sales of the product gas unless certain circumstances arise. Such circumstances could include routine and/or emergency maintenance of system components required for gas sales, failure of the product gas to meet quality specifications, system testing, and other similar types of circumstances that are specifically identified in the permit condition.

The changes to the 2011 Project are summarized in Table 1. Also, during the construction period of the gas conditioning equipment, excess oil field gas would be combusted in one or both of the Bekaert CEB® units.

[2] The Bekaert CEB® units have sufficient capacity to combust all of the oil field gas in case of an event preventing sales gas from being delivered into the pipeline. Thus, the gas can still be handled in a safe manner.
[3] Note that the heat input rating for HT #2 has decreased since the analysis in the 2011 SMND. The permitted heat input rating was originally 12 MMBtu/hr and has been re-permitted at 8 MMBtu/hr.

Table 1. Summary of changes between the affected equipment analyzed in the 2011 SMND and the current Project equipment.

Equipment Category	2011 SMND	Current Project
HT #2	Heat Input Capacity = 12 MMBtu/hr.	Heat Input Capacity = 8 MMBtu/hr ·Due to operational problems with the original design, Warren voluntarily requested and received permit approval to reduce the heat input capacity to 8 MMBtu/hr. This change has occurred and the equipment is currently operating consistent with the new permit. This change is evaluated in the Chapter 2 impact analysis.
Gas Sales Conditioning	Gas Conditioning System	No change
Excess Gas Handling (including oil field gas and tail gas)	· Six Ingersoll-Rand 70 KW microturbines · Three additional Ingersoll-Rand 70 kW microturbines · One Bekaert CEB®	· Removal of six Ingersoll-Rand 70 KW microturbines · No additional Ingersoll-Rand 70 kW microturbines · Two Bekaert CEBs® instead of one (note that operation of one Bekaert has been previously analyzed and permitted).

1.4.2 NEW OPERATIONS

The facility will continue to perform the same basic functions described in Section 1.3.7 (i.e., to process the crude oil and water produced from subsurface wells) as before project implementation. The following activities will continue to occur: (a) equipment at the WTU Central Facility will separate the crude oil and water into separate product streams; (b) the crude oil will be sold and transported via pipeline to a petroleum refinery; (c) the water will be re-injected into the underground oil production zone to enhance oil production and to prevent ground subsidence as required by DOGGR; and (d) a portion of the gas will be used onsite as fuel in the two heater treaters to help accomplish efficient separation of the oil and water.

Three basic changes in operations will occur after construction of the gas sales equipment is completed and gas sales begin:

1. The excess produced gas will be conditioned and transferred to the adjacent SoCalGas pipeline for sale to third party(s) for beneficial use;
2. The tailgas from the gas conditioning system will be routed to and combusted in the two Bekaert CEB® units (i.e., existing unit and new unit); and
3. The six existing microturbines will be shut down.

If any event occurs in the system preventing sales gas from being delivered into the SoCalGas pipeline or obstructing gas quality, it will be necessary to route some or all of the oil field gas to the Bekaert CEB® units until the problem can be resolved. This type of occurrence would represent the “peak emissions day” and will be assessed in this Supplement.

1.4.3 GAS CONDITIONING SYSTEM

The gas conditioning process involves the use of separation technology to remove naturally occurring moisture, inert gases, and hydrocarbons as required by the SoCalGas. It also removes trace sulfur from the produced gas so that it will meet the stringent specifications required for it to be sold and delivered through the gas utility pipeline system. The removed constituents exit the gas conditioning system as a gas stream called "tail gas," which will be delivered by a closed piping system to one or both of the two Bekaert CEB® units for onsite combustion. The amount of tail gas represents about 7% of the amount of gas fed to the conditioning system.

A gas conditioning system was included and analyzed in the 2011 SMND. The function of this system has not changed, and the emissions from both construction and operation of the gas conditioning system have not changed. These emissions were analyzed and reported in the 2011 SMND, but are referenced in this analysis for completeness.

The gas conditioning system is being custom-designed and will be assembled off-site on skid-mounted frames. On-site construction at the WTU Central facility would begin upon approval of the SCAQMD's Permit to Construct (P/Cs). The system will discharge the sales gas to the SoCalGas distribution pipeline. The compressor used in this system is the same as listed in the current Vapor Recovery System Permit (A/N 491496). The area utilized inside the facility for this system is expected to be approximately 800 square feet and the height of the tallest vessel in the system will be about 15 feet. Construction emissions are the same as those analyzed and reported in the 2011 SMND. They are referenced in this analysis (see section 1.6 in Chapter 1 and sections 3.2 and 8.2 in Chapter 2) for completeness. There are no routine emissions expected from operation of the gas conditioning system.

1.4.4 TAIL GAS COMBUSTION SYSTEM (EXISTING BEKAERT CEB® UNIT AND ONE NEW BEKAERT CEB® UNIT)

The Bekaert CEB® units will be configured to accommodate several operating circumstances such as combustion of tail gas when conditioned gas is being sold, or when maintenance is needed on related equipment, or when sudden interruptions occur anywhere in the gas system. Regardless of the circumstance at least one Bekaert CEB® unit would always be in a ready-standby mode so that it can accommodate proper combustion of gas on short notice. The Bekaert CEB® units are designed to accommodate varying waste gas composition and feed rates while maintaining emissions at very low levels. Design rates and composition for tail gas are a function of the produced gas composition and other operating parameters.

The following scenarios are provided to elaborate on the various operating circumstances which are anticipated:

- ***Normal operation: All excess produced gas is being conditioned and sold.***
  In this scenario (a very high percentage of time), all of the excess produced gas is conditioned and routed to gas sales. At least one of the Bekaert CEB® units would be burning tail gas. As described above, the volume of tail gas is much less than the volume of produced gas and one unit has sufficient capacity for this scenario. However, to

maintain the efficiency and maximize the lifetime of the Bekaert CEB® units, both are expected to be used simultaneously.

- ***Planned maintenance, repairs, or source testing***
  In this scenario (a very low percentage of time), both Bekaert CEB® units might simultaneously be burning tail-gas or produced gas depending on circumstances at the time (e.g., volume of total gas, operational flexibility), but would be limited for overall tail gas burning for the same emissions profile.

- ***Sudden interruptions due to mechanical, electrical, or process failures in gas conditioning, pipeline, or other facility equipment.***
  This circumstance was represented in the 2011 Subsequent Mitigated Negative Declaration (SMND) by the "peak day" scenario. In this unlikely and infrequent case, no tail gas would be burned in the Bekaerts because the conditioning system would have suddenly been shut down. Automatically, the produced gas would be diverted to both Bekaert CEB® units up to their full rated capacity. The emissions in this scenario are less than the CEQA significance threshold and consistent with the "peak day" evaluated in the SMND (see Table III-5 in the 2011 SMND), and are provided in Appendix A of this supplement.

1.4.5 PERMIT CONDITION MODIFICATIONS

On August 8, 2012, Warren submitted applications for permits to construct for the modified gas sales project. These applications requested a second Bekaert CEB®, a new gas conditioning system to produce saleable gas, and a change in service for a previously installed compressor. The construction and operation of the compressor and gas conditioning equipment were analyzed in the previous SMND. Permit conditions consistent with the mitigations measures (see Section 1.4.6) will be included in the final permits.

1.4.6 MITIGATION MEASURES CHANGES

As discussed in Section 1.3.2, the 2011 SMND imposed three mitigation measures on Warren. The changes to the project analyzed in the 2011 SMND will necessitate modifications to these measures as well. Most importantly, MMAir-3: On-site gas combustion limits, which ensure no significant greenhouse gas (GHG) impacts, remain the same as in the 2011 SMND. The changes are shown in Table 2.

Table 2. Summary of mitigation measures from the 2011 SMND and proposed changes due to the current Project.

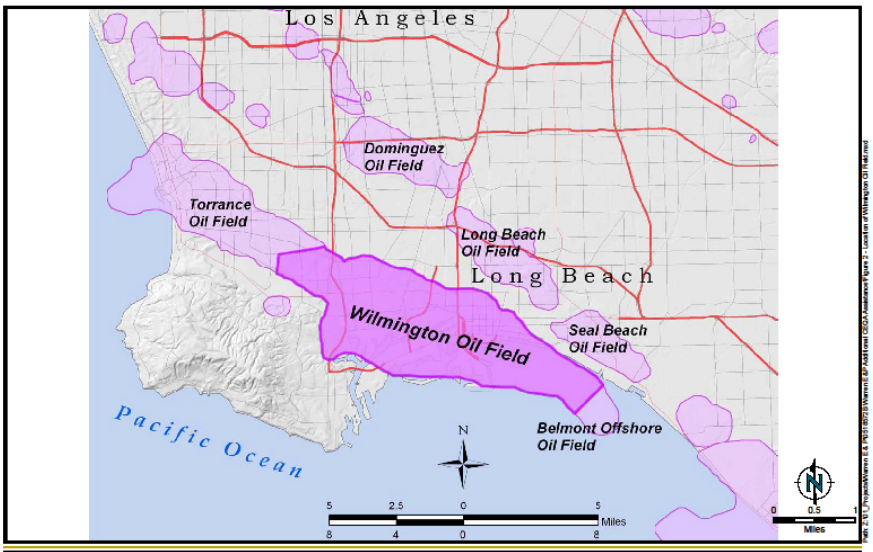
Mitigation Measures	2011 SMND	Current Project
MMAir 1	During construction of the gas re-injection system, the gas flow to the Bekaert CEB® will be limited to no more than 50 percent of its rated capacity, except in the following circumstances (when its full capacity may be necessary): • Emissions testing at greater gas rates, as required by SCAQMD; • Power outages that require shutdown of the microturbines and/or electric compressor; • Maintenance, breakdown or testing of the microturbines and/or heater treater(s) that require gas flows to be routed to the Bekaert CEB® until the maintenance, repair or testing work is completed.	During construction of the gas <u>sales</u> ~~re-injection~~ system, the gas flow to the Bekaert CEB® will be limited to no more than 50 percent of its rated capacity, except in the following circumstances (when its full capacity may be necessary): • Emissions testing at greater gas rates, as required by SCAQMD; • Power outages that require shutdown of the microturbines and/or electric compressor; • Maintenance, breakdown or testing of the microturbines and/or heater treater(s) that require gas flows to be routed to the Bekaert CEB® until the maintenance, repair or testing work is completed

Mitigation Measures	2011 SMND	Current Project
MMAir 2	Operation of Bekaert CEB® above its minimum ready stand-by rate should only occur under the following two conditions: • Maintenance, breakdown or testing of the gas injection compressor and related systems (either during re-injection or gas sales) or gas treatment system (during gas sales) requiring gas flows to be routed to the Bekaert CEB® until the maintenance, repair or testing work is completed; or • Maintenance, repair, permitting, cleanout or testing of the gas injection well and/or system that requires gas flows to be routed to the Bekaert CEB® until the maintenance, repair, permitting, cleanout or testing work is completed.	All tail gas from the gas conditioning system will be combusted in one or both Bekaert CEB® units. Operation of either Bekaert CEB® units on excess oil field gas above its minimum ready standby rate should only occur under the following condition: ~~Operation of Bekaert CEB® above its minimum ready stand-by rate should only occur under the following two conditions:~~ • Maintenance, construction, breakdown, repair, permitting, cleanout, or testing of the gas sales ~~injection~~ compressor and related systems ~~(either during re-injection or gas sales)~~ or gas conditioning ~~treatment~~ system (during gas sales) requiring gas flows to be routed to the Bekaert CEB® until the maintenance, construction, repair, or testing work is completed~~; or~~ ~~• Maintenance, construction, repair, permitting, cleanout or testing of the gas sales injection well and/or system that requires gas flows to be routed to the Bekaert CEB® until the maintenance, construction, repair, permitting, cleanout, or testing work is completed~~.
MMAir 3	The operator shall limit the total fuel usage in the equipment of the proposed project (e.g., heater treater #1 and #2, microturbines, and Bekaert CEB®), including oil field gas as well as natural gas, to less than or equal to 199,000,000 standard cubic feet per calendar year. To assure compliance with this mitigation the District will impose all necessary permit conditions on the project's combustion equipment by defining the proper types of fuel meters, meter accuracy and calibration requirements, monthly and annual recordkeeping requirements, and standards for records retention.	The operator shall limit the total fuel usage in the equipment of the modified 2011 ~~proposed~~ project (e.g., heater treater #1 and #2, ~~microturbines,~~ and Bekaert CEB® units), including oil field gas as well as natural gas, to less than or equal to 197,000,000 ~~199,000,000~~ standard cubic feet per calendar year. To assure compliance with this mitigation the District will impose all necessary permit conditions on the project's combustion equipment by defining the proper types of fuel meters, meter accuracy and calibration requirements, monthly and annual recordkeeping requirements, and standards for records retention.

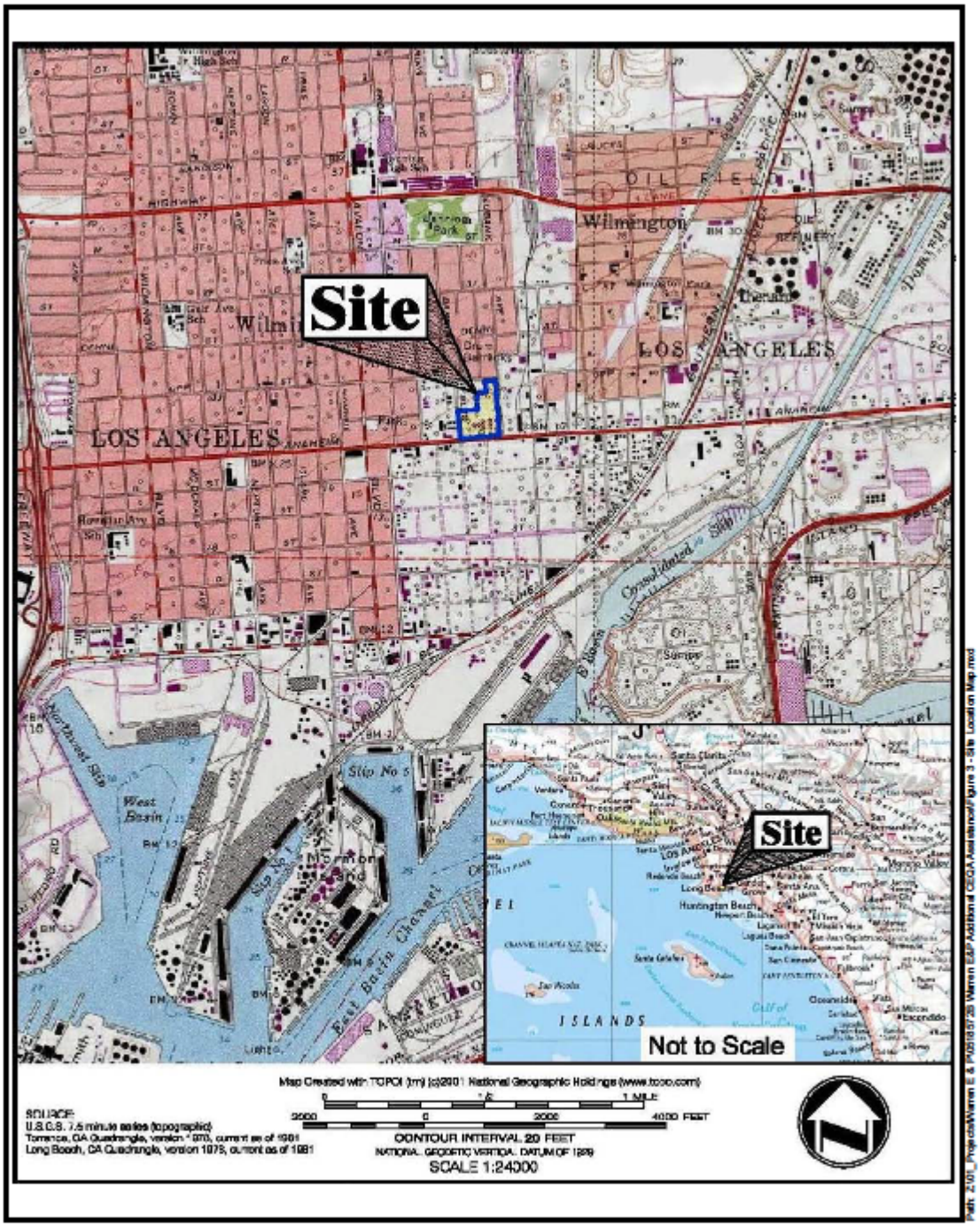
1.5 PROJECT LOCATION

The proposed project will be located at the same location as the 2011 SMND, within Warren's WTU Central Facility located at 625 East Anaheim Street in the Wilmington district of Los Angeles, California. As shown in Figure 2, the WTU Central Facility is located on the eastern side of the Wilmington area of the South Coast Air Basin (Basin), which is a sub-area of the SCAQMD's area of jurisdiction. Specifically, it is located at the northeast corner of Anaheim Street and Banning Boulevard in the Wilmington district of the City of Los Angeles (Figure 3). The WTU Central Facility provides oil, water, and natural gas separation; storage; and water injection operations for this area of the Wilmington Oil Field. A zoning map of the area is shown in Figure 4.

The Wilmington district encompasses and covers an area of mixed land uses, with industrial, recreation, residential, and commercial zoned areas nearby. The northern portion of the WTU Central Facility borders John Mendez Baseball Park, which has been in existence since the 1970s and was recently purchased by Warren, and Opp Street, with a multi-family residence, a vacant parcel, and the remnants of the Civil War era powder magazine for Camp Drum nearby (Figure 5). The eastern portion of the WTU Central Facility borders Eubank Avenue, with industrial trucking and salvage yards nearby. The southern portion borders Anaheim Street, with the Wilmington Industrial Park and industrial and commercial uses (e.g., restaurant) nearby. The western portion borders Banning Boulevard, including the above-mentioned baseball diamond; a corner strip commercial development, a row of small one-story apartments, and two vacant parcels are nearby. The WTU Central Facility covers 11 parcels of land with an area of 437,723 square feet (10.05 acres). Zoning designations include M2-1 VL-O (Light Industrial Zone) and RD3-1XL-O (Restricted Multiple Dwelling Zone), with some parcels sharing the two designations. The "O" at the end of each zoning designation indicates that the parcels are located in an Oil Drilling District and that oil drilling activities are permitted in these zoning designations.

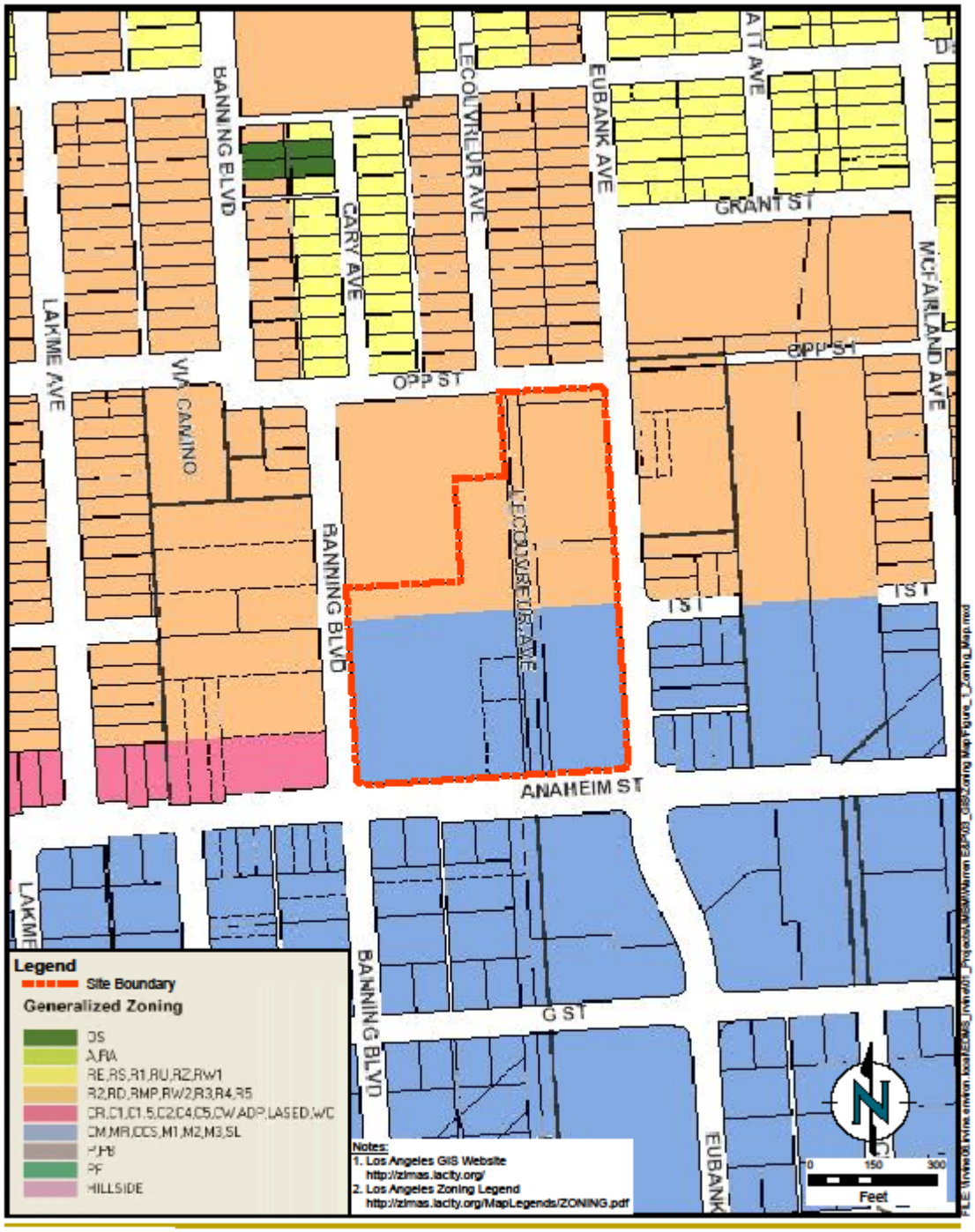


ENVIRON | Location of Wilmington Oil Field | Figure 2



ENVIRON	Site Location Map	Figure 3
DRAFTED BY: SShin	Date: 8/1/2013	PROJECT: 05-18572B

Path: Z:\01_Projects\Warren E & P\20185728 Warren E&P Additional CEQA Assistance\Figure 3 - Site Location Map.mxd


BANNING BLVD
LECOUVREUR AVE
EUBANK AVE
ATT AVE
GRANT ST
CARY AVE
LAKME AVE
VIA CAMINO
OPP ST
MCFARLAND AVE
1ST
ANAHEIM ST
G ST
Legend
Site Boundary
Generalized Zoning
OS
A,RA
RE,RS,R1,RU,RZ,RW1
R2,RD,RMP,RW2,R3,R4,R5
CR,C1,C1.5,C2,C4,C5,CW,ADP,LASED,WC
CM,MR,CCS,M1,M2,M3,SL
PF
HILLSIDE
Notes:
1. Los Angeles GIS Website
http://zimas.lacity.org/
2. Los Angeles Zoning Legend
http://zimas.lacity.org/MapLegends/ZONING.pdf
0
150
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Feet
N
ENVIRON
Site Zoning Map
Figure
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DATE: 12/6/2010
PROJECT: 05-18572B

ENVIRON	Site Plan	Figure 5
DRAFTED BY: BShin	Date: 5/6/2013	PROJECT: 05-18572B

1.6 CONSTRUCTION SCHEDULE

The proposed Project consists primarily of the removal of some existing equipment (i.e., the six existing microturbines) and the installation of pre-fabricated equipment. Construction in the WTU Central Facility will be limited to minor demolition and hauling to remove the six existing microturbines; and piping, wiring, and installing of a pre-fabricated Bekaert CEB® on new concrete areas (Figure 6). Table 3 shows the expected construction schedule associated with the two activities of the proposed project. For completeness, the construction of the gas sales equipment is also included although this was analyzed in the 2011 SMND.

The schedule shown in Table 3 is an estimate of the construction schedule. It assumes that the permits will be issued and construction will begin in the 1st quarter of 2014. The construction phases will not change regardless of the date that the Supplement is certified. The actual dates of each construction phase may change, but the construction analysis and emissions will remain the same (i.e., the construction analysis is conservative and all reported emissions will be the same or greater than actual emissions if construction is delayed).

Table 3. Construction schedule.

Construction Activity	**Approximate Completion Date[1]**
Construction I: Construction and installation of the second Bekaert CEB®	2nd quarter – 2014
Construction II: Construction and installation of the gas conditioning system[2]	3rd quarter – 2014
Construction III: Construction and installation of the SoCalGas metering substation[3]	1st quarter – 2015
Construction IV: Removal of the six existing microturbines	2nd quarter - 2015

1. This is an estimate of the construction schedule. If this Supplement is certified, regardless of the adoption date, the construction phases would not change and the calculation results would not change.
2. This construction phase was included and analyzed in the 2011 SMND and is included here for information only.
3. SoCalGas is responsible for this activity and is provided for informational purposes for information only.

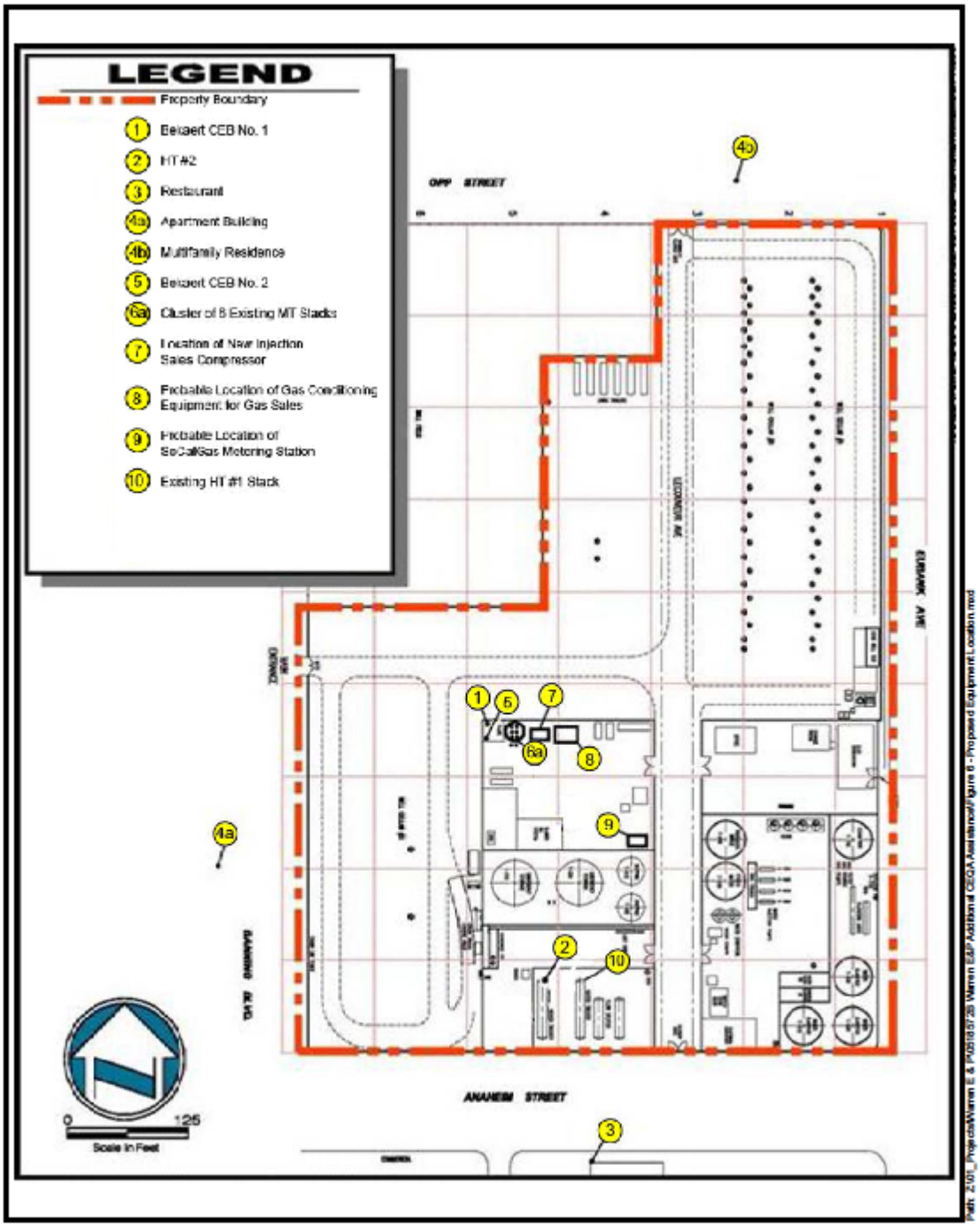
1.7 OPERATING SCENARIOS

The proposed Project will be implemented in phases to ensure that all new equipment is operating correctly before existing equipment is shut down. Table 4 shows the transition from current operations to full proposed Project implementation.

Table 4. Operating scenarios.

Scenario #	Scenario Description	Approximate Date[1]
1	Start up additional Bekaert CEB® on produced gas. Microturbines continue to run according to their operational ability.	June 2014
2	Start up gas conditioning system and route both produced gas and tail gas to either or both Bekaert CEB® units	December 2014
3	Divert treated/conditioned gas to the SoCalGas pipeline	September 2015
4	Remove the microturbines	March 2015

1. This is an estimate of the operational schedule. If this Supplement is certified, regardless of the adoption date, the operational scenarios would not change and the calculation results would not change.


LEGEND
Property Boundary
1 Belaert CEB No. 1
2 HT #2
3 Restaurant
4a Apartment Building
4b Multifamily Residence
5 Belaert CEB No. 2
6a Cluster of 8 Existing MT Stacks
7 Location of New Injection Sales Compressor
8 Probable Location of Gas Conditioning Equipment for Gas Sales
9 Probable Location of SoCalGas Metering Station
10 Existing HT #1 Stack
ANAHEIM STREET
0
125
Scale in Feet
ENVIRON
Proposed Equipment Location
Figure
6
DRAFTED BY: SShin
Date: 8/1/2013
PROJECT: 05-18572B

CHAPTER 2

ENVIRONMENTAL CHECKLIST FORM

CHAPTER 2

ENVIRONMENTAL CHECKLIST

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Warren E&P Inc. Wilmington Townlot Unit (WTU) Central Facility, New Equipment Project
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
Contact Person:	Jeffrey Inabinet
Contact Phone Number:	(909) 396-2453
Project Sponsor's Name:	Warren E&P, Inc.
Project Sponsor's Address:	625 East Anaheim Street Wilmington, CA 90744
General Plan Designation:	Light Industrial
Zoning:	M2-1VL-O (Light Industrial Zone); RD3-1XL-O (Restricted Multiple Dwelling Zone).
Description of Project:	The proposed project is a modification to a previously approved project that was evaluated in a 2011 subsequent mitigated negative declaration (SMND) prepared and certified by the South Coast Air Quality Management District. The 2011 Project allowed Warren to remove a permitted Flare King flare and replace it with a Bekaert Clean Enclosed Burner® (CEB®), remove a water heater, refurbish existing Heater Treater No. 1, add additional Heater Treater No. 2, add nine Ingersoll Rand microturbines, and install gas re-injection equipment, and, if warranted, gas sales equipment. The currently proposed project is associated primarily with modifications and improvements to the gas handling system for a previously analyzed gas sales system. It also consists of removing the six existing and three proposed microturbines, and substituting an additional Bekaert CEB® for improved operational effectiveness.
Surrounding Land Uses and Setting:	Zoning designations at the site include M2-1 VL-O (Light Industrial Zone) and RD3-1XL-0 (Restricted Multiple Dwelling Zone), with some parcels sharing the two designations. The WTU Central Facility is bordered on the north by Opp Street, the John

	Mendez Baseball Park, and a multi-family residence. Eubank Avenue borders the WTU Central Facility on the east. To the south, there is Anaheim Street, the Wilmington Industrial Park, and industrial and commercial uses. The western side is bordered by Banning Boulevard, with a commercial development, a row of small, one-story apartments, and two vacant parcels nearby.
Other Public Agencies Whose Approval is Required:	City of Los Angeles California Division of Oil, Gas, and Geothermal Resources

POTENTIALLY SIGNIFICANT IMPACT AREAS

The following environmental impact areas have been assessed to determine their potential to be affected by the project. As indicated by the checklist on the following pages, environmental topics marked with an "✓" may be adversely affected by the project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Population and Housing
☐ Agriculture and Forestry Resources	☐ Hazards and Hazardous Materials	☐ Public Services
☐ Air Quality	☐ Hydrology and Water Quality	☐ Recreation
☐ Biological Resources	☐ Land Use and Planning	☐ Transportation/ Traffic
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Geology and Soils	☐ Noise	☐ Mandatory Findings of Significance
☐ Energy		

DETERMINATION

On the basis of this initial evaluation:

☑ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Date:_____ Signature: _____

Michael Krause

Program Supervisor

ENVIRONMENTAL CHECKLIST AND DISCUSSION

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

1.1 Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

1.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations

(Zoning Determinations) for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the aesthetics check list items.

Other Applicable Regulations for Previously Approved 2011 Project and Currently Proposed Project

Condition 1 of the 2008 Zoning Determination issued by the City of LA, requires Warren to comply with use, height, and area restrictions of the Municipal Code and other applicable governmental and regulatory agency rules and regulations. Conditions 3 and 4 place additional requirements on Warren to maintain the character of the surrounding area and remove graffiti, respectively. Condition 17 (Visual Mitigation) requires certain measures to mitigate any impact on visual resources, including the installation of an eight-foot high solid masonry block wall set back five feet from the property lines, a landscape plan, and the location of all new oil well pumping equipment below ground. Condition 20 specifies that all lighting must be shielded and directed on to the site. These conditions and the mitigation measures identified above were also applied to the 2011 Project, and will also apply to the currently proposed project.

1.a), b), and **c).** The existing visual character of the surrounding locale is highly industrial and commercial, with some residential and recreational land uses located nearby. The proposed project is not located within or along a designated scenic corridor. The facility does not contain any scenic resources such as trees, rock outcroppings, etc. The proposed additional Bekaert CEB® is 20 feet tall (i.e., the same height as the Bekaert CEB® currently installed at the facility) and it will be installed adjacent to the existing Bekaert CEB®. The Bekaert CEB® does not produce a luminous flame that is visible above its stack. The active portion of the Bekaert CEB® system, which is approximately six to eight feet tall, will be shielded by an existing eight foot high interior wall. There are six 24-foot tall tanks nearby, two 40-foot tall oxygen stripper towers near the center of the facility, and drilling rigs and workover rigs on-site that are over 100 feet and 70 feet tall, respectively. The overall impact of the additional Bekaert CEB® is equivalent to that of the existing Bekaert CEB®. The existing Bekaert CEB® is not visible from street level beyond the existing external wall, and is further shielded from view by the interior wall. Therefore, the additional Bekaert CEB® is not expected to change the visual landscape at the WTU Central Facility. The six existing microturbines are approximately 10 feet in height. The removal of these existing microturbines, and not installing the three additional microturbines, will have no effect on the existing aesthetics of the site. Therefore, no aesthetic impacts to scenic vistas, scenic resources, or visual character are expected from the currently proposed project.

1.d). The additional Bekaert CEB® system will not require a new light source to operate safely during nighttime operations. Construction-related activities will occur during daylight hours. Thus, no increase in lighting associated with the project at the WTU Central Facility is expected and, therefore, no impacts to light and glare are anticipated from the proposed project.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

2.1 Significance Criteria

Project-related impacts on agricultural resources will be considered significant if any of the following conditions are met:

> The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.

The proposed project will convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.

The proposed project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g)).

The proposed project would involve changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural uses.

2.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the agriculture and forestry resources check list items.

2.a), b), and **c).** There are no agricultural resources (i.e., food crops grown for commercial purposes) located in or near the vicinity of the WTU Central Facility. The proposed project will not involve construction of any structures outside of the existing boundaries of the WTU Central Facility and no agricultural resources are located within the WTU Central Facility. The zoning of the WTU Central Facility will remain Light Industrial (M2-1 VL-O) and Restricted Multiple Dwelling Zone (RD3-1XL-O). The "O" at the end of each zoning designation indicates that the parcels are located in an Oil Drilling District and that such activities are permitted in the zone. Therefore, the proposed project will have no significant adverse impacts on agricultural resources; convert prime farmland, unique farmland, or farmland of statewide importance to non-farming use: or conflict with zoning for agriculture.

