

Signal Hill Petroleum
Conditional Use Permit 97-03
Extension Initial Study



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Acronyms and Abbreviations

AB	Assembly Bill	DOT	Department of transportation
Bgs	Below ground surface	DPM	Diesel particulate matter
BLM	U.S. Bureau of Land Management	°F	Degrees Fahrenheit
BMP	Best management practice	EIR	Environmental impact report
CARB	California Air Resources Board	ESA	Endangered Species Act
CalGEM	California Geologic Energy Management Division	Ghg	Greenhouse gas
CAL FIRE	California Department of Fire and Forestry	GHGRP	Greenhouse gas reporting program
CDFW	California Department of Fish and Wildlife	HMBP	Hazardous materials business plan
CDOC	California Department of Conservation	Hp	horsepower
CEC	California Energy Commission	LCFS	Low carbon fuel standard
CEQA	California Environmental Quality Act	Leq	Average sound level
CERS	California Environmental Reporting System	Lmax	Maximum sound level
CESA	California Endangered Species Act	LOS	Level of service
CHRIS	California Historic Resources Information System	LTS	Low temperature separation
CNDDDB	California natural diversity database	MBTA	Migratory Bird Treaty Act
CNEL	Community noise equivalent level	MCF	Million cubic feet
CNPS	California Native Plant Survey	MCL	Maximum contaminant level
CO	Carbon monoxide	MND	Mitigated negative declaration
CUP	Conditional use permit	MS4	Municipal separate stormwater system
CUPA	Certified unified program agency	MW	megawatt
CWA	Clean Water Act	NAHC	Native American Heritage Commission
dBA	A-weighted decibels	NHPA	National Historic Preservation Act
dB	decibels	NO ₂	Nitrogen dioxide
		NO _x	Nitrogen oxides
		NONA	Notice of non-applicability
		NRHP	National Register of Historic Places

O ₃	ozone
Pb	lead
PHMSA	Pipeline Hazardous Materials Safety Administration
PM	Particulate matter
PM _{2.5}	Particulate matter less than 2.5 microns
PM ₁₀	Particulate matter less than 10 microns
PPV	Peak particle volume
SB	Senate bill
SCAQMD	South Coast Air Quality Management District
SHP	Signal Hill Petroleum
SO ₂	Sulfur dioxide
SO _x	Sulfur oxides
SPCC	Spill prevention containment and countermeasures
SSC	Species of special concern
SWPPP	Stormwater pollution prevention program
SWRCB	State Water Resources Control Board
TDS	Total dissolved solids
UIC	Underground injection control
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
VRM	Visual resources manual
WDR	Waste discharge requirements
WRD	Water replenishment district

Environmental Checklist Form

1. Project Title: Signal Hill Petroleum Long-term Extension of Conditional Use Permit 97-03
2. Lead Agency Name and Address: City of Signal Hill, 2175 Cherry Avenue
Signal Hill, California 90755
3. Contract Person and Phone Number: Colleen Doan, Community Development Director,
(562) 989-7344, CDoan@cityofsignalhill.org
4. Project Location – 7 drill sites within the City of Signal Hill
5. Project sponsor's name and address: Signal Hill Petroleum, 2633 Cherry Avenue, Signal
Hill, California 90755
6. General Plan designation: Varies by drill site
7. Zoning: Varies by drill site
8. Project Description: The City of Signal Hill is considering a request from Signal Hill
Petroleum for a 20-year extension of Signal Hill Petroleum's Conditional Use Permit to
operate seven oil and gas production drill sites within the City of Signal Hill. If approved,
Signal Hill Petroleum proposes continued operation of each drill site, including
conducting periodic, as needed, reworking of existing wells, and potential to construct
additional well cellars and drill up to 46 new wells over the life of the permit period.
Signal Hill Petroleum also proposes upgrades to the gas plant located at CUP Drill Site
#2.
9. Surrounding land use and setting: All drill sites are located within the urban area of the
city of Signal Hill adjacent to commercial and residential areas, and main roadways
throughout the City.
10. Other public agencies whose approval is required: Permits to drill new wells and rework
existing wells are required from the Department of Conservation, California Geologic
and Energy Management, at the time that individual activities are proposed. Approvals
are required from South Coast Air Quality Management District to complete proposed
updates to the gas plant. No other additional approvals from public agencies are
required for Signal Hill Petroleum continued operations at the drill sites.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

- | | | |
|--|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture / Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

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 proposed 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 proposed project MAY have a significant effect 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 proposed 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 proposed project, nothing further is required.

Signature Colleen T. Doan Date 1/12/2023

SECTION 1 Introduction

1.1 Overview of the Proposed Project

Signal Hill Petroleum (SHP) operates seven drill sites in the City of Signal Hill under Conditional Use Permit 97-03 (CUP) (Figure 1.1-1). The CUP, first issued in 1998, has been renewed multiple times. Most recently, the City renewed the CUP for a 2-year term in July 2021 which expires on July 30, 2023. SHP has requested the City issue a long-term (20-year) renewal of the CUP to continue operations (the Project). Renewal of a long-term extension of the CUP by the City of Signal Hill is a discretionary decision that triggers compliance with the California Environmental Quality Act (CEQA). As part of the Project, SHP proposes to continue existing operations at all seven drill sites (including redrilling activities such as deepening, sidetracking, and reworking to as many as 26 existing wells over the proposed 20-year period), conduct upgrades to the gas processing facility at Drill Site #2, and drill up to 46 additional wells within the footprint of the drill sites. The Project would not change the footprint of the drill sites, or the levels of activity associated with operating and maintaining the equipment at the drill sites.