2.d). There are no forestry resources (i.e., park forests, timber crops grown for commercial purposes, etc.) located in or near the vicinity of the WTU Central Facility. The proposed project will not involve construction of any structures outside of the existing boundaries of the WTU Central Facility and no forestry resources are located within the WTU Central Facility. Current zoning is expected to remain in effect as discussed in item 2.a), b), and c), above. Therefore, the proposed project will have no significant adverse impacts on forestry resources; result in the loss of forest land or conversion of forest land to non-forest use; or conflict with zoning for forestry.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
III. AIR QUALITY				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

3.1 Significance Criteria

To determine whether or not air quality impacts from the proposed project may be significant, impacts will be evaluated and compared to the criteria in Table III-1. If impacts equal or exceed any of the criteria in Table III-1, they will be considered significant. As necessary, all feasible mitigation measures will be identified and implemented to reduce any significant adverse air quality impacts from the proposed project to the maximum extent feasible.

Table III-1. SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas $\geq$ 1 in 1 million) Chronic & Acute Hazard Index $\geq$ 1.0 (project increment)	
Odor	Project creates a minimal odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO^2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants		
NO_2 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	10.4 $\mu g/m^3$ (construction) & 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$	
$PM_{2.5}$ 24-hour average	10.4 $\mu g/m^3$ (construction) & 2.5 $\mu g/m^3$ (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99_{th} percentile) 0.04 ppm (state)	
Sulfate (24-hour average)	25 $\mu g/m^3$ (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following ambient standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day average rolling 3-month average quarterly average	1.5 $\mu g/m^3$ (state) 0.15 $\mu g/m^3$ (federal) 1.5 $\mu g/m^3$ (federal)	

PM_{10} = particulate matter less than 10 microns in size, $\mu g/m^3$ = microgram per cubic meter; ppm = parts per million; TAC = toxic air contaminant; AHM = Acutely Hazardous Material; NO_2 = Nitrogen Oxide, CO = Carbon Monoxide, VOC = Volatile Organic Compounds, SO_x = Sulfur Oxide; SO_2 = Sulfur Dioxide.

Emissions of toxic air contaminants (TACs) were analyzed for potential significance. Air quality impacts for the proposed project were analyzed assuming peak day conditions (i.e., maximum operating conditions). Combustion equipment on an average day will be operated at less than 100 percent capacity because oil production levels and/or permit conditions limit daily oil production to the levels previously approved in the 2011 Project (e.g., consistent with the permit condition limiting production to a monthly average of 5,000 barrels per day).

3.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the air quality check list items.

3.a). The WTU Central Facility is located within the South Coast Air Basin (Basin), which is under the jurisdiction of the SCAQMD. The SCAQMD is the air pollution control agency primarily responsible for preparing the Air Quality Management Plan (AQMP), which is a comprehensive air pollution control program for making progress towards and attaining the state and federal ambient air quality standards. The most recent AQMP was adopted by the Governing Board of the SCAQMD on December 7, 2012 (2012 AQMP). An inventory of existing emissions from industrial facilities is included in the baseline inventory in the 2012 AQMP, as well as projections of the future emissions which are based on source category growth factors provided by the Southern California Association of Government (SCAG). The 2012 AQMP also identifies emission reductions from existing sources and air pollution control measures that are necessary in order to comply with applicable state and federal ambient air quality standards. A significant impact would occur if the proposed project were not consistent with the AQMP.

The 2012 AQMP demonstrates that applicable ambient air quality standards can be achieved within the timeframes required under federal law. This proposed project must comply with applicable SCAQMD rules and regulations for new or modified sources. For example, new emission sources associated with the proposed project are required to comply with the SCAQMD's Regulation XIII - New Source Review, including BACT, offsets, and modeling requirements, as applicable. The proposed project must also comply with prohibitory rules, as applicable, such as Rule 403, for the control of fugitive dust. By meeting these requirements, the proposed project will be consistent with the goals and objectives of the 2012 AQMP to improve air quality in the Basin. The use of low NO_x burners, such as the state-of-the-art Bekaert CEB®, to burn excess gas, must meet SCAQMD requirements, including BACT. Warren is required to comply with state and federal sulfur limits on diesel fuel, including the use of ultra-low sulfur diesel fuel as a control measure under the 2012 AQMP. As described in the following air quality discussions and analyses, the proposed project is not expected to generate significant adverse air quality impacts. For these reasons, the proposed project is concluded to be consistent with applicable AQMPs and is not expected to diminish an existing air quality rule or a future compliance requirement.

The Growth Management Chapter (GMC) of the Regional Comprehensive Plan and Guide (RCPG) forms the basis of the land use and transportation control measure portions of the AQMP. Projects that are consistent with the projections of the employment and population forecasts identified in the GMC are considered consistent with the 2012 AQMP growth projections. Approximately 15 full-time employees currently work in two shifts at the facility for the applicant, and approximately one dozen vendors travel to or from the facility on a daily basis. Approximately 18 workers would be necessary during construction, but these are only temporary workers who will be supplied by the existing local labor pool. The number of vendors that travel to and work at the facility is not expected to change upon completion of the proposed project. Therefore, the proposed project will also be consistent with the 2012 AQMP population and employment forecasts.

The proposed project would serve existing and intended land uses and would be consistent with the goals and policies of the 2012 AQMP. It would not affect regional employment or job growth. Existing uses on and surrounding the project site would not be changed by the proposed project. The proposed project will not conflict with the AQMP or the other applicable plans described above. As a result, it is concluded that the proposed project is consistent with the AQMP and, therefore, is expected to result in less than significant impacts related to the applicable air quality plan.

3.b). The proposed project area is located in and is part of the Basin, which currently exceeds and is in violation of the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS), specifically with respect to ozone (O_3) and fine particulates ($PM_{2.5}$).

To assess the impacts of project-related construction and operational emissions, the SCAQMD has established regional significance thresholds that are shown above in Table III-1. Construction and operational emissions from the proposed project that are below these thresholds will be considered less than significant.

To assess local air quality impacts, the SCAQMD has also established emission thresholds for one-hour average (NO_2, CO , SO_2), eight-hour average (CO), 24-hour average ($PM_{2.5}$, PM_{10}, and SO_2,), and annual average (NO_2, PM_{10}, SO_2) emissions. Proposed project emissions are compared to concentration standards (i.e., background plus incremental) for pollutants for which the Basin is in attainment (i.e., NO_2, CO) and to incremental standards (i.e., incremental increase) for pollutants for which the Basin is in nonattainment (i.e., PM_{10} and $PM_{2.5}$).

Construction Emissions and Analyses

Construction typically occurs in phases including demolition, site preparation, construction of structures, and final site work. Construction activities required to implement the proposed project include: excavation, concrete work, erection, and installation of the individual pieces of equipment (Bekaert CEB® and gas sales and conditioning system) and the removal of the six existing microturbines, as shown in Table III-2.

Construction emissions are generated from the combustion of fuel (primarily diesel) in off-road vehicles and other equipment required for the construction activities, as well as from fugitive

dust due to soil-disturbing activities. Minimal excavation is anticipated for the new Bekaert because only one 6-inch thick foundation measuring 8 feet by 20 feet is necessary to provide support for it. The construction activities will be conducted during distinct time periods and will disturb substantially less than one acre of land within the 10-acre WTU Central Facility. Actual construction will generally take place in the area of the gas and solids management and oil/water separation yards. During construction of the proposed project, it is anticipated that there will be a maximum of 18 worker commute trips and two hauling truck trips to the facility on the day with the most traffic.

Construction is expected to occur intermittently over a period of approximately 10 months, or 300 days, with actual on-site construction activities occurring on approximately 35 days during this period. When construction is occurring, work is expected to typically occur ten hours per day. The proposed construction schedule in Table III-2 forms the basis for calculating emissions from construction of the proposed project. The dates of the schedule may change, but the timeline of the scheduled activities for each phase, i.e., number of days, would remain consistent. Although several construction phases overlap, multiple construction activities would not occur on the same day and would not result in impacts outside the scope of this analysis. Also, the current analysis is conservative because emission factors typically decrease over time as equipment efficiency and fuel efficiency improves. Thus, if construction of the project is delayed for any reason, none of the environmental impacts conclusions in the analysis would change or worsen. For example, a conclusion of less than significant impacts from the construction phase of the project would remain less than significant even if the actual dates of the construction schedule are delayed. Realistically, it is expected that the construction phases will overlap with the operation of new equipment over time until the construction is complete. A comparison of construction emissions plus operation emissions can be found in the subsections below.

Table III-2
Proposed Construction Schedule

Construction Phase[1]	Approximate Start of Phase[1]	Approximate End of Phase[1]
Construction I: Construction and installation of second Bekaert CEB®.	May 2014	June 2014
Construction II: Construction and installation of gas conditioning.	July 2014	December 2014
Construction III: Removal of microturbines	January 2015	March 2015
Construction IV: Construction of the MSA system	April 2015	September 2015

1. Construction is anticipated to begin in the 2nd quarter of 2014 and end in 3rd quarter of 2015. Specific dates and phasing shown are for analysis purposes only and represent a conservative estimate of time required for construction. The specific schedule is subject to change.

Emissions were calculated using CARB's OFFROAD2007 model and default assumptions used in the California Emissions Model™ (CalEEMod™). Emissions from worker commuting and

hauling trips were calculated using emission factors from EMFAC[1] and default trip lengths from CalEEMod™. The equipment inventories were based on expected project needs. The construction emissions were calculated separately for each phase and activities were assumed not to be occurring concurrently.

Peak daily construction emissions are shown in Table III-3. Construction emissions are less than the SCAQMD's construction air quality significance thresholds. Thus, construction of the proposed project is expected to result in less than significant air quality impacts. Details of the air quality analyses from construction, including phase activity, equipment types, number of construction equipment, horsepower, load factors and emissions factors, etc., are available in Appendix A. The emissions include both onsite and offsite mobile emissions.

Table III-3
Project-related Peak Daily Construction Emissions from Each Phase

Construction Phase	Estimated Emissions (lbs/day)					
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**SO_x**
Installation of Bekaert	3.12	7.62	0.39	0.33	0.82	0.01
Removal of Microturbines	2.00	2.71	0.11	0.10	0.36	0.00
Maximum Daily Construction Emissions	3.12	7.62	0.39	0.33	0.82	0.01
SCAQMD Significance Threshold	550	100	150	55	75	150
Significant?	NO	NO	NO	NO	NO	NO

Operational Emissions and Analyses

The comparison basis for the proposed project consists of operations as of 2012, including those aspects of the 2011 SMND that have been implemented; as a result, the baseline consists of operation of HT#2, the Bekaert CEB® (at ready standby), and the nine microturbines. This is consistent with what was analyzed as part of the final 2011 SMND project.

Operational emissions for the proposed project consist of combustion emissions in the new Bekaert CEB® and fugitive VOC emissions from the connections required for the new equipment (Bekaert CEB®). The operational emissions for the proposed project account for the reduced emissions due to the removal of the microturbines. The proposed project assumed the same number of employees, vendors, and delivery trips as currently exist or assumed for the 2011 SMND; these emissions were calculated in the operational analysis.

Operational combustion emissions were calculated based on manufacturer specifications, applicable air quality rules, and source test results. Emissions from employee commuting and

[1] The SCAQMD provides emission factors for on-road vehicles generated by using the weighted average of vehicle types in EMFAC. These emission factors were used for this analysis and are available here: http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

heavy-duty vehicle trips were calculated using emission factors from EMFAC[2] and default trip lengths from CalEEMod™.

Emissions from operation of the final proposed project are shown in Table III-4. Operational emissions from the final proposed project are less than the emissions from the 2011 Project for all pollutants except for SO_x. Emissions of SO_x show a slight increase. However, the total SO_x emissions are well below the SCAQMD's operational air quality significance thresholds. Thus, operational emissions represent less than significant air quality impacts due to project operation. Details of the air quality analyses from operation are available in Appendix A.

Table III-4
Criteria Pollutant Combustion Emissions During Operation of the Proposed Project

Operating Scenario	Estimated Emissions (lbs/day)					
	CO	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**SO_X**
Final 2011 Project[1]	21.4	22.6	4.3	4.3	30.6	1.41
Final Proposed Project (peak day)[2]	14.4	20.5	3.7	3.7	19.0	1.69
Incremental Change from 2011 Project	-7.0	-2.1	-0.6	-0.6	-11.6	0.28
Comparison to Final 2011 Project	Less	Less	Less	Less	Less	Greater
Significance Threshold	550	55	150	55	55	150
Significant?	No	No	No	No	No	No

1. The Final 2011 Project accounts for operation of HT #1, HT #2, nine microturbines, and the Bekaert CEB®.
2. The final proposed project accounts for operation of HT #1, HT #2, and two Bekaert CEB® units.

3.c). Significant adverse cumulative air quality impacts could occur if the proposed project resulted in a cumulatively considerable net increase of a criteria pollutant for which the Basin exceeds federal and state ambient air quality standards and has been designated as an area of non-attainment by the USEPA and/or CARB. The Basin is a non-attainment area for O_3 and fine particulate matter (PM_{10}[3] and $PM_{2.5}$).

"Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probable future projects. The Basin is currently in nonattainment for O_3, PM_{10}, and $PM_{2.5}$, and related projects could exceed the applicable air quality standard or contribute to an existing or projected air quality exceedance when considered in combination with the effects of the proposed project. Therefore, this analysis assumes that individual projects that generate construction or operational emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment and, therefore, are considered to have significant adverse cumulative air quality impacts.

[2] The SCAQMD provides emission factors for on-road vehicles generated by using the weighted average of vehicle types in EMFAC. These emission factors were used for this analysis and are available here: http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

[3] The US EPA recently proposed to find the Basin in attainment for the federal PM_{10} standard. However, the Basin still exceeds the state PM_{10} standard.

As discussed in item 3b) above, peak daily emissions associated with all phases of construction and operation of the proposed project would not generate operational or construction emission air quality impacts that exceed the SCAQMD's regional significance thresholds. In addition, the proposed project will predominately be located in the southern half of the WTU Central Facility, where other industrial facilities in the immediate vicinity are also located. An investigation of the surrounding area reveals no similar industrial facilities or activities that may generate similar impacts within one-half-mile radius surrounding the site of the proposed project. Because emissions during any phase of the proposed project do not exceed the project-specific significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064(h)(1). As a result, the proposed project is not expected to create significant adverse cumulative air quality impacts during either construction or operation.

3.d). This subsection evaluates whether or not the proposed project has the potential to expose sensitive receptors to substantial pollutant concentrations. The following are typically considered to be sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. As indicated in Chapter 1, the area surrounding the site is highly developed with several uses. The nearest sensitive receptors to the WTU Central Facility are the multi-family residences located across and north of Opp Street, the apartments located across and west of Banning Boulevard, and the baseball fields located immediately adjacent to the WTU Central Facility (Figures 4 and 5).

Criteria Pollutant Health Impacts

The construction and operation of the proposed project have the potential to generate an increase in criteria pollutants (e.g., CO, NO_x, SO_x and PM). Localized significance thresholds (LSTs) for NO_x and CO are based on causing or exceeding health-based air quality ambient concentration standards. The PM_{10} LST for construction is based on requirements of Rule 403, which is indirectly a health-based standard, and for operation the PM_{10} LST is based on Rule 1303, which applies limits less than Rule 403 concentration limits. Therefore, the PM_{10} LST provides greater health-based protection.

The degree of a health effect depends on the level of exposure, duration of exposure, and the existing health of those exposed. For example, individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. Inhaled CO has no direct toxic effect on the lungs, but instead exerts its effect on tissues by interfering with oxygen transport through competition with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin. Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes.

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO_2 at levels found in homes with gas stoves. These levels are higher than ambient levels found in southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed more in individuals with asthma and/or chronic obstructive pulmonary disease (e.g., chronic

bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. More recent studies have found associations between NO_2 exposures and cardiopulmonary mortality, decreased lung function, respiratory symptoms, and emergency room asthma visits.

All asthmatics are sensitive to the effects of SO_2. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics. Further, increased resistance to air flow, as well as reduced breathing capacity leading to severe breathing difficulties, can be observed after high acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

There is a consistent correlation between elevated ambient fine particulate matter levels and an increase in mortality rates, respiratory infections, and the number and severity of asthma attacks. Studies have reported an association between long term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and, specifically, an increased mortality from lung cancer.

The following discussion of the level of health impacts from the proposed project demonstrates how the health impacts from the proposed project are not significant.

Air Dispersion Analysis

Offsite ambient air quality impacts were estimated for the 2011 Project using air dispersion modeling. The assessment was conducted using the Industrial Source Complex Short Term Version 3 (ISCST3) model, which is accepted by the USEPA.[4] The model was run according to atmospheric dispersion modeling methodology based on generally accepted modeling practices and guidelines of both the USEPA and the SCAQMD (see pages 2-19 through 2-21 and Appendices D and E of the 2011 SMND for more details). This dispersion modeling analysis showed that all impacts of the 2011 Project were less than the applicable SCAQMD thresholds and, thus, the 2011 Project was expected to have a less than significant impact. All criteria pollutant emissions for the currently proposed project are less than the emissions from the 2011 Project, except for SO_x, which is slightly higher (see Table III-4); but all emissions are still less than significant. The types and locations of the equipment in the current project are comparable to the types and locations in the 2011 Project (see Figure 5). For example, the new Bekaert CEB® is in the same general location as the microturbines to be removed. The stack of the Bekaert CEB® is at a greater height than the release height of the microturbines, but this results in greater dispersion. Thus the impacts of dispersion will be similar to or less than that determined in the 2011 Project. Reliance on the air dispersion modeling for the 2011 Project indicates that the ambient air quality impacts of the proposed project are expected to be equal to, or less than, the impacts of the 2011 Project. Although the proposed project shows a slight increase in SO_x, the proposed project is not expected to result in a significant impact related to ambient SO_2. The 2011 Project analysis resulted in a maximum incremental project difference of 1.4 $\mu g/m^3$ (1-hour) and 0.5 $\mu g/m^3$ (24-hour) for SO_2 compared to a significance threshold of 197 $\mu g/m^3$ (1-hour) and 105 $\mu g/m^3$ (24-hour). The slight increase in SO_x emissions may result in a

[4] The USEPA currently recommends AERMOD as the preferred model for air dispersion. However, ISCST3 is listed in the section on alternative models, which can be approved on a case-by-case basis. ISCST3 was used in the 2011 SMND and is thus used in this analysis to be consistent with the previous analysis.

slight increase in ambient SO_2 concentrations, but it would not change the significance determination because the results from the 2011 Project were an order of magnitude below the significance thresholds.

The combustion equipment in the proposed project is not expected to produce lead emissions because lead is not present in oil field gas. Ambient air quality lead concentrations plus lead emissions would be zero or negligible and, thus, less than significant.

Discussion of CARB's PM Mortality Quantification Methodologies

There is a consistent correlation between elevated ambient fine particulate matter levels and an increase in mortality rates, respiratory infections, and the number and severity of asthma attacks. Studies have reported an association between long term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and, specifically, an increased mortality from lung cancer.

While CARB (2008) has reported that it plans to develop a method for quantifying premature deaths from specific sources affecting limited geographic areas, it has not yet developed an approved approach which could be applied to small projects such as the proposed Warren Project. As noted in Table III-4, the proposed project's $PM_{2.5}$ emissions are lower than the 2011 project's emissions. As discussed in the air dispersion discussion above, ambient levels are also expected to be lower. Thus, it would be expected that any premature mortality associated with the proposed project would be less than that in 2011.

In conclusion, the analysis of the proposed project demonstrates that: 1) the criteria pollutant emissions from the proposed project are still below the LSTs or do not cause or contribute to an exceedance of any ambient air quality standard, and 2) potential adverse health impacts associated with construction or operational emissions are still expected to be less than significant because the emissions are below a level at which health effects could occur. Therefore, the public will not be adversely affected by adverse health effects as a result of the proposed project because mortality impacts are expected to be lower or no different than those from the previously approved project. Thus, health impacts associated with the construction and operational emissions from the proposed project are determined to still be less than significant.

Toxic Air Contaminants (TAC) Analysis

The proposed project has the potential to generate emissions that are carcinogenic or may have non-cancer health effects, depending on concentration levels and the duration of exposure. TAC emissions are generated primarily from new combustion activities in the Bekaert CEB®; fugitive emissions from all potential leak points such as valves, flanges, and similar connector items; and combustion emissions from mobile sources associated with the proposed project (e.g., heavy-duty haul trucks). Numerous federal, state, and local regulatory agencies have developed lists of TACs. The list of TACs that may be generated by the proposed project are identified in the SCAQMD's Risk Assessment Procedures for Rules 1401 and 212, Appendix L (SCAQMD, 2005). Based on the review of Risk Assessment Procedures for Rules 1401 and 212, Appendix L, a total of 14 TACs were identified and included in the analysis for the 2011 Project. Because the

only change in the proposed project is the addition of a Bekaert CEB® unit, the same TACs are relevant to the proposed project. TAC emissions from operations were calculated for the proposed project when it becomes operational and all combustion units are operating. A summary of the associated TAC emissions and detailed calculations are shown in Appendix D.

Benzene is the only TAC identified as a possible component of the fugitive VOC emissions from new equipment installed as part of the proposed project. Benzene emissions were calculated based on the SCAQMD's latest guidelines for fugitive components. The fugitive benzene emissions were found to be well below the screening level thresholds listed in the SCAQMD Risk Assessment Procedures.

Diesel particulate matter (DPM), or the solid particles in diesel exhaust that at times may be visible and includes carbon particles or "soot", is a TAC. The health impacts of particulate matter (PM_{10} and $PM_{2.5}$) in general have been studied, and exposure to it is associated with a variety of health effects including premature death and a number of heart and lung diseases. Cancer and chronic health risk values for DPM emitted by internal combustion engines were approved by the Office of Environmental Health Hazard Assessment (OEHHA) and adopted by the CARB in 1998. The SCAQMD has recently added DPM to the list of TACs in Rule 1401.

A health risk assessment (HRA) was prepared to quantify the incremental cancer and non-cancer health risks from construction and operation of the proposed project. The HRA was based on the air dispersion modeling and emission estimates described above. The maximum risk impacts from operation of the proposed project are shown in Table III-5. Risk impacts due to operation of the proposed project are less than the SCAQMD significance thresholds for cancer risk for residential or worker receptors or for chronic or acute non-cancer hazard indices for residential or worker receptors (Table III-5).

The cancer risk, HIC, and HIA are less for the proposed project because emissions are going to the two Bekaert CEB® units rather than the microturbines. The fuel flow to the two Bekaert CEB® units is approximately twice the fuel flow to the one Bekaert CEB® unit in the 2011 analysis. However, the Bekaert has a higher release height than the microturbines, which results in greater dispersion. Any impacts resulting from the increased fuel flow to the Bekaert CEB® units are reduced by the removal of the impacts from the microturbines. Thus, all health risk impacts are less than those from the 2011 Project, and all are less than significant, as shown in Table III-5.

Table III-5
Health Risk Impacts from Operation of the Proposed Project Compared to the Final 2011 Project

Impact Parameter	Impacts of Final 2011 Project[a]	Impacts of Final Proposed Project[b]	SCAQMD significance threshold	Significant?
Incremental Increase in Cancer Risk using Residential Exposure Assumptions	1.6 in one million	0.4 in one million	≥ 10 in one million	No
Maximum Increase in Cancer Risk using Worker Exposure Assumptions	0.3 in one million	0.05 in one million	≥ 10 in one million	No
Maximum Incremental Acute Hazard Index (HIA)	0.012	0.014	≥1.0	No
Maximum Incremental Chronic Hazard Index (HIC)	0.005	0.0007	≥1.0	No

a. Values obtained from Table E.7. in Appendix E to the 2011 SMND. Values shown represent operation of the final 2011 Project on a typical day (i.e., gas re-injection occurring). The peak health risk impacts that were reported in the 2011 SMND occurred in interim phases; cancer risk (residential) was 1.8 in one million, cancer risk (worker) was 0.3 in one million, HIA was 0.189, and HIC was 0.005.
b. Values shown represent operation of the final proposed project on a typical day (i.e., gas sales occurring). Peak cancer risk and HIC occur when gas sales are down; cancer risk is 3.9 in one million and HIC is 0.006. HIA is the same.

3.e). The area to the south, southeast of the WTU Central Facility is currently developed with industrial, commercial, and oil production uses. The areas generally to the west, north, and northeast of the WTU Central Facility are currently developed with residential uses. The 2011 SMND concluded that odor impacts from the 2011 Project would be less than significant. Conditions 6(b) and 10 in the 2008 Zoning Determination dictate measures Warren must follow regarding odors, regardless of cause. Condition 23 requires contact information for residents to call and report any ongoing problem (see Appendix A for 2008 Zoning Determination).

All existing stationary emissions sources that were already at the site or were part of the 2011 Project are subject to SCAQMD rules and regulations. These rules, regulations, and permit conditions will continue to apply to both the 2011 Project and the proposed project.

Currently, fugitive odors could occur, for example, from leaks in valves and flanges and during the oil/water processing operations at the WTU Central Facility. In addition, the areas to the south and southeast of the site are currently developed with industrial, commercial, and oil production uses and may also be sources of airborne odors.

Fugitive emissions are regulated under existing inspection and maintenance programs required pursuant to SCAQMD Rules 1173, 1176, and 1148.1. These programs require correcting conditions that may cause odor events. The WTU Central Facility maintains a 24-hour environmental surveillance effort that minimizes the frequency and magnitude of odor events.

On a routine basis (at least once per day and more often if required, e.g., in response to an inquiry) the Applicant's engineering technician (or the on-duty operator when the technician is not working) conducts a walking inspection of all site operations to assess for odors, including hydrogen sulfide (H_2S), or sources of potential odors. The status of the automatic hydrocarbon monitors located in Cellars 1 and 2 are also routinely inspected. If odors or potential odors are discovered, the technician (or operator) immediately informs the superintendent or his designee, who then becomes responsible for all necessary actions to correct the situation. As noted earlier, Condition 23 of the 2008 Zoning Determination requires Warren to post a telephone number for residents to call regarding odor or any other complaints. This number (310-913-2502) is a dedicated line, hosted by a Spanish-English bilingual person, and is answered 24 hours per day including weekends. A log book is maintained to document the time and date complaints are received and the actions taken in response to each complaint. The Zoning Administrator has the right of access to this log. Since these procedures have been in place, there have been no reports by the Zoning Administrator that odors have been attributable to operations at the Warren Facility.

In addition to the above procedures, the SCAQMD accepts air quality complaint calls 24 hours a day. During business hours (i.e., 7:00 a.m. to 5:30 p.m., Tuesday through Friday), an attendant answers the call and directs the information accordingly. During non-business hours, an automated answering service forwards the call to a standby supervisor who takes appropriate action. If a public nuisance is expected based on the number of complaints received (i.e., Rule 402 – Nuisance), the SCAQMD will respond to the complaint with an immediate investigation. Rule 402 has the following requirement, "A person shall not discharge from any source whatsoever such quantities 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." In 2012, there have been a few times when SCAQMD inspectors (responding to resident complaints from unknown locations) have inspected the Warren facility and could not confirm the odor source as coming from the Warren Facility.

The proposed project does not include any odor emitting equipment such as new oil tanks or tanks of any kind, or increases in daily oil production. As a result, there are not expected to be any increase in odors related to oil/water processing operations for the proposed project compared to the baseline.

The DOGGR regulations do not place requirements for H_2S emission monitoring on operating facilities like the WTU Central Facility. However, the DOGGR does issue a permit for drilling and operating each well associated with oil and gas production. In the Wilmington Field such permits contain an advisory that H_2S is known to be present and that adequate safety precautions should be taken for the permitted well. Therefore, as a precaution, each drill rig at the Facility is equipped with continuous H_2S monitoring and recording devices. Such drilling activities were approved in the 2006 and 2008 Zoning Determinations.

In addition, the facility is subject to SCAQMD Rule 431.1, which prohibits burning gaseous fuels with a sulfur content greater than 40 ppm, which serves to limit SO_x emissions from

stationary equipment. Affected facilities are subject to reporting of monthly gaseous fuel consumption and SO_x emissions. Operators of the WTU Central Facility routinely measure H_2S in all of its produced gas streams, and the data indicate zero, non-detectable, or exceedingly low concentrations (i.e., 4.5 average ppm H_2S). The monthly calculation of sulfur emissions at the WTU Central Facility indicates consistent compliance with the requirements of Rule 431.1.

During construction, diesel emissions from construction equipment may be sources of odor. All construction activities required to implement the proposed project will not occur on the same day, limiting the potential impacts of construction odors. In addition, odors associated with construction would be temporary and localized. Finally, the existing eight foot high perimeter wall and vegetation may reduce the impacts of any potential odors outside of the facility by providing an impediment to dispersion of ground level odors.

During operation, potential sources of odor are fugitive emissions from the additional flanges, pressure relief devices, and other connections required for the proposed project; leaks from the new equipment (e.g., Bekaert CEB®); and odorant for gas sales (as required by the US Department of Transportation [USDOT]). Fugitive VOC emissions were calculated and added to the total proposed Project emissions. Total VOC emissions were less than the regional VOC construction significance threshold so the impact was determined to be less than significant. In addition, the majority of the produced oil field gas (and any associated odor-producing compounds) will be routed to the gas sales. Any gas that is not routed to gas sales will be combusted. All combustion systems will be operated such that any existing odors associated with the proposed project will be reduced or eliminated. The Bekaert CEB® is a newer and more efficient combustion system. As a result, when gas is combusted in the Bekaert CEB®, there will be only a minimal potential to generate odors. It will operate more reliably than the microturbines currently do. Use of these pieces of equipment is not expected to cause a significant increase in the odors resulting from the proposed project.

The gas utility company is required by the US DOT and CPUC to odorize natural gas for safety reasons, including leak detection, before sale of the natural gas into a public utility's pipeline system. The odorizing is typically done by injecting trace amounts of mercaptans (a nontoxic odorous gas) into the otherwise odorless natural gas stream. Fugitive emissions from the natural gas odorant injection system could result in potential odor impacts. However, fugitive emission components associated with the odorant injection system are also regulated by formal regulatory inspection and maintenance programs pursuant to SCAQMD Rule 1173. As such, these maintenance programs ensure correction of conditions leading to odor events. Additionally, the facility's 24-hour environmental surveillance effort minimizes the frequency and magnitude of odor events. As a result, continued compliance with Rule 1173 and existing odor surveillance procedures are expected to minimize potential odor impacts from the natural gas odorant injection system and, therefore, potential odor impacts from this system are not concluded to be considerable or significant.

Based on the above, potential incremental odor impacts due to the proposed project compared to the baseline are expected to be less than significant.

3.3 Mitigation Measures

With regard to air quality, impacts from the proposed project were concluded to be no impact or less than significant impact. While no increase in odors is expected from the equipment that is part of the proposed project, impacts have been identified in the past from the Facility. The conditions in the 2006 and 2008 Zoning Determinations relative to odors are currently in place. Based on the 2008 Zoning Determination, the "authorization runs with the land"; therefore, Warren will be required to continue implementing these measures in perpetuity, ensuring that potential odor impacts from the proposed project remain less than significant. The following three mitigation measures were proposed as part of the 2011 SMND to address air quality impacts. With modifications, they will remain in effect for the current project. Chapter 1, Table 1 shows a comparison of the affected equipment analyzed in the 2011 SMND and the current project equipment.

Based on the 2011 SMND, the three mitigation measures will still be retained and remain in effect. The mitigation measures will be modified as indicated below; modifications are **bolded**.

MMAIR-1 (modified)

During construction of the **gas sales** ~~**re-injection**~~ system, the gas flow to the Bekaert CEB® will be limited to no more than 50 percent of its rated capacity, except in the following circumstances (when its full capacity may be necessary):

- Emissions testing at greater gas rates, as required by SCAQMD;
- Power outages that require shutdown of the microturbines and/or electric compressor;
- Maintenance, breakdown or testing of the microturbines and/or heater treater(s) that require gas flows to be routed to the Bekaert CEB® until the maintenance, repair or testing work is completed.

MMAIR-2 (modified)

All tail gas from the gas conditioning system will be combusted in one or both Bekaert CEB® units. Operation of **either** Bekaert CEB® **unit on excess oil field gas** above its minimum ready stand-by rate should only occur under the following ~~**two**~~ condition~~**s**~~:

- Maintenance, **construction, repair,** breakdown, or testing of the gas **sales** ~~**injection**~~ compressor and related systems ~~**(either during re-injection or gas sales)**~~ or gas ~~**treatment**~~ **conditioning** system (during gas sales) requiring gas flows to be routed to the Bekaert CEB® until the maintenance, **construction,** repair, or testing work is completed. ~~**; or**~~
- ~~**Maintenance, construction, repair, permitting, cleanout, or testing of the gas sales injection well and/or system that requires gas flows to be routed to the Bekaert CEB® until the maintenance, construction, repair, permitting, cleanout, or testing work is completed.**~~

MMAIR-3 (modified)
Note that this measure was included in the Air Quality section of the 2011 SMND as there was not a separate GHG section at that time. Due to recent updates to the checklist, it is included and discussed in more detail in Section VIII (Greenhouse Gas Emissions) of the current document.

The operator shall limit the total fuel usage in the equipment of the **modified 2011** ~~**proposed**~~ project (e.g., heater treater #1 and #2, ~~**microturbines,**~~ and Bekaert CEB® **units**), including oil field gas as well as natural gas, to less than or equal to **197,000,000** ~~**199,000,000**~~ standard cubic feet per calendar year. To assure compliance with this mitigation the District will impose all necessary permit conditions on the project's combustion equipment by defining the proper types of fuel meters, meter accuracy and calibration requirements, monthly and annual recordkeeping requirements, and standards for records retention.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological	☐	☐	☐	☑

	interruption, or other means?				
d)	Interfere substantially with the movement of any native resident, migratory fish, or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f)	Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

4.1 Significance Criteria

The impacts on biological resources will be considered significant if any of the following criteria apply:

The proposed project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.

The proposed project interferes substantially with the movement of any resident or migratory wildlife species.

The proposed project adversely affects aquatic communities through construction or operation of the project.

4.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the biological resources check list items.

4.a), b), c), d), e), and **f).** The proposed project would be located entirely within the existing boundaries of the WTU Central Facility, which has already been developed for oil production uses. There are no riparian habitats or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; no federally protected wetlands, as defined by §404 of the Clean Water Act; no areas of natural open space; and no areas of significant biological resource value on or in the vicinity of the facility. With the exception of landscaping around the perimeter walls of the WTU Central Facility, the operating areas within the facility walls have previously been cleared of vegetation for fire safety reasons. No candidate, sensitive, or special status species identified in local plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or the U.S. Fish and Wildlife Service (USFWS), are found at the facility, as the facility area supports no habitat for such species. No conflicts with local, regional, or state Conservation Plans are expected because no such plans are in place on or near the facility as indicated by the local zoning around the facility (zoning designations at the site include M2-1 VL-O (Light Industrial Zone) and RD3-1XL-0 (Restricted Multiple Dwelling Zone), with some parcels sharing the two designations). No biological resources impacts are expected from the proposed project.

4.3 Mitigation Measures

No mitigation measures are required because no significant adverse impacts to biological resources are expected.

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside formal cemeteries?	☐	☐	☐	☑

5.1 Significance Criteria

Impacts to cultural resources will be considered significant if:

The proposed project results in the disturbance of a significant prehistoric or historic archaeological site, a property of historic or cultural significance to a community or an ethnic or social group.

Unique paleontological resources are present that could be disturbed by construction of the proposed project.

The proposed project would disturb human remains.

5.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the cultural resources check list items. All relevant previous mitigation measures imposed by the City of Los Angeles will remain in effect during construction and operation of the proposed project.

5.a). Structures and equipment for extracting oil and gas were built in 1972 at the WTU Central Facility. As an industrial facility, no equipment or structures are associated with California cultural heritage, are associated with important persons of the past, embody high artistic values, etc. (CEQA Guidelines §15054.5). The proposed project will require minor demolition of an existing structure, i.e., the removal of the microturbines. The microturbines were installed at the site in 2006; they are not older than 50 years old and are not historically significant structures. As a result, no structures of historic importance will be affected by the proposed project.

5.b). In 1972, the oil separation facilities, storage tanks, and other equipment on the individual residential lots were removed, the site was graded, and new replacement facilities were constructed at the WTU Central Facility by the then owner, Exxon Corporation. Consequently, the facility is located on a disturbed site with no apparent archaeological resources remaining. For this reason and the fact that no existing structures at the WTU Central Facility are considered archaeologically or historically significant, implementing the proposed project is not expected to adversely affect any archaeological resources.

5.c). For the same reasons discussed in item 5.b), no unique paleontological resources are apparent at the site. No paleontological resources were specifically identified at the site in association with the 2011 Project. Since there are no apparent paleontological resources located on the entire WTU Central Facility, minor ground-disturbing activities that may occur as a result of implementing the proposed project are not expected to generate significant adverse paleontological resources impacts.

5.d). As already noted, the WTU central facility is located at a site that has been previously disturbed. No known human remains or burial sites have been identified at the WTU Central Facility during previous site disturbances or construction activities, so the proposed project is not expected to disturb any human remains. If cultural resources are encountered unexpectedly during ground disturbance associated with construction of the proposed project, the proper procedures (i.e. contacting professional archeologists, temporarily halting disturbance work in the vicinity, etc., pursuant to City of Los Angeles mitigation measures V b and V c) will be taken.

5.3 Mitigation Measures

The impacts of the project on cultural resources are concluded to be less than significant so no additional mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VI. ENERGY. Would the project:				
a) Conflict with adopted energy conservation plans?	☐	☐	☐	☑
b) Result in the need for new or substantially altered power or natural gas utility systems?	☐	☐	☐	☑
c) Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☐	☑	☐
d) Create any significant effects on	☐	☐	☑	☐

	peak and base period demands for electricity and other forms of energy?				
e)	Comply with existing energy standards?	☐	☐	☐	☑

6.1 Significance Criteria

The impacts to energy will be considered significant if any of the following criteria are met:

The proposed project conflicts with adopted energy conservation plans or standards.

The proposed project results in substantial depletion of existing energy resource supplies.

An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.

The proposed project uses non-renewable resources in a wasteful and/or inefficient manner.

6.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the energy check list items.

6.a) The proposed project is not expected to conflict with any adopted energy conservation plan because there is no known energy conservation plan that would apply. Further, the proposed project is not expected to substantially increase the WTU Central Facility's energy demand as explained in the following discussion.

6.b), c), d), and **e).** The proposed project would not affect the number of wells drilled or change the electricity demand for drilling equipment, submerged pumping equipment, or other new or existing equipment.

Warren's WTU Central Facility is currently served by the Los Angeles Department of Water and Power (LADWP) for electricity supply. The six microturbines supplied the remainder of the facility's electricity requirements, which will be removed as part of the proposed project. LADWP supplies more than 22 million megawatt hours (MW-h) of electricity each year to customers throughout Los Angeles. LADWP's most recently approved Integrated Resource Plan (IRP) indicates that electricity consumption is expected to increase by approximately 0.6 percent each year, with peak demand increasing by 40 megawatts (MW) each year. The IRP includes financing to meet this demand through re-powering, development of new renewable energy resources, and energy efficiency programs[5].

The average electrical demand at the WTU Central Facility for the three months preceding operation of the six microturbines was approximately 4,200 kW per month. This demand was incurred when an all-electric drilling rig was operating on-site and would therefore represent the peak case before the six microturbines became operational. After startup, the six microturbines reduced the overall peak demand by approximately 420 kW. Removing the six microturbines results in the facility's peak demand to the grid increasing by approximately 420 kW. This represents approximately 10 percent of the facility's total net outside energy demand.

Each Bekaert® unit requires negligible electricity (approximately 8kW). The demand associated with the existing Bekaert® was analyzed and accounted for in the 2011 SMND. In addition, the demand associated with the compressor was previously analyzed in the 2011 SMND. Thus, the total impact of the proposed project is an increase of 428 kW.

Based on LADWPs total current and projected electricity supply capacity, as described above, sufficient electrical supplies are available from LADWP to handle the potential net increase in electricity demand from the proposed project when the six microturbines are removed.

Demand for electricity during the construction period is not expected to increase appreciably because most of the construction equipment is powered by diesel fuel. The construction activities require only a few pieces of construction equipment and, due to space limitations, small-scale equipment would be used. In addition, although construction will occur intermittently over a period of approximately ten months, construction activities requiring electricity are few, and all construction activities are only expected to occur during a maximum of 35 days. As a result, the total diesel fuel that will be required for construction of the proposed project is minimal and does not represent a significant volume. Therefore, no significant adverse electricity or energy demand impacts are expected during the construction period.

Therefore, based upon the above information, no significant adverse increased energy demand impacts are anticipated from the proposed project.

6.3 Mitigation Measures

The impacts of the project on energy resources are less than significant so no mitigation measures are required.

[5] LADWP, 2007. 2007 Integrated Resource Plan. City of Los Angeles Department of Water and Power. Available at: http://www.ladwp.com/ladwp/cms/ladwp010273.pdf. Accessed 1 November 2010.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:	☐	☐	☐	☑
Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☑	☐
Strong seismic ground shaking?	☐	☐	☑	☐
Seismic–related ground failure, including liquefaction?	☐	☐	☑	☐
Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☑	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑

7.1 Significance Criteria

The impacts on the geological environment will be considered significant if any of the following criteria apply:

Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.

Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.

Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction, or landslides.

Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.

Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

7.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the geology and soil resources check list items.

7.a). Specifically with regard to the proposed project, the WTU Central Facility is located in a seismically active region of southern California. Seismic events are a common occurrence in southern California, with northwesterly trending major earthquake faults dominating in the region. The San Andreas Fault is the primary fault in the area and is thought to have a maximum credible event potential equivalent to a magnitude of 8.5 on the Richter scale. The adverse effects associated with strong seismic events depend upon several factors including the following: intensity of the event, frequency of vibration, distance from the epicenter, and nature of earth materials through which the vibrations pass. Numerous active and potentially active faults with surface expressions (fault traces) have been mapped adjacent to, within, and beneath the City of Los Angeles.[6] However, no known active surface fault traces identified by the State, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, are known to be present at or in the vicinity of the proposed project (Figure VII-1). Therefore, the possibility of surface fault rupture affecting the proposed project area would be considered remote, and the proposed project would present a less than significant impact with respect to exposing people or property to hazardous conditions resulting from rupture of a known earthquake fault on the proposed project area.

As noted above, the San Andreas Fault Zone is a major structural feature in the region and forms a boundary between the North American and Pacific tectonic plates. The San Andreas Fault is a right lateral strike-slip[7] fault moving at approximately 30 millimeters per year (mm/yr), with a northeast-southwest trend near the site area. A strike-slip fault is where two tectonic plates slide past each other. The recent earthquakes in Japan (March 2011) resulted from movement of tectonic plates in a subduction zone, where one tectonic plate is pushed under a second tectonic plate. A subduction configuration like that off the coast of Japan does not occur off the coast of southern California.

Because the WTU Central Facility is located in a seismically active region of southern California, it is conceivable that a strong event could occur during construction or operation of the proposed project. However, this possibility exists currently regardless of the proposed project. Similar to many areas in southern California, the proposed project area is susceptible to ground shaking and ground failure during seismic events produced by local faults. Because the area of the proposed project is relatively flat, landslides are not typically of concern. However, the new equipment will not cause or contribute to an increase in the exposure of people or structures to adverse effects involving earthquakes or other potential seismic hazards for the following reasons. While it is likely that the proposed project area will be shaken by future earthquakes produced in southern California, construction of the proposed project will be conducted in accordance with all applicable requirements for seismic safety in the Uniform Building Code (UBC) for Zone 4 (i.e., most hazardous), the designation for the area in which the proposed project is located. The existing operations, as well as operation of the proposed project, will continue to be subject to all previous regulations and requirements (e.g. the 2006 and 2008 Zoning Determinations) as well as any future changes to the LA Municipal Codes regarding

[6] Active faults are classified by the State Division of Mines and Geology as faults showing evidence of surface displacement within the last 11,000 years.

[7] A strike-slip fault is a fault in which the dominant sense of motion is horizontal, parallel to the strike of the fault . Also known as a lateral-slip fault. Motion is commonly described as left-lateral (sinistral) or right-lateral (dextral). (USGS 2011)

seismic designs and controls which from time to time may be promulgated. The potential seismic hazards from the proposed project would not be higher than existing seismic hazards from the facility under current operating conditions or greater in any way than seismic hazards in most areas of the City of Los Angeles.

According to the Safety Element of the City of Los Angeles General Plan, the proposed project area is not located within an area susceptible to liquefaction (Figure VII-2)[8]. In addition, according to the Safety Element of the City General Plan, the facility is not located within a hillside area susceptible to landslides.[9] The probability of seismically-induced landslides affecting the proposed project area is considered to be negligible due to the lack of topographic relief across the area (Figure VII-3). Overall, impacts due to on-site rupture of a known earthquake fault, risks from seismic ground shaking, potential liquefaction impacts, and landslides impacts would be less than significant.

Thus, the construction and operation of the proposed project are both expected to result in less than significant impacts related to seismic activity.

[8] City of Los Angeles, Safety Element of the Los Angeles City General Plan., Exhibit B, Areas Susceptible to Liquefaction in the City of Los Angeles, November 1996.

[9] City of Los Angeles, Safety Element of the Los Angeles City General Plan, Exhibit C, Landslide Inventory & Hillside Areas in the City of Los Angeles, November 1996.

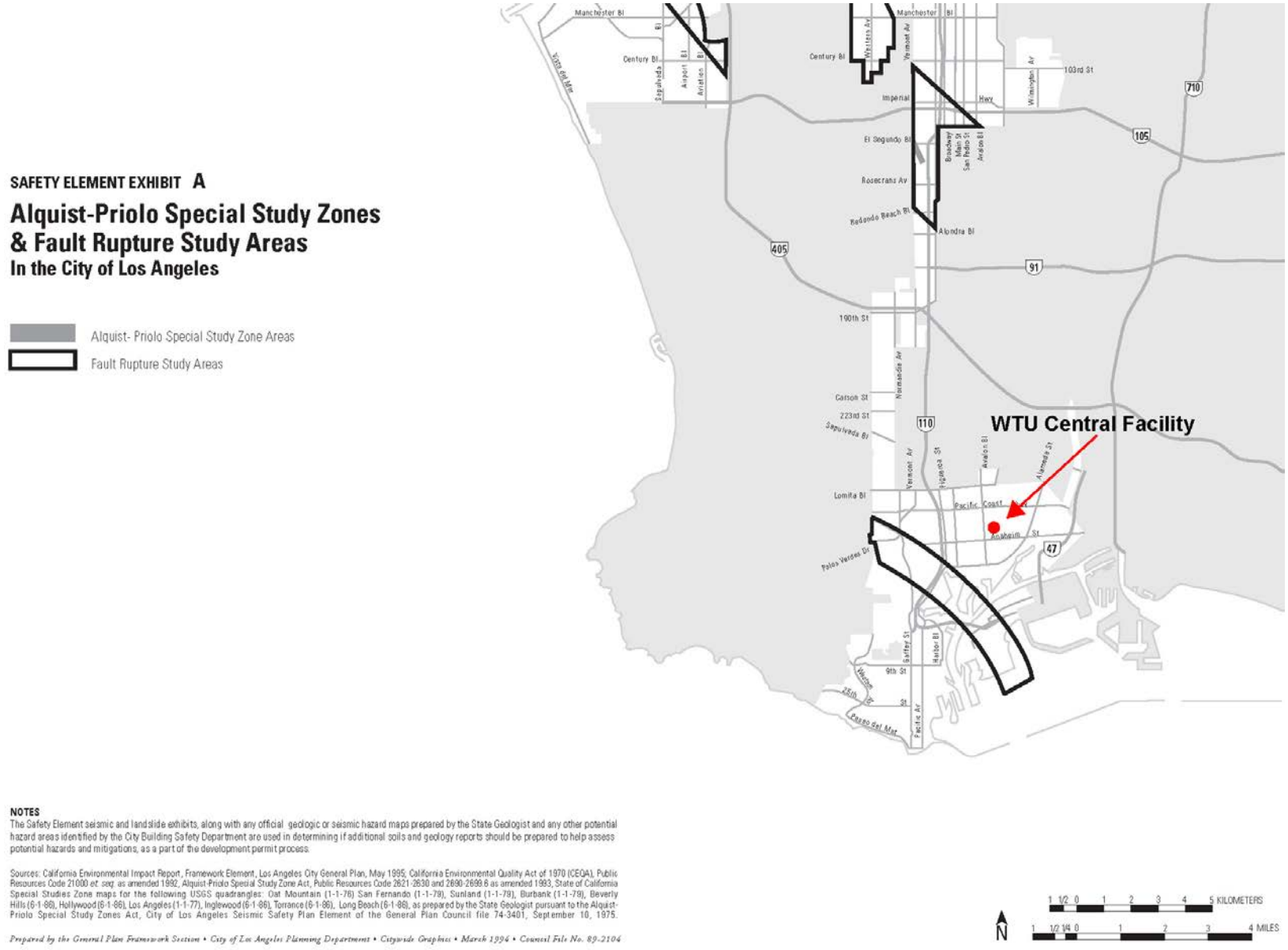


Figure VII-1. Alquist-Priolo Map of Faults in Vicinity of WTU Central Facility (Exhibit A)

7.b). The vast majority of the WTU Central Facility is currently paved (see Figure 4 in Chapter 1). Construction activities may require exposing soil to install foundation pads for new equipment, e.g., the new Bekaert CEB®. However, the area of soil exposed is expected to be relatively small. Any soil that is disturbed would be subject to SCAQMD Rule 403 - Fugitive Dust, which requires stabilization of soil disturbed by human activity, often in the form of watering the site two to three times per day. Compliance with Rule 403 is expected to substantially limit soil erosion loss to the air. As a result, no significant adverse soils erosion impacts are expected.

7.c). In June 2005, NorCal Engineering, a registered geotechnical consultant, sampled and assessed the soil at the WTU Central Facility to provide guidance for structural engineers who were designing the various new construction activities for the 2006 project.[10] The on-site soil was determined to be relatively uniform and medium dense to dense native silty sands. The soil at the WTU Central Facility was assessed as being stable in conformance with the Los Angeles City Building Ordinance for the scope of the 2006 project.

The construction and operation of the proposed project would not cause any significant adverse impacts due to unstable soil.

7.d) The June 2005 NorCal report assessed the soil's Expansion Index in accordance with the Uniform Building Code Standard 18-2. The Expansion Index at the WTU Central Facility site ranged from 7 to 15, which is defined as "very low" expansive potential by the ASTM Standard Test Method. Therefore, soils at the WTU Central Facility are not considered to be expansive. In addition, the amount of soil disturbed during construction is expected to be minimal as only one pad measuring 8 feet by 20 feet is required for the new equipment. Therefore, no significant impacts related to expansive soils are expected.

7.e) The proposed project's WTU Central Facility is located in a developed area of the City of Los Angeles, which is served by an existing wastewater collection, conveyance, and treatment system operated by the City of Los Angeles. No septic tanks or alternative disposal systems are necessary, nor are they included as part of the proposed project. Portable toilets are used to accommodate workers involved in construction and drilling operations. The waste from the portable toilets is collected by Peninsula Septic Service and properly disposed of in the Los Angeles County Sanitation District treatment facility located at Sepulveda Boulevard and I-110. Therefore, no significant impacts on soils from alternative wastewater disposal systems are expected.

7.3 Mitigation Measures

Based on the above information relative to geology and soils, no significant adverse impacts were identified so no additional mitigation measures are required for the construction or operation of the project.

[10] NorCal Engineering. 2005. Geotechnical Engineering Investigation: Proposed Well Cellars. Prepared for Warren E&P, Inc. June 6, 2005.

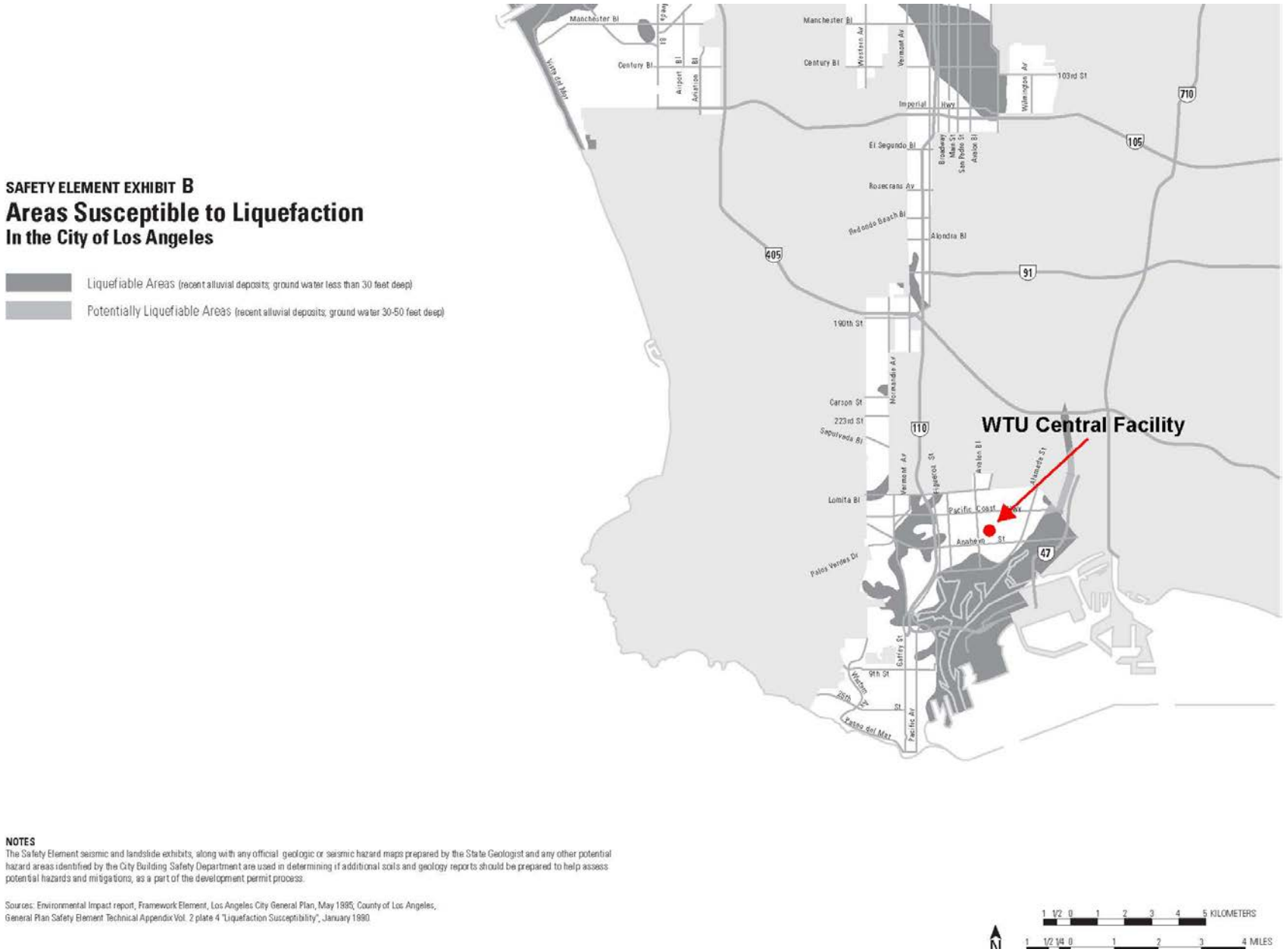


Figure VII-2. Areas Around the WTU Central Facility That Are Subject to Liquefaction (Exhibit B)

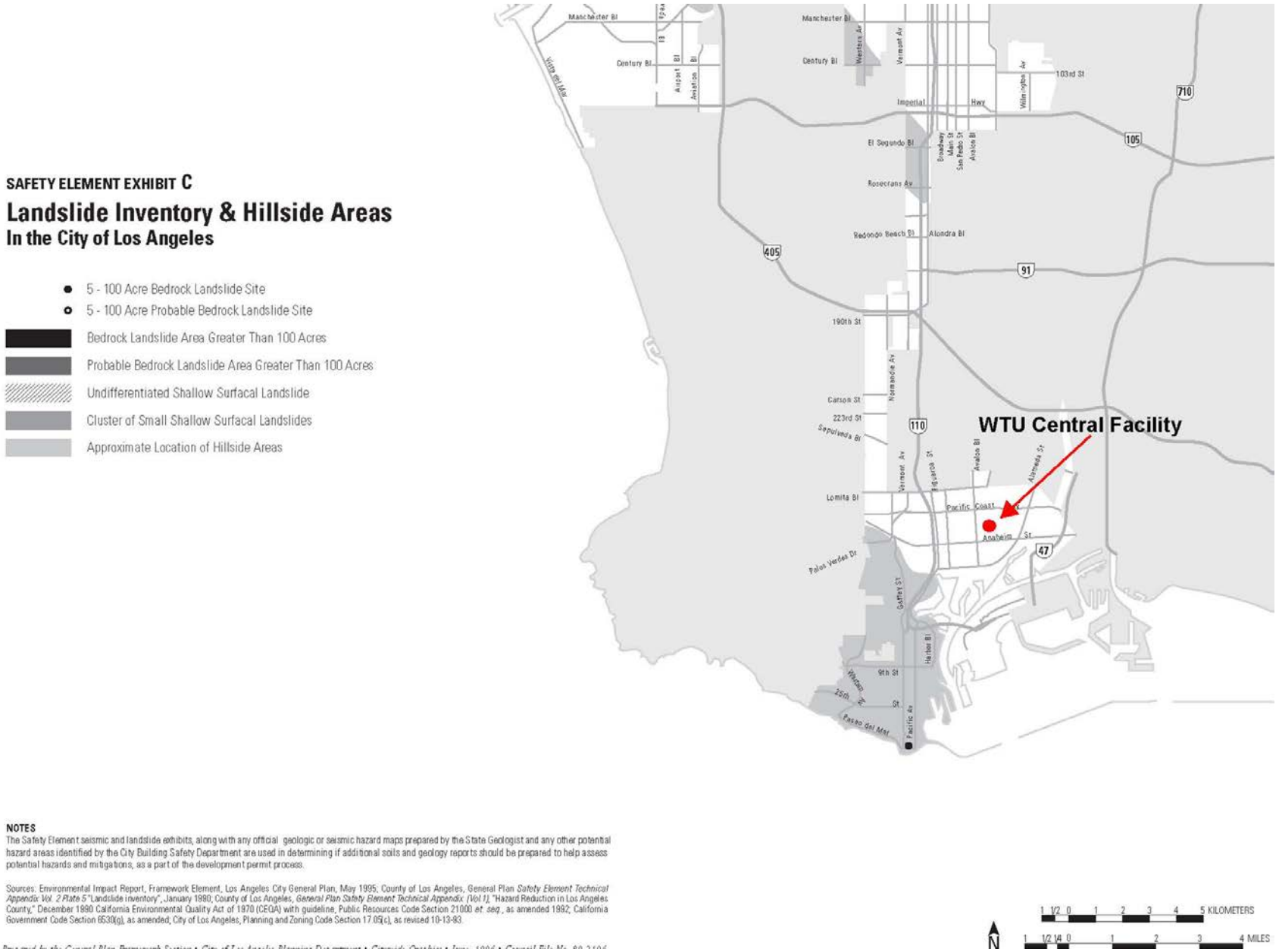


Figure VII-3. Areas Around the WTU Central Facility That Are Subject to Landslides or Hillslides (Exhibit C)

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☐	☑
b) Generate greenhouse gases, either directly or indirectly, that may have a significant impact on the environment?	☐	☑	☐	☐
c) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☑	☐	☐

8.1 Significance Criteria

The analysis of GHG impacts is different from the analysis of criteria pollutants. For criteria pollutants, significance thresholds are based on daily emissions because the attainment or non-attainment status is based on daily exceedances of applicable ambient air quality standards. Furthermore, several ambient air quality standards are based on the relatively short-term exposure effects on human health (e.g., one-hour and eight-hour). On the contrary, because the half-life of CO_2 is approximately 100 years, the effects of GHGs are longer-term and affect global climate over a relatively long time frame. Thus, the SCAQMD's current position is to evaluate GHG effects over a longer time frame than a single day.

On December 5, 2008 the SCAQMD adopted the "Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds." This draft guidance proposes a tiered approach to determining GHG significance of projects.[11] The first two tiers involve (1) exempting the project because of potential reductions of GHG emissions allowed under CEQA and (2) demonstrating that the project's GHG emissions are consistent with a local general plan. Because neither of these tiers is applicable for the proposed project, the analysis shifts to Tier 3. Tier 3 establishes a numerical threshold of 10,000 MT CO_2eq per year as the incremental increase representing significance. Projects with incremental increases below this threshold are not considered to be cumulatively considerable. The next tier of the significance threshold

[11] SCAQMD. 2008. Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. Adopted by SCAQMD December 5, 2008.

methodology considered for this analysis is Tier 4. The significance threshold approaches in Tier 4 were not adopted by the Governing board and possible options continue to be under investigation by staff. Tier 4 will not be considered further. Tier 5 may be applicable if GHG emissions exceed the numerical significance threshold of 10,000 MT CO_2 eq per year. In this situation, offsite mitigation could be used to reduce GHG emission impacts to less than significant, but mitigation would be required for the life of the project, defined as 30 years. As additional information is compiled regarding the level of GHG emissions that constitute a significant cumulative climate change impact, SCAQMD will continue to revisit and possibly revise the level of GHG emissions considered to be significant.

To determine whether or not incremental GHG emissions from the proposed project may be significant, impacts will be evaluated and compared to the 10,000 metric tons of carbon dioxide equivalents per year (MT CO_2e/year) guidance threshold for industrial sources.[12]

8.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the GHGs check list items once mitigation was incorporated.

8.a) California has enacted several pieces of legislation that relate to GHG emissions and climate change, much of which sets aggressive goals for GHG reductions within the state. Per Senate Bill 97, the California Natural Resources Agency adopted amendments to the CEQA Guidelines, which address the specific obligations of public agencies when analyzing GHG emissions under CEQA to determine a project's effects on the environment. However, neither a threshold of significance nor any specific mitigation measures are included or provided in these CEQA Guideline amendments.

- **Assembly Bill 32 (Statewide GHG Regulation):** The California Global Warming Solutions Act of 2006, widely known as AB 32, requires the California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020.

[12] SCAQMD. 2011. SCAQMD Air Quality Significance Thresholds. Revised March 2011. Available at: http://aqmd.gov/ceqa/handbook/signthres.pdf. Accessed 23 March 2011.

- **California Senate Bills 1078, 107, and 2; Renewables Portfolio Standard:** Established in 2002 under California Senate Bill 1078 and accelerated in 2006 under California Senate Bill 107, California's RPS requires retail suppliers of electric services to increase procurement from eligible renewable energy resources by at least 1 percent of their retail sales annually, until they reach 20 percent by 2010. On April 2, 2011, Governor Jerry Brown signed California Senate Bill 2 to increase California's RPS to 33 percent by 2020. This new standard also requires regulated sellers of electricity to procure 25 percent of their energy supply from certified renewable resources by 2016.

- **Low Carbon Fuel Standard:** California Executive Order S-01-07 (January 18, 2007) requires a 10 percent or greater reduction in the average carbon intensity for transportation fuels in California regulated by CARB. CARB identified the LCFS as a Discrete Early Action item under AB 32, and the final resolution (09-31) was issued on April 23, 2009.[13]

Construction GHG Emissions and Analyses

Construction typically occurs in phases including demolition, site preparation, construction of structures, and final site work. Construction activities required to implement the proposed project include: excavation, concrete work, erection, and installation of the individual pieces of equipment (Bekaert CEB®, gas sales and conditioning, MSA system) and the removal of the six microturbines, as shown in Table III-2 in the Air Quality section.

Construction emissions are generated from the combustion of fuel (primarily diesel) in off-road vehicles and other equipment required for the construction activities. In addition, some emissions will result from offsite fabrication of equipment, but emissions associated with those activities are not included in this report because insufficient information is available to characterize these emissions. The construction activities will be conducted during distinct time periods and will disturb substantially less than one acre of land within the 10-acre WTU Central Facility. Actual construction will generally take place in the area of the gas and solids management and oil/water separation yards.

Construction is expected to occur intermittently over a period of approximately 10 months, or 300 days, with actual on-site construction activities occurring on approximately 35 days during this period. When construction is occurring, work is expected to typically occur ten hours per day, five days per week. The proposed construction schedule in Table III-2 in the Air Quality section forms the basis for calculating emissions from construction of the proposed project. The dates of the schedule may change, but the timeline of the scheduled activities for each phase, i.e., number of days, would remain consistent. Multiple construction activities would not occur on the same day and would not result in impacts outside the scope of this analysis. Also, the current analysis is conservative because emission factors typically decrease over time as equipment efficiency and fuel efficiency improves. Thus, if construction of the project is delayed for any reason, none of the environmental impacts conclusions in the analysis would change or worsen. For example, a conclusion of less than significant impacts from the construction phase of the

[13] Available at: www.arb.ca.gov/fuels/lcfs/lcfs.htm. Accessed: June 2012.

project would remain less than significant even if the actual dates of the construction schedule are delayed.

Emissions were calculated using CARB's OFFROAD2007 model and default assumptions used in the California Emissions Model™ (CalEEMod™). Emissions from worker commuting and hauling trips were calculated using emission factors from EMFAC[14] and default trip lengths from CalEEMod™. The equipment inventories were based on expected project needs. The construction emissions were calculated separately for each phase and activities were assumed not to be occurring concurrently.

Annual construction emissions are shown in Table VIII-6. Construction emissions are similar to, or less than, the construction emissions from the 2011 Project. The emissions are also less than the SCAQMD's construction air quality significance thresholds. Thus, construction of the proposed project is expected to result in less than significant air quality impacts. Details of the GHG analyses from construction, including phase activity, equipment types, number of construction equipment, horsepower, load factors and emissions factors, etc., are available in Appendix A.

Table VIII-6
Construction GHG Emissions from the Proposed Project Compared to the 2011 Project

Construction Activity	Amortized Annual Emissions (MT CO_2eq)[1]
Final Proposed Project: Construction of additional Bekaert CEB® unit and removal of 6 microturbines	0.86

1. Total construction emissions are amortized over 30 years.

Operational GHG Emissions and Analyses

The comparison basis for the proposed project consists of completed operations of the 2011 SMND: operation of HT#2, the Bekaert CEB® (at MMair-3 levels), and the nine microturbines. This is consistent with what was analyzed as part of the final 2011 SMND project.

New operational emissions for the proposed project consist of combustion emissions in the new Bekaert CEB®. The operational emissions for the proposed project account for the reduced emissions due to the removal of the microturbines. The proposed project assumed the same number of employees, vendors, and delivery trips as currently exist or assumed for the 2011 SMND; these emissions were calculated in the operational analysis.

Operational combustion emissions were calculated based on manufacturer specifications, applicable air quality rules, and source test results. Combustion emission factors are shown in

[14] The SCAQMD provides emission factors for on-road vehicles generated by using the weighted average of vehicle types in EMFAC. These emission factors were used for this analysis and are available here: http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table VIII-7. Emissions from employee commuting and heavy-duty vehicle trips were calculated using emission factors from EMFAC[15] and default trip lengths from CalEEMod™.

Amortized construction emissions (i.e., 30-year average) were added to maximum project emissions and compared to the SCAQMD significance threshold. Before imposing any mitigation measures, the annual emissions were greater than the SCAQMD significance threshold of 10,000 MT CO_2eq/year. The original MMAir-3 included in the 2011 Project limited total combustion to 199,000 Mscf/year. Because of the change in operational equipment (i.e., one additional Bekaert CEB® unit compared to 9 microturbines), annual emissions incorporating the original MMAir-3 were still greater than 10,000 MT CO_2eq/year. Thus, the total fuel flow was reduced to a level such that total project emissions were less than 10,000 MT CO_2eq/year. This fuel flow corresponds to 197,000 Mscf/year. After incorporating the revised MMAir-3, operational emissions are similar to the emissions from the 2011 Project and less than the SCAQMD threshold of 10,000 MT CO_2eq/yr. Thus, operation of the proposed project is expected to result in less than significant GHG cumulatively considerable impacts with mitigation imposed. Details of all analyses, including derivation of the revised MMAir-3, are available in Appendix C.

Table VIII-7
GHG Emission Factors for Combustion Equipment

Equipment[1]	GHG Emission Factors		
	CO_2 EF (lb CO_2/MMscf)	CH_4 EF (lb CH_4/MMscf)	N_2O EF (lb N_2O/MMscf)
Heater Treater #2	120,000	2.3	2.2
Bekaert CEB®[2]	126,621	2.3	0.64
Microturbines[3]	120,000	2.3	2.2

1. Equipment currently operating on-site.
2. An additional Bekaert CEB® will be installed as part of the proposed project.
3. The microturbines will be removed as part of the proposed project.

[15] The SCAQMD provides emission factors for on-road vehicles generated by using the weighted average of vehicle types in EMFAC. These emission factors were used for this analysis and are available here: http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table VIII-8
Project-Related Annual Operational GHG Emissions

Operating Scenario	Total Estimated Emissions (MT CO_2eq/year) [1]	Incremental Emissions from Original Existing Setting (MT CO_2eq/year)
Final 2011 Project (operation and amortized construction) [2]	11,149	9,962
Final Proposed Project (operation and amortized construction)[2],[3]	11,166	9,979
SCAQMD Threshold		10,000

1. The original existing setting was the baseline used in the 2011 Project, i.e., operation of the Flare King flare and HT #1.
2. Total construction emissions are amortized over 30 years and added to the proposed project.
3. The proposed project includes GHG emissions from HT #2 and two Bekaert CEB® units.

The mitigation measure from the 2011 SMND relevant to GHGs, MMAir-3, is applicable to and will be retained, with revisions as described above, for the proposed project. Under this mitigation measure, total facility-wide gas flow will be limited to 197,000 Mscf per year to ensure that incremental GHG emissions resulting from the proposed project would be less than 10,000 MT CO_2eq/year. The current analysis accounts for this measure as described above.

8.3 Mitigation Measures

With regard to GHGs, impacts from the proposed project were concluded to have no impact or less than significant impact. One mitigation measure related to GHGs, MMAir-3, was proposed as part of the 2011 SMND. With modifications, it will remain in effect for the current project. Table 3 in Chapter 1 shows a comparison of the mitigation measures in 2011 SMND and the current project. MMAIR-3 will be modified as indicated below in the proposed measures.

MMAIR-3 (modified)

The operator shall limit the total fuel usage in the equipment of the **modified 2011** ~~**proposed**~~ project (e.g., heater treater #1 and #2, ~~**microturbines,**~~ and Bekaert CEB® **units**), including oil field gas as well as natural gas, to less than or equal to ~~**199,000,000**~~ **197,000,000** standard cubic feet per calendar year. To assure compliance with this mitigation the District will impose all necessary permit conditions on the project's combustion equipment by defining the proper types of fuel meters, meter accuracy and calibration requirements, monthly and annual recordkeeping requirements, and standards for records retention.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5, and, as a result, would create a significant hazard to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
	project area?				
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑
i)	Significantly increased fire hazard in areas with flammable materials?	☐	☐	☑	☐

9.1 Significance Criteria

The impacts associated with hazards will be considered significant if any of the following occur:

Non-compliance with any applicable design code or regulation.

Non-conformance to National Fire Protection Association standards.

Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.

Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

9.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations

for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the hazards and hazardous materials check list items.

9.a) and b). The proposed project includes installing a Bekaert CEB® and removal of the six microturbines (three proposed in 2011 SMND never installed). The risk of an explosion, fire, or other hazards is concluded to be less than significant for the reasons identified in the following paragraphs.

The Bekaert CEB® will be designed and manufactured according to manufacturers' specifications. Equipment subject to SCAQMD permits is inspected periodically to ensure they operate appropriately according to permit conditions to limit emissions.

All of the new equipment included in this proposed project will be using or processing produced oil field gas, which consists primarily of methane and trace amounts of other gases (e.g., propane, butane, or pentane). Methane is defined as a hazardous material by the USEPA (USEPA; 40 CFR 68.130). The other gases that comprise the oil field gas (e.g., propane, butane, or pentane) also are defined as hazardous materials; however, these gases are only present in trace amounts, if at all, and do not constitute a hazard. Currently, methane in the form of produced oil field gas is being extracted, used, and handled on-site. None of these compounds, including methane, are stored on the site. No additional oil field gas will be combusted in the proposed project as compared to that combusted in the 2011 Project. In fact, because of the revisions to MMAir-3, less oil field gas will be combusted. Thus, any potential impacts in the proposed project are expected to be less than the impacts in the 2011 Project.