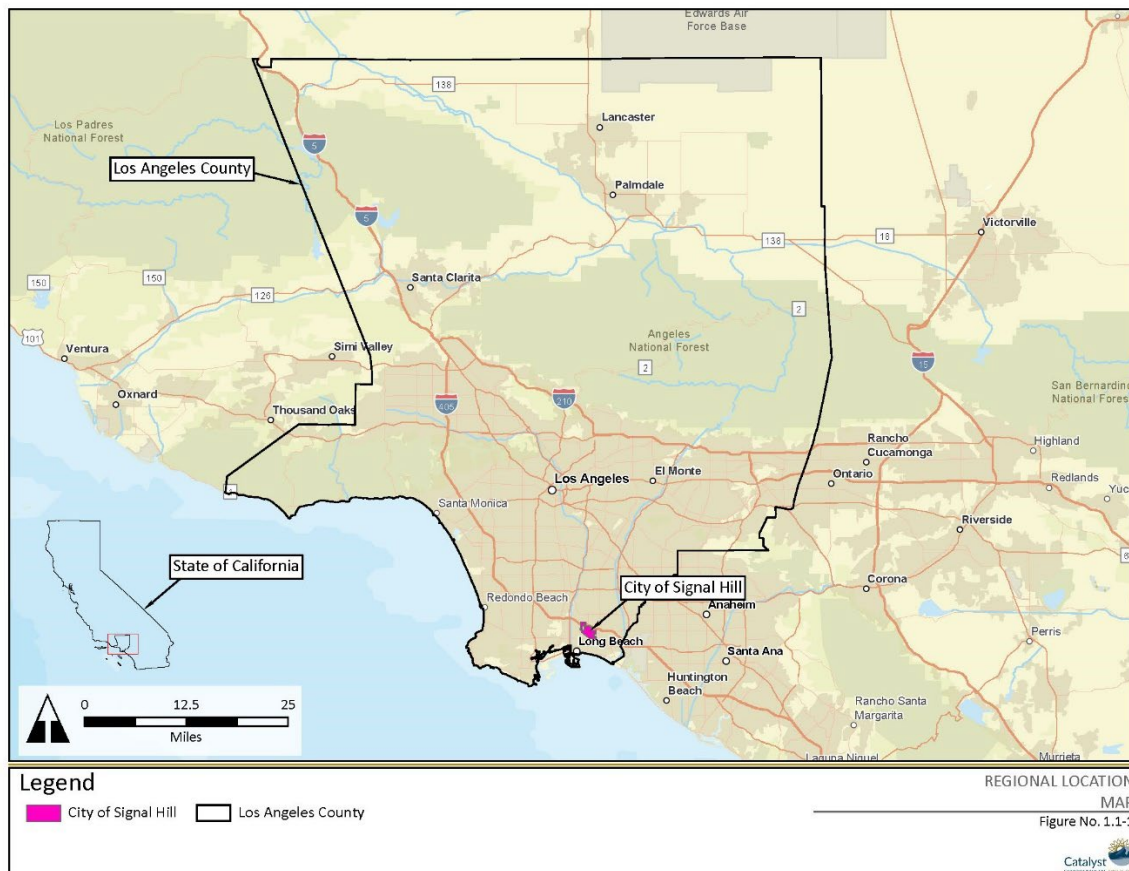


Figure 1.1-1: Project Location Map

1.2 Project Background and History

Prior to SHP acquisition, the various drill sites throughout the City of Signal Hill were owned by ARCO, Shell, and Texaco and each site was operated under a separate CUP. SHP began acquiring drill sites in 1984, and once they acquired all seven drill sites, the City consolidated the CUP to cover all sites under one permit, CUP 97-03. Table 1.2-1 summarizes each CUP approval and the associated environmental review.

The City Council first approved CUP 97-03 on June 16, 1998. CUP 97-03 allowed SHP to continue their existing oil and gas production, storage, processing, and shipping of materials at the seven CUP drill sites under one, consolidated permit. The CUP approval also included 18 conditions of approval, including an annual review by the City through an inspection by the Oil Services Coordinator, and an initial approval term of 5 years. As part of the CUP approval, the City adopted a Mitigated Negative Declaration (MND), pursuant to CEQA. The MND contained 14 mitigation measures pertaining to geophysical, water quality, air quality, hazards, noise, and aesthetics, which were incorporated into the CUP conditions of approval. These mitigation measures remain applicable to SHP's existing operations and, if the CUP extension is approved, would continue to be implemented as part of the Project.