The proposed project involving the addition of the Bekaert CEB® and removal of older equipment would also not increase hazards resulting from an earthquake because:

1. The new equipment will be required to meet UBC requirements and the latest safety standards and thus will reduce the impacts related to an earthquake event compared to any older permitted equipment. Additionally, the new equipment will be more reliable and less susceptible to breakdowns and upsets, thereby reducing the potential for emergencies, upsets, and breakdowns as compared to the existing microturbines.

2. Hazard impacts resulting from an earthquake are not expected to increase due to implementing the proposed project. No drilling is associated with the proposed project but was addressed in previous analyses (i.e., 2006 MND). There will be no change in daily oil production from that analyzed in the 2011 SMND. The proposed project does not alter the existing oil and water storage tanks (and related piping, etc.) and no additional storage capacity or new equipment is necessary as a result of the proposed project. No physical changes are proposed for the oil sales pipeline (no change in hazards due to the project). Thus there is no change in hazard impacts as a result of implementing the proposed project.

The WTU Central Facility is not subject to OSHA's Process Safety Management regulations in 29 CFR, Part 1910 because: (1) it does not process any of the chemicals listed in §1910.119, Appendix A, (2) the hydrocarbons (oil field gas) burned at the site are used solely for workplace consumption (see §1910.119(a)(1)(ii)(A)), (3) the crude oil at the facility is stored in atmospheric tanks and kept below its boiling point without benefit of chilling or refrigeration, and (4) any onsite oil and gas drilling or servicing operations are exempt from Part 1910 (see §1910.119(a)(2)(iii)).

The WTU Central Facility is not subject to the California Accidental Release Program (CalARP) regulations in Title 19 CCR, Division 2, Chapter 4.5. CalARP requires stationary sources with quantities of a regulated substance above a threshold specified in the regulation to develop and submit a risk management plan (RMP). Methane is a regulated substance, with a specified threshold of 10,000 pounds. However, per §2770.2(b)(2)(B), "naturally occurring hydrocarbon mixtures need not be considered when determining whether more than a threshold quantity is present at a stationary source. Naturally occurring hydrocarbon mixtures include any combination of the following: condensate, crude oil, field gas, and produced water, each as defined in Section 2735.3." Per §2735.3, field gas is defined as "gas extracted from a production well before the gas enters a natural gas processing plant." Therefore, the quantification of methane that is on the site as oil field gas is not counted toward the threshold quantity. No other regulated substances are used at the WTU Central Facility. Therefore, a RMP for the facility is not required. Operation of the proposed project will not add any systems or processes that would cause the facility to become subject to either the Process Safety Management regulations or to CalARP. All of the proposed equipment is specifically designed to handle oil field gas. Each system has a number of engineered safety controls and systems such as temperature alarms and automatic shutdown devices to ensure the oil field gas will be combusted in the oil/water separation equipment, heated to pipeline quality and injected into the gas sales pipeline, or combusted in the Bekaert CEB® units.

With regard to the potential for or release of methane gas that could currently occur, the 2006 MND included mitigation measure VIII b2, which contains requirements for mitigating hazardous impacts from methane gas. In particular, this mitigation measure discusses installation of a methane barrier under existing electrical facilities and requires installation of such a barrier under future electrical facilities. This mitigation measure would remain in effect and would be implemented, as applicable, as part of the proposed project.

The only other hazardous materials that are currently used during typical operations and would continue to be used (other than the produced oil field gas) include standard oil-based and synthetic lubrication oils used in the compressor, odorant materials mandated by DOT regulations, and materials for cleaning operations. As a result, aside from methane, hazardous materials are not generated regularly. All of the materials used currently, or expected to be used in the future, are stored in proper containers or vessels, are properly labeled, and are handled in accordance with all applicable regulations and safety requirements.

The construction equipment used by contractors in the construction of the new equipment will use a variety of typical hazardous materials including lube oils, gasoline and/or diesel fuels, sealants, welding gases, and paints. All of the construction equipment expected to be used on site

are the same types of construction equipment regularly used at other construction sites except that, because of space limitations on-site, smaller equipment is expected to be used.

All of the hazardous materials being used at the site for this proposed project have been used on the site in the past. The total amount of materials is not expected to increase, and there are no new hazardous materials being introduced to the site. Thus, there is no new risk of upset and the consequences of an upset, if it were to occur, would be similar to the consequences of an upset during current operations. In fact, the risk of upset may be less after the microturbines are removed. The microturbines are currently experiencing frequent breakdowns and will be replaced with more reliable equipment (i.e., a Bekaert CEB®). All of these materials are subject to a variety of management and handling regulations. The proposed project proponent maintains an onsite environmental coordinator that oversees the proper management of these hazardous materials by the respective construction contractor.

9.c). No existing or proposed schools are located within one-quarter mile of the existing WTU Central Facility. As discussed in the air quality section, new and modified equipment have the potential to emit TACs. The analysis concluded that cancer and non-cancer impacts from the proposed project would be less than significant (see section 3, Air Quality). Other potential impacts related to hazardous substances or wastes associated with the proposed project are expected to remain within the WTU Central Facility because they will be stored inside areas protected by spill containment barriers; as a result, no significant adverse impacts to a school are expected.

9. d). The WTU Central Facility is not located in an area which is included on the recent list of hazardous materials sites compiled pursuant to Government Code §65962.5. Therefore, no significant hazards related to hazardous materials handling at the WTU Central Facility, on the environment or to the public are expected.

9.e). The WTU Central Facility is not located within an airport land use plan or within two miles of a public or private airport. The proposed project does not include installing equipment that is taller than the tallest equipment currently used on-site, that could interfere with flight patterns. Therefore, no safety hazards are expected from the proposed project on any airports in the region.

9.f). The proposed project is subject to two specific emergency response plans. The WTU Central Facility has an existing Spill Prevention, Control, and Countermeasure (SPCC) Plan as is required by the USEPA, which requires several measures such as secondary containment walls, routine training, response procedures, and certifications. This SPCC Plan is maintained onsite. A Business Emergency Plan (BEP) is required by the City of Los Angeles Fire Department. The BEP lists the amounts and locations of hazardous materials located onsite and is used by the Fire Department in case it needs to respond to an emergency at the site. Specifically, the Warren BEP contains a map showing the location of the hazardous materials and all four access gates - one main gate, one gate for electrical substation, and two emergency access gates.

If the equipment of the proposed project requires onsite storage of new hazardous materials, those would be added to the existing BEP as required by the Fire Department. However, as already noted in discussion 8.a) and 8.b) above, no new types of hazardous materials will be used

or generated on-site as result of the proposed project. Emergency vehicles have access to the proposed project via any of the existing access gates, thereby providing adequate emergency access. The proposed project will not be expected to interfere with any adopted emergency response plan or emergency evacuation plan. Therefore, no impact from the proposed project will occur.

9.h). The proposed project will not increase the existing risk of fire hazards in wildland areas. The WTU Central Facility is not located in or next to wildland areas. Further, although the perimeter outside of the fence is landscaped as required by the City of Los Angeles, no substantial or native vegetation exists within the operational portions of the WTU Central Facility. All vegetation within the operational portions of the facility have already been removed as a fire safety measure. Therefore, no significant increase in fire hazards involving wildlands is expected to be associated with the proposed project.

Enforcement of Fire Protection Requirements

Warren is subject to the City of Los Angeles Fire Department requirements and the California Fire Code. These requirements are currently applicable to the WTU Central Facility. The City of Los Angeles Fire Department makes routine inspections to enforce their regulations and to audit the BEP described in paragraph 8.f) above.

9.3 Mitigation Measures

Based on the above information relative to hazards and hazardous materials, no significant adverse impacts were identified so no additional mitigation measures are required for the construction or operation of the project. However, where relevant, all mitigation measures imposed by the City of Los Angeles will remain in effect during construction and operation of the currently proposed project.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
X.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☑
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
	existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				
c)	Substantially alter the existing drainage pattern of the site or area, including alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☑	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
f)	Otherwise substantially degrade water quality?	☐	☐	☐	☑
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑
h)	Place within 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
	the failure of a levee or deem?				
j)	Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☑

10.1 Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Demand:

The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use more than 262,820 gallons per day of potable water.

The project increases demand for water by more than five million gallons per day.

Water Quality:

The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.

The project will cause the degradation of surface water substantially affecting current or future uses.

The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.

The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.

The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.

The project results in alterations to the course or flow of floodwaters.

10.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in

the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the hydrology and water quality check list items.

10.a). The existing operations at the WTU Central Facility do not produce industrial effluent wastewater streams that are rerouted to public treatment facilities. Construction and operation of the equipment of the proposed project will also not produce industrial wastewater. However, mitigation measure VIIIc3 in the 2006 MND and 2006 Zoning Determination and Condition 14 of the 2008 Zoning Determination require that all stormwater be collected onsite. This stormwater is collected in existing well cellars and routed to the existing produced water system and eventually pumped to water injection wells. In addition, mitigation VIIIc3 of the 2006 MND and Zoning Determination and Condition 14 of the 2008 Zoning Determination require the facility to utilize stormwater pollution control measures. City Ordinance No 172,176 and Ordinance No. 173,494 specify Stormwater and Urban Runoff Pollution Control, which requires the application of Best Management Practices (BMPs). Chapter IX, Division 70 of the Los Angeles Municipal Code addresses grading, excavations, and fills. The site operator must also meet the requirements of the Standard Urban Stormwater Mitigation Plan (SUSMP) as approved by the Los Angeles Regional Water Quality Control Board. These requirements are identified in existing Storm Water Pollution and Prevention Plans (SWPPP) Nos. 4191020405 and 419C342701 and include BMPs for erosion controls during construction activities, storage of material bags and drums, onsite inspections, sampling and analyses storm water that leaves the property, and employee training. Continued compliance with the applicable federal, State, and local regulations, Code requirements, and permit provisions would ensure that no significant impacts related to potential discharge into surface water or changes in water quality occur as a result of the proposed project. In addition, no additional water beyond that included in the 2011 Project will be discharged as part of the proposed project so no additional wastewater would be generated that has the potential to violate water quality standards or waste discharge requirements. Therefore, no water quality impacts were identified as a result of implementing the proposed project.

10.b) and **h).** The majority of the operations area of the WTU Central is currently paved. The proposed project does not require additional paving within the perimeter fence or outside of the perimeter fence. The new equipment will be placed near existing equipment and no new areas are required to be paved for their installation. Consequently, the proposed project does not increase the potential to interfere substantially with groundwater recharge compared to the existing setting.

10.c) and **d).** The site is located in a dense urbanized area and no stream or river courses are located in the immediate vicinity. The closest water body to the facility is the East Basin of the Port of Los Angeles, located approximately one mile southeast of the facility. The proposed project site and vicinity are relatively flat, and the site has been graded and containment berms constructed to contain all storm water on site. This water is collected, treated, and injected back into the oil zones along with the produced water from the drilling operations, reducing the

amount of water runoff from the facility. The currently proposed project does not include additional paving that could increase the rate or amount of surface runoff, so substantial erosion or siltation offsite is not anticipated.

The deposition of certain chemicals by cars in the parking areas and internal roadway surfaces currently has the potential to contribute metals, oil and grease, solvents, phosphates, hydrocarbons, and suspended solids to the storm drain system. However, required design criteria, as established in the SUSMP for Los Angeles County, would be incorporated into the proposed project to minimize off-site conveyance of pollutants. During construction of the proposed project, it is anticipated that there will be a maximum of 18 worker commute trips and two hauling truck trips to the facility on the day with the most traffic. Once the proposed project becomes operational, no new worker commute or new truck trips to the facility will be required. The minimal number of vehicle trips during operation of the proposed project over the long term is not expected to increase vehicle chemical deposition at the site appreciably.

Based on the fact that onsite stormwater is collected, treated, and injected into the oil zone, as well as the fact that the WTU Central Facility is in with compliance with existing regulations, the potential for water quality impacts would be reduced to a less than significant level. Therefore, any drainage, runoff, or water quality impacts would be less than significant.

10. e) and **f).** According to the Safety Element of the City General Plan, the existing facility site is not located within a 100-year flood zone, an area subject to inundation in the event of a dam failure, or an area subject to tsunami hazard (Figure X-1 and Figure X-2).[16,17] Similarly, the proposed project does not involve new construction that could expose people to new risks of loss, injury, or death involving flooding. There are no levees near the facility that could fail; the facility is located approximately one mile from the nearest body of water, the East Basin of the Port of Los Angeles, and there is a breakwater offshore at the Port; there is no possibility that the facility could be affected by seiches or tsunamis. The facility is on relative flat land in a built-out area, so the possibility of mudflows is remote. Therefore, no significant adverse impacts from flooding are anticipated as a result of implementing the proposed project.

[16] City of Los Angeles, Safety Element of the Los Angeles City General Plan., Exhibit F, 100-year and 500-year Flood Plains in the City of Los Angeles, November 1996.
[17] City of Los Angeles, Safety Element of the Los Angeles City General Plan., Exhibit G, Inundation and Tsunami Areas in the City of Los Angeles, November 1996.

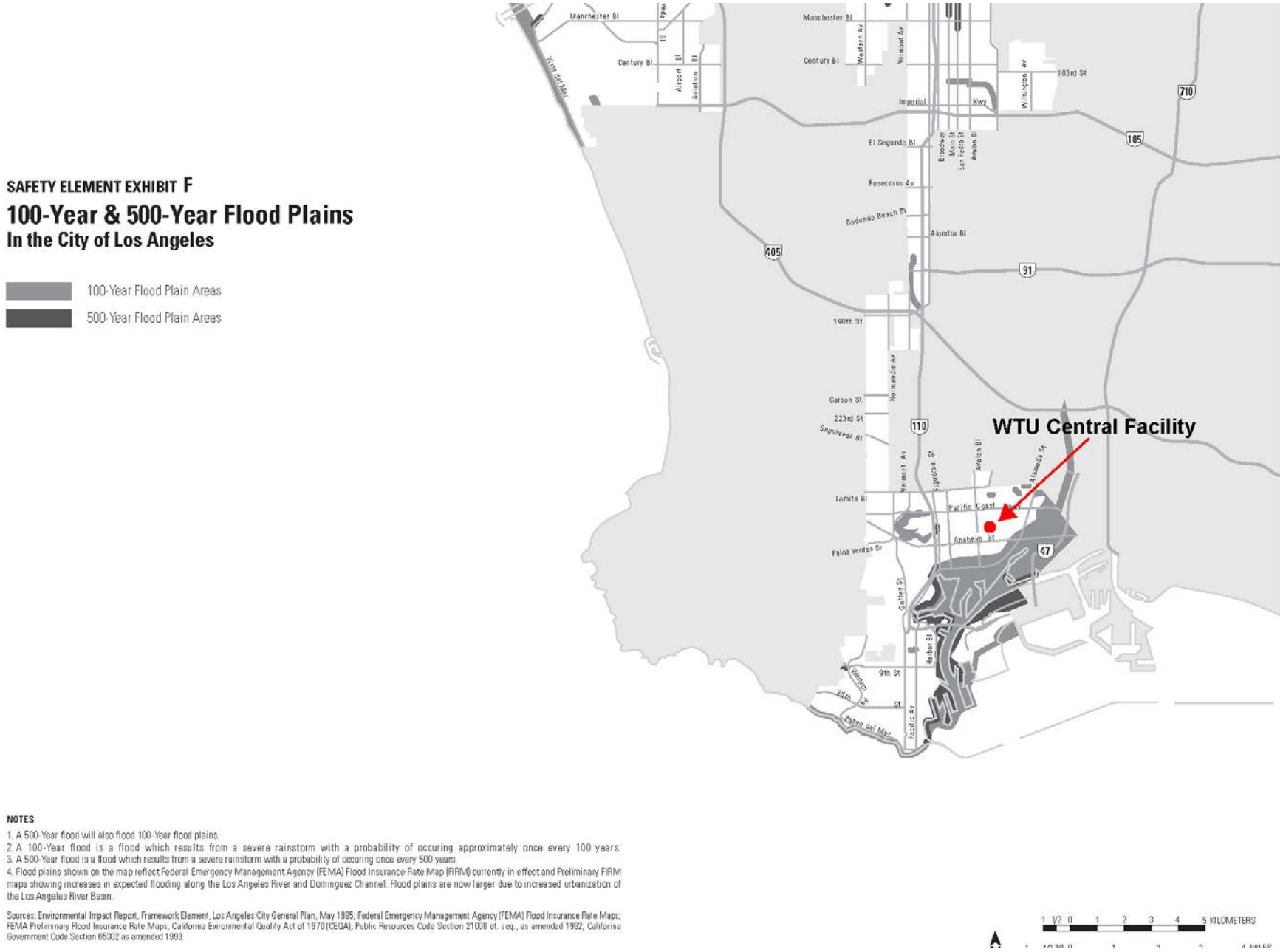
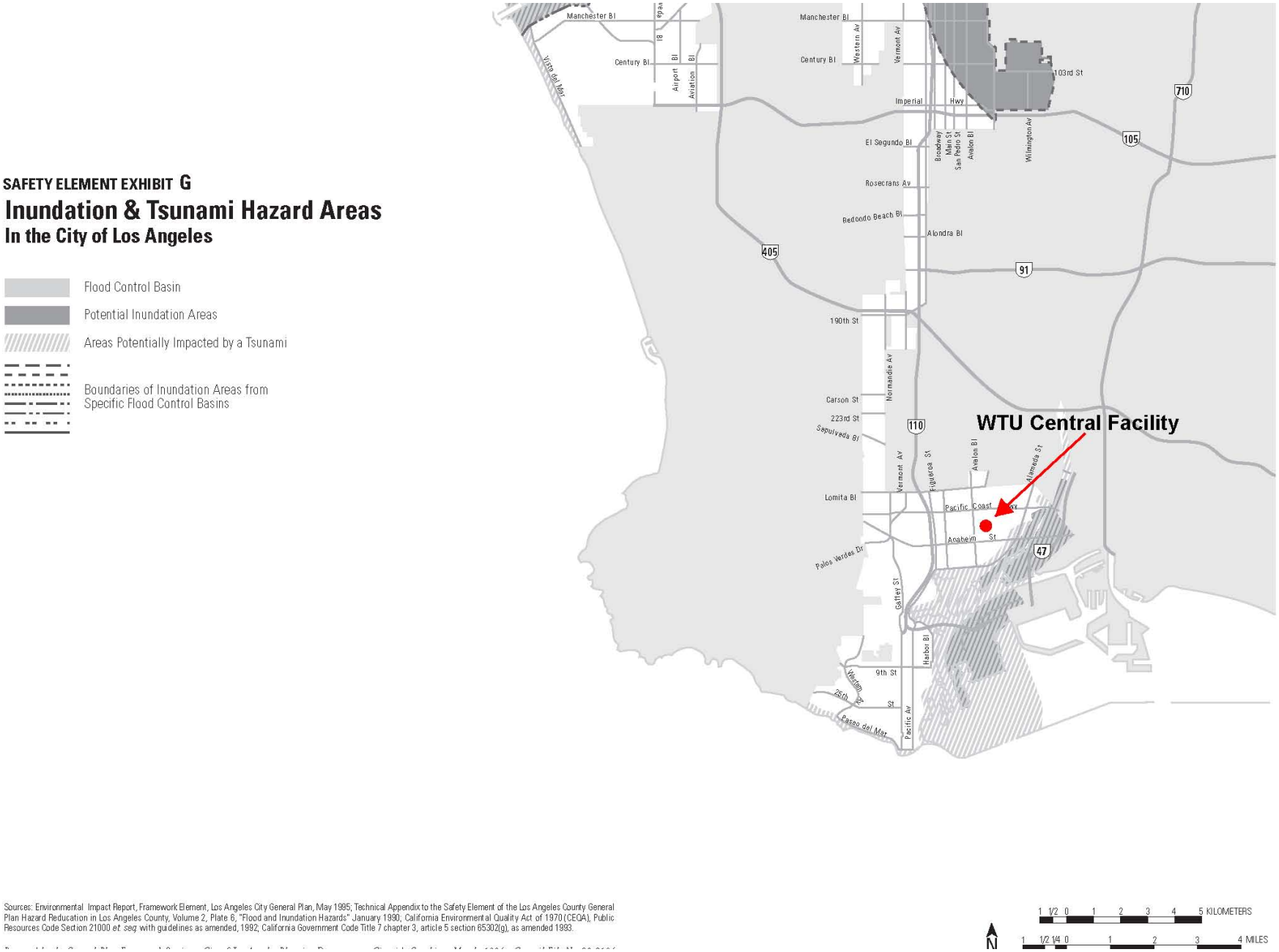


Figure X-1. 100-year and 500-year Flood Plains in the Vicinity (Exhibit F)



Sources: Environmental Impact Report, Framework Element, Los Angeles City General Plan, May 1995; Technical Appendix to the Safety Element of the Los Angeles County General Plan Hazard Reduction in Los Angeles County, Volume 2, Plate 6, "Flood and Inundation Hazards" January 1990; California Environmental Quality Act of 1970 (CEQA), Public Resources Code Section 21000 *et. seq.* with guidelines as amended, 1992; California Government Code Title 7 chapter 3, article 5 section 65302(g), as amended 1993.

Figure X-2. Inundation and Tsunami Hazard Areas in the Vicinity of the WTU Central Facility (Exhibit G)

10. g) and **i).** As already noted above, the proposed project does not increase demand for additional water; none of the equipment requires water for operation. Re-injected water is generated as a result of the existing crude extraction process and is supplemented only with stormwater. As a result, no additional wastewater will be discharged as part of the proposed project beyond that which already exists and was previously analyzed. In addition, the WTU Central Facility has been graded to contain all storm water on site. This water is collected and injected back into the oil zones along with the produced water from the drilling operations, thereby reducing the amount of water runoff from the WTU Central Facility. No new water or waste water treatment facilities will be required as part of the proposed project.

Enforcement of Water and Wastewater Requirements

Current and future operations at the WTU Central Facility will be subject to and must comply with: (1) Ordinance No 172,176 and Ordinance No. 173,494 regarding Stormwater and Urban Runoff Pollution Control (i.e., requiring the application of BMPs); (2) Chapter IX, Division 70 of the Los Angeles Municipal Code regarding grading, excavations, and fills; (3) the Standard Urban Stormwater Mitigation Plan (SUSMP) as approved and enforced by the Los Angeles Regional Water Quality Control Board; the mitigation measures in the 2006 MND, as applicable; and the conditions in the 2006 and 2008 Zoning Determinations. In addition, the DOGGR has substantial regulations governing how water injection wells must be constructed as they pass through fresh water aquifer zones (DOGGR Regs. 1721, 1722.2 through 1722.4, 1723.2 and 1724.6). Warren reports monthly to DOGGR on pressures and maintenance activities related to these wells and DOGGR regulations. All of these requirements are currently applicable to the WTU Central Facility.

10.3 Mitigation Measures

Based on the above information relative to water and water quality impacts, no significant adverse impacts were identified so no additional mitigation measures are required for the construction or operation of the project. However, where relevant, all mitigation measures imposed by the City of Los Angeles will remain in effect during construction and operation of the currently proposed project.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
	an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

11.1 Significance Criteria

Land use and planning impacts will be considered significant if the proposed project conflicts with the land use and zoning designations established by the City of Los Angeles.

11.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the land use and planning check list items.

11.a) and **b).** The modifications involved in the proposed project will be developed entirely within the existing WTU Central Facility's property boundaries. The proposed project will not physically divide any established communities. Land use of the WTU Central Facility is designated as M2-1VL-O and RD3-1XL-O, which is light industrial zoning and restricted multiple dwelling zoning, respectively. The proposed project will not result in a need to change these designations. In addition, the WTU Central Facility is located in an Oil Drilling District. As

a result, the proposed project's activities are permitted in the zone; the proposed project is consistent with the land use designation and does not conflict with any applicable land use plan.

11.3 Mitigation Measures

The 2011 SMND concluded that the 2011 Project would not generate significant adverse impacts related to land use and planning. Further, no significant adverse impacts to land use and planning are expected to occur as a result of construction or operations for the current project, so no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☑

12.1 Significance Criteria

Potential impacts on mineral resources will be considered significant if any of the following conditions are met:

> The proposed project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
>
> The proposed project would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

12.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas

reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the mineral resources check list items.

12.a) and **b).** The proposed project does not change the oil extraction activities currently approved and occurring at the site. The 2011 Project limited oil extraction to 5,000 BPD based on a 30-day average. Approximately 300 million barrels of oil are thought to remain within the Wilmington Oil Field as of 2002[18]. Oil will continue to be extracted by the WTU Central Facility and other oil drilling and recovery operations, even in the absence of the proposed project. Continued extraction of oil from the Wilmington Oil Field is not considered a loss in the availability of important mineral resources in the same way that building a land use project over a mineral resource such as gravel, asphalt, bauxite, or gypsum, which are commonly used for construction activities or industrial processes, would make these unavailable for other uses. Oil extraction activities within the confines of the existing WTU Central Facility would continue to be regulated by the Zoning Determination. No construction of structures offsite is anticipated or required that could result in the loss of important mineral resources. No other mineral resources are present at the WTU Central Facility, and no significant impact is expected.

12.3 Mitigation Measures

The 2011 SMND concluded that the 2011 Project would not generate significant adverse mineral resources impacts. Further, no significant adverse impacts to mineral resources are expected to occur as a result of construction or operations for the current project, so no mitigation measures are required.

[18] http://en.wikipedia.org/wiki/Wilmington_Oil_Field

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIII. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☑

13.1 Significance Criteria

Impacts on noise will be considered significant if:

> Construction noise levels exceed the local noise ordinance or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
>
> The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

13.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

Enforcement of Noise Reduction Measures

All existing operations that were part of the 2006 Project or the 2011 Project, and any future activities (operation or construction) that are included in the 2006 Project, the 2011 Project, or the proposed project will be subject to OSHA and NIOSH standards and enforced by OSHA. In addition, all construction activities at the WTU Central Facility are limited by current City of Los Angeles requirements to the hours of 7 am to 7 pm Monday through Saturday. Condition 9 of the 2008 Zoning Determination specifies a "Quiet Mode" for activities at the WTU Central Facility. Conditions 10 and 11 indicate additional measures required to mitigate any potential noise resulting from activities at the WTU Central Facility. Condition 23 requires Warren to post a telephone number for residents to call regarding noise or any other complaints. This number (310-913-2502) is a dedicated line, manned by a Spanish-English bilingual person and is operable 24 hours per day including weekends. A log book is maintained to document the time and date complaints are received and the actions taken in response to each complaint. The Zoning Administrator has the right of access to this log. These regulations and conditions are currently applicable to the WTU Central Facility, and will also continue to apply during construction and operation of the proposed project. Enforcement responsibility relative to the 2008 Zoning Determination is the responsibility of the City of Los Angeles.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the noise check list items.

In the past, there have been complaints regarding noise and vibrations at the existing WTU Central Facility. These complaints were related to the past drilling and oil production operations at the facility and not from the gas handling activities.

13.a), c), and d). The southeastern portion of the WTU Central Facility borders an industrial trucking and junk yard. The southwestern portion borders a commercial development and vacant parcels. The northern area shares a border with a baseball park, a multi-family residence, a vacant parcel, and the remnants of the Powder Magazine for Camp Drum. Finally, the southern section faces industrial and commercial areas. The ambient noise environment in the proposed project area is comprised of contributions from equipment and operations within the commercial and industrial areas, and from traffic on roads and railways along or near each of the boundaries of the WTU Central Facility (East Opp Street, Eubank Avenue, Anaheim Street, and Banning Boulevard). According to August/September 2005 ambient, 24-hour noise data reported by Davy and Associates, Inc. and presented in the 2005 Initial Study application to the City, existing noise levels monitored in the northern portion of the WTU Central Facility opposite the closest residences on Opp Street when no drilling was being conducted averaged approximately 64 dBA. Noise data collected by the same company in the same manner at the same location when drilling was being conducted in September 2005 averaged approximately 63 dBA. As noted above, drilling and oil production operations are part of the previous project and, as baseline activities, are not included in the scope of the proposed project or the current analysis.

Noise would be generated from both construction and operational activities at the WTU Central Facility. Off-road construction equipment would be necessary during construction activities associated with the proposed project. Noise impacts from construction will occur during installation of the new Bekaert CEB® and the removal of the microturbines. The construction equipment associated with the proposed project will primarily include backhoes, welding machines, trucks, cranes and compactors. Examples of noise levels from construction equipment are presented in Table XII-1. These noise sources will be intermittent over the approximately ten month construction period. Actual construction activities for the proposed project will occur over approximately 35 days during this time period. In addition, the largest construction equipment will not always be operating simultaneously or on the same days.

Table XII-1
Construction Noise Sources

Equipment	Typical Noise Levels (decibels) [1],[2]
Truck	88
Air compressor	81
Flatbed Truck	84
Pickup	70
Tractor Trailer	75
Cranes	83
Pumps	76
Welding Machines	72

1. Data are modified from the City of Los Angeles, 1998. Levels are in dBA at a 50-foot reference distance. These values are based on a range of equipment and operating conditions.
2. Values are intended to reflect noise levels from equipment in good condition, with appropriate mufflers, air intake silencers, etc. In addition, these values assume averaging the sound level over all directions from the listed piece of equipment.

The construction activities will occur primarily in the center of the WTU Central Facility. The estimated maximum noise level during construction is expected to be on average about 83 dBA at a 50 feet radius from the center of the activity. Using an estimated six dBA reduction noise upon doubling the distance from the source, the noise level will drop off to approximately 75 dBA at the property line during construction in the center of the facility. Construction activities along the southern boundary, although adjacent to the property line, will occur inside the masonry wall next to a heavily trafficked street (Anaheim Street). The closest receptor would be the restaurant across the street. At that distance, the noise level from construction activities will also drop off to approximately 75 dBA. In addition, the noise generated from construction activities will be located near ground level, with all construction activities occurring behind permanent masonry walls. As a result, the noise levels are expected to attenuate over distance to a greater extent than analyzed herein.

The construction activities at the WTU Central Facility are limited by current City of Los Angeles requirements (2008 Zoning Determination, see Appendix B) to the hours of 7 am to 7 pm Monday through Saturday. These limitations will remain in effect during construction operation of the currently proposed project. Because of the nature of the construction activities, the types, number, operation time, and loudness of construction equipment will vary throughout the construction period. As a result, the sound level associated with construction will change as construction progresses. However, the majority of construction activities occur during 5 working days. This is a conservative estimate and likely overestimates the time needed for these activities. Construction noise sources will thus be temporary and intermittent and will cease following construction activities.

The proposed project is located adjacent to the jurisdiction of the City of Los Angeles. The City of Los Angeles noise ordinance (City of Los Angeles 1982) applies to any receptors that may be located within the City. The City of Los Angeles Noise Ordinance includes the following provisions:

SEC. 112.03. CONSTRUCTION NOISE

Noise due to construction or repair work shall be regulated as provided by Section 41.40 of this Code. (Amended by Ordinance No. 161,574, Effective 9/8/86.)

SEC. 112.05. MAXIMUM NOISE LEVEL OF POWERED EQUIPMENT OR POWERED HAND TOOLS

Between the hours of 7:00 a.m. and 10:00 p.m., in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet there from:

(a) 75 dB(A) for construction, industrial, and agricultural machinery including crawler tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;

(b) 75 dB(A) for powered equipment of 20 HP or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools; or

(c) 65 dB(A) for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors [Note; this type of equipment is not associated with the proposed project].

The noise limits for the particular equipment listed above in (a), (b) and (c) shall be deemed to be superseded and replaced by noise limits for such equipment from and after their establishment by final regulations adopted by the Federal Environmental Protection Agency and published in the Federal Register. These noise limitations shall not apply where compliance therewith is technically infeasible. The burden of proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of this section. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment.[19]

Based on the noise levels projected for the proposed project, noise producing equipment at the WTU Central Facility would not exceed the applicable City of Los Angeles noise ordinances. Therefore, no significant increase in noise levels is expected and, as a result, no significant noise impacts related to project construction are expected. Therefore, the proposed project noise impacts during the construction phase are expected to be less than significant.

Workers exposed to noise sources in excess of 85 dBA are required to participate in a hearing conservation program. Workers exposed to noise sources in excess of 90 dBA for an eight-hour period will be required to wear hearing protection devices that conform to Occupational Safety and Health Administration/National Institute for Occupational Safety and Health

[19] City of LA. CEQA Guidelines.

(OSHA/NIOSH) standards. Because the maximum noise levels during construction activities are expected to be 85 decibels or less based on the expected construction equipment and levels shown in Table XII-1, no significant impacts to workers during construction activities are expected.

Operation of the new Bekaert CEB® being installed as part of the proposed project is not expected to generate a significant increase in noise for the following reasons. Recent noise readings for the current six microturbines indicate an average of 85 dB(A); this noise source will be removed, resulting in a decrease of noise. The Bekaert CEB®, stated to generate "low noise levels" by the manufacturer, will replace the six existing, and three proposed, microturbines. Recent tests have measured noise at an existing, same-model Bekaert located at a different facility and obtained noise measurements averaging 65 dBA which is less than the noise levels measured for the six microturbines. The proposed equipment will be located in an area surrounded by interior block wall. Table XIII-2 shows a comparison of the previous project to the current project.

Table XIII-2
Noise Comparison of 2011 SMND vs. Current Project

Noise	2011 SMND	Current Project
HT #2	No change.	No change.
Gas Sales	No change.	No change.
Gas Handling	• Six existing and three proposed microturbines = average noise level of 85 dB(A) • Bekaert CEB® = expected average noise level of 65 dB(A)	• Six existing microturbines = removed • Three proposed microturbines = not added • 2 Bekaert CEB® units = expected average noise level of 65 dB(A) each

The noise level inside the site at the door of the main entrance on Banning Street was also measured. This reading was 56 dBA, compared to maximum expected noise levels next to the two Bekaert CEB®, indicating that the interior wall reduces noise from the equipment within it. As explained above, the background noise outside the facility's wall is 64 dBA. All of this information supports the conclusion that there will be little additional noise generated during operation of the proposed project, and no significant increase in noise.

Additionally, any noise complaints from community members are proactively handled by calling the existing number posted at the site. This number (310-913-2502) is a dedicated line, hosted by a Spanish-English bilingual person, and is operable 24 hours per day including weekends. A log book is maintained to document the time and date complaints are received and the actions taken by Warren supervisors in response to each complaint. The Zoning Administrator has the right of access to this log. Therefore, based on the fact that the equipment of the proposed project is placed within one, and in some cases two, concrete block walls, the fact that the new equipment items have noise ratings similar to existing equipment, and the existing noise complaint call-in system, significant noise impacts from the proposed project are not expected.

13.b). Construction activities that will occur at the facility have the potential to generate low levels of groundborne vibration onsite. The only activity that may possibly generate low levels of groundborne vibration is construction of the foundation of the Bekaert CEB®. This on-site groundborne vibration would be of short duration and indistinguishable from existing operations as explained below.

Operation of the proposed project does not involve any new drilling or other similar activities that would increase groundborne vibration. The Bekaert CEB® does not have parts or processes that exert mechanical energy to any appreciable extent that would contribute to groundborne vibrations. Because current drilling activities have the greatest potential to generate groundborne vibrations and have been previously analyzed and shown to be below the threshold level of human perception as described above, operation of the proposed project is not anticipated to cause significant adverse groundborne vibration or noise impacts.

13.e) and f). The proposed project is not located within an airport land use plan or within the vicinity of a private airstrip. Furthermore, the WTU Central Facility is not located within the normal flight pattern of an airport. Because noise impacts from the proposed project are concluded to be less than significant and because the facility is not located within an airport land use plan or within the vicinity of a private airstrip, no significant noise impacts to people living or working in an airport land use plan or within the vicinity of a private airstrip are expected.

13.3 Mitigation Measures

Relevant mitigation measures and conditions imposed by the City of Los Angeles will remain in effect during construction and operation of the currently proposed project. No significant adverse impacts to noise are expected. No additional mitigation measures are required as part of the proposed project.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING. Would the project:				
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement	☐	☐	☐	☑

	housing elsewhere?				
c)	Displace substantial numbers of people, necessitating the construction of replacement housing everywhere?	☐	☐	☐	☑

14.1 Significance Criteria

The impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

The demand for temporary or permanent housing exceeds the existing supply.