On October 1, 2002, prior to expiration of CUP 97-03, SHP requested to amend the permit to include a new natural gas-powered turbine/electric generation facility to be located at CUP Site #2. The electrical generation facility is powered by natural gas produced by SHP's extraction sites¹, which reduced SHP's need to purchase offsite power. This facility provides 75% of the electricity required to power SHP's oil operations in the Long Beach Oil Field. The remaining 25% of electricity required to power SHP's oil operations is provided by Southern California Edison. The 2002 CUP amendment was approved, and the term was extended for 10 years (until October 1, 2012). A subsequent MND was approved by the City to address SHP's proposed amendments to CUP 97-03. As part of approval of the CUP amendment, five new conditions related to the power plant and one additional mitigation measure identified in the subsequent MND related to noise were added to the CUP as conditions of approval.

The CUP was again extended for another two-year period on September 4, 2013. The City filed a Notice of Exemption in accordance with CEQA for this extension. The City approved another short-term extension of the CUP until February 20, 2014, which included new conditions for landscaping. SHP installed landscaping and maintenance improvements in January 2014 to comply with the additional conditions.

On January 14, 2014, the Planning Commission held a duly noticed public hearing and unanimously recommended City Council approval of another 6-month extension to allow time

¹ Prior to 2021, SHP also processed natural gas produced by other independent oil operators in the Signal Hill/Long Beach area. The potential exists that this activity may resume at some point during the CUP permit period.

to complete applicable technical studies being prepared for the City amending their Oil and Gas Code. The approval extended the term of the CUP to January 4, 2015.

In November 2014, as the third extension expiration approached, the City met with SHP to discuss next steps and a time frame. A 30-month extension was agreed upon to allow time to prepare a comprehensive development agreement intended to allow development of multiple properties (i.e., residential and commercial development) as well as a combined environmental document that analyzed both the development agreement and a long-term extension of the CUP. The City extended the term of the CUP to June 30, 2017. Since 2017, subsequent one- to 2-year term extensions for CUP 97-03 have been approved by both the Planning Commission and City Council up to present day. The most recent extension was approved by the City Council on August 10, 2021, for a 2-year term, and the CUP is currently set to expire on July 30, 2023.

Table 1.2-1: Summary of CUP 97-03 History

CUP Approval Date	Details	Permit Term	CUP Expiration Date	CEQA
June 16, 1998	Initial CUP 97-03 Approval	5 years	June 2003	IS/MND adopted
October 1, 2002	City amends CUP 97-03 to include electrical generation facility at Drill Site #2	10 years	October 1, 2012	Subsequent IS/MND adopted
October 1, 2012	City approves CUP extension	1 year	September 3, 2013	
September 4, 2013	City approves CUP extension	6 months	February 20, 2014	Class I Exemption – Existing Facilities
February 4, 2014	City approves CUP extension	1 year	December 31, 2014	
December 2, 2014	City approves CUP extension	2.5 years	June 30, 2017	
June 13, 2017	City approves CUP extension	1 year	June 30, 2018	
June 12, 2018	City approves CUP extension	1 year	June 30, 2019	
June 11, 2019	City approves CUP extension	1 year	June 30, 2020	
August 10, 2021	City approves CUP extension	2 years	July 23, 2023	

1.3 Project Objective

The applicant's project objective is to continue oil production at the existing CUP sites for another 20 years to continue to support the energy needs of California. The City's objective is to

respond to SHP's request for CUP extension, determine an appropriate duration for the CUP term and either approve, approve with conditions, or revoke the CUP. As CEQA lead agency, the City is considering the proposed Project as a whole, which includes another 20 years of continued operations of the existing drill sites as well as additional activities which are proposed during the 20-year timeframe.

1.4 Purpose of the Environmental Assessment

CEQA applies to projects initiated by, funded by, or requiring discretionary approvals from California state or local government agencies. Approval of conditional use permits is a discretionary decision by the City of Signal Hill City Council in accordance with Section 20.08.050 of the City of Signal Hill Municipal Code. As a proposal which requires discretionary approval from the city, the Project constitutes a "project" as defined by CEQA (California Public Resources Code [PRC] Section 21000 et seq.). The City of Signal Hill will be preparing an Environmental Impact Report (EIR) to evaluate the potential environmental impacts of the Project in advance of deciding whether to approve CUP 97-03 for a 20-year extension, and if so, whether any additional conditions of approval are necessary to minimize or avoid environmental impacts.

1.5 Lead Agency

CEQA Guidelines Section 15367 states that a Lead Agency is "the public agency which has the principal responsibility for carrying out or approving a project." The City of Signal Hill is the primary permitting agency and governmental body responsible for approval and ongoing oversight of the proposed Project and therefore serves as the lead agency responsible for compliance with CEQA. The City of Signal Hill has the authority to approve the extension of CUP 97-03 and would continue to ensure that SHP's operations remain in compliance with the requirements of the CUP 97-03 and the City's Oil and Gas Code (Signal Hill Municipal Code – Title 16). Title 16 regulates oil production facilities and operations and sets out the standards for development around active wells and over and around abandoned oil wells. The Oil Services Coordinator is the primary inspector for the City regarding enforcement of the Oil Code. In addition, the City is responsible for issuing a ministerial permit for drilling new wells, redrilling existing wells, and installing new well cellars. These activities also require inspections by the Oil Services Coordinator.