The proposed project produces additional population, housing, or employment inconsistent with adopted plans either in terms of overall amount or location.

14.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2006 Project
The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the population and housing check list items.

14.a) and **b).** The proposed project will require modifications to the existing equipment at the WTU Central Facility, and will not involve an increase, decrease, or relocation of population. Labor (a maximum of 18temporary workers) for construction activities is expected to come from the existing labor pool in southern California. Operation of the proposed project is not expected to require any new permanent employees at the WTU Central Facility. Therefore, construction and operation of the proposed project are not expected to have significant adverse impacts on population or housing, induce substantial population growth, or exceed the growth projections contained in any adopted plans.

14.3 Mitigation Measures
The 2011 SMND concluded that the 2011 Project would not generate significant adverse impacts on population and housing. Further, no significant adverse impacts to population and housing are expected to occur as a result of construction or operations for the current project, so no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☐	☑
b) Police protection?	☐	☐	☐	☑
c) Schools?	☐	☐	☐	☑
d) Parks?	☐	☐	☐	☑
e) Other public facilities?	☐	☐	☐	☑

15.1 Significance Criteria

Impacts on public services will be considered significant if the proposed project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities (the construction of which could cause significant environmental impacts) in order to maintain acceptable service ratios, response time or other performance objectives.

15.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 SMND Project

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions,

and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the public services check list items.

15.a). The WTU Central Facility will continue to be served by a City of Los Angeles Fire Department station located less than one-half mile west of the proposed project area. In addition, there is an existing firewater system around the two main areas of the northeast and southwest drill site areas. Although there is the potential for increased combustion if gas sales is down on a given day, the total volume of gas combusted in the proposed project is less than that in the 2011 Project due to the fuel flow limitations from MMAir-3. Thus, the proposed project will not increase the requirements or need for additional or altered fire protection because, as concluded in the discussion under 8.a) and b), the proposed project is not expected to generate significant adverse hazards, including risks of fires or explosions, in part because the proposed project would not use or generate new hazardous materials onsite that would require fire department services in the event of an accidental release. Additionally, after approval of a previous project (i.e., 2006 MND) and during the City's review of subsequent construction permit applications, the LA Fire Department required a substantial upgrade in onsite fire control systems, which included numerous new fire monitors, an electric driven fire water booster pump, and additional "through-the-wall" connections. These systems were assessed and approved by the LA Fire Department in 2008. No new fire hazards are anticipated and thus no significant adverse impacts to fire protection services are expected.

15.b). The City of Los Angeles Police Department is the responding agency for law enforcement needs at the WTU Central Facility. A pass-coded security gate is presently at the facility, so there is no need to have a security guard on-site as the entrance to the site is controlled. Therefore, no impacts to the local police department services are expected from the project during construction.

All modifications will occur within the confines of the existing boundaries of the WTU Central Facility, with no additional workers required for the operation of the proposed project. No components of the proposed project are expected to increase the need for police protection services because new or modified equipment or operations are expected to be similar to existing equipment and operations.

15.c), d), and **e).** The proposed project will occur at the WTU Central Facility, which is an existing facility. The local workforce in southern California is expected to fill the short-term construction positions required for this proposed project. There is no increase in the number of permanent workers expected at the WTU Central Facility. The proposed project will not result in an increase in the local population that could cause adverse physical impacts or adversely affect service ratios. Therefore, the proposed project is not expected to generate significant adverse impacts to schools, parks, or other public facilities.

15.3 Mitigation Measures

Based on the above information relative to public services, no significant adverse impacts were identified so no additional mitigation measures are required for the construction or operation of the project. However, where relevant all mitigation measures imposed by the City of Los Angeles will remain in effect during construction and operation of the currently proposed project. Because no significant impacts to public services are expected as a result of the proposed project, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVI. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☑

16.1 Significance Criteria

The impacts to recreation will be considered significant if:

The proposed project results in an increased demand for neighborhood or regional parks or other recreational facilities.

The proposed project adversely affects existing recreational opportunities.

16.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of

six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the recreation check list items.

16.a) and **b).** As indicated in the above "Population and Housing discussion," the existing labor pool in southern California is sufficient to fulfill the labor requirements for the construction of the proposed project. The operation of the proposed project will not require any additional permanent workers. Therefore, there will be no changes in population densities resulting from the proposed project. Thus, no increase in the use or degradation of existing neighborhood and regional parks or other recreational facilities is expected.

The proposed project does not include recreational facilities or require the construction or expansion of existing recreational facilities. No significant adverse impacts to recreational facilities are expected.

16.3 Mitigation Measures

Based on the above information, no significant adverse impacts were identified so no additional mitigation measures are required for the construction or operation of the project. However, where relevant all mitigation measures imposed by the City of Los Angeles will remain in effect during construction and operation of the currently proposed project. Because no significant impacts to recreation are expected as a result of the proposed project, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/ TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access or access?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such features?	☐	☐	☐	☑

17.1 Significance Criteria

The impacts on transportation and traffic will be considered significant if any of the following criteria apply:

Peak period levels on major arterials are disrupted to a point where the level of service (LOS) is reduced to D, E, or F for more than one month.

An intersection's volume to capacity ratio increases by 0.02 (two percent) or more when the LOS is already at D, E or F.

A major roadway is closed to all through traffic, and no alternate route is available.

The project conflicts with applicable policies, plans, or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation.

There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.

The demand for parking facilities is substantially increased.

Water borne, rail car or air traffic is substantially altered.

Traffic hazards to motor vehicles, bicyclists, or pedestrians are substantially increased.

The need for more than 350 employees.

An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.

Increase customer traffic by more than 700 visits per day.

17.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of

six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the transportation and traffic check list items. The 2008 Zoning Determination includes conditions #15 Circulation and #16 Parking to minimize traffic from the WTU Central Facility through residential areas and worker parking on public streets, respectively.

The WTU Central Facility site is bordered by Eubank Avenue to the east, Anaheim Street to the south, Banning Boulevard to the west, and East Opp Street to the north. To avoid traffic through residential areas, vehicles must turn onto Banning Boulevard to enter the site. Heavy-duty trucks are required to exit directly onto Anaheim Street.

16.a) and **b).** The operation of the proposed project will not require any new permanent employees and thus no additional commuter trips compared to existing conditions. Vendor/maintenance trips would be less than two per month. Thus there would be no impacts to the LOS at nearby intersections.

The construction of the proposed project will require up to a maximum of 18 temporary construction workers on one day (most construction days would require a similar, or lesser, number of employees) and a maximum of two hauling trips. This results in a potential maximum of 20 vehicle trips in a single day; however, this scenario is conservative as these activities would not occur on the same day. Sufficient parking for these workers is readily available.

According to the most recent LADOT database on traffic counts, traffic volumes at the Anaheim at Banning intersection equal 20,865 (includes both westbound and eastbound traffic).[20] An additional 20 vehicle trips would be a negligible increase in traffic and substantially less than a two percent increase in traffic volume. Because the increased number of vehicles traveling to WTU Central Facility on a daily basis will be negligible, sporadic, and temporary, the LOS at nearby affected intersections would not be expected to change. Therefore, the project would not result in traffic-related impacts that would be considered significant based on the significance criteria in Section 17.1.

Truck traffic, including infrequent deliveries of odorant for the gas sales system, will not increase substantially because of the operation of the proposed project. Also, any trucks leaving the WTU Central Facility will be required to turn left out of the site onto Banning Boulevard and then turn onto Anaheim St. This street is a major thoroughfare and therefore any traffic leaving the site will not significantly impact traffic on the smaller streets surrounding the facility. The proposed project is expected to have no impact on traffic during the operational phase.

[20] LADOT database on traffic counts. 2009 – 2010. http://www.ladot.lacity.org/tf_hist_auto_counts.htm.

17.c). The proposed project includes modifications to existing facilities. The proposed project would not involve the delivery of materials via air so no change or increase in air traffic is expected.

17.d). The proposed project does not involve construction of roads or use of incompatible equipment on roads (e.g., farm equipment). Therefore, no increased hazards due to a design feature or incompatible use is expected.

17.e). As noted in discussion 9.f), the WTU Central Facility is not expected to use or generate hazardous materials that would require changes to the BEP. If changes to the BEP are necessary, they will be made in accordance with requirements and guidance from the local Fire Department. The proposed project is not expected to result in inadequate emergency access at or adjacent to the WTU Central Facility because the exits and entrances to the WTU Central Facility will remain unchanged and Warren will continue to maintain the existing emergency access gates to the WTU Central Facility.

Parking for the proposed project construction workers will be provided within the confines of the existing boundaries of the WTU Central Facility, as required by Condition #16 in the 2008 Zoning Determination that will continue to be in effect. Because the maximum number of construction workers is expected to be 18, sufficient parking is available onsite. No new workers are required during operation of the proposed project, so no additional parking would be necessary. Therefore, the proposed project will not result in significant impacts on parking.

17.f). The proposed project will be constructed within the confines of the existing WTU Central Facility and is not expected to conflict with adopted policies, plans or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks).

17.3 Mitigation Measures

The 2008 Zoning Determination imposed comprehensive requirements regarding traffic circulation and parking that, if applicable to the proposed project, would continue to be required. The proposed project is not expected to result in any significant adverse impacts to traffic. No additional mitigation measures are required for the construction or operation of the project.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. Solid and Hazardous Waste. Would the project:				
a) Exceed wastewater treatment requirements of applicable Regional Water Quality Control Board?	☐	☐	☐	☑
b) Require or result in the construction of new water or wastewater treatment facilities	☐	☐	☐	☑
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☑
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☑
g) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☐	☑

18.1 Significance Criteria

The impacts on solid and hazardous waste will be considered significant if the following occur:

> The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

18.2 Environmental Setting and Impacts

Impacts Analyzed in Previous 2011 Project SMND

The 2011 SMND analyzed the impacts of oil production up to a monthly average of 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations for the site will remain in effect during construction and operation of the currently proposed project.

The 2011 SMND did not identify any potentially significant adverse impacts for any of the utilities and service systems check list items.

18.a). Non-Hazardous Waste

The removal of the six microturbines during the construction phase will generate a total of approximately 30,000 pounds (15 tons total) of waste metals such as cast iron, structural steel, copper, and stainless steel. The foundations for the six microturbines will not be demolished and will remain at the site. Because these metals have economic value, they will be routed to authorized recyclers for recovery and reuse (i.e., sold as valuable scrap); or sold for spare part recovery. The 12 existing landfills in Los Angeles County have a capacity of 50,613 tons per day (approximately 18 million tons per year).[21] Therefore, the waste associated with the removal of the microturbines represents less than one percent of capacity and will not burden existing landfills. There will be no demolition of any other structures during the implementation of the proposed project. The disposal of construction-related waste could contribute to the diminishing available landfill capacity. However, sufficient landfill capacity currently exists to handle the one-time disposal of the minimal amount of this material. Clean soil excavated to provide new foundations will be reused on-site as backfill where possible. Any excess soils will be diverted to the existing market as clean reusable soil. All soil excavation work, especially contaminated soil related to either the proposed project or related to other onsite maintenance work, is managed under Warren's Soil Mitigation Plan required by SCAQMD Rule 1166. Soils determined to be non-hazardous under Warren's Rule 1166 Plan can be reused onsite or diverted to the market. For 2011 and 2012 non-hazardous soils sent offsite amounted to about 180 cubic yards; the

[21] SCAQMD. 2012. Air Quality Management Plan – Program Environmental Impact Report. Available at: http://www.aqmd.gov/ceqa/documents/2012/aqmd/finalEA/2012AQMP/2012aqmp_fpeir.html. Accessed July 2013.

existing landfills in Los Angeles County have sufficient capacity as discussed above. Therefore, construction impacts of the proposed project on waste treatment and disposal facilities are expected to be less than significant or none.

During operation, the proposed project is expected to generate only small volumes of solid waste, primarily from administrative or office activities, e.g., waste paper. The proposed project will not result in an increase in the number of permanent employees at the WTU Central Facility, so no other types of substantial increase in solid waste is expected. Consequently, the proposed project is not expected to generate significant adverse non-hazardous waste impacts.

18.b). Hazardous Waste

In years 2011 and 2012 the existing site operations did not generate or dispose of hazardous wastes or soils. The operation of the new equipment of the proposed project will not use or generate new hazardous materials onsite. As mentioned above, during construction any excavated soils determined to be oil-contaminated under Warren's Soil Mitigation Plan would be documented, containerized, properly manifested, and shipped to proper treatment and disposal. Any amounts of spent lubrication oils from maintenance of the microturbines or the gas reinjection compressor will be collected and recycled to the crude oil system and, therefore, is a recycled material and not a waste. Therefore, no significant hazardous waste impacts are expected.

18.3 Mitigation Measures

Based on the above information relative to solid and hazardous wastes, no significant adverse impacts were identified so no additional mitigation measures are required for the construction or operation of the project.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probable future projects)?	☐	☐	☑	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

19. MANDATORY FINDINGS OF SIGNIFICANCE

19.a). The 2011 SMND analyzed the impacts of oil production up to 5,000 barrels per day (BPD), including the associated gas production. The 2011 Project included: (1) HT #2, (2) gas sales, and (3) gas handling (nine microturbines, a Bekaert CEB®, and gas reinjection). The only

change from the 2011 Project compared to the current Project is the removal of six microturbines currently installed at the facility (three additional microturbines proposed in the 2011 SMND were never installed) and addition of a Bekaert CEB®. Any terms, conditions, and requirements previously imposed by the City of Los Angeles in their Zoning Determinations The 2011 SMND concluded that the 2011 Project did not have the potential to generate significant adverse impacts that could adversely affect the environment. All applicable mitigation measures imposed by the City of Los Angeles for SCAQMD will remain in effect during construction and operation of the currently proposed project.

The proposed project does not have the potential to adversely affect the environment, reduce or eliminate any plant or animal species, or destroy prehistoric records of the past. The proposed project would occur in an existing industrial facility that has been previously disturbed, graded, and developed and, therefore, does not support any habitat of fish or wildlife species. Further, the proposed project site is in an area that is generally at maximum build-out with land uses comprised of residential, commercial, and industrial uses. This proposed project will not extend into environmentally sensitive areas, but will remain within the confines of an existing, operating facility. For additional information, see Section 4.0 – Biological Resources and Section 5.0 – Cultural Resources.

19.b) The 2011 SMND concluded that the 2011 Project had the potential to generate significant adverse cumulative impacts with respect to GHGs. However, the 2011 Project incorporated mitigation measure MMAIR-3 to mitigate the 2011 Project's GHG emissions below the SCAQMD's cumulatively considerable significance threshold. Thus, no significant adverse GHG impacts were expected, either individually or cumulatively. The 2011 Project's MMAir-3 places limitations on fuel combustion in the equipment for the proposed project to minimize GHG emissions to less than significance (see Section 3.3 and 8.3) and will remain in effect for the currently proposed project.

The proposed project is not expected to result in significant adverse cumulative environmental impacts. The construction activities associated with the proposed project will not overlap, and, as discussed in Section 3.c), cumulative construction emissions are expected to be less than significant.

The proposed project involves adding a new Bekaert CEB®, and removing six microturbines (three proposed in 2011 SMND were never installed). The proposed project's emissions and ambient air quality impacts are below the SCAQMD's thresholds for all criteria air pollutants. No significant adverse air quality impacts are expected, either individually or cumulatively.

With respect to GHGs, the proposed project will retain the 2011 mitigation measure related to GHGs and the new equipment will be subject to revised MMAir-3. With the continuation of the modified 2011 Project's MMAir-3, the proposed project's GHG emissions are below the SCAQMD's cumulatively considerable significance threshold for GHGs. No significant adverse GHG impacts are expected, either individually or cumulatively.

With respect to aesthetics, no cumulative impacts are expected because the impact of the additional Bekaert CEB® is equivalent to, or less than, that of the existing Bekaert CEB, and it will be located near the existing Bekaert CEB®. In addition, everything will be located within

the confines of the existing WTU Central Facility, which is surrounded by an eight-foot high wall. Therefore, no significant change in visual characteristics is expected at the WTU Central Facility, and no cumulative aesthetic impacts are expected.

With respect to noise, no cumulative impacts are expected because any increase in noise during construction of the proposed project will be attenuated due to both distance and existing mitigation measures, such as the permanent masonry wall and temporary noise barriers. The noise level at the site will decrease once the microturbines are removed from the site. The Bekaert CEB® that will be installed at the site has a lower expected noise level than the existing microturbines. Warren proactively addresses all complaints to ensure that all workers are following appropriate noise control and reduction procedures. Also, any groundborne vibration generated during construction of the proposed project is expected to be similar to existing vibration. No new sources of groundborne vibration will be installed as part of the proposed project. Measurements taken in the area during existing operations were not found to be significant. Therefore, no significant change in noise is expected at the WTU Central Facility, and no cumulative impacts on noise levels are expected.

With respect to geology, no cumulative geology impacts are expected because all of the structures associated with the proposed project will be built in conformance with the Uniform Building Code for Zone 4 (i.e., most hazardous), which is the designation for the area in which the proposed project is located. The soil was assessed as being stable in conformance with the Los Angeles City Building Ordinance for the scope of the proposed project. Therefore, no significant change in impacts to geology is expected at the WTU Central Facility, and no cumulative geology impacts are expected.

With respect to hazards, no cumulative hazard impacts are expected because no new hazardous materials will be used at the site. Hazardous materials are generated only during cleaning operations as opposed to regular facility operation. The amount of hazardous materials generated is not expected to increase and any materials will continue to be handled according to all regulations. Therefore, no significant increase in hazards is expected at the WTU Central Facility, and no cumulative hazard or hazardous materials impacts are expected.

With respect to hydrology, no cumulative impacts are expected because the proposed project does not require the use of additional water at the facility or increase the amount of runoff. The proposed project will not have any impact on either water quantity or water quality. Therefore, no significant impacts to hydrology and water quality are expected at the WTU Central Facility, and no cumulative hydrology and water quality impacts are expected.

With respect to noise, no cumulative impacts are expected because the proposed project will not cause a significant increase in noise during construction or operation. Construction activities will generate noise on-site, but the impacts will be reduced to below significance outside the facility's boundaries. The operation of the proposed project is not expected to generate significant levels of noise. In addition, all applicable conditions from the 2008 Zoning Determination will remain in effect. Therefore, no significant impacts to noise are expected at the WTU Central Facility, and no cumulative noise impacts are expected.

With respect to traffic, no cumulative impacts are expected because the proposed project will not cause a significant increase in the vehicle trips during construction or operation. Construction activities will generate a maximum of 20 trips on the peak traffic day, whereas operation will not result in any additional trips. This small number of truck trips will not cause a significant impact to the capacity of nearby intersections. Therefore, no significant impacts to traffic are expected at the WTU Central Facility, and no cumulative noise impacts are expected.

Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, a lead agency need not consider the effect significant, but must briefly describe the basis for concluding that the incremental effect is not cumulatively considerable. Therefore the proposed project's contribution to air quality, GHGs, aesthetics, hazards, noise, and traffic are not cumulatively considerable and thus not significant. This conclusion is consistent with CEQA Guidelines §15064 (h)(4), which states, "The mere existence of cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable". Therefore, the proposed project is not expected to result in significant adverse non-GHG cumulative impacts.

18c). The 2011 SMND concluded that the 2011 Project did not have the potential to generate significant adverse impacts that could adversely affect the environment. All applicable mitigation measures imposed by the SCAQMD in the 2011 SMND (modified as described in this document) and conditions imposed by the City of Los Angeles in the 2008 Zoning Determination will remain in effect during construction and operation of the currently proposed project.

The proposed project will add a new Bekaert CEB®, and will remove six microturbines (three proposed in 2011 SMND were never installed) from the facility. The proposed project will result in decreases in all criteria pollutant emissions, except for SO_x, which has a very small and insignificant increase; all emissions are below the SCAQMD's operational significance thresholds. The potential health impacts of the proposed project were compared to the 2011 Project. Cancer risk and chronic health impacts are less than those from the 2011 Project and acute health impacts are slightly greater; all health impacts are less than all SCAQMD significance thresholds. As a result, the proposed project is not expected to significantly increase the potential impacts due to air quality, health risk, hazards and hazardous materials, or other impacts related to human health. Therefore, no significant health impacts or other adverse impacts to humans are expected due to the operation of the proposed project.

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ACRONYMS

ABBREVIATION	DESCRIPTION
AB	Assembly bill
AB 32	Assembly bill 32: California's Global Warming Solutions Act of 2006
AHM	acutely hazardous material
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BACT	Best Available Control Technology
BTU	British Thermal Units
BTU/hr	British Thermal Units per hour
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California State Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CH_4	methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2eq	CO_2 equivalent
CPUC	California Public Utilities Commission
dBA	A-weighted noise level measurement in decibels
DOGGR	Division of Oil, Gas, and Geothermal Resources
EIR	Environmental Impact Report
EPS	Emissions Performance Standard
ERPG	Emergency Response Planning Guideline
FWKO	Free Water Knock-Out
GHG	greenhouse gas
GMC	Growth Management Chapter
H_2SO_4	hydrogen sulfate
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HI	Hazard Index
HIA	Acute Hazard Index
HIC	Chronic Hazard Index
HRA	Health Risk Assessment
IRP	Integrated Resource Plan
IS	Initial study
ISC	Industrial Source Complex
ISCST3	Industrial Source Complex Model Short Term Version 3
LADWP	Los Angeles Department of Water and Power

lbs	pounds
lbs/hr	pounds per hour
LOS	Level of Service
LST	Localized Significance Threshold
MEIR	Maximum exposed individual resident
MEIW	Maximum exposed individual worker
MICR	Maximum individual cancer risk
MMscf	Million Standard Cubic Feet
MND	Mitigated negative declaration
MT	metric ton
MW-hr	megawatt-hour
N_2	nitrogen
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NIOSH	National Institute of Occupational Safety and Health
NOP	Notice of Preparation
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAHs	Polynuclear Aromatic Hydrocarbons
PFC	perfluorocarbon
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppbv	parts per billion by volume
ppm	parts per million
ppmv	parts per million by volume
RCPG	Regional Comprehensive Plan and Guide
RECLAIM	Regional Clean Air Incentives Market
SB	Senate bill
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluoride
SO_x	sulfur oxide
TACs	toxic air contaminants
ug/l	micrograms per liter
ug/m^3	micrograms per cubic meter
US DOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compounds
WTU	Wilmington Townlot Unit

GLOSSARY

TERM	DEFINITION
Ambient Noise	The background sound of an environment in relation to which all additional sounds are heard
Barrel	42 gallons.
Crude Oil	Crude oil is "unprocessed" oil, which has been extracted from the subsurface. It is also known as petroleum and varies in color, from clear to tar-black, and in viscosity, from water to almost solid.
dBA	The decibel (dDB) is one tenth of a *bel* where one bel represents a difference in noise level between two intensities I_1, I_0 where one is ten times greater than the other. (A) indicates the measurement is weighted to the human ear.
Flares	Emergency equipment used to incinerate gases during upset, startup, or shutdown conditions
Heater	Process equipment used to raise the temperature of refinery streams processing.
Natural Gas	A mixture of hydrocarbon gases that occurs with petroleum deposits, principally methane together with varying quantities of ethane, propane, butane, and other gases.
Seiches	A vibration of the surface of a lake or landlocked sea that varies in period from a few minutes to several hours and which may change in intensity.

APPENDIX A

EMISSIONS FROM PROPOSED PROJECT

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APPENDIX A

EMISSIONS FROM PROPOSED PROJECT

Introduction

The proposed project consists primarily of the removal of some existing equipment (i.e., the six existing microturbines) and the installation of pre-fabricated equipment. Operational emissions for the final proposed project are calculated. Construction in the WTU Central Facility will be limited to minor demolition and hauling to remove the six existing microturbines; and piping, wiring, and installing of a pre-fabricated Bekaert CEB® on a new concrete pad. The construction of the gas sales equipment is also shown for information only, although this was analyzed in the 2011 SMND.

Operational Combustion Emissions

Emissions of NO_x, VOC, CO, SO_x, PM, PM_{10}, $PM_{2.5}$, CO_2, and TACs were calculated for each combustion unit (HT #2 and two Bekaert CEB®). Fugitive VOC emissions for additional valves, flanges, and other connections to be installed with the proposed project were estimated using the SCAQMD's *Guidelines for Fugitive Emission Calculations* (June 2003).

The tables in Attachment 1 provide a summary of the daily emissions associated with each of these operating scenarios.

The tables in Attachment 2 provide detailed information about the emission factors and parameters used to calculation emissions from each source. For all calculations, the SCAQMD default higher heating value of 1,050 Btu/scf was used.

Construction Emissions

Construction activities will include grading, welding, crane lifts, and other similar activities. Fugitive dust emissions (PM_{10}, $PM_{2.5}$, and PM) will be generated during construction of equipment pads and foundations. In addition, emissions will be generated from the diesel and gasoline mobile source vehicles used off-site. The equipment inventories were based on expected project needs. The construction emissions were calculated separately for each phase and activities were assumed not to be occurring concurrently. Construction activities were separated into activities required to install a given piece of equipment.

- Construction I: Construction and installation of second Bekaert CEB®.
- Construction II: Construction and installation of gas conditioning.
- Construction III: Removal of microturbines
- Construction IV: Construction of the MSA system

Construction II and IV were previously analyzed in the 2011 SMND and are included here for information only; emissions from these phases are available in the 2011 SMND. This analysis shows only the new emissions, i.e., Construction I and III.

The tables in Attachment 3 summarize the emissions associated with these construction activities.

APPENDIX A – Attachment 1

Operational Emissions

Table A.1 - Summary of criteria pollutant emissions from proposed project

Baseline Maximum Day: Gas reinjection or sales interrupted, HT#2 at 6,000 bpd (3/4 capacity), 9 microturbines (100% capacity), and the Bekaert (100% capacity)

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Percent of rating (%)	CO EF (lb/MMscf)	NO_X EF (lb/MMscf)	PM_{10} (lb/MMscf)	$PM_{2.5}$ (lb/MMscf)	VOC EF (lb/mmscf)	SO_X EF (lb/MMscf)	CO (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	VOC (lb/day)	SO_X (lb/day)
Heater treater #1	2.5	57.1	100%	35.0	38.2	7.5	7.5	7.0	1.7	2.0	2.2	0.4	0.4	0.4	0.1
Heater treater #2	12	205.7	75%	35.0	19.12	7.5	7.5	7.0	1.7	7.2	3.9	1.5	1.5	1.4	0.3
Bekaert CEB (1 unit)	17	388.6	100%	7.8	19.1	2.5	2.5	4.4	1.7	3.0	7.4	1.0	1.0	1.7	0.6
Microturbines (9)	8.5	195.1	100%	47.1	46.4	6.9	6.9	67.2	1.7	9.2	9.1	1.4	1.4	13.1	0.3
Total Combustion	--	847	--	--	--	--	--	--	--	21.4	22.6	4.3	4.3	16.7	1.41
Fugitives (Tanks and other sources)	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--
Tanks	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--
Connections	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0	--
Total	--	846.5	--	--	--	--	--	--	--	21.4	22.6	4.3	4.3	30.6	1.4

Project, maximum day: Gas sales interrupted, HT#2 (100% capacity), the Bekaert units operating (100, and removal of the microturbines

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Percent of rating (%)	CO EF (lb/mmscf)	NO_X EF (lb/MMscf)	PM_{10} (lb/MMscf)	$PM_{2.5}$ (lb/MMscf)	VOC EF (lb/mmscf)	SO_X EF (lb/MMscf)	CO (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	VOC (lb/day)	SO_X (lb/day)
Heater treater #1	2.5	57.1	100%	35.0	38.2	7.5	7.5	7.0	1.7	2.0	2.2	0.4	0.4	0.4	0.1
Heater treater #2	8	182.9	100%	35.0	19.1	7.5	7.5	7.0	1.7	6.4	3.5	1.4	1.4	1.3	0.3
Bekaert CEB (2 unit)	34	777.1	100%	7.8	19.1	2.5	2.5	4.4	1.7	6.0	14.9	1.9	1.9	3.4	1.3
Total Combustion	--	1,017	--	--	--	--	--	--	--	14.4	20.5	3.7	3.7	5.1	1.7
Fugitives (Tanks and other sources)	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--
Tanks	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--
Connections	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0	--
Total	--	1,017	--	--	--	--	--	--	--	14.4	20.5	3.7	3.7	19.0	1.69
Incremental Change from 2011 Project (maximum)	--	--	--	--	--	--	--	--	--	-7.0	-2.1	-0.6	-0.6	-11.6	0.28

Table A.1x - Current emissions (for informational purposes only)

Current Emissions Maximum Day: Gas reinjection or sales interrupted, HT#2 at 6,000 bpd (3/4 capacity), 9 microturbines (100% capacity), and the Bekaert (100% capacity)

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Percent of rating (%)	CO EF (lb/MMscf)	NO_X EF (lb/MMscf)	PM_{10} (lb/MMscf)	$PM_{2.5}$ (lb/MMscf)	VOC EF (lb/mmscf)	SO_X EF (lb/MMscf)	CO (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	VOC (lb/day)	SO_X (lb/day)
Heater treater #1	2.5	57.1	100%	35.0	38.2	7.5	7.5	7.0	1.7	2.0	2.2	0.4	0.4	0.4	0.1
Heater treater #2	12	205.7	75%	35.0	19.12	7.5	7.5	7.0	1.7	7.2	3.9	1.5	1.5	1.4	0.3
Bekaert CEB (1 unit)	17	388.6	100%	7.8	19.1	2.5	2.5	4.4	1.7	3.0	7.4	1.0	1.0	1.7	0.6
Microturbines (6)	5.7	130.1	100%	47.1	46.4	6.9	6.9	67.2	1.7	6.1	6.0	0.9	0.9	8.7	0.2
Total Combustion	--	782	--	--	--	--	--	--	--	18.3	19.6	3.8	3.8	12.3	1.30
Fugitives (Tanks and other sources)	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--
Tanks	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--
Connections	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0	--
Total	--	781.5	--	--	--	--	--	--	--	18.3	19.6	3.8	3.8	26.2	1.3

APPENDIX A – Attachment 2

Equipment Information

Table A.2. Heater Treater #1 Emission Factors

ENVIRON calculations (data from application, Warren, and vendor information)

1. Given values

Category	Value	Units	Source
HHV - refined	1,050	MMbtu/MMscf	SCAQMD Default
H_2S concentration in fuel[1]	10	ppm	Gas analytical data
NO_x Concentration	30	ppm at 3% O_2	Per source test data provided by SCAQMD

[1] Based on Warren's gas analytical data

2. Assumed values

Category	Value	Units	Source
Heat input	2.5	MMbtu/hr	HT #1 permit
HHV	1,050	MMbtu/MMscf	SCAQMD Default
NO_X molecular weight[1]	46	lb/lb-mole	Periodic table
H2S molecular weight	34	lb/lb-mole	Periodic table
SO_X molecular weight[2]	64	lb/lb-mole	Periodic table

[1] The molecular weight of NO_X assumes NO_2.

3. Conversion factors

Category	Value	Units	Source
Fuel burned per energy unit	8,710	dscf/MMbtu	
Oxygen correction	1.17	O_2/corrected O_2	20.9/(20.9-3)
Volume conversion	385.44	scf/lb-mole	
Parts in one million	1,000,000	ppm	
Molar ratio (SO_2/H_2S)	1	lb-mole SO_2/lb-mole H_2S	Conservatively assumes complete combustion of H_2S to SO_2

4. Calculation of VOC emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
VOC EF	7.00	lb/MMscf	SCAQMD default[1]

[1] Default emission factors for external combustion equipment.

5. Calculation of NO_X emission factor

Category	Value	Units	Source
Per AQMD Data	0.036	lb/MMbtu	Calculation
NO_X EF	38.23	lb/MMscf	Per data provided by SCAQMD

6. Calculation of SO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.002	lb/MMbtu	
SO_X EF	1.66	lb/MMscf	Based on sulfur content of the fuel

7. Calculation of CO emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO EF	35.00	lb/MMscf	SCAQMD default[1]

[1] Default emission factors for external combustion equipment.

8. Calculation of PM emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
PM, PM_{10}, and $PM_{2.5}$ EF[1]	7.50	lb/MMscf	SCAQMD default[2]

[1] Per CEIDARS List for Gaseous Fuel Combustion, the PM_{10} and $PM_{2.5}$ fraction is equal to PM.

[2] Default emission factors for external combustion equipment.

9. Calculation of CO_2 emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO_2 EF	120,000	lb/MMscf	Per AP-42 Chapter 1.4

10. Emission factors

Category	Value	Units	Source
VOC EF	7.00	lb/MMscf	SCAQMD default
NO_X EF	38.23	lb/MMscf	Based on data provided by the SCAQMD
SO_X EF	1.66	lb/MMscf	Based on sulfur content of fuel
CO EF	35.00	lb/MMscf	SCAQMD default
PM, PM_{10}, and $PM_{2.5}$ EF	7.50	lb/MMscf	SCAQMD default
CO_2 EF	120,000	lb/MMscf	AP-42
CH_4 EF	2.3	lb/MMscf	AP-42
N_2O EF	2.2	lb/MMscf	AP-42

Table A.3. Heater Treater #2 Emission Factors

ENVIRON calculations (data from application, Warren, and vendor information)

1. Given values

Category	Value	Units	Source
NO_X emitted concentration[1]	15	ppm	Manufacturer guarantee
H_2S concentration in fuel[2]	10	ppm	Gas analytical data
HHV - refined	1,050	MMbtu/MMscf	SCAQMD Default

[1] Based on pending application

[2] Based on Warren's gas analytical data.

2. Assumed values

Category	Value	Units	Source
Heat input (2011 SMND)	12	MMBtu/hr	HT #2 application
Heat input (modified, current)	8	MMBtu/hr	HT #2 permit modification
HHV	1,050	MMbtu/MMscf	SCAQMD Default
NO_X molecular weight[1]	46	lb/lb-mole	Periodic table
H2S molecular weight	34	lb/lb-mole	Periodic table
SO_X molecular weight[2]	64	lb/lb-mole	Periodic table

[1] The molecular weight of NO_X assumes NO_2.

[2] The molecular weight of SO_X assumes SO_2.

3. Conversion factors

Category	Value	Units	Source
Fuel burned per energy unit	8,710	dscf/MMbtu	
Oxygen correction	1.17	O_2/corrected O_2	20.9/(20.9-3)
Volume conversion	385.44	scf/lb-mole	
Parts in one million	1,000,000	ppm	
Molar ratio (SO_2/H_2S)	1	lb-mole SO_2/lb-mole H_2S	Conservatively assumes complete combustion of H_2S to SO_2

4. Calculation of VOC emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
VOC EF	7.00	lb/MMscf	SCAQMD default[1]

[1] Default emission factors for external combustion equipment.

5. Calculation of NO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.018	lb/MMbtu	Calculation
NO_X EF	19.12	lb/MMscf	Based on manufacturer's guarantee

$$\frac{EF parts}{10^6\ parts} \times \frac{20.9\%}{20.9\% - 3\%} \times 8{,}710 \frac{dscf}{MMBtu} \times MW \frac{lb}{lb-mole} \times \frac{1 lb-mole}{385.44\ ft^3} = EF \frac{lb}{MMBtu}$$

6. Calculation of SO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.002	lb/MMbtu	Calculation
SO_X EF	1.66	lb/MMscf	Based on sulfur content of the fuel

7. Calculation of CO emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO EF	35.00	lb/MMscf	SCAQMD default[1]

[1] Default emission factors for external combustion equipment.

8. Calculation of PM emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
PM, PM_{10}, and $PM_{2.5}$ EF[1]	7.50	lb/MMscf	SCAQMD default[2]

[1] Per CEIDARS List for Gaseous Fuel Combustion, the PM_{10} and $PM_{2.5}$ fraction is equal to PM.

[2] Default emission factors for external combustion equipment.