1.6 Responsible Agencies

Responsible agencies in CEQA include all public agencies, besides the lead agency, with discretionary permitting authority over the Project. SHP's oilfield operations are subject to numerous permit requirements and additional agency oversight. However, the only other discretionary permitting action required for Project implementation are permits to drill new wells or rework existing wells, which are under the authority of the California Geologic Energy

Management Division (CalGEM) ², and approvals from the South Coast Air Quality Management District (SCAQMD) related to operation of the gas plant. CalGEM is the state agency that oversees surface and subsurface operations of oil, gas, and injection wells; well exploration, drilling, and construction; well testing; well completion, stimulation, and workovers; oil and gas operations and maintenance; and well removal, plugging, and abandonment.³ SHP's existing water-injection operations are subject to Class II Underground Injection Control permits with monitoring and other requirements established by CalGEM. As a responsible agency, CalGEM would use this environmental analysis to support their permitting decisions for new wells, reworks, and abandonments, as well as periodic reviews of SHP's existing Class II Underground Injection Control Permit. SCAQMD is the local agency with jurisdiction over air emissions in the region. As a responsible agency, SCAQMD would use this environmental analysis to support their permitting decisions related to permits to construct and permits to operate stationary sources at the CUP drill sites.

² The Oil Services Coordinator also oversees these operations, and the City is responsible for issuing ministerial permits following issuance of CalGEM permits as per Title 16 of the Municipal Code.

³ Senate Bill (SB) 1137, signed into law in October 2022. Pursuant to SB 1137, CalGEM published draft emergency regulations to implement SB 1137, which were submitted to the Office of Administrative Law on December 28, 2022, and became effective January 6, 2023. These regulations prohibit CalGEM to approve any notices of intention for work within designated Health Protection Zones, except for permits to abandon or reabandon existing wells, and also include numerous new testing and reporting requirements to continue operating production facilities within Health Protection Zones. For the purposes of this CEQA document, the City of Signal Hill is evaluating the project as proposed by SHP, assuming all existing wells will comply with the provisions of SB 1137, and that any future proposals to drill new wells or rework existing wells may not be permitted by CalGEM as responsible agency.

SECTION 2 Project Description

2.1 Project Summary

The City has permitted seven drill sites located within the City of Signal Hill under CUP 97-03 since 1998 and is considering adoption of a 20-year extension of the CUP (Project). During the 20-year extended CUP period, SHP proposes to install new equipment at the existing natural gas processing facility at CUP Drill Site #2 and drill up to 46 new wells which may be located within any of the seven drill sites. All other operational activities, such as site maintenance, inspections, redrilling and well operation and fluid processing would remain the same.

The seven drill sites under CUP 97-03 are existing and currently active oil production-related facilities. In addition to oil and gas extraction, central processing facilities are located at CUP Drill Sites #2 and #5, including a central water plant used for the recovery of petroleum hydrocarbons (CUP Drill Site #5), and a natural gas processing/power generation facility (CUP Drill Site #2). CUP Drill Site #6 is an inactive processing site that houses out-of-service tanks that cannot be used for storage or processing, per State regulations and City of Signal Hill Municipal Code (new equipment would need to be installed to use CUP Drill Site #6 for processing in the future). Due to equipment and work area requirements, the CUP drill sites are generally absent of any substantial landscaping of the interior areas, although perimeter landscaping and/or decorative concrete block walls/fencing surround each of the sites to provide visual screening in accordance with the City's Oil and Gas Code (Title 16).

The Project does not include any amendments or modifications to the CUP that would expand the operational activities authorized under the CUP's existing terms. The existing CUP boundaries would not change or expand under the proposed Project, and all operations (existing and proposed) would continue to occur within the existing permitted CUP footprint. SHP would continue to operate the drill sites in accordance with the Conditions of Approval specified in CUP 97-03, which are under review as part of the CUP renewal process and may be amended as a result of the environmental review. The current Conditions of Approval are listed in Table 2.1-1 below.

Table 2.1-1: Conditions of Approval

Condition #	Description
	General Conditions
1	Operation of the Consolidated Drilling and Oil Production Sites will be consistent with the applications dated July 31, 1997, and August 15, 2002, on file with the Department of Community Development.