9. Calculation of CO_2 emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO_2 EF	120,000	lb/MMscf	Per AP-42 Chapter 1.4

10. Emission factors

Category	Value	Units	Source
VOC EF	7.00	lb/MMscf	SCAQMD default
NO_X EF	19.12	lb/MMscf	Manufacturer's guarantee
SO_X EF	1.66	lb/MMscf	Based on sulfur content of fuel
CO EF	35.00	lb/MMscf	SCAQMD default
PM, PM_{10}, and $PM_{2.5}$ EF	7.50	lb/MMscf	SCAQMD default
CO_2 EF	120,000	lb/MMscf	AP-42
CH_4 EF	2.3	lb/MMscf	AP-42
N_2O EF	2.2	lb/MMscf	AP-42

Table A.4. Bekaert CEB Emission Factors

ENVIRON calculations (data from application, Warren, and vendor information)

1. Given values

Category	Value	Units	Source
NO_X emitted concentration	15	ppm	Burner application (supplemental information packgage); Manufacturer guarantee; spec sheet
CO emitted concentration	10	ppm	Flare application (supplemental information packgage); Manufacturer guarantee; spec sheet
VOC emitted concentration	10	ppm	Manufacturer guarantee (CxHy)
PM emitted concentration[1]	40	μg/L	AP 42-13.5-1, note C (Industrial flares)
H_2S emitted concentration[2]	10	ppm	Gas analytical data
HHV - refined	1,050	MMbtu/MMscf	SCAQMD Default

[1] The PM concentration assumes lightly smoking flare. This may significantly overestimate PM emissions for the Bekaert CEB.
[2] Based on Warren's gas analytical data.

2. Assumed values

Category	Value	Units	Source
Heat input	17	MMbtu/hr	Burner application (cover letter); manufacturer spec sheet
HHV	1,050	MMbtu/MMscf	SCAQMD Default
NO_X molecular weight[1]	46	lb/lb-mole	Periodic table
CO molecular weight	28	lb/lb-mole	Periodic table
VOC molecular weight[2]	16	lb/lb-mole	Periodic table
H2S molecular weight	34	lb/lb-mole	Periodic table
SO_X molecular weight[3]	64	lb/lb-mole	Periodic table

[1] The molecular weight of NO_X assumes NO_2.
[2] The molecular weight of VOC assumes CH4 (per AQMD)
[3] The molecular weight of SOx assumes SO2

3. Conversion factors

Category	Value	Units	Source
Fuel burned per energy unit	8,710	dscf/MMbtu	
Oxygen correction	1.17	O_2/corrected O_2	20.9/(20.9-3)
Volume conversion	385.44	scf/lb-mole	
Parts in one million	1,000,000	ppm	Conversion
Mass conversion	453.59	g/lb	Conversion
Volume conversion	28.32	L/scf	Conversion
Conversion	1,000,000	dscf/MMscf; μg/g	Conversion
Molar ratio (SO_2/H_2S)	1	lb-mole SO_2/lb-mole H_2S	Conservatively assumes complete combustion of H_2S to SO_2

4. Calculation of VOC emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.004	lb/MMbtu	Calculation
VOC EF	4.43	lb/MMscf	Based on manufacturer's guarantee

5. Calculation of NO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.018	lb/MMbtu	Calculation
NO_X EF	19.12	lb/MMscf	Based on manufacturer's guarantee

$$\frac{EFparts}{10^6\ parts}\times\frac{20.9\%}{20.9\%-3\%}\times 8{,}710\frac{dscf}{MMBtu}\times MW\ \frac{lb}{lb-mole}\times\frac{1lb-mole}{385.44\ ft^3}=EF\ \frac{lb}{MMBtu}$$

6. Calculation of SO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.002	lb/MMbtu	
SO_X EF	1.66	lb/MMscf	Based on sulfur content of the fuel

7. Calculation of CO emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.007	lb/MMbtu	Calculation
CO EF	7.76	lb/MMscf	Based on manufacturer's guarantee

8. Calculation of PM emission factor

Category	Value	Units	Source
AP 42 EF	40.0	μg/L	AP-42
PM, PM_{10}, and $PM_{2.5}$ EF[1]	2.50	lb/MMscf	Based on AP-42

[1] Per CEIDARS List for Flares, the PM_{10} and $PM_{2.5}$ fraction is equal to PM.

9. Calculation of CO_2 emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO_2 EF[1]	126,621	lb/MMscf	Table 4.1, American Petroleum Institute, Compendium of greenhouse gas emissions methodologies for the oil and gas industry[1]

[1] American Petroleum Institute, *Compendiium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry* , February 2004. http://www.api.org/ehs/climate/new/upload/2004_COMPENDIUM.pdf

10. Emission factors

Category	Value	Units	Source
VOC EF	4.43	lb/MMscf	Manufacturer's guarantee
NO_X EF	19.12	lb/MMscf	Manufacturer's guarantee
SO_X EF	1.66	lb/MMscf	Based on sulfur content of fuel
CO EF	7.76	lb/MMscf	Manufacturer's guarantee
PM, PM_{10}, and $PM_{2.5}$ EF	2.50	lb/MMscf	AP-42
CO_2 EF	126,621	lb/MMscf	American Petroleum Institute
CH_4 EF	2.3	lb/MMscf	AP-42
N_2O EF	0.64	lb/MMscf	AP-42

Table A.5. Microturbines Emission Calculations
ENVIRON calculations (from application, Warren, and vendor information)

1. Given values

Category	Value	Units	Source
Number of MTs	6	microturbines	MT application cover letter
VOC emitted concentration	50	ppm at 15% O_2	Data provided by AQMD, BACT Achieved in Practice
VOC emitted concentration, option a	48	ppm at 15% O2	
NO_X emitted concentration	12	ppm at 15% O_2	Data provided by AQMD, BACT Achieved in Practice
CO emitted concentration	20	ppm at 15% O_2	Data provided by AQMD, BACT Achieved in Practice
H_2S emitted concentration[1]	10	ppm	Gas analytical data
Mass conversion	453.59	g/lb	
Conversion	0.000001	MMbtu/btu	
Conversion	1,000,000	dscf/MMscf; μg/g	
HHV - refined	1,050	MMbtu/MMscf	SCAQMD Default

[1] Based on Warren's gas analytical data.

2. Assumed values

Category	Value	Units	Source
Nominal power output	92	kW	Ingersoll Rand specs, @0F
Nominal HHV	13550	btu/kWh	Ingersoll Rand specs, with gas booster
Heat input	0.9485	MMbtu/hr/MT	Calculation
Heat input	5.691	MMbtu/hr	Calculation
HHV	1,050	MMbtu/MMscf	SCAQMD Default
VOC molecular weight[1]	16	g/mol	Per data provided by SCAQMD
NO_X molecular weight[2]	46	g/mol	Periodic table
H2S molecular weight	34	lb/lb-mole	Periodic table
SO_X molecular weight[3]	64	lb/lb-mole	Periodic table
CO molecular weight	28	g/mol	Periodic table

[1] The molecular weight of VOC assumes methane.
[2] The molecular weight of NO_X assumes NO_2.
[3] The molecular weight of SO_X assumes SO_2.

3. Conversion factors

Category	Value	Units	Source
Fuel burned per energy unit	8,710	dscf/MMbtu	
Oxygen correction	3.54	O_2/corrected O_2	20.9/(20.9-15); Manufacturer specified 15% O_2
Oxygen correction	1.17	O_2/corrected O_2	20.9/(20.9-3)
Volume conversion	385.44	scf/lb-mole	
Parts in one million	1,000,000	ppm	
Molar ratio (SO_2/H_2S)	1	lb-mole SO_2/lb-mole H_2S	Conservatively assumes complete combustion of H_2S to SO_2

4. Calculation of VOC emission factor

Category	Value	Units	Source
Per AQMD Data	0.064	lb/MMbtu	Calculation
VOC EF	67.24	lb/MMscf	Calculated per data provided by SCAQMD

5. Calculation of NO_X emission factor

$$\frac{Conc}{10^6\ parts} \times \frac{20.9\%}{20.9\% - 15\%} \times 8{,}710\ \frac{dscf}{MMBtu} \times MW\ \frac{lb}{lb-mole} \times \frac{1\ lb-mole}{385.44\ ft^3} = EF\ \frac{lb}{MMBtu}$$

Category	Value	Units	Source
Per SCAQMD Data	0.044	lb/MMbtu	Calculation
NO_X EF	46.40	lb/MMscf	Calculated per data provided by SCAQMD

6. Calculation of SO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	0.002	lb/MMbtu	Calculation
SO_X EF	1.66	lb/MMscf	Based on sulfur content of the fuel

7. Calculation of CO emission factor

Category	Value	Units	Source
Per AQMD Data	0.045	lb/MMbtu	Calculation
CO EF	47.07	lb/MMscf	Calculated per data provided by SCAQMD

8. Calculation of PM emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
PM, PM_{10}, and $PM_{2.5}$ EF[1]	6.93	lb/MMscf	Per data provided by SCAQMD

[1] Per CEIDARS List for Gaseous Fuel Combustion, the PM_{10} and $PM_{2.5}$ fraction is equal to PM.

9. Calculation of CO_2 emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO_2 EF	120,000	lb/MMscf	Per AP-42 Chapter 1.4

10. Emission factors

Category	Value	Units	Source
VOC EF	67.24	lb/MMscf	Based on data from the SCAQMD
NO_X EF	46.40	lb/MMscf	Based on data from the SCAQMD
SO_X EF	1.66	lb/MMscf	Based on sulfur content of fuel
CO EF	47.07	lb/MMscf	Based on data from the SCAQMD
PM, PM_{10}, and $PM_{2.5}$ EF	6.93	lb/MMscf	Based on data from the SCAQMD
CO_2 EF	120,000	lb/MMscf	AP-42
CH_4 EF	2.3	lb/MMscf	AP-42
N_2O EF	2.2	lb/MMscf	AP-42

Table A.6: Flare King Emission Factors

ENVIRON calculations (data from application, Warren, and vendor information)

1. Given values

Category	Value	Units	Source
HHV - refined	1,050	MMbtu/MMscf	SCAQMD Default
H_2S emitted concentration[1]	10	ppm	Gas analytical data

[2] Based on Warren's gas analytical data.

2. Assumed values

Category	Value	Units	Source
Heat input	4	MMbtu/hr	Old flare
HHV	1,050	MMbtu/MMscf	SCAQMD Default
H2S molecular weight	34	lb/lb-mole	Periodic table
SO_X molecular weight[2]	64	lb/lb-mole	Periodic table

3. Conversion factors

Category	Value	Units	Source
Fuel burned per energy unit	8,710	dscf/MMbtu	
Oxygen correction	1.17	O_2/ corrected O_2	20.9/(20.9-3)
Volume conversion	385.44	scf/lb-mole	
Parts in one million	1,000,000	ppm	

4. Calculation of VOC emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
VOC EF	77.28	lb/MMscf	Per A/N 305487 (provided by AQMD)

5. Calculation of NO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
NO_X EF	75.39	lb/MMscf	Per A/N 305487 (provided by AQMD)

6. Calculation of SO_X emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
SO_X EF	4.31	lb/MMscf	Per A/N 305487 (provided by AQMD)

7. Calculation of CO emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO EF	415.49	lb/MMscf	Per A/N 305487 (provided by AQMD)

8. Calculation of PM emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
PM, PM_{10}, and $PM_{2.5}$ EF[1]	21.21	lb/MMscf	Per A/N 305487 (provided by AQMD)

[1] Per CEIDARS List for Flares, the PM_{10} and $PM_{2.5}$ fraction is equal to PM.

9. Calculation of CO_2 emission factor

Category	Value	Units	Source
Manufacturer guarantee	n/a	lb/MMbtu	
CO_2 EF[1]	126,621	lb/MMscf	Table 4.1, American Petroleum Institute

[1] American Petroleum Institute, *Compendiium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry* , February 2004. http://www.api.org/ehs/climate/new/upload/2004_COMPENDIUM.pdf

10. Emission factors Default?

Category	Value	Units	Source
VOC EF	77.28	lb/MMscf	Per A/N 305487 (provided by AQMD)
NO_X EF	75.39	lb/MMscf	Per A/N 305487 (provided by AQMD)
SO_X EF	4.31	lb/MMscf	Per A/N 305487 (provided by AQMD)
CO EF	415.49	lb/MMscf	Per A/N 305487 (provided by AQMD)
PM, PM_{10}, and $PM_{2.5}$ EF	21.21	lb/MMscf	Per A/N 305487 (provided by AQMD)
CO_2 EF	126,621	lb/MMscf	Table 4.1, American Petroleum Institute, Compendium of greenhouse gas emissions methodologies for the oil and gas industry
CH4 EF	2.3	lb/MMscf	Per AP-42 Chapter 1.4
N2O EF	0.64	lb/MMscf	Per AP-42 Chapter 1.4

Table A.7: Fugitive Emissions from Tanks

ENVIRON calculations (data from application and Warren)

	5,000 bpd		6,000 bpd	
Tanks	**Uncontrolled VOC Emissions (lb/yr)[1]**	**Controlled VOC Emissions (lb/yr)[2]**	**Uncontrolled VOC Emissions (lb/yr)[1]**	**Controlled VOC Emissions (lb/yr)[2]**
Wemco #1	556	28	560	28
Wemco #2	1,118	56	1,122	56
Treater Pit	2,377	119	2,451	123
Pit T850	3,872	194	4,318	216
Divert Tank T320	10,722	536	11,168	558
Divert Tank T310	10,703	535	11,168	558
Crude Shipping Tank T420	27,004	1,350	30,754	1,538
Crude Shipping Tank T410	27,004	1,350	30,754	1,538
Clarifier Pit Tank T1210	3,872	194	4,318	216
Produced Water Tank T940	4,729	236	4,733	237
Total (lb/yr)		4,598	5,067	
Total (lb/day)[3]		12.6	13.9	
Control System Efficiency		95%		

1. VOC emissions calculated using TANKS, version 4.09d, for 5,000 bpd of oil.
2. A control efficiency of 95% was used.
3. Emissions in lb/day are calculated assuming 365 days of operation.

Table A.8: Fugitive Emissions from Components

ENVIRON calculations (data from application and Warren)

Number of gas service components[1]

Component Type	HT #1 and HT #2	MT system	Bekaert CEB system	Total
Valves	12	8	4	24
PRDs	1	1	1	3
Flange sets	50	24	12	86
Pumps	0	0	0	0
Connectors (couplings, etc.)	0	6	0	6
Open-ended lines	0	1	0	1
Compressors	0	0	0	0
Others	15	6	2	23

1. Component types and numbers obtained from Warren.

Component type	Components (< 10k ppmv)[2]	SVRFs for THC[3] (lb/hr/source; < 10k ppmv)	THC Emissions (lb/day)	Speciated Emissions[4] (lb/day)				
				ROC	Methane	Ethane	Inerts	Benzene
Heater Treater #1								
Valves	12	7.70E-05	0.022	0.002	0.016	0.001	0.004	0.000
PRDs[5]	1	3.20E-04	0.008	0.001	0.006	0.000	0.001	0.000
Flange sets	50	6.20E-05	0.074	0.005	0.053	0.002	0.014	0.000
Pumps	0	2.20E-03	0.000	0.000	0.000	0.000	0.000	0.000
Connectors	0	2.60E-05	0.000	0.000	0.000	0.000	0.000	0.000
Open-ended lines	0	5.30E-05	0.000	0.000	0.000	0.000	0.000	0.000
Compressors	0	3.20E-04	0.000	0.000	0.000	0.000	0.000	0.000
Others	15	3.20E-04	0.115	0.008	0.083	0.003	0.022	0.001
			TOTALS	0.015	0.158	0.005	0.042	0.001
Heater Treater #2								
Valves	12	7.70E-05	0.022	0.002	0.016	0.001	0.004	0.000
PRDs[5]	1	3.20E-04	0.008	0.001	0.006	0.000	0.001	0.000
Flange sets	50	6.20E-05	0.074	0.005	0.053	0.002	0.014	0.000
Pumps	0	2.20E-03	0.000	0.000	0.000	0.000	0.000	0.000
Connectors	0	2.60E-05	0.000	0.000	0.000	0.000	0.000	0.000
Open-ended lines	0	5.30E-05	0.000	0.000	0.000	0.000	0.000	0.000
Compressors	0	3.20E-04	0.000	0.000	0.000	0.000	0.000	0.000
Others	15	3.20E-04	0.115	0.008	0.083	0.003	0.022	0.001
			TOTALS	0.015	0.158	0.005	0.042	0.001
Microturbines								
Valves	8	7.70E-05	0.015	0.001	0.011	0.000	0.003	0.000
PRDs[5]	1	3.20E-04	0.008	0.001	0.006	0.000	0.001	0.000
Flange sets	24	6.20E-05	0.036	0.002	0.026	0.001	0.007	0.000
Pumps	0	2.20E-03	0.000	0.000	0.000	0.000	0.000	0.000
Connectors	6	2.60E-05	0.004	0.000	0.003	0.000	0.001	0.000
Open-ended lines	1	5.30E-05	0.001	0.000	0.001	0.000	0.000	0.000
Compressors	0	3.20E-04	0.000	0.000	0.000	0.000	0.000	0.000
Others	6	3.20E-04	0.046	0.003	0.033	0.001	0.009	0.000
			TOTALS	0.008	0.078	0.002	0.021	0.001
Bekaert CEB								
Valves	4	7.70E-05	0.007	0.001	0.005	0.000	0.001	0.000
PRDs[5]	1	3.20E-04	0.008	0.001	0.006	0.000	0.001	0.000
Flange sets	12	6.20E-05	0.018	0.001	0.013	0.000	0.003	0.000
Pumps	0	2.20E-03	0.000	0.000	0.000	0.000	0.000	0.000
Connectors	0	2.60E-05	0.000	0.000	0.000	0.000	0.000	0.000
Open-ended lines	0	5.30E-05	0.000	0.000	0.000	0.000	0.000	0.000
Compressors	0	3.20E-04	0.000	0.000	0.000	0.000	0.000	0.000
Others	2	3.20E-04	0.015	0.001	0.011	0.000	0.003	0.000
			TOTALS	0.003	0.035	0.001	0.009	0.000

Gas	Percent
ROC[6]	6.96%
Methane[6]	71.80%
Ethane[6]	2.26%
Inerts[6]	18.97%
Benzene[6]	0.60%

APPENDIX A – Attachment 3

Construction Emissions

Table A.9. Construction Schedule and Equipment Assumptions.

Phase	Number of Days	Begin[1]	End[1]	Equipment (Quantity)	Horsepower	Hours/ day	Load Factor	
							Original	Adjusted[3]
Construction I								
Installation of the Bekaert CEB								
Excavation for foundation	1	12/2/2013	12/3/2013	Excavator (1)	168	2	0.57	0.382
				Concrete/Industrial saw (1)	10	2	0.73	0.489
				Dozer (1)	357	2	0.59	0.395
				Water truck (1)	189	6	0.5	0.335
				Truck hauling (8 ft x 20 ft x 0.5 ft)	--	--	--	--
				Total	--	--	--	--
Build foundation	1	12/4/2013	12/5/2013	Tractor/loader/ backhoe (1)	108	6	0.55	0.369
				Gas Compactor (1)	5	4	0.43	0.288
				Cement/mortar mixer (1)	10	1	0.56	0.375
				Total	--	--	--	--
Setting equipment	1	12/9/2013	12/10/2013	Crane (1)	399	2	0.43	0.288
Piping associated with the Bekaert	1	12/11/2013	12/12/2013	Welder (1)	45	2	0.45	0.302
				Crane (1)	399	2	0.43	0.288
				Tractor/loader/ backhoe (1)	108	2	0.55	0.369
				Total	--	--	--	--
Construction IV[5]								
Removal of MTs								
Removal and hauling	1	10/14/2015	10/14/2015	Crane (1)	--	4	0.43	0.288
				Flatbed (1)	--	--	--	--
				Pick up truck (3)	--	--	--	--
				Workers Commute	--	--	--	--
				Total	--	--	--	--
Electrical work	30	10/14/2015	11/22/2015	Commuter vehicles	--	--	--	--

Table A.9. Construction Schedule and Equipment Assumptions.

Phase	Number of Days	Begin[1]	End[1]	Equipment (Quantity)	Emission Factor (lb/hr)[2]						
					NO_x	VOC	PM_{10}	$PM_{2.5}$[4]	SO_x	CO	CO_2
Construction I											
Installation of the Bekaert CEB											
Excavation for foundation	1	12/2/2013	12/3/2013	Excavator (1)	1.290	0.167	0.075	0.074	0.001	0.673	112
				Concrete/Industrial saw (1)	0.134	0.021	0.008	0.008	0.000	0.068	17
				Dozer (1)	3.500	0.389	0.149	0.148	0.003	1.990	265
				Water truck (1)	1.860	0.182	0.066	0.065	0.002	0.479	166
				Truck hauling (8 ft x 20 ft x 0.5 ft)	--	--	--	--	--	--	--
				Total	--	--	--	--	--	--	--
Build foundation	1	12/4/2013	12/5/2013	Tractor/loader/ backhoe (1)	0.650	0.108	0.059	0.059	0.001	0.370	52
				Gas Compactor (1)	0.023	0.051	0.001	0.001	0.000	0.773	2
				Cement/mortar mixer (1)	0.056	0.009	0.004	0.004	0.000	0.039	6
				Total	--	--	--	--	--	--	--
Setting equipment	1	12/9/2013	12/10/2013	Crane (1)	1.990	0.201	0.077	0.076	0.002	0.776	180
Piping associated with the Bekaert	1	12/11/2013	12/12/2013	Welder (1)	0.288	0.124	0.030	0.030	0.000	0.314	28
				Crane (1)	1.990	0.201	0.077	0.076	0.002	0.776	180
				Tractor/loader/ backhoe (1)	0.650	0.108	0.059	0.059	0.001	0.370	52
				Total	--	--	--	--	--	--	--
Construction IV[5]											
Removal of MTs											
Removal and hauling	1	10/14/2015	10/14/2015	Crane (1)	1.990	0.201	0.077	0.076	0.002	0.776	180
				Flatbed (1)	--	--	--	--	--	--	--
				Pick up truck (3)	--	--	--	--	--	--	--
				Workers Commute	--	--	--	--	--	--	--
				Total	--	--	--	--	--	--	--
Electrical work	30	10/14/2015	11/22/2015	Commuter vehicles							

Table A.9. Construction Schedule and Equipment Assumptions.

Phase	Number of Days	Begin[1]	End[1]	Equipment (Quantity)	Emissions (lb/day)						
					NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_x	CO	CO_2e
Construction I											
Installation of the Bekaert CEB											
Excavation for foundation	1	12/2/2013	12/3/2013	Excavator (1)	0.99	0.13	0.06	0.06	0.00	0.51	85.55
				Concrete/Industrial saw (1)	0.13	0.02	0.01	0.01	0.00	0.07	16.14
				Dozer (1)	2.77	0.31	0.12	0.12	0.00	1.57	209.51
				Water truck (1)	3.74	0.37	0.13	0.13	0.00	0.96	333.66
				Truck hauling (8 ft x 20 ft x 0.5 ft)	0.034	0.04	0.00	0.00	0.00	0.34	116
				Total	*7.66*	*0.86*	*0.32*	*0.31*	*0.01*	*3.46*	*761*
Build foundation	1	12/4/2013	12/5/2013	Tractor/loader/ backhoe (1)	1.44	0.24	0.13	0.13	0.00	0.82	114.31
				Gas Compactor (1)	0.03	0.06	0.00	0.00	0.00	0.89	2.40
				Cement/mortar mixer (1)	0.02	0.00	0.00	0.00	0.00	0.01	2.37
				Total	*1.48*	*0.30*	*0.13*	*0.13*	*0.00*	*1.72*	*119*
Setting equipment	1	12/9/2013	12/10/2013	Crane (1)	*1.15*	*0.12*	*0.04*	*0.04*	*0.00*	*0.45*	*103.72*
Piping associated with the Bekaert	1	12/11/2013	12/12/2013	Welder (1)	0.17	0.07	0.02	0.02	0.00	0.19	16.88
				Crane (1)	1.15	0.12	0.04	0.04	0.00	0.45	103.72
				Tractor/loader/ backhoe (1)	0.48	0.08	0.04	0.04	0.00	0.27	38.10
				Total	*1.80*	*0.27*	*0.11*	*0.11*	*0.00*	*0.91*	*158.70*
Construction IV[5]											
Removal of MTs											
Removal and hauling	1	10/14/2015	10/14/2015	Crane (1)	2.29	0.23	0.09	0.09	0.00	0.89	207
				Flatbed (1)	0.26	0.03	0.01	0.01	0.00	0.23	40.97
				Pick up truck (3)	0.03	0.04	0.00	0.00	0.00	0.34	116.48
				Workers Commute	0.35	0.36	0.04	0.03	0.00	3.50	504.31
				Total	*2.94*	*0.66*	*0.14*	*0.12*	*0.01*	*4.96*	*869.19*
Electrical work	30	10/14/2015	11/22/2015	Commuter vehicles							

1. This is an estimate of the construction schedule. If this Supplement is certified, regardless of the adoption date, the construction phases would not change and the calculation results would not change.

2. Emission factors (lb/hr) were obtained from OFFROAD.

3. Per ARB (2010), emissions were reduced by 33% by reducing the load factor. (ARB. 2010. Workshops on information regarding the Off-road, truck and bus and drayage truck regulations. August/September 2010 Workshop Series. September 3, 2010.

4. The fraction of PM_{10} that is $PM_{2.5}$ is calculated based on SCAQMD (2006) - Final methodology to Calculate PM2.5 and PM2.5 Significance Threhsolds, Appendix A. 2 for Construction 1

5. Emission factors for Construction IV is determined using the SCAQMD's Highest (Most Conservative) EMFAC2007 (version 2.3) for 2012 values for Delivery and Passenger Vehicles.

Table A.10. Offsite Mobile Source Emissions
Emission factors and trip lengths for offsite mobile sources

Delivery Trucks (pounds/mile)[1]		Passenger Vehicles (pounds/mile)[2]		Passenger Vehicles (pounds/mile)[2]	
CO	0.01546	CO	0.00765	CO	0.00765
NO_x	0.01732	NO_x	0.00078	NO_x	0.00078
ROG	0.00224	ROG	0.00080	ROG	0.00080
SO_x	0.00003	SO_x	0.00001	SO_x	0.00001
PM_{10}	0.00065	PM_{10}	0.00009	PM_{10}	0.00009
$PM_{2.5}$	0.00055	$PM_{2.5}$	0.00006	$PM_{2.5}$	0.00006
CO_2	2.76628	CO_2	1.10153	CO_2	1.10153
CH_4	0.00011	CH_4	0.00007	CH_4	0.00007
Trip length, one way (miles)[3]	7.4	Trip length, one way (miles)[3]	7.4	Trip length, one way (miles)[4]	12.7

1. Emission Factors obtained from SCAQMD's Emission Factors for On-Road Passenger Vehicles & Delivery Trucks (version 2.3) for 2012 Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds).
2. Emission Factors obtained from SCAQMD's Emission Factors for On-Road Passenger Vehicles & Delivery Trucks (version 2.3) for 2012 Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds).
3. Trip length obtained from CalEEMod Appendix D, Table 4.2 for urban trips, commercial-nonwork.
4. Trip length obtained from CalEEMod Appendix D, Table 4.2 for urban trips, home-work.

Table A.11. Offsite Mobile Source Criteria Pollutant Emissions.

Source	Total Distance (mile)[1]	Emission Factor (lb/mile)					
		NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_x	CO
Flat bed truck[2]	14.8	0.017	0.002	0.001	0.001	0.000	0.015
Pick up truck[3]	44.4	0.001	0.001	0.000	0.000	0.000	0.008
Worker Commute[4]	457.2	0.001	0.001	0.000	0.000	0.000	0.008
Source	**Total Distance (mile)[1]**	**Emissions (lb)[1]**					
		NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_x	CO
Flat bed truck[2]	14.8	0.256	0.033	0.010	0.008	0.000	0.229
Pick up truck[3]	44.4	0.034	0.035	0.004	0.003	0.000	0.340
Worker Commute[4]	457.2	0.355	0.364	0.041	0.026	0.005	3.500

1. The analysis assumes a round trip and assumes that all emissions occur in a single day.
2. The flat bed truck represents vendor trips and uses delivery truck assumptions.
3. The pick up truck represents delivery/hauling trips and uses passenger vehicle assumptions.
4. There are 18 construction workers commuting.

Table A.12. Construction emissions - Offsite Mobile Source Greenhouse Gas Emissions.

Source	Total Distance (mile)[1]	Emission Factor (lb/mile)		Emissions (lb)[1]			Emissions (MT)[1]		
		CO_2	CH_4	CO_2	CH_4	CO_2e	CO_2	CH_4	CO_2e
Flat bed truck[2]	14.8	2.8	0.0001	40.9	0.0016	41.0	0.02	7.2E-07	0.02
Pick up truck[3]	105.6	1.1	0.0001	116.3	0.0076	116.5	0.05	3.4E-06	0.05
Worker Commute[4]	457.2	1.1	0.0001	503.6	0.0328	504.3	0.23	1.5E-05	0.23

1. The analysis assumes a round trip and assumes that all emissions occur in a single day.
2. The flat bed truck represents vendor trips and uses delivery truck assumptions.
3. The pick up truck represents delivery/hauling trips and uses passenger vehicle assumptions.
4. There are 18 construction workers commuting.

Conversion Factors

metric tons	2,204	lbs/MT	
CH_4 GWP[1]	21	MT CO_2eq/MT CH_4	IPCC, TAR

Table A.13. Maximum Daily Criteria Pollutants Emissions by Phase

Phase	Criteria Pollutant Emissions (lb/day)									
	NO_x	VOC	PM_{10}		PM_{10}	$PM_{2.5}$		$PM_{2.5}$[3]	SO_x	CO
			Combustion	Dust[1]		Combustion	Dust[1]			
I: Installation of Bekaert	7.66	0.86	0.32	0.07	0.39	0.31	0.02	0.33	0.01	3.46
Excavation for foundation	7.66	0.86	0.32	0.07	0.39	0.31	0.02	0.33	0.01	3.46
Build foundation	1.48	0.30	0.13	0.00	0.13	0.13	0.00	0.13	0.00	1.72
Set equipment	1.15	0.12	0.04	0.00	0.04	0.04	0.00	0.04	0.00	0.45
Piping	1.80	0.27	0.11	0.00	0.11	0.11	0.00	0.11	0.00	0.91
IV: Removal of Microturbines	2.94	0.66	0.14	0.00	0.14	0.12	0.00	0.12	0.01	4.96
Maximum Daily Construction Emissions	7.66	0.86	0.32	0.07	0.39	0.31	0.02	0.33	0.01	4.96
2011 Maximum Daily Construction Emissions[2]	7.62	0.82	0.32	0.09	0.41	0.31	0.02	0.33	0.01	3.12
Incremental Change from 2011 Project	0.04	0.04	0.00	-0.02	-0.02	0.00	0.00	0.00	0.00	1.84

1. Fugitive dust emissions were calculated using an emission factor of 20 lb/acre per URBEMIS version 9.2.4. The foundation for the Bekaert is expected to be 8 ft by 20 ft.

Bekaert foundation

Area (ft^2) =	160
Emission factor (lb/acre) =	20

2. Emissions are obtained from Table C.5. in Appendix C to the 2011 SMND.

3. The fraction of PM_{10} that is $PM_{2.5}$ is calculated based on SCAQMD (2006) - Final methodology to Calculate PM2.5 and PM2.5 Significance Threhsolds, Appendix A. 2 for Construction 1

APPENDIX B

HEALTH RISK ASSESSMENT

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Health Risk Evaluation

Emissions

Emissions of toxic air contaminants (TACs) were calculated for the equipment operating in the baseline and in the final proposed project using the emission factors shown below (see Table B.1). The same baseline used in the 2011 SMND was used for this analysis (see Table E.1 of the 2011 SMND).

Toxicity

Toxicity studies with laboratory animals or epidemiological studies of human populations are relied upon to develop toxicity criteria. The toxicities of many of the volatile TACs emitted from the proposed project are relatively well-known with well-established toxicity criteria. Toxicological values used in this assessment are listed in Table B.2. Unless otherwise noted, values are taken from Cal/EPA OEHHA and CARB's Consolidated Table of Approved Risk Assessment Health Values as provided in the Hotspots and Reporting Program (HARP) version 1.4.[1, 2]

Health Effects

Compounds were evaluated for their potential health effects in two categories, carcinogenic (cancer) and non-carcinogenic (non-cancer). Almost all compounds produce non-carcinogenic effects at sufficiently high doses, but only some compounds are associated with carcinogenic effects. Most regulatory agencies consider carcinogens to pose a risk of cancer at all exposure levels (i.e., a "no-threshold" assumption); that is, any increase in dose is assumed to be associated with an increase in the probability of developing cancer. In contrast, non-carcinogens generally are thought to produce adverse health effects only when some minimum exposure level is reached (i.e., a threshold).

The health effects due to emissions of TACs are evaluated using the maximum incremental cancer risk (MICR), chronic hazard indices (HICs), and acute hazard indices (HIAs). Table B.3 summarizes the health risk methodology which follows the SCAQMD RISK ASSESSMENT PROCEDURES for Rules 1401 and 212 Version 7.0, July 2005. Primary and secondary exposure pathways include inhalation, non-inhalation primary, and non-inhalation secondary exposure pathways. The primary non-inhalation pathways include dermal exposure, water ingestion, crop ingestion (direct deposition), and soil ingestion. The secondary non-inhalation pathways include ingestion of mother's milk, fish, dairy products, all types of meat and eggs, and crop ingestion (root uptake). All of these exposure pathways are conservative and evaluated using multi-pathway factors per the Rule 1401/212 guidance.

Cancer risk, chronic HI, and acute HI were calculated for the CEQA baseline and for the final proposed project.

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[1] See Cal/EPA. 2004. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. Office of Environmental Health Hazard Assessment and Air Resources Board. (April 4, 2005) and HARP version 1.4 available at http://www.arb.ca.gov/toxics/harp/harp.htm

[2] Note that the values used in the 2011 SMND are used in this analysis for consistency; recent updates to some toxicity values have not been incorporated.

1) CEQA Baseline: operation of HT #1 and the Flare King flare based on the 2006 MND

2) Final proposed project: HT #1 (annual only), HT #2, two Bekaert CEB® units, and gas sales

The impacts for the baseline and proposed project were calculated at each grid receptor using the "chi over Q" approach (i.e., χ/Q, $\mu g/m^3$ per g/sec). The difference in health impacts between the baseline and proposed project were calculated at each receptor, which is considered the CEQA incremental impact for that receptor. After calculating the incremental impact for each receptor, the maximum difference over all receptors was identified; this maximum difference is the maximum impact for the proposed project. All calculations and processing were done in an Access database.

Impacts

For cancer risk and HIC, both residential and worker exposure scenarios were considered for each grid receptor. Since there is no difference in resident and worker HIC multi-pathway factor for the TACs considered here, HIC is the same for resident and worker exposure assumptions. The maximum cancer risk and HIC were evaluated at all off-site receptors, while the maximum HIA was evaluated at all the receptors including boundary and off-site receptors. The maximum health impacts are reported in Table B.4.

It should be noted that risk was calculated using both worker and residential exposure assumptions at all offsite receptors including those that are not physically located at residences or workplaces. This was done to provide the most comprehensive and conservative assessment possible. The point of maximum impact for both residential and worker risk was at a location that was neither a resident nor workplace. Using residential exposure assumptions at this location overestimates cancer risk; in other words, the estimated risk experienced by the maximum exposed resident would be lower than the values reported.