Condition #	Description
2	Any substantial modification to the approved plans, or any amendment to the conditions of approval, as determined by the Director of Community Development, shall be referred to the Planning Commission and City Council for review and approval.
3	A "Consolidated Drilling and Oil Production Site," or "Drill Site," means an area where the operator may drill, re-drill or produce wells for removing oil and/or gas, or for injecting water or other approved substances to assist with the recovery of oil and/or gas and where said products may be gathered, distributed and/or separated (i.e., processed) under conditions specified in a City approved conditional use permit.
4	"Discontinuation" of a Consolidated Drilling and Oil Production Site means an operator no longer intends to use the area for drilling, re-drilling, producing, injecting or processing and has informed the City of said intent in writing
	Enforcement Conditions
5	Buildings and additions are subject to Signal Hill Municipal Code Chapter 20.52, entitled, "Site Plan and Design Review." A fence or decorative masonry block wall shall enclose all Consolidated Drilling and Oil Production Sites. Gates shall complement the appearance of the fence or wall as determined by the Director of Community Development. The operator shall maintain fences, walls and gates, and remove or paint over graffiti and excessive staining as directed by the Oil Services Coordinator.
6	No structures, including tanks, shall exceed forty (40) feet except that the height of the emissions stack for the gas turbine power plant at 1215 29th Street shall not exceed forty-five (45) feet and no pumping unit shall exceed fifty (50) feet in height above existing grades.
7	The operator shall notify the City of any proposed change in operator at least thirty (30) days before said change takes effect.
8	The operator shall allow the Oil Services Coordinator or his designee access to all sites subject to this Conditional Use Permit as required by Signal Hill Municipal Code Section 16.04.060, entitled, "Right-of-Entry." All drilling, re-drilling, producing, injecting or processing facilities shall be subject to inspection by the Oil Services Coordinator. At least one time per year, the Oil Services Coordinator shall inspect every consolidated drill site for compliance with these Conditions of Approval.
9	As security for payment of any financial obligations of Applicant hereunder, Applicant shall record a security instrument against one Consolidated Drilling and Oil Production Site with lien rights, subject to foreclosure by the City for failure to pay any amount when due. This security shall be in a first position on a Drill Site approved by the City Attorney. The single drill site shall serve as security for violations at any of the seven drill sites. The security instrument shall be in a form approved by the City Attorney. The City may proceed against the security, if Applicant fails to pay any obligation hereunder within thirty (30) days, following the City's written request for payment. In the event Applicant pays under protest, Applicant shall have the appeal rights as listed in Condition No. 8.
10	Violation of any conditions of approval shall constitute grounds for this Conditional Use Permit to be revoked following notice and a public hearing before the Planning Commission. Any decision of the Planning Commission regarding revocation of the Conditional Use Permit may be appealed to the City Council and the City Council has the final decision-making authority.
	Operating Conditions
11a	The operator shall notify the Oil Services Coordinator of any work for which a permit is required and obtain all required permits as required by Signal Hill Municipal Code Section 16.04.050, entitled,

Condition #	Description
	"Inspection," and Signal Hill Municipal Code Section 16.12.020, entitled, "Permits Required." The operator may maintain an annual electrical permit as prescribed.
11b	The operator shall maintain access roads so as to minimize erosion as required by Signal Hill Municipal Code Section 16.16.040, entitled, "Drill Site Grading, Drainage and Surfacing," and Signal Hill Municipal Code Section 16.20.010, entitled, "Grading Drainage and Surfacing."
11c	During drilling operations, the operator shall maintain a minimum of five off-street parking spaces at each Consolidated Drilling and Oil Production Site as required by Signal Hill Municipal Code Section 16.16.050, entitled, "Off-Street Parking."
11d	The operator shall, during drilling operations, maintain sanitary facilities at the Consolidated Drilling and Oil Production Site as required by Signal Hill Municipal Code Section 16.16.060, entitled, "Sanitary Facilities."
11e	The operator shall maintain signs at each Consolidated Drilling and Oil Production Site as required by Signal Hill Municipal Code Section 16.16.080, entitled, "Signs," and Signal Hill Municipal Code Section 16.16.060, entitled, "Signs and Identification."
11f	The operator shall, during drilling operations, maintain blow out prevention equipment in accordance with Signal Hill Municipal Code Section 16.16.090, entitled, "Blow-out Prevention," and all applicable State requirements.
11g	The operator shall maintain cellars free of oil, water and debris and in safe and working order as required by Signal Hill Municipal Code Section 16.16.100, entitled, "Cellars," and Signal Hill Municipal Code Section 16.20.080, entitled, "Cellars and Stumps."
11h	The operator shall arrange light fixtures so that light is not directed at neighboring property owners or tenants. All lighting shall be consistent with Signal Hill Municipal Code Section 16.20.070, entitled "Lighting."
11i	The operator shall maintain paint on all equipment. Equipment and tanks shall be painted a neutral color. Any change in color is subject to approval by the Director of Community Development. Tanks and equipment shall be repainted periodically as reasonably necessary and as determined by the Oil Services Coordinator.
	Noise Conditions
12a	The operator shall only deliver to or remove equipment and materials from any of the Consolidated Drilling and Oil Production Sites between the hours of 7:00 a.m. and 7:00 p.m. except emergencies.
12b	The operator shall use electric motors to power equipment. Vehicle motors, including portable service or drilling rigs, may use internal combustion engines that comply with AQMD standards.
12c	The Director of Community Development may approve internal combustion engines for gas processing equipment if noise levels as measured at the Drill Site boundaries can be maintained within the noise levels allowed by the Signal Hill Municipal Code Chapter 9.16.
12d	The operator shall provide noise controls as required by Signal Hill Municipal Code Sections 16.16.110, entitled, "Soundproofing," et seq. and Section 16.20.100.
	Existing Tenants
13	Tenants at Drill Sites 5 and 7 are existing non-conforming business uses. Existing tenants, Global Solutions, Inc., an office use at Drill Site No. 5, and Platt Security, an auto parking and storage use at Drill Site No. 7, may remain, but may not be expanded, enlarged, or transferred in any way that would increase the nonconformity. The operator shall not rent or lease any part of the Consolidated Drilling

Condition #	Description
	Sites for storage, office, or any other businesses or activity not related to oil and gas production or processing.
	Specific Consolidated Drilling and Production Site Conditions
14	The operator shall complete the construction of the following improvements within four (4) months following the approval of the 30-month Conditional Use Permit. All construction and landscaping shall be review and approved by the Director of Community Development and inspected by the Oil Services Coordinator.
14a	Site No. 1 - The operator shall plant three additional trees along the east side of the drill site to improve the public view of the facility.
14b	Site No. 2 - The operator shall remove the dead trees from the Orange Avenue (west) and east sides of the facility. The operator shall remove weeds from the ground-covered areas along Orange Avenue and new ground cover planted as needed. The operator shall plant new trees along the east side of the site. The operator shall design and install a new landscaped area on 29th Street including an automatic irrigation system.
14c	Site No. 3 - The operator shall install new trees and shrubs along the east side of the facility to complement the landscaping proposed for the Town Center North development. The operator shall install an automatic drip irrigation system.
14d	Site No. 4 - The operator shall paint and repair the entry gates on Combellack Drive. Repairs shall include the removal of a pine tree that has overgrown the westerly pilaster, repair and repainting of chipped and cracked pilasters, and repainting of the metal gates to match the original colors. The operator shall remove dead trees from the east and south sides of the facility and repair or construct an automatic irrigation system.
14e	Site No. 5 - The operator shall remove dead trees and shrubs and weeds from the landscaped setbacks along Combellack Drive and Temple Avenue, repair the existing or install a new automatic irrigation system, and plant new shrubs and/or ground cover to present a uniform landscape treatment. The operator shall remove dead trees on the west and south sides of the facility.
14f	Site No. 6 - The operator shall remove weeds from landscaped areas along Grant Street, and plant new trees along the west side of the facility to replace missing trees.
14g	Site No. 7 - The operator shall repair the chain link fence along the west side of the facility and replace broken wood slats. The operator shall remove pallets and debris from the site. The operator shall repair the broken wall near the gate and improve landscaping by adding trees, shrubs and ground cover.
	Gas Processing Facility Construction Related Conditions
15	The operator shall obtain permits and install the gas processing equipment at Site No. 2 within one year of approval of this Conditional Use Permit.
16	After the operator installs the gas processing equipment, the operator shall test the level of noise at the property line generated by the equipment. If the noise level is greater than 70 dB, then the operator shall prepare and submit a Noise Mitigation Plan to the Director of Community Development for review and approval. The plan may include the construction of sound walls or any other method both feasible and reasonable that would reduce the noise level to 70 dB or below at the property line. The operator shall within three months design and successfully install measures to mitigate noise levels to 70 dB or below.
	Term

Condition #	Description
17	This permit shall be valid for a period of two years, unless earlier terminated due to a violation of these conditions, or the Signal Hill Municipal Code, or another law or regulation of any entity with appropriate jurisdiction in accordance with Condition 10.
	Resource Study
18	As part of ongoing operations, and during the term of this CUP, the Applicant plans to conduct studies of various parts of the oil reservoir to assist with a more efficient recovery of oil and gas. In an effort to help the City better understand oil operations, an oil and gas consultant hired by the City, and mutually agreed upon by both parties, may periodically review said studies conducted by Applicant. The consultant shall be required to sign a confidentiality agreement with Applicant prior to commencing this review work and any interpretations, results, conclusions or other information related to the Applicant's operations and/or studies documented by the consultant shall be forwarded to Applicant in their entirety and shall be subject to the limitations of said confidentiality agreement.
	Gas Turbine Power Plant Construction and Operation
19	Within two months after the operator completes the construction of the gas turbine power plant at 1215 29th Street, West Unit Processing Facility, the applicant's acoustical engineer shall test and document the level of noise generated by the operation of power plant at the surrounding property lines of the facility. If the noise level exceeds 70 dB at the property lines, the acoustical engineer shall prepare a Noise Mitigation Plan for review and approval by the Director of Community Development. The plan may include the construction of sound walls or any other feasible noise mitigation measures both feasible and reasonable that would reduce the noise level to 70 dB. The operator shall within three months following the approval of the Noise Mitigation Plan design and install any noise mitigation deemed necessary by the plan to comply with this condition.
20	The emissions stack shall be painted a neutral color before operation of the plant subject to the approval of the Director of Community Development and Oil Services Coordinator.
21	The power plant shall operate in compliance with all South Coast Air Quality Management District rules and regulations applicable to the facility.
22	The applicant shall, before operation of the power plant, repair and restore the landscaping surrounding the West Unit Processing Facility subject to the approval of the Director of Community Development and inspection by the Oil Services Coordinator.
23	<p>The operator agrees to continue to cooperate with the City's efforts to establish an electrical utility including:</p> <ul style="list-style-type: none"> • The operator shall contribute 50% of the cost to hire a consultant to prepare an electric utility study to evaluate the feasibility of establishing a City electric utility. • The operator shall cooperate and share facilities and related equipment within the West Unit Processing Facility as a possible location for a City gas turbine power plant, or provide similar support for a City power plant located on an alternative site adjacent to the West Unit Processing Facility as shown on the site plan attached to the related environmental documents. • The operator shall cooperate with the City and share other related equipment of operator, including, but not limited to operator's electrical distribution system, to assist in the operation of a municipal electric utility.
	Landscape Maintenance and Upgrade
24	The operator shall install and maintain landscaping at all seven drill sites to the satisfaction of the Planning Commission, improving on the specifications of condition number 14 from the previous conditions of approval for CUP 97-03.