Table B.1. TAC Emissions from the Proposed Project

TAC Emissions from Heater Treater #1 During Final Project Operation

TACs	Average Fuel Flow (MMscf/yr)	Peak Fuel Flow (MMscf/yr)	EF (lb/MMscf)[1,2]	Average Emissions (lb/yr)	Peak Emissions (lb/yr)	Average Emissions (g/s)	Peak Emissions (g/s)	Cancer Potency Factor (CP) (mg/kg-day)$^{-1}$	Multi Pathway Factor (MPr)	Multi Pathway Factor (MPw)	Adjusted ER for Cancer Risk - Residential	Adjusted ER for Cancer Risk - Worker	Chronic Reference Exposure Level (REL) ug/m3	Multi Pathway Factor (MPr-MPw)	Adjusted ER Chronic Hazard Index - Residential-Worker	Acute Reference Exposure Level (REL) ug/m3	Adjusted ER Acute Hazard Index Residential-Worker
benzene	0	21	0.008	0.00	0.17	0.00E+00	2.40E-06	0.1	1	1	0.00E+00	0.00E+00	60	1	0.00E+00	1300	1.85E-09
formaldehyde			0.017	0.00	0.35	0.00E+00	5.10E-06	0.021	1	1	0.00E+00	0.00E+00	9	1	0.00E+00	55	9.27E-08
Total PAHs (excluding naphthalene)			0.0001	0.00	0.00	0.00E+00	3.00E-08	3.9	29.76	14.62	0.00E+00	0.00E+00	N/A		N/A	N/A	N/A
naphthalene			0.0003	0.00	0.01	0.00E+00	9.00E-08	0.12	1	1	0.00E+00	0.00E+00	9	1	0.00E+00	N/A	N/A
acetaldehyde			0.0043	0.00	0.09	0.00E+00	1.29E-06	0.01	1	1	0.00E+00	0.00E+00	140	1	0.00E+00	470	2.74E-09
acrolein			0.0027	0.00	0.06	0.00E+00	8.10E-07	N/A			N/A	N/A	0.35	1	0.00E+00	2.5	3.24E-07
ammonia			3.2	0.00	66.74	0.00E+00	9.60E-04	N/A			N/A	N/A	200	1	0.00E+00	3200	3.00E-07
ethyl benzene			0.0095	0.00	0.20	0.00E+00	2.85E-06	0.0087	1	1	0.00E+00	0.00E+00	2000	1	0.00E+00	N/A	N/A
hexane			0.0063	0.00	0.13	0.00E+00	1.89E-06	N/A			N/A	N/A	7000	1	0.00E+00	N/A	N/A
toluene			0.0366	0.00	0.76	0.00E+00	1.10E-05	N/A			N/A	N/A	300	1	0.00E+00	37000	2.97E-10
xylene			0.0272	0.00	0.57	0.00E+00	8.16E-06	N/A			N/A	N/A	700	1	0.00E+00	22000	3.71E-10
										Total Adjusted ER	0.00E+00	0.00E+00			Total Adjusted ER	0.00E+00	Total Adjusted ER	7.22E-07

1. Emission factors obtained from default emission factors for natural gas combusion (<10 MMBtu/hr) in "Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emission Inventory".

TAC Emissions from Individual burner on Heater Treater #2 During Final Project Operation

TACs	Average Fuel Flow (MMscf/yr)	Peak Fuel Flow (MMscf/yr)	EF (lb/MMscf)[1,2]	Average Emissions (lb/yr)	Peak Emissions (lb/yr)	Average Emissions (g/s)	Peak Emissions (g/s)	Cancer Potency Factor (CP) (mg/kg-day)$^{-1}$	Multi Pathway Factor (MPr)	Multi Pathway Factor (MPw)	Adjusted ER for Cancer Risk	Adjusted ER for Cancer Risk - Worker	Chronic Reference Exposure Level (REL) ug/m3	Multi Pathway Factor (MPr-MPw)	Adjusted ER Chronic Hazard Index - Residential-Worker	Acute Reference Exposure Level (REL) ug/m3	Adjusted ER Acute Hazard Index Residential-Worker
benzene	31	33	0.0058	0.18	0.19	2.61E-06	2.78E-06	0.1	1	1	7.57E-05	1.48E-05	60	1	4.35E-08	1300	2.14E-09
formaldehyde			0.0123	0.38	0.41	5.54E-06	5.90E-06	0.021	1	1	3.37E-05	6.58E-06	9	1	6.15E-07	55	1.07E-07
Total PAHs (excluding naphthalene)			0.0001	0.00	0.00	4.50E-08	4.80E-08	3.9	29.76	14.62	1.51E-03	1.45E-04	N/A		N/A	N/A	N/A
naphthalene			0.0003	0.01	0.01	1.35E-07	1.44E-07	0.12	1	1	4.70E-06	9.17E-07	9	1	1.50E-08	N/A	N/A
acetaldehyde			0.0031	0.10	0.10	1.40E-06	1.49E-06	0.01	1	1	4.04E-06	7.90E-07	140	1	9.96E-09	470	3.17E-09
acrolein			0.0027	0.08	0.09	1.22E-06	1.30E-06	N/A			N/A	N/A	0.35	1	3.47E-06	2.5	5.18E-07
ammonia			3.2	100.11	106.79	1.44E-03	1.54E-03	N/A			N/A	N/A	200	1	7.20E-06	3200	4.80E-07
ethyl benzene			0.0069	0.22	0.23	3.11E-06	3.31E-06	0.0087	1	1	7.83E-06	1.53E-06	2000	1	1.55E-09	N/A	N/A
hexane			0.0046	0.14	0.15	2.07E-06	2.21E-06	N/A			N/A	N/A	7000	1	2.96E-10	N/A	N/A
toluene			0.0265	0.83	0.88	1.19E-05	1.27E-05	N/A			N/A	N/A	300	1	3.98E-08	37000	3.44E-10
xylene			0.0197	0.62	0.66	8.87E-06	9.46E-06	N/A			N/A	N/A	700	1	1.27E-08	22000	4.30E-10
										Total Adjusted ER	1.64E-03	1.70E-04			Total Adjusted ER	1.14E-05	Total Adjusted ER	1.11E-06

1. Emission factors obtained from default emission factors for natural gas combusion (10-100 MMBtu/hr) in "Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emission Inventory".
2. The ammonia EF is obtained assuming no SCR or SNCR.

Table B.1. TAC Emissions from the Proposed Project

TAC Emissions from Bekaert During Final Project Operation

TACs	Average Fuel Flow (MMscf/yr)	Peak Fuel Flow (MMscf/yr)	EF (lb/MMscf)[1]	Average Emissions (lb/yr)	Peak Emissions (lb/yr)	Average Emissions (g/s)	Peak Emissions (g/s)	Cancer Potency Factor (CP) (mg/kg-day)$^{-1}$	Multi Pathway Factor (MPr)	Multi Pathway Factor (MPw)	Adjusted ER for Cancer Risk	Adjusted ER for Cancer Risk - Worker	Chronic Reference Exposure Level (REL) ug/m3	Multi Pathway Factor (MPr-MPw)	Adjusted ER Chronic Hazard Index - Residential-Worker	Acute Reference Exposure Level (REL) ug/m3	Adjusted ER Acute Hazard Index Residential-Worker
benzene			0.159	11.32	45.10	1.63E-04	6.49E-04	0.1	1	1	4.72E-03	9.22E-04	60	1	2.71E-06	1300	4.99E-07
formaldehyde			1.169	83.25	331.60	1.20E-03	4.77E-03	0.021	1	1	7.29E-03	1.42E-03	9	1	1.33E-04	55	8.67E-05
Total PAHs (excluding naphthalene)			0.003	0.21	0.85	3.07E-06	1.22E-05	3.9	29.76	14.62	1.03E-01	9.92E-03	N/A		N/A	N/A	N/A
naphthalene			0.011	0.78	3.12	1.13E-05	4.49E-05	0.12	1	1	3.92E-04	7.66E-05	9	1	1.25E-06	N/A	N/A
acetaldehyde	71	284	0.043	3.06	12.20	4.40E-05	1.75E-04	0.01	1	1	1.28E-04	2.49E-05	140	1	3.15E-07	470	3.73E-07
acrolein			0.01	0.71	2.84	1.02E-05	4.08E-05	N/A			N/A	N/A	0.35	1	2.93E-05	2.5	1.63E-05
ethyl benzene			1.444	102.84	409.60	1.48E-03	5.89E-03	0.0087	1	1	3.73E-03	7.29E-04	2000	1	7.40E-07	N/A	N/A
hexane			0.029	2.07	8.23	2.97E-05	1.18E-04	N/A			N/A	N/A	7000	1	4.24E-09	N/A	N/A
toluene			0.058	4.13	16.45	5.94E-05	2.37E-04	N/A			N/A	N/A	300	1	1.98E-07	37000	6.40E-09
xylene			0.029	2.07	8.23	2.97E-05	1.18E-04	N/A			N/A	N/A	700	1	4.24E-08	22000	5.38E-09
										Total Adjusted ER	0.11967254	0.01309741			Total Adjusted ER	0.0001675892		Total Adjusted ER	0.00010392261

1. Emission factors obtained from default emission factors for flare, non-refinery, in "Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emission Inventory".

TAC Emissions from Individual Microturbine During Final Project Operation

TACs	Average Fuel Flow (MMscf/yr)	Peak Fuel Flow (MMscf/yr)	EF (lb/MMscf)[1,2]	Average Emissions (lb/yr)	Peak Emissions (lb/yr)	Average Emissions (g/s)	Peak Emissions (g/s)	Cancer Potency Factor (CP) (mg/kg-day)$^{-1}$	Multi Pathway Factor (MPr)	Multi Pathway Factor (MPw)	Adjusted ER for Cancer Risk	Adjusted ER for Cancer Risk - Worker	Chronic Reference Exposure Level (REL) ug/m3	Multi Pathway Factor (MPr-MPw)	Adjusted ER Chronic Hazard Index - Residential-Worker	Acute Reference Exposure Level (REL) ug/m3	Adjusted ER Acute Hazard Index Residential-Worker
benzene			0.0122	0.00	0.00	0.00E+00	0.00E+00	0.1	1	1	0.00E+00	0.00E+00	60	1	0.00E+00	1300	0.00E+00
1,3-butadiene			0.000439	0.00	0.00	0.00E+00	0.00E+00	6.00E-01	1.00	1.00	0.00E+00	0.00E+00	2.00E+01	1.00	0.00E+00	N/A	N/A
formaldehyde			0.724	0.00	0.00	0.00E+00	0.00E+00	0.021	1	1	0.00E+00	0.00E+00	9	1	0.00E+00	55	0.00E+00
Total PAHs (excluding naphthalene)			0.000918	0.00	0.00	0.00E+00	0.00E+00	3.9	29.76	14.62	0.00E+00	0.00E+00	N/A		N/A	N/A	N/A
naphthalene			0.00133	0.00	0.00	0.00E+00	0.00E+00	0.12	1	1	0.00E+00	0.00E+00	9	1	0.00E+00	N/A	N/A
acetaldehyde	0	0	0.0408	0.00	0.00	0.00E+00	0.00E+00	0.01	1	1	0.00E+00	0.00E+00	140	1	0.00E+00	470	0.00E+00
acrolein			0.00653	0.00	0.00	0.00E+00	0.00E+00	N/A			N/A	N/A	0.35	1	0.00E+00	2.5	0.00E+00
ammonia			3.2	0.00	0.00	0.00E+00	0.00E+00	N/A			N/A	N/A	200	1	0.00E+00	3200	0.00E+00
ethyl benzene			0.0326	0.00	0.00	0.00E+00	0.00E+00	0.0087	1	1	0.00E+00	0.00E+00	2000	1	0.00E+00	N/A	N/A
propylene oxide			0.0296	0.00	0.00	0.00E+00	0.00E+00	1.30E-02	1	1	0.00E+00	0.00E+00	30.00	1	0.00E+00	3100	0.00E+00
toluene			0.133	0.00	0.00	0.00E+00	0.00E+00	N/A			N/A	N/A	300	1	0.00E+00	37000	0.00E+00
xylene			0.0653	0.00	0.00	0.00E+00	0.00E+00	N/A			N/A	N/A	700	1	0.00E+00	22000	0.00E+00
										Total Adjusted ER	0.00E+00	0.00E+00			Total Adjusted ER	0.00E+00		Total Adjusted ER	0.00E+00

1. Emission factors obtained from default emission factors for turbine in "Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emission Inventory".
2. The ammonia EF is obtained assuming no SCR or SNCR.

TAC Emissions from Tanks and other Fugitive Sources During Final Project Operation

TACs	Average Emissions (g/s)	Peak Emissions (g/s)	Cancer Potency Factor (CP) (mg/kg-day)$^{-1}$	Multi Pathway Factor (MPr)	Multi Pathway Factor (MPw)	Adjusted ER for Cancer Risk	Adjusted ER for Cancer Risk - Worker	Chronic Reference Exposure Level (REL) ug/m3	Multi Pathway Factor (MPr-MPw)	Adjusted ER Chronic Hazard Index - Residential-Worker	Acute Reference Exposure Level (REL) ug/m3	Adjusted ER Acute Hazard Index Residential-Worker
benzene		1.687E-05	0.1	1	1	4.89E-04	9.55E-05	60	1	2.81E-07	1300	1.30E-08

8760	hours/year	operating hours per year		
DBR:	Daily breathing rate for residential receptor	Table 9A	302	L/kg body weight-day
EVF:	Exposure value factor for residential receptor	Table 9B	0.96	unitless
DBR:	Daily breathing rate for residential receptor	Table 9A	149	L/kg body weight-day
EVF:	Exposure value factor for residential receptor	Table 9B	0.38	unitless
CP:	Cancer Potency Factor	Table 8A	specific values	(mg/kg-day)$^{-1}$
MP:	Multipathway Factor for residential receptor	Table 8A	specific values	unitless
1.00E-06	microgram to millgram conversion, liter to cubic meter conversion			
1.00E+06	conversion to express the risk number over a million			

Table B.2. Toxicity values used in the health risk assessment.

TAC	CAS	Cancer Risk			Chronic HI		Acute HI
		CP	MPw	MPr	CREL	MPr/MPw	AREL
1,3-butadiene	106-99-0	6.00E-01	1.00	1.00	2.00E+01	1.00	-
acetaldehyde	75-07-0	1.00E-02	1.00	1.00	140	1.00	470
acrolein[2]	107-02-8	-	-	-	0.35	1.00	2.5
ammonia	7664-41-7	-	-	-	2.00E+02	1.00	3.20E+03
benzene	71-43-2	1.00E-01	1.00	1.00	6.00E+01	1.00	1.30E+03
ethyl benzene[3]	100-41-4	8.70E-03	1.00E+00	1.00E+00	2.00E+03	1.00	-
formaldehyde	50-00-0	2.10E-02	1.00	1.00	9	1.00	55
hexane	110-54-3	-	-	-	7.00E+03	1.00	-
Naphthalene	91-20-3	1.20E-01	1.00	1.00	9.00E+00	1.00	-
PAHs (without naphthalene)	1150	3.90E+00	14.62	29.76	-	-	-
propylene oxide	75-56-9	1.30E-02	1.00	1.00	3.00E+01	1.00	3.10E+03
toluene	108-88-3	-	-	-	3.00E+02	1.00	3.70E+04
xylene	1330-20-7	-	-	-	7.00E+02	1.00	2.20E+04

1. Averaging factor to account for acute impacts for individual TACs whose REL is based on periods longer than 1-hr exposure, taken from SCAQMD Risk Assessment Procedures for Rules 1401 and 212 Version 7.0 July 2005.
2. Acute impacts of acrolein are currently being reviewed by OEHHA – historical REL value of 1.9 is used here.
3. Ethyl benzene designated as a carcinogen in November 2007.

Table B.3. Health risk assessment methodology.

Health Impact	Approach & Parameter Values
Cancer Risk (resident exposure)	Methodology follows SCAQMD RISK ASSESSMENT PROCEDURES for Rules 1401 and 212 Version 7.0 July 2005 **Maximum Individual Cancer Risk (MICR) = Cancer Potency (CP) x Dose-Inhalation (DI) x Multipathway Factor (MPr)** **DI = Emissions(Q) x χ /Q x DBRr x EVFr x AF_{ann} x 10^{-6}** **Total MICR = Σ MICR over all TACs** CP: inhalation slope factor MPr: residential carcinogen multipathway factor χ /Q: annual average dispersion factor found using EPA's ISCST3 dispersion model DBRr: Resident Daily Breathing Rate DBR = 302 (m^3/kg-day) EVFr: Resident Exposure Value Factor EVF = 0.96 AF_{ann}: Adjustment factor to account for time-of-day residential exposure = 1 CP, MPr, DBRr, EVFr and AF_{ann} from Rule 1401 and 212 Package L revised Sep. 10^{th}, 2010
Cancer Risk (worker exposure)	Methodology follows SCAQMD RISK ASSESSMENT PROCEDURES for Rules 1401 and 212 Version 7.0 July 2005
	Maximum Individual Cancer Risk (MICR) = Cancer Potency (CP) x Dose-Inhalation (DI) x Multipathway Factor (MPw)
	DI = Emissions(Q) x χ /Q x DBRw x EVFw x AF_{ann} x 10^{-6}
	Total MICR = Σ MICR over all TACs
	CP: inhalation slope factor
	MPr: residential carcinogen multipathway factor
	χ /Q: annual average dispersion factor found using EPA's ISCST3 dispersion model
	DBRw: Worker Daily Breathing Rate DBR = 149 (m^3/kg-day)
	EVFw: Worker Exposure Value Factor EVF = 0.38
	AF_{ann}: Adjustment factor to account for time-of-day worker exposure = 1 (emissions rates assumed not to change during work hours)
	CP, MPw, DBRw, EVFw, from Rule 1401 and 212 Package L revised Sep. 10^{th}, 2010
Chronic Health Index (resident exposure)	Methodology follows SCAQMD RISK ASSESSMENT PROCEDURES for Rules 1401 and 212 Version 7.0 July 2005 **Chronic HI (HIC) = Emissions(Q) x χ /Q x Multipathway Factor (MPr) / Chronic REL** **Total HIC = Σ HIC over all TACs** χ /Q: annual average dispersion factor found using EPA's ISCST3 dispersion model MPr: residential multipathway factor for chronic hazards per Rule 1401 and 212 Package L revised Sep. 10^{th}, 2010
	REL: Chronic Relative Exposure Limits (RELs) from Rule 1401 and 212 Package L revised Sep. 10^{th}, 2010

Health Impact	Approach & Parameter Values
Chronic Health Index (worker exposure)	Methodology follows SCAQMD RISK ASSESSMENT PROCEDURES for Rules 1401 and 212 Version 7.0 July 2005
	Chronic HI (HIC) = Emissions(Q) x χ/Q x Multipathway Factor (MPw) / Chronic REL
	Total HIC = Σ HIC over all TACs
	χ /Q: annual average dispersion factor found using EPA's ISCST3 dispersion model
	MPw: worker multipathway factor for chronic hazards per Rule 1401 and 212 Package L revised Sep. 10th, 2010
	REL: Chronic Relative Exposure Limits (RELs) from Rule 1401 and 212 Package L revised Sep. 10th, 2010
Acute Health Index	Methodology follows SCAQMD RISK ASSESSMENT PROCEDURES for Rules 1401 and 212 Version 7.0 July 2005 **Acute HI (HIA) = Emissions(Q) x χ /Q / Acute REL** **Total HIA = Σ HIA over all TACs** χ /Q: maximum 1-hr average dispersion factor found using EPA's ISCST3 dispersion model REL: Acute Relative Exposure Limits (RELs) from Rule 1401 and 212 Package L revised Sep. 10th, 2010

Table B.4 - Summary for Health Risk Assessment

Health Endpoint	Receptor	Maximum Estimated Incremental Risk (Risk in 1 million)	SCAQMD Threshold (Risk in 1 million)	Above Threshold?
Cancer Risk	Resident	0.4	10	No
	Worker	0.05	10	No
Health Endpoint	**Receptor**	**Maximum Estimated Hazard Index**	**SCAQMD Threshold**	**Above Threshold?**
Chronic Noncancer Hazard Index	Maximum	0.0007	1.0	No
Acute Noncancer Hazard Index	Resident / Worker	0.014	1.0	No

APPENDIX C

EVALUATION OF GREENHOUSE GAS EMISSIONS

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APPENDIX C
EVALUATION OF GREENHOUSE GAS EMISSIONS

Emissions Calculation

Greenhouse gas (GHG) emissions consist of direct emissions (e.g., combustion) and indirect emissions (e.g., water use and electricity). Direct GHG emissions, including emissions from combustion and construction, were calculated using emission factors from AP-42 and the American Petroleum Institute. Table C.1 and Attachment A1 (in Appendix A) provide details on these emission factors. Indirect GHG emissions include emissions arising from water usage and the purchase of electricity produced off-site. The proposed project is not expected to require additional water at the site. As a result, no indirect GHG emissions were calculated for the proposed project.

Evaluation of Significance

As described in the SMND, to determine whether or not GHG emissions from the proposed project may be significant, impacts will be evaluated and compared to the SCAQMD's interim 10,000 metric tonnes (MT) CO_2eq/year threshold for industrial sources. Following SCAQMD methodology, construction impacts are amortized over 30 years of the life of the project for the annual emissions to be additive to the annual operational GHG emissions.

Emissions from the final proposed project were calculated and compared to the 2011 SMND baseline. Construction emissions are shown in Table C.2 and operational emissions are shown in Table C.3. In addition, emissions from the maximum operation scenarios were calculated and are also shown in Table C.3.

The MMAir-3 was included in the 2011 SMND and limited the total facility-wide gas flow to 199,000 Mscf per year to ensure that incremental GHG emissions resulting from the proposed project would be less than 10,000 MT CO_2eq/year. Because of the changes to the proposed project, MMAir-3 was modified so that emissions remained less than 10,000 MT CO_2eq/year. Thus, MMAir-3 was modified and limits the total facility-wide gas flow to 197,000 Mscf per year. The current analysis accounts for this measure as demonstrated in the attached tables.

Table C.1. GHG Emission Factors for Combustion Equipment

Equipment[1]	GHG Emission Factors		
	CO_2 EF (lb CO_2/MMscf)	CH_4 EF (lb CH_4/MMscf)	N_2O EF (lb N_2O/MMscf)
Heater Treater #2	120,000	2.3	2.2
Bekaert CEB®[2]	126,621	2.3	0.64
Microturbines[3]	120,000	2.3	2.2

1. Equipment currently operating on-site.

2. An additional Bekaert CEB® will be installed as part of the proposed project.

3. The microturbines will be removed as part of the proposed project.

Table C.2. Annual GHG Emissions

Phase	Number of days	Emissions (lb/day)	Annual Emissions (MT CO_2e/yr)
I: Installation of Bekaert	4	1,143	0.52
Excavation for foundation	1	761	0.35
Build foundation	1	119	0.05
Set equipment	1	104	0.05
Piping	1	159	0.07
IV: Removal of Microturbines	1	869	0.39
Total construction emissions	--	2,012	0.91
2011 Total Construction Emissions[1]	--	--	8.5
Incremental Change from 2011 Project			-7.59
Amortized Emissions (30-year average)	--	--	0.03
2011 Total Amortized Construction Emissions[1]	--	--	0.28
Incremental Change from 2011 Project	--	--	-0.25

1. Emissions are obtained from Table F.4. in Appendix F to the 2011 SMND.

Conversion Factors

lb	454	g
acre	43560	ft^2
metric tons	2,204	lbs/MT

Table C.3. Summary of greenhouse gas emissions from proposed project

Original Baseline (from 2011 SMND)

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Fuel flow (Mscf/yr)	Percent of rating (%)	CO_2 EF (lb/MMscf)	CH_4 EF (lb/MMscf)	N_2O (lb/MMscf)	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2eq (MT CO_2eq/yr)
Heater treater #1	2.5	57.1	20,857	100%	120,000	2.3	2.2	1,136	0.0	0.0	1,143
Flare King	4	2.1	766.5	2%	126,621	2.3	0.64	44	0.0	0.0	44
Total	--	--	21,624	--	--	--	--	--	--	--	1,186

Final 2011 Project, annual average with 9 microturbines

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Fuel flow (Mscf/yr)	Percent of rating (%)	CO_2 EF (lb/MMscf)	CH_4 EF (lb/MMscf)	N_2O (lb/MMscf)	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2eq (MT CO_2eq/yr)
Heater treater #1	2.5	0.0	0	0%	120,000	2.3	2.2	0	0.0	0.0	0
Heater treater #2	12	171.4	62,571	63%	120,000	2.3	2.2	3,407	0.1	0.1	3,428
Bekaert CEB (1 unit)	17	243.7	88,949	63%	126,621	2.3	0.6	5,110	0.1	0.0	5,120
Microturbines (9)	5.7	130.1	47,479	100%	120,000	2.3	2.2	2,585	0.0	0.0	2,601
Total	--	545	199,000	--	--	--	--	11,102	0.2	0.1	11,148
Amortized Construction	--	--	--	--	--	--	--	--	--	--	0.3
Total	--	--	--	--	--	--	--	--	--	--	11,149
Incremental Emissions (2011 Project - Baseline)											9,962

Table C.3. Summary of greenhouse gas emissions from proposed project

Final Project, annual average: HT#2 (100% capacity), the two Bekaert units operating at maximum capacity, and no further operation the microturbines

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Fuel flow (Mscf/yr)	Percent of rating (%)	CO_2 EF (lb/MMscf)	CH_4 EF (lb/MMscf)	N_2O (lb/MMscf)	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2eq (MT CO_2eq/yr)
Heater treater #1	2.5	0.0	0	0%	120,000	2.3	2.2	0	0.0	0.0	0
Heater treater #2	8	182.9	66,743	100%	120,000	2.3	2.2	3,634	0.1	0.1	3,656
Bekaert CEB (2 unit)	34	777.1	283,657	100%	126,621	2.3	0.6	16,296	0.3	0.1	16,328
Total	--	960	350,400	--	--	--	--	19,930	0	0	19,984
Amortized Construction	--	--	--	--	--	--	--	--	--	--	0.9
Total	--	--	--	--	--	--	--	--	--	--	39,993
Incremental Emissions (Proposed Project - Baseline)											38,807

Final Project, annual average: HT#2 (100% capacity), the two Bekaert units operating at maximum capacity (with implemenation of MMAir-3)

Device/Process	Heat Input Rating (MMbtu/hr)	Fuel flow (Mscf/day)	Fuel flow (Mscf/yr)	Percent of rating (%)	CO_2 EF (lb/MMscf)	CH_4 EF (lb/MMscf)	N_2O (lb/MMscf)	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2eq (MT CO_2eq/yr)
Heater treater #1	2.5	0.0	0	0%	120,000	2.3	2.2	0	0.0	0.00	0
Heater treater #2	8	171.4	62,571	94%	120,000	2.3	2.2	3,407	0.1	0.1	3,428
Bekaert CEB (2 unit)	34	368.3	134,429	47%	126,621	2.3	0.6	7,723	0.1	0.04	7,738
Total	--	540	197,000	--	--	--	--	11,130	0	0	11,166
Amortized Construction	--	--	--	--	--	--	--	--	--	--	0.9
Total	--	--	--	--	--	--	--	--	--	--	11,166
Incremental Emissions (Proposed Project - Baseline)											9,980

Conversion Factors			
metric tons	2,204	lbs/MT	
CH_4 GWP[1]	21	MT CO_2eq/MT CH_4	IPCC, TAR
N_2O GWP[2]	310	MT CO_2eq/MT N_2O	IPCC, TAR

APPENDIX D

COMMENTS AND RESPONSES TO COMMENTS ON THE DRAFT SUPPLEMENTAL NEGATIVE DECLARATION

June 10, 2014
Jeffrey Inabinet, Air Quality Specialist
SCAQMD
21865 Copley Dr.
Diamond Bar, CA 91765

COMMUNITIES FOR A BETTER ENVIRONMENT

Re: Comments on Warren AQMD Proposed Supplemental Negative Declaration 2014 for Warren E&P Inc., WTI Central Facility New Equipment Project ("the Project")[1]

Dear Mr. Inabinet:

The following comments are submitted on behalf of Communities for a Better Environment (CBE) and neighbors in Wilmington residing near the Warren oil drilling facility, on the proposed Negative Declaration. We appreciate your work to improve conditions for neighbors. However, there are still issues which require mitigation not identified in the Negative Declaration (ND), summarized below.

1) **The facility has a history of violations with project changes in Negative Declarations from 2006, 2009, 2011, and now 2014, causing public trepidation about new plans, and requiring the strongest protections.** Neighbors rely on the AQMD to set the strongest protections feasible. From the beginning this heavy industry has been improperly sited in the middle of a residential neighborhood. Early on, neighbors described the conditions as "a living hell" to CBE. While some conditions are improved, they must not be made worse, and all opportunities to minimize emissions to the fullest extent should be carried out. Warren has also repeatedly found that proposed equipment did not come up to expectations that were described in earlier Negative Declarations, so confirming assumptions in this new Negative Declaration is essential. 1-1 1-2

2) **An updated BACT analysis is needed to determine whether the added Bekaert Burner meets 2014 standards.** In addition, the existing but relatively new Bekaert Burner appears to exhibit wear, indicating the need for a source test to confirm whether this equipment has and can maintain a high level of efficiency over time, and whether the new Burner will prove unreliable. 1-3

3) **New monitoring has found that methane leaks from oil drilling operations in the Los Angeles region are very high**, requiring a reassessment of methane emissions at Warren, especially given the changes in operation proposed. 1-4

[1] Notice of Intent to Adopt a Subsequent Negative Declaration, April 24, 2014, AQMD, http://sfdev.aqmd.gov/home/about/public-notices/ceqa-notices/notices-of-intent

5610 Pacific Blvd., Suite 203 • Huntington Park, CA. 90255 • (323) 826-9771
In Northern California: 1904 Franklin Street, Suite 600 • Oakland, CA 94612 • (510) 302-0430

4) **The facility has promised for years to minimize onsite combustion, in favor of selling natural gas offsite, rather than wasting it through onsite combustion (which would occur in the second Baekert Burner), but there is still no commitment provided in this Negative Declaration to ensure this.** The Warren facility appears to be sized similarly to the Oxy USA Inc. drilling facility in Carson, which does propose selling gas offsite. Stronger requirements to minimize onsite combustion should be evaluated either as mitigation or as an alternative to Warren's proposal. We understand that permit details will be developed after the ND, but any conditions considered as part of the project need to be evaluated in the ND. 1-5

5) **Without providing additional data, monitoring of many additional parameters, and further mitigation, there is the potential for significant impacts not identified in the ND.** Consequently a Mitigated ND or full Environmental Impact Report (EIR) on the Project should be developed. 1-6

I. The ND should include further protections for neighbors, given the facility's violation history and repeated project changes, plus an analysis to determine whether the Bekaert Burner is still BACT

This facility has repeatedly changed its conditions of operation, and has a history of violations. Warren bought the facility from Exxon at a time when operation was minimal or non-existent, and began a major expansion and consolidation of wells within a local residential neighborhood. Warren operated without AQMD meeting permit conditions for its flare,[2] and violated other conditions. Neighbors called CBE and complained strongly about the flaring, severe odors and asthma attacks, severe shaking and loud noises night and day, continuous (and illegal) diesel truck traffic through the neighborhood (until the pipeline was completed), deposits of oily materials on homes, windows and yards, and other severe problems. We talked to the AQMD and other agencies, which began investigating the facility. 1-7

Around 2007 in response to a phone meeting we requested, AQMD personnel stated to us that the facility's existing flare permit was for emergency-only operation (no more than 200 hours per year). AQMD data on gas flow to the flare however showed that the facility was operating continuously (8760 hrs/year), also with the gas volume almost always above maximum permitted levels. The AQMD hearing board however overturned this emergency-only condition, and allowed the facility to plan installation of 1-8

[2] For example the AQMD stated in the 2009 ND, Notice of Intent to Adopt a Draft Negative Declaration, Warren E&P Inc., WTU Central Facility New Equipment Project, *"On September 28, 2007, Warren received Notice of Violation P50039 ("Flare Allegation") from the SCAQMD alleging that Warren operated the Flare King flare in violation of permit conditions contained in Permit No. F77109."*

one new Bekaert Burner at a much higher volume of gas than the old "Flare King" (at 17 million BTU/hr maximum compared to 4 million BTU/hr), arguing that the Bekaert Burner was more efficient than the old flare.

Warren's plans for other equipment have also repeatedly changed. In the original 2006 Mitigated Negative Declaration, gases produced along with oil were planned to be conditioned and sold offsite, but Warren later stated that this was infeasible, and started burning these gases instead in the old Flare King:

> *Gas sales were specified in the application, although the necessary equipment for gas sales was not described in the project description of the 2006 MND. Following project approval, it became apparent that the quantity of gas produced was not sufficient to economically justify installation of the gas sales system. As a result, excess gas was sent to the Flare King, which was analyzed as a back-up flare to the proposed gas sales system in the 2006 MND.* (Discussion on the 2006 Negative Declaration in the 2011 Negative Declaration, at p. 1-4)

1-9

This was a move from offsite combustion described in the earlier public process, to onsite combustion that could impact neighbors.

The facility also added a second heater/treater after Warren found that its original assessment that one heater/treater would be sufficient, was incorrect:

> *However, certain aspects of the 2006 Project could not be implemented as planned. Warren found that HT#1 was incapable of processing 5,000 bpd of oil production. Further, Warren found that the volume of oil field gas produced was not sufficient for sales to either a nearby business or the local gas company, even though the volume was somewhat higher than the baseline case analyzed in the 2006 MND. Warren then proceeded to redesign these aspects of the 2006 Project and concluded that an additional heater treater (HT#2) was necessary. Furthermore, Warren concluded that a revised gas management system was necessary to handle oil field gas from the oil production levels evaluated and analyzed in the 2006 MND.*

1-10

The 2011 Negative Declaration described why the microturbines and other project components were to be changed, compared to the 2009 Negative Declaration, and described the microtubines and other equipment as Best Available Control Technology:

> *Warren is now proposing a modification to the WTU project analyzed in the 2006 MND. The proposed modifications to the previously approved WTU project include: replacing older, previously permitted combustion equipment (e.g., flare) with newer, more efficient equipment (e.g., clean enclosed Bekaert Burner),* ***installation of a new heater treater and up to nine (9) microturbines all of which must meet best available control technology (BACT) requirements (South Coast*** *Air Quality Management District (SCAQMD) Rule 1303); and installing new equipment to allow gas re-injection and/or off-site gas sales (proposed*

project). The proposed modifications to the project would also include bringing the WTU Central Facility into compliance with other existing applicable SCAQMD rules and regulations in accordance with the settlement agreement between Warren and the SCAQMD concerning six existing microturbines.

Now Warren is stating that the microturbines proposed in the last Negative Declaration, have been breaking down, are not working, and can no longer be replaced:

1-10 cont'd

> *In addition, the microturbines are experiencing severe maintenance problems that often make them unavailable for sustained operation. Replacement of these microturbines is no longer possible . . .* (at p. 1-3)

As a result, Warren is proposing replacing these too, with a *second* Bekaert Burner, using an assumption that it provides very high combustion efficiency.

<u>It has not been established that the Bekaert Burner still meets BACT standards</u>

The existing Bekaert Burner (pictured below from the 2014 Negative Declaration) already appears to be exhibiting signs of damage, perhaps due to gas leaks or combustion outside the enclosed chamber, which may indicate poor combustion efficiency:

1-11

(Figure 1, "Existing Bekaert," at p. 1-6)

Given the repeated miscalculations and overestimation by Warren on the efficiency and robustness of multiple pieces of equipment (which directly relates to ability to reduce levels of emissions over a sustained time period), it is essential that this second Bekaert Burner really does represent Best Available Control Technology (BACT).

In 2011, the Negative Declaration considered the Bekaert Burner BACT. But BACT is a moving target, and it improves as new technologies are installed. It is now 2014, so the requirement of the 2011 Negative Declaration to meet a BACT standard must still be applied when replacing the microturbines. Consequently a new BACT assessment should be performed to evaluate the proposed new Bekaert Burner compared to others.

1-11 cont'd

Furthermore, a source test should be performed on the existing Bekaert Burner to ensure that it is still meeting the permit limits, and to determine whether the combustion efficiency is still at the high level assumed by the 2011 Negative Declaration, given the visible wear shown above.

1-12

This is relevant not only to general permit requirement enforcement, but also to this Negative Declaration, because this would provide an indication of what to expect from the new Bekaert Burner over a period of a few years. Given the failures of other equipment, it is really essential to confirm the assumptions that the Bekaert Burner results in low combustion emissions, since now *two* would be sited at the facility, to be used in lieu of selling gas offsite.