Condition #	Description
25	The operator shall install the landscaping no later than January 24, 2014 and maintain it to the satisfaction of the Planning Commission. Landscape maintenance is part of the annual review for CUP 97-03.

2.2 Project Location

The Project is located entirely within the boundaries of the City of Signal Hill in Los Angeles County. The sites are located within developed urban areas, adjacent to lands developed for industrial, commercial, and residential uses, as shown in Figure 2.2-1. Table 2.2-1 provides the specific assessor's parcel number, general plan designation and zoning designation of each site. The wells within each drill site produce oil and gas from the West, Central, and East units of the Long Beach Oil Field.

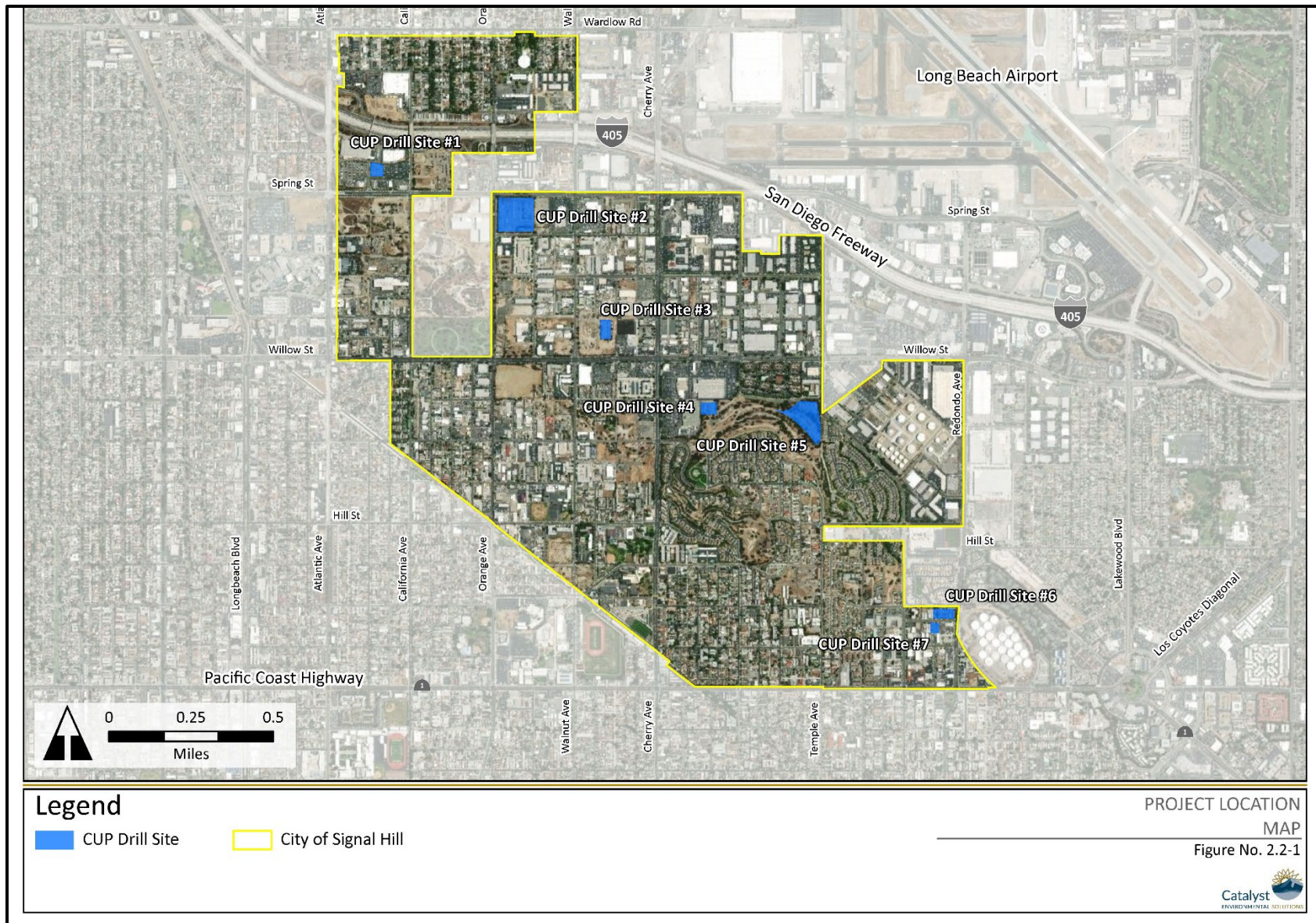


Figure 2.2-1: Location of the Seven CUP Drill Sites within the City of Signal Hill