II. The Facility should in general minimize onsite combustion and leaks

While having an oil drilling site so close to residences is inherently a bad idea, certain principles for minimizing pollution can be applied:

1) **First eliminate continuous onsite combustion** (for example, by selling gases produced offsite)
2) **Eliminate leaks** through a rigorous leak monitoring and detection program
3) **Minimize emergency flaring** by applying root cause analysis to identify repeat causes and eliminate these causes

1-13

<u>A clear commitment and permit conditions requiring selling gas offsite to minimize combustion is needed</u>

The AQMD has generally tried to apply the principles above, and Warren previously proposed methods for minimizing combustion by potentially selling offsite. For example the 2011 Subsequent Mitigated Negative Declaration stated:

> *. . . Warren proposed installing gas reinjection equipment to reduce the need to combust excess oil field gas production and, if warranted,* ***installing gas sales equipment.*** (p. 1-6)

Gas conditioning for sale offsite is again mentioned as an objective of the 2014 Negative Declaration:

> *Warren proposes to implement gas sales without interim gas reinjection and to modify the gas handling component of the 2011 Project to facilitate gas sales.*

Unfortunately, there is still no clear commitment or requirement that Warren actually carry out this process. 1-13 cont'd

While the Warren 2011 and 2014 NDs describe gas sales, it was stated that the facility had to reach gas production of a million scf/day to enable economic viability of sales. But the current ND finds that the facility will reach very close to this level (960,000 scf/day), which is only 4% lower than one million scf/day.

Furthermore, the Oxy Inc. proposed project in Carson does include a commitment to conditioning field gas for natural gas quality sales to Southern California Gas, with much more detail provided in its EIR about this equipment.[3] Oxy has oil production in the same ballpark (at 6,000 bpd) as Warren (described in the 2011 ND at 5,000 barrels per day).

It appears that Warren is being given too much room to decide for itself whether it will be held to its earlier promises to put this equipment in place, and that Warren would prefer to purchase a second flare to burn the gas at will. But the Subsequent ND has not provided any evidence supporting any assumption that it may not be economic to treat and sell gas for sale.

CBE supports the AQMD identifying strong conditions requiring that Warren minimize gas combustion onsite, and selling gases offsite, in concert with fugitive leak prevention discussed below. Furthermore, for any flares onsite, especially a second flare, Warren should be required to perform a public Flare Minimization Plan to minimize both ongoing and emergency flaring, through continuous monitoring, and root cause analysis when flaring does occur, in order to avoid repeated breakdowns and any unnecessary flaring. 1-14

III. Monitoring by aircraft over LA recently found very high methane leaks from oil drilling operations

A recent study found unexpected and extremely high levels of methane gas, including from oil and gas drilling operations, over Los Angeles. After the surprisingly high levels were found, an investigation determined this could be traced to a few sources – the La Brea tar pits, landfill methane gas, natural gas pipeline leaks, and oil and gas drilling 1-15

[3] Oxy USA Draft Environmental Impact Report for the Dominguez Oil Field Development Project, SCH No. 2012031019, http://ci.carson.ca.us/content/files/pdfs/planning/oxyproject/Volume1-DEIR_part1.pdf at pp. 1-1 and 2-17

operations.

The report found that oil and gas operations alone in the region leaked at a rate of about 17%—even higher than the high numbers found in studies in the other Western states.[4]

The report also identified another report by the California Air Resources Board which verified a similar leak rate. Methane is a potent greenhouse gas (about 22 times more than CO2). Because the new Project would cause a change the configuration of the facility (removing microturbines and installing a new flare (the Bekaert Burner), and potentially treating and selling gas offsite), new piping, valves, flanges, and potentially pumps and compressors, with many potential fugitive leak points will be changed and or added. An evaluation of the number of fugitives components and sites needs to be identified, the potential for methane and other leaks, and best practices for eliminating these leaks is necessary.

1-15 cont'd

Appendix Table C.3 gives an annual average total gas flow of 960,000 standard cubic feet (scf) per day for the facility after the Project. At 17% leakage for the entire facility gas flow and calculated as methane, this would result in enormous greenhouse gas emissions at 163,200 scf/day of gas, or 59,568,000 scf/year. Calculating as methane (at 22 times the potency of CO2) yields over 25,000 metric tons per year of CO2 equivalent greenhouse gas emissions,[5] from fugitive leaks alone, without including any combustion emissions. This illustrates that there is a potential for very significant emissions due to the Project, the need for a full evaluation of fugitive leak sources, a full evaluation of potential emissions, application of BACT to fugitive components (including not only leakless valves and seals), and also a leak detection program to ensure that these enormous emissions are prevented. This should also prevent odorous releases of hydrogen sulfide and other gases. Without this mitigation, the Project has the potential to cause a major and unnecessary environmental impact.

IV. In general, strong oversights and additional monitoring is needed

1-16

The facility should be required to implement much greater on- and offsite monitoring conditions to prevent impacts to neighbors and the environment, including leak detection, monitoring gas flow to flares, regular evaluations of equipment combustion efficiency, continuous emission monitoring in the neighborhood of VOCs, sulfur compounds, particulate matter and other gases, and sampling plates to identify any materials deposited nearby (such as oily matter) by the facility. The Negative Declaration also does not

1-17

[4] *Mystery Solved: Previously Unexplained Higher Levels of Greenhouse Gas in L.A. from Fossil-Fuel Sources,* CIRES, Cooperative Institute for Research in Environmental Sciences, May 14, 2013, available at: http://cires.colorado.edu/news/press/2013/greenhousegases.html

[5] Methane gas has a density of 0.0422 lbs/cubic foot x 59 million scf/year methane from potential leaks x 1 ton/2000 lbs x 22 tons CO2 Equivalent per 1 ton methane = 27,651 tons CO2 equivalent /year, or 25,138 metric tonnes per year (MT) (A metric tonne is 2200 lbs or 1000 kg compared to a U.S. ton of 2000 lbs.). CO2 equivalent is found by multiplying the pounds or tonnes of methane by 22.

provide a baseline on the existing conditions at the facility, including the current oil production, which I understand is far below the 5,000 bpd permit limit, and is closer to 3,000 bpd. The AQMD should provide specific information in a recirculated CEQA document on the actual baseline for oil production, and for total gases currently produced and other current conditions (such as gas volumes to the flare and other equipment), rather than permitted limits.

1-17 cont'd

The neighbors should be directly consulted about the facility's ongoing record with regard to any public nuisances including odors or any local impacts.

1-18

Sincerely,

Julia May
Senior Scientist
Communities for a Better Environment (CBE)

COMMENT LETTER NO. 1
COMMUNITIES FOR A BETTER ENVIRONMENT
JUNE 10, 2014

Response 1-1

The comment states that due to the facility's history of violations, the conditions "must not be made worse and, all opportunities to minimize emissions to the fullest extent should be carried out", and that proposed equipment has "not come up to expectations". Since the 2011 Subsequent Mitigated Negative Declaration (SMND) was approved, conditions at the facility are undergoing continual improvement as the 2011 Project is implemented (e.g., new, more efficient heater treater, refurbished older heater treater, replacement of old Flare King flare with lower-emitting Bekaert CEB® burner, and a commitment to gas sales or reinjection). Since the certification of the SMND in July of 2011, there have been two NOVs issued to Warren. The first event occurred in February of 2013 and involved a minor leak from a safety relief valve located on a low-pressure system. After discovery it was immediately repaired within the same day. The SCAQMD verified it was repaired when they returned to inspect the next day. The second one occurred in July of 2014 due to the likely failure of a control component. The conclusion is still being investigated and determined. Warren will likely contest this NOV. As stated in Section 1.3.5 of the draft 2014 Supplemental Negative Declaration (SND) and consistent with implementing the 2011 Project, the flare has been replaced by the Bekaert CEB®, which has been source tested to demonstrate compliance with the SCAQMD permit emission limits for NO_x, CO, VOC, and PM specified in Warren's permit, A/N 475760; the source test results show that the unit is emitting criteria pollutants at levels lower than those in the permit conditions (see Table below).

Summary of Source Test Results at Warren E&P WTU Flare January 18, 2012		
Parameter	Exhaust	Permit Limit
NO_x, ppm @ 3% O_2	6.91	15
CO, ppm @ 3% O_2	3.2	10
TGNMO, ppm @ 3% O_2 (as CH_4)	1.88	10
Particulate (as PM_{10}), gr/dscf	0.0014	0.112

In addition, the Bekaert CEB® will be source tested every four years in order to demonstrate that the unit maintains compliance with the emission limitations over time. As previously addressed in the 2011 SMND Response to Comment 2-2, all permits include conditions to implement the mitigation measures identified in the mitigation monitoring and reporting plan (MMRP). These conditions are enforceable by SCAQMD inspectors, and the WTU Central Facility is and will continue to be subject to inspections by SCAQMD inspectors and compliance with these conditions. Such measures ensure that the environmental impacts from the proposed project are mitigated to less than significant, as well as to address and mitigate past complaints from the community related to past operations. Finally, certification of the 2014 SND is required in order for Warren to move forward with gas sales and thus further reduce emissions at the facility by combusting less gas in the CEB. As industry conditions change, Warren will continue to evolve their plans to improve efficiency.

In addition, the comment states that the site has been improperly sited as heavy industry. As discussed in the original 2006 Mitigated Negative Declaration (MND), 2011 SMND and Section 1.5 of the draft 2014 SND, the WTU Central Facility zoning designations include M2-1VL-O (Light Industrial Zone) and RD3-1 XL-O (Restricted Multiple Dwelling Zone); the "O" at the end of each zoning designation indicates that the parcels are located in an Oil Drilling District and that oil drilling activities are permitted in these zoning designations.

See also Responses 1-7 through 1-10 for more detailed responses to issues raised in this comment.

Response 1-2

The comment asserts that the proposed equipment from earlier NDs did not come up to expectations and "confirming assumptions in this new Negative Declaration is essential." The comment does not explain in what way the proposed equipment is not meeting expectations. In addition, the comment does not explain which assumptions used to analyze impacts of the proposed project in the draft SMND are inappropriate or in what way they are or were inappropriate, and does not offer any alternative assumptions that could be evaluated by staff. Specific comments in the body of the letter related to the microturbines are responded to below. In general, assumptions are based on commonly accepted methodology and published references, as stated in the 2011 SMND Response to Comment 2-22. The analysis of air quality impacts is accurate and representative of emission impacts from the proposed project. In addition, permit conditions and mitigation measures have been imposed on the proposed project to ensure that air quality impacts remain less than significant, consistent with the 2011 SMND and 2014 SND. As discussed in Response 1-1, the CEB® has been shown via source test to be in compliance with the emission limitations imposed on the facility.

Response 1-3

The current Bekaert CEB®, which was BACT when permitted, has been source tested to demonstrate compliance with the SCAQMD permit emission limits for NO_x, CO, VOC, and PM specified in Warren's permit, A/N 475760. As noted in Response 1-1, the source test results show the existing unit is emitting criteria pollutants at levels lower than those in the permit conditions. For the new unit, Warren would be required to comply with the latest, most stringent BACT at the time of permitting per SCAQMD Rule 1303(a). As such, the Bekaert CEB® is presently considered BACT but if new technology is introduced before permit issuance, ~~a~~ the final BACT determination process will identify the existence of any such technology and that technology will be required from Warren, consistent with SCAQMD's rules and policies. Finally, source testing is required every four years ensuring compliance with the BACT limits established during permitting.

Response 1-4

This comment states that a reassessment of methane emissions is necessary at Warren due to regional aircraft monitoring information which indicates "methane leaks from oil drilling operations in the Los Angeles region are very high". The paper referenced later in this comment letter has been reviewed. The referenced paper does not provide any connection between its

regional findings and the specific proposed 2014 Project or other operations occurring at the WTU Central facility. In addition, Warren is subject to SCAQMD Rule 1173, *Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants,* which requires the facility to meet leak standards, conduct scheduled inspections, and follow maintenance procedures to minimize leaks. Warren's operations are in compliance with Rule 1173. The type and extent of leaks suggested by the commenter are not consistent with the stringent leak standards of SCAQMD Rule 1173 and therefore, the emissions do not need to be re-assessed.

Response 1-5

This comment asserts that there is no commitment provided in this SND to minimize onsite combustion in favor of selling natural gas offsite. This is not correct. Indeed, certification of the 2014 SND is necessary for Warren to implement 2011 Project gas sales. As discussed in Section 1.3.6 of the draft SND, Warren is proposing to remove the six existing microturbines and not install the three additional proposed microturbines listed in the 2011 SMND; thus reducing on-site combustion. An additional Bekaert CEB® is needed to move forward with the proposed gas sales system analyzed in the 2011 SMND to ensure that a Bekaert CEB® is always available to combust the tail gas from the gas sales system because tail gas cannot be sold. As stated in Section 1.4.1 of the SND, to ensure the continuing sales of the product gas, a permit condition will be added to the burner permits requiring gas sales except under certain circumstances where gas sales would be infeasible or prohibited. Such circumstances include routine and emergency maintenance; failure of the product gas to, from time to time, meet quality specifications; system testing; and other situations identified in the permit conditions. The 2011 SMND included an analysis of the gas sales system and the proposed modifications in the current draft SND will not result in a change to the gas sales component that would change the previous analysis. Therefore, no further requirements to minimize on-site combustion are necessary. We also note that even if all gas were burned in the Bekaert, air quality impacts would remain less than significant. Therefore, mitigation measures are not required or necessary.

Response 1-6

The comment states that "without providing additional data, monitoring of many additional parameters, and further mitigation, there is the potential for significant impacts not identified in the ND", and that an MND or EIR is required. However, the commenter does not provide any specific instances as to how the analysis may be deficient. As stated in Section 1.2 of the Draft SND, this is the appropriate CEQA document because only minor changes are proposed to the approved 2011 Project and no potentially significant adverse impacts have been identified as a result of the modifications.

Response 1-7

The commenter has indicated that the facility changes operating conditions repeatedly and has a history of violation, citing violations related to the Flare King flare and nuisance complaints from the residential neighbors. In implementing the 2011 Project (analyzed in the certified 2011 MND), the Flare King flare was replaced in September 2011 by the existing Bekaert CEB®, which is a

more efficient and met the SCAQMD's Best Available Control Technology (BACT) requirements when it was permitted. Also, as stated in the 2011 SMND Response to Comment 2-5, the Zoning Determination (ZD) adopted in 2008 is in effect and Warren conducts daily odor inspections of the facility. If employees notice any odors from the site, they promptly diagnose and address the problem to eliminate the odors. As already noted, the facility is subject to existing mitigation measures (from the 2006 MND) and conditions (from the 2006 and 2008 ZDs) that have reduced impacts from the facility as demonstrated by the reduction in the number of complaints since 2008. The SCAQMD expects that these ongoing conditions, in addition to permit conditions imposed on the proposed project, will continue to minimize odor, air, and noise impacts. Any odor, dust, and noise complaints that are received in the future will be investigated as per SCAQMD's usual procedures. Since the 2011 SMND was certified there have been no public nuisance violations or verified complaints of odors attributable to operations at the facility.

Response 1-8

The 2006 MND assumed that the Flare King would only be used before gas sales and during any gas sales interruption. However, gas rates were not previously sufficient to allow for gas sales, given the quality requirements of the Southern California Gas Company. The 2011 Project was designed to minimize on-site combustion through gas sales and/or gas re-injection and address the issue identified in this comment. As soon as the 2014 Project is approved and constructed so that gas sales can begin, on-site combustion and Bekaert operations can be minimized. The old "Flare King" has been replaced by a new Bekaert CEB®, which is a certified ultra-low emissions burner that is much more efficient than the old flare. Both the existing and proposed CEB® consists of a unique patented technology which provides up to 99.99 percent destruction efficiency of VOCs and has a NO_x emissions guarantee of less than or equal to 15 ppmv at 3% O_2.

Response 1-9

This comment states that gases produced along with the oil were burned in the old Flare King, which could impact neighbors. However, in the 2011 Project, the Flare King was replaced by a Bekaert CEB®, which is more efficient than the flare. In addition, as reiterated in Response 1-5, the proposed project in the draft SND is to allow the facility to move forward with gas sales; the SCAQMD permit will include a permit condition requiring gas sales except for under narrow circumstances. The Bekaert burner also has permitted limitations on use.

Response 1-10

As stated in Section 1.3.6 of the Draft SND, the six microturbines have been decreasing in efficiency and regularly experience outages, and thus, have reached the end of their useful life. Replacing the microturbines in-kind is an impractical solution because these microturbines are no longer manufactured, parts and services are difficult to obtain, and eventually, parts will no longer be available. Without the microturbines and in order to 1) combust the tail gas produced during the treatment of oilfield gas to make it suitable for sale, and 2) combust excess process gas during any interruption in gas sales, an additional Bekaert CEB® is necessary. The Bekaert CEB® has higher combustion efficiency and has been source tested by the SCAQMD, as stated in Section 1.3.5 of the Draft SND, to demonstrate compliance with current BACT limits. Combustion of gas

in the Bekaert CEBs® as proposed in this project will not result in the exceedance of any air quality significance levels. Lastly, gas sales without the microturbines minimize on-site combustion as electricity will not be produced on-site.

Response 1-11

The picture referenced in the comment reflects the normal metal discoloration effects of high temperature operations, not damage, gas leaks or combustion outside of the enclosure. The current Bekaert CEB® has been source tested to demonstrate compliance with the SCAQMD permit emission limits for NO_x, CO, VOC, and PM specified in Warren's permit, A/N 475760. For the new unit, Warren would be required to comply with the latest, most stringent BACT at the time of permitting per SCAQMD Rule 1303(a). As such, the Bekaert CEB® is presently considered BACT but if new technology is introduced before permit issuance, ~~a~~ the final BACT determination process will identify the existence of any such technology and that technology will be required from Warren, consistent with SCAQMD's rules and policies. Finally, source testing is required every four years to verify compliance with the BACT limits established during permitting.

Response 1-12

This comment asserts that "a source test should be performed on the existing Bekaert Burner to ensure that it is still meeting the permit limits." As discussed in Response 1-1, a source test on the Bekaert CEB® was previously conducted to demonstrate compliance with the permit conditions; SCAQMD staff confirmed the existing CEB® emits fewer emissions than in the corresponding SCAQMD permit condition limits. Per the SCAQMD permit A/N #475760, a source test is required to be conducted every four years to verify compliance with the emission limits. In addition, Warren is limited via permit conditions in using the Bekaert burners such that total usage is less than two burners continuously operating at the same time.

Response 1-13

The comment states that "a clear commitment and permit conditions requiring selling gas offsite to minimize combustion is needed." In addition, the commenter states that Warren is purchasing the second flare to "burn the gas at will". This is not the case. The June 25, 2014 Modified Order for Abatement states that Hearing Board jurisdiction "will assure that the Gas Sales Project is constructed and implemented as contemplated by the September 20, 2012 order and assure that the burning of oil field gas is minimized." In order for the Bekaerts to support gas sales, sufficient burner capacity is necessary during breakdowns or maintenance. The burners have permit conditions that minimize their use (see below). As stated in Response 1-5, the addition of the Bekaert CEB® and removal of the microturbines is required in order for Warren to proceed with gas sales. Furthermore, as stated in Response 1-5, a permit condition will be added to the Bekaert CEB® permits to ensure that Warren will sell gas offsite unless certain conditions are met that allow the gas to be temporarily combusted on site (as noted in Section 1.4.1 of the 2014 SND).

Response 1-14

This comment states that "Warren should be required to perform a public "Flare Minimization Plan." Under SCAQMD Rule 1118(e) Flare Minimization Plans are only required for refinery flares that result in emissions of more than 0.5 tons per million barrels of crude processing capacity calculated as an average of over one calendar year. Warren's facility is not a refinery but there will be permit conditions imposed that will limit Warren's ability to burn gas in the Bekaert CEB®s except during rare circumstances such as planned maintenance, repairs, or source testing during which both Bekaert CEB® units might simultaneously be burning tail gas, but would be limited for overall tail gas burning for the same emissions profile. Also, at least one Bekaert CEB® unit will always be in a ready-standby mode so that it can accommodate proper combustion of gas on short notice. These conditions will minimize the combustion of oilfield gas on site. See Section 1.4.5 of the 2014 SND for an explanation of the permit condition modifications.

Response 1-15

See Response 1-4.

Response 1-16

This comment asserts that the facility should be required to implement greater monitoring conditions to prevent impacts to neighbors and the environment. Monitoring of gas flow and emissions will continue to be conducted as required by the permit conditions, which enforce the measures identified in the MMRP. Equipment combustion efficiency will be measured during the source test every four years. Additionally, as addressed in the 2011 SMND Response to Comment 2-6, analysis of the proposed project indicates that potential off-site residue from the 2011 Project, if any, would not be significant, and thus, mitigation measures, including monitoring, are not required. In addition, the WTU Central Facility is in an industrial area with nearby refineries and the San Pedro Bay Ports and related transportation sources. Monitoring equipment would be affected by all of these other industrial sources and register impacts from facilities other than the WTU Central Facility. Therefore, any additional monitoring equipment would not accurately identify impacts from existing or proposed operations at the WTU Central Facility.

Response 1-17

The comment states that the SND does not provide a baseline on the existing conditions at the facility, including the oil production. As this is a supplemental CEQA document, it relies upon the previous 2011 SMND, including oil production conditions. The 2014 Project does not change the oil production analyzed in the certified 2011 SMND (monthly average production of 5,000 barrels per day (BPD)). The amount of oil production at the time of the draft SND is not relevant to this supplemental CEQA analysis. Therefore, there is no change in the baseline conditions used in the 2011 SMND related to the oil production.

Response 1-18

The comment states that "neighbors should be directly consulted" regarding any public nuisances. Interested parties are given notice about and the opportunity to comment on public documents within the comment period as required under CEQA. Information pertaining to air quality compliance for Warren is available from the SCAQMD through a Public Records Request. The Warren facility has signs posted on the outside of the facility giving a telephone number that neighbors should call if they have concerns about operations at the facility. There have been no verified odor nuisance complaints attributable to operations at the Warren facility for over 8 years or any other local impact.

June 10, 2014

COMMUNITIES FOR A BETTER ENVIRONMENT

VIA ELECTRONIC MAIL
Jeffrey Inabinet
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South Coast Air Quality Management District
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Re: CBE Comments on Warren E&P Inc. WTU Central Facility New Equipment Draft Supplemental Negative Declaration

Dear Mr. Inabinet,

Communities for a Better Environment (CBE) submits these comments on the Warren E&P Central Facility New Equipment Draft Supplemental Negative Declaration (SND) on behalf of its members who reside in Wilmington, California in close proximity to the Warren oil drilling facility that is the subject of this SND. CBE is a California nonprofit environmental health and justice organization with offices in Huntington Park and Oakland. CBE has extensive organizational experience in protecting and enhancing the environment and public health by reducing pollution and minimizing hazards from oil drilling operations. 2-1

The SND uses an incorrect baseline, fails to include information on required emissions credits, and provides insufficient information about drilling safety. The SND fails to fully analyze and identify all of the impacts of the proposed project, and consequently there is the potential for significant impacts not identified in the SND. As such, CBE believes that the SND should be revised and recirculated as a mitigated negative declaration with additional mitigation measures as necessary.

I. THE SND USES AN INAPPROPRIATE BASELINE IN VIOLATION OF CEQA

Baseline determination is critical to CEQA's effectiveness. "[B]aseline determination is the first rather than the last step in the environmental review process."[1] The baseline environmental conditions are those that the proposed project's impacts are measured against. An inaccurate baseline can drastically alter the outcome of environmental review—if baseline emissions are set too low, insignificant impacts become significant, and if baseline emissions are set too high, an environmental analysis can overlook significant impacts on the environment. 2-2

Generally, the baseline environmental setting for an environmental impact report or a negative declaration is the existing physical conditions in the project area at the time that the project was proposed.[2] The impacts of the project must be measured against the "real conditions

[1] *Save our Peninsula Committee v. Monterey Cnty. Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.
[2] CEQA Guidelines § 15125.

on the ground," and not against hypothetical levels.[3] Lead agencies are specifically prohibited from using maximum permitted levels of operations as a baseline when those maximum levels are not representative of actual operations.[4]

The SND adopts a baseline that assumes the project is operating at its permitted maximum. For the baseline levels of criteria air pollutants, the baseline assumes that 6,000 barrels per day (bpd) are produced and processed.[5] The project as approved by the 2011 SMND is permitted to operate at monthly average of 5,000 bpd.[6] However, the facility has not been operating at anywhere near this capacity, and has in fact been producing and processing closer to 3,000 bpd.[7]

The SND impermissibly uses a baseline of theoretical permit maximums, rather than actual operating conditions, in clear violation of the California Supreme Court's decision in *Communities for a Better Environment v. SCAQMD*.[8] The SND fails to analyze the proposed project impacts against existing conditions, and consequently fails to provide accurate information about the impacts of the proposed project. In order to comply with CEQA, the baseline should be revised to represent existing levels of operations, so that the potential impacts of the proposed project may be analyzed.

Additionally, the SND is inconsistent in which baseline it uses for different impacts. The SND uses 2012 conditions as the baseline for air quality impacts, while using the same baseline that was used in the 2011 SMND as the baseline for GHG emissions.[9] The use of two different baseline levels makes it impossible to consistently evaluate the impacts of the proposed project, particularly when neither of the baselines analyzed is the correct baseline under CEQA.

By using inconsistent and incorrect baselines, the SND obscures the true impacts of the project, and prevents the lead agency from taking measures to reduce those emissions as necessary. For example, if the proposed project causes an emissions increase in any nonattainment pollutant, the proposed project would be required to ensure that it was using best available control technology (BACT). Though the 2011 SMND found that the Bekaert burners were BACT at the time, there is no current BACT analysis to ensure that the burners still qualify as the best emissions control technology available.[10] It is also not clear from the SND whether

2-3

[3] Communities for a Better Env't v. S. Coast Air Quality Management District (2010) 48 Cal. 4th 310, 321.
[4] *See id.*
[5] Warren E&P Central Facility New Equipment Draft Supplemental Negative Declaration (SND) Appendix A, Table A.1.
[6] SND p. 1-4.
[7] *See* Technical Comments of Julia May, pp. 7-8.
[8] Communities for a Better Env't v. S. Coast Air Quality Management District (2010) 48 Cal. 4th 310 (holding that baseline must represent actual operating levels, not the maximum permitted levels).
[9] SND Appendix C.
[10] *See* Technical Comments of Julia May, pp. 2-5.

the burners actually achieve the extremely high efficiency level assumed by the 2011 SMND.[11] The SCAQMD must provide monitoring, testing results and analysis to support its efficiency assumptions for the Bekaert Burner.

CBE and its members are concerned about the impacts of leaks and on-site combustion via flaring, and an inaccurate baseline can obscure the substantial impacts of the criteria pollutants, air toxics, and GHGs on the surrounding community. A baseline that obscures the significance of these impacts can also absolve Warren of the responsibility to mitigate these impacts. CBE urges SCAQMD to ensure that the SND is revised and recirculated in order to allow a full analysis and mitigation of the proposed project's impacts. CBE encourages SCAQMD to require thorough monitoring for leaks, as well as a root cause analysis of flaring in order to minimize flaring and on-site combustion. 2-4 2-5

II. WARREN IS REQUIRED TO OBTAIN EMISSION REDUCTION CREDITS

Warren should be required to obtain emission reduction credits (ERCs) for NOx emissions. SCAQMD's regulations establish an ERC system that requires certain new or modified emission sources to obtain ERCs to offset the increase in pollutants caused by the new facility or the modification. If a modified facility has the potential to emit more than a specific threshold amount for a criteria pollutant, the facility must obtain offsets.[12] For NOx, a facility must obtain offsets if it has the potential to emit more than 4 tons per year (tpy) after modification. Last year, Warren's Wilmington facility reported emitting 5.671 tons of NOx.[13] Thus, because this proposed project has the potential to emit more than 4 tpy of NOx, Warren should be required to obtain NOx ERCs in an amount sufficient to offset any emissions above 4 tpy. 2-6

It is also notable that the baseline maximum daily NOx emissions identified in the SND (consisting of operations as of 2012) are 22.6 lbs/day, or approximately 3.7 tpy.[14] Given that the facility reported emitting 5.671 tpy of NOx in 2013, this means that either the baseline estimates were significantly lower than actual emissions, or 2013 saw significantly higher emissions than the 2012 baseline emissions. 2-7

III. THE SND FAILS TO ACCOUNT FOR SUBSTANTIAL INDIRECT EMISSIONS

The SND does not account for significant indirect air emissions that would occur as a result of the gas sales component of the proposed project. 2-8

[11] *See id.* at p. 5.
[12] SCAQMD Rule 1304(d).
[13] SCAQMD, Facility Information Detail, Facility ID 144682, Warren E&P, Inc. http://www3.aqmd.gov/webappl/fim/prog/emission.aspx?fac_id=144681.
[14] SND Appendix A, Table A.1.

CEQA requires a lead agency to consider both direct and indirect impacts of a proposed project.[15] Indirect impacts are those that are "caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable."[16] Here, SCAQMD failed to consider the indirect impacts of the gas sales component of the proposed project.

The proposed project differs from the project as approved in the 2011 SMND because instead of re-injecting excess gas, the proposed project will condition excess gas for sale. This gas will be sold and combusted offsite, and the SND fails to account for the GHG and air quality impacts of this foreseeable offsite combustion. In addition, the conditioned gas for sale will be transported through pipelines, and the SND does not account for the impacts of leaks from these pipelines. In fact, the SND explicitly affirms that "no indirect GHG emissions were calculated for the proposed project."[17]

The proposed project includes the sale of 960,000 standard cubic feet per day of natural gas to be combusted offsite.[18] The indirect nature of these off-site emissions cannot be ignored as "it is inaccurate and misleading to divide the project's air emissions analysis into on-site and secondary emissions for purposes of invoking the presumption the project will have no significant impact."[19] Thus CEQA requires a sufficient analysis and discussion of mitigation of these emissions.

CBE believes that one of the highest priorities of this project should be to minimize onsite combustion and flaring of gas, in order to protect the health and safety of nearby residents. However, in order to comply with CEQA, the SND must, at the very least, identify the impacts of offsite combustion and adequately analyze and estimate how much the proposed project is likely to increase emissions from all of these sources, regardless of their locations.

IV. THE SMD PROVIDES INSUFFICIENT INFORMATION ABOUT DRILLING SAFETY

The 2011 SMND included two gas re-injection wells, pending approval of permit applications to the California Division of Oil, Gas, and Geothermal Resources (DOGGR). However, on April 30, 2012, DOGGR informed Warren that the Division would not review its re-injection well applications for at least 24 months.[20] This delay was one of the primary reasons that Warren submitted the current proposed project modifications to SCAQMD. 2-9

The SND contains no information about why DOGGR refused to act on the permit applications. The SND should include such information, as DOGGR's reasons for inaction could provide critical information about the impacts of this proposed project. Was the re-injection

[15] CEQA Guidelines § 15358(a).
[16] CEQA Guidelines § 15358(a)(2).
[17] SND Appendix C.
[18] SND Appendix C, Table C.3.
[19] *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App. 3d 692, 717.
[20] SND p. 1-3.

project delayed because the site had inadequate safety devices at the surface?[21] Was the subsurface found unsuitable for gas storage? Such conditions could still pose safety concerns for gas sales and continued drilling, and it is critical that the public and decisionmakers have full information about these issues, particularly in light of the substantial levels of air toxics that may be emitted from drilling sites. In order to be effective as an informational document, the SND should be revised and recirculated to include information on why DOGGR did not approve the re-injection permits.

V. CONCLUSION

CBE requests that SCAQMD revise the SND to address the deficiencies addressed above, and recirculate the document as a mitigated negative declaration. 2-10

Sincerely,

Heather Lewis
Maya Golden-Krasner
Communities for a Better Environment

[21] *See* 14 CCR 1724.9(c).

COMMENT LETTER NO. 2
COMMUNITIES FOR A BETTER ENVIRONMENT
JUNE 10, 2014

Response 2-1

The commenter states that that SND uses an incorrect baseline, fails to include information on emission reduction credits, and provides insufficient information on drilling. Please refer to the below responses for why the analysis included in the draft SND is appropriate for the proposed project under CEQA.

Response 2-2

The comment states that the SND uses an inappropriate baseline based on 6,000 barrels per day. This is not correct and is likely a misreading of the SND. As in the 2011 SMND, the monthly average oil production is 5,000 barrels per day, but for the purposes of the impact analysis of a worst-case day of emissions from the heater treaters (whose operations are affected by oil throughput), a 20% increase from the monthly-average daily oil throughput was assumed. This project is not proposing a change in the oil production rate from that which was approved under the 2011 SMND. A SCAQMD permit for the crude oil water separation system (#476074, condition 10) already limits the production to no more than a monthly average of 5,000 barrels of oil production per day and is not affected by the 2014 project. See also Response 1-17 with regard to no change in the oil production as a result of the proposed project.

In addition, the commenter states that the air quality analysis used a 2012 baseline whereas the greenhouse gas (GHG) analysis relied on the 2011 SMND baseline. This is to be consistent with the supplemental nature of this CEQA analysis. By comparing air emissions to the final 2011 Project emissions, it is shown that the 2014 Project has lower emissions (except for SO_x); thus, the 2014 Project would not affect the 2011 SMND determination of less than significant emission impacts (and in the case of SO_x, the minimal increase would not change the "less than significant" determination). Table A.1.x in Appendix A of the 2014 SND also provides current emissions, for further information/disclosure purposes. Similarly, GHG emissions were compared to the final 2011 SMND emissions (mitigated to be less than significant). To ensure that 2014 Project emissions would not affect the "less than significant" determination of the 2011 SMND, total fuel usage was reduced from 199,000,000 standard cubic feet of gas per calendar year to 197,000,000 standard cubic feet of gas per calendar year, and is an enforceable permit condition.

Response 2-3

This comment requests clarification on the BACT status of the Bekaert CEB® and whether the burner has achieved the manufacturer's guarantee referenced in the 2011 SMND. Please see Response 1-11 for a discussion on the BACT applicability of the Bekaert CEB® and Response 1-1 and 1-12 for a discussion on the recent source test results.

Response 2-4

This comment expresses concerns about leaks, on-site flaring, and an inaccurate baseline. Please refer to Responses 1-4, 1-13, and 1-17, respectively, for additional information.

Response 2-5

This comment states that additional leak monitoring and root cause analysis of flaring should be conducted. Please refer to Responses 1-4 and 1-16 with regard to leaks and monitoring, and 1-14 with regard to flare minimization.

Response 2-6

Warren's 2013 Annual Emission Report (AER) emissions for the WTU facility used default emission factors in the District AER program. These default factors are typically conservatively high for the purposes of reporting emissions and paying associated emission fees. Using equipment-specific emissions factors, such as were used in the 2014 SND, results in lower emission estimates (see also Response 2-7) and are a more accurate representation of the emissions from the equipment. With equipment-specific emission factors, WTU facility NO_x emissions are lower than 4 tons/year and offsets are not required per Rule 1304(d).

Response 2-7

As noted in Response 2-6, the AER emissions for the WTU facility were based on default emissions factors in the SCAQMD's AER web tool, which tend to be conservatively higher than equipment-specific emissions factors. Facilities can use equipment-specific emission factors, such as those used in permit applications, etc. Following a meeting with the SCAQMD on June 26, 2014 to discuss revisions in the emission factors used in the AERs, Warren submitted revised AERs for 2011, 2012, and 2013. The revised AER emissions will be consistent with the emissions in the 2014 SND. (We also note that the reported emissions in Chapter 2 of the 2014 SND are incremental emissions based on peak day estimates, not total facility emissions, whereas the AER and the requirement to obtain Emission Reduction Credits (ERCs) are based on total facility emissions.)

Response 2-8

This comment states that the off-site emissions from gas sales were not analyzed in the draft SND. Gas sales were analyzed in the 2011 SMND. This project is consistent with the analysis in the certified 2011 SMND and does not increase the quantity of gas sales. The 2011 (or 2014) Project does not increase off-site gas usage – gas from Warren (which would otherwise be combusted on-site) simply displaces gas demanded from other gas sources. There would be no net change in off-site emissions.

Response 2-9

The delay by DOGGR (in 2012) in reviewing gas re-injection permits was state-wide and not related to Warren's specific gas re-injection request. The speculative questions raised in the comment either refer to gas re-injection or continued drilling neither of which are the subject of the 2014 Project or SND. For clarification, DOGGR did not disapprove any of Warren's gas re-injection well applications – there was simply an extensive delay in reviewing any such applications at that time. The understanding is that DOGGR staff cited two reasons for the delay at the time; (1), an on-going procedure review of injection in general and (2), limited staff resources for this type of permitting.

Response 2-10

This comment states that the SND needs to be revised. As discussed in Response 2-1 through 2-9, the commenter has not provided applicable reasons as to why the draft SND would need to be revised. Also, please refer to Response 1-6 as to why the SND is the appropriate CEQA document.