Table 2.2-1: Drill Site Parcel Number and Land Use Designation

CUP Site	Size (acres)	Address	Parcel Number	General Plan Designation	Zoning Designation	Facilities
West Unit						
Site #1	0.94	805 E. Spring Street, Signal Hill Located in the Gateway Center parking lot, north of Spring Street between California and Atlantic Avenues	7207-024-037	Commercial General (3.2)	Commercial Corridor Specific Plan (SP-6)	Site “A”: 7 water injection wells (3 idle and 4 active) and 4 production wells (1 idle and 3 active) within an existing well cellar. Ancillary support structures/facilities: electrical panels, pipeline manifolds, test header.
Site #2	8.76	1215 E. 29th Street, Signal Hill Located south of E. Spring Street, east of Orange Avenue, and north of E. 29th Street	7212-008-104	Commercial General (3.2) General Industrial (4.2)	Commercial Corridor Specific Plan (SP-6)	Site “B”: Natural gas processing facility, 9 water injector wells (1 idle and 8 active), 8 production wells (4 idle and 4 active), natural gas power turbine, electrical substation, water injection plant, oil processing and storage tanks, and other Ancillary structures/facilities: employee changing room, office.
			7212-008-105	General Industrial (4.2)	General Industrial (GI)	
Site #3	1.65	2690 Walnut Avenue, Signal Hill Located northeast of the intersection of Walnut Avenue and E. Willow Street.	7212-011-034	Town Center (3.1)	Commercial Corridor Specific Plan (SP-6)	Site “D”: 7 water injector wells (2 idle and 5 active), 7 production wells (3 idle and 4 active), and 10 vacant well slots that have yet to be developed.
Central Unit						
Site #4	1.23	2700 Combella Drive, Signal Hill Located southwest of Junipero Avenue and Combella Drive behind Home Depot	7214-007-032	Town Center (3.1)	Town Center Specific Plan (SP-1)	North Site: 4 water injector wells (2 idle and 2 active), 8 active production wells (no idle wells), and 3 vacant well slots that have yet to be developed. Ancillary structures/facilities: electrical panel, pipe manifold.

CUP Site	Size (acres)	Address	Parcel Number	General Plan Designation	Zoning Designation	Facilities
Site #5	7.35	2700 Combella Drive, Signal Hill Located south of Combella Drive, west of Temple Ave, and north of E. Panorama Drive	7214-010-006	Low Density Residential (1.1)	Planned Develop District-2 (PD-2) Hilltop Area Specific Plan (SP-2)	Central Site: Central processing facilities which include a fluid dehydration plant, a water injection plant, oil and gas shipping equipment, and a Southern California Edison electrical substation; a modular office and a water injection plant; 3 water injectors (1 idle and 2 active), 6 production wells (5 idle and 1 active), and 6 well slots that have yet to be developed. Ancillary structures: natural gas tank, a diesel tank, pipe manifold/electrical panel.
			7214-011-013	Low Density Residential (1.1)	Planned Develop District-2 (PD-2) Hilltop Area Specific Plan (SP-2)	
East Unit					1	
Site #6	1.07	3365 Grant Street, Signal Hill Bounded by E. Grant Street to the south, Redondo Avenue to the east, and 20th Street to the north	7217-019-009	Light Industrial(4.1)	Light Industrial (LI)	Inactive Central Water Plant: Inactive fluid dehydration plant, a water injection plant, oil and gas shipping equipment, and a Southern California Edison electrical substation, one reinforced block building used as a field office and electrical control room, and 2 active production wells.
Site #7	0.59	3290 Grant Street, Signal Hill Located south of E. Grant Street	7217-020-005	Light Industrial (4.1)	Light Industrial (LI)	Test Station: one active oil production well, a test substation, and various pipe manifolds.
			7217-020-006	Light Industrial (4.1)	Light Industrial (LI)	

2.3 Drill Site Descriptions

2.3.1 Site #1 (Site “A”)

Site #1 is an approximately 0.94-acre site located within the central portion of the Gateway Retail Center parking lot. Site #1 would continue to be used for the recovery of petroleum hydrocarbons through the continued operation of production and drilling facilities, and serve as a gathering site for oil, gas, and water production and a distribution site for water injection. No buildings are located onsite. Existing structures and facilities include seven water injection wells (three idle, and four active) and four production wells (one idle, and three active) within an existing well cellar, as well as ancillary support structures/facilities (i.e., electrical panels, pipeline manifolds, test header). The site is surrounded by an existing block wall and landscape screening has been installed around the entire perimeter, with three access points and locking gates. Figure 2.3-1 shows the layout of Site #1 and the existing structures onsite.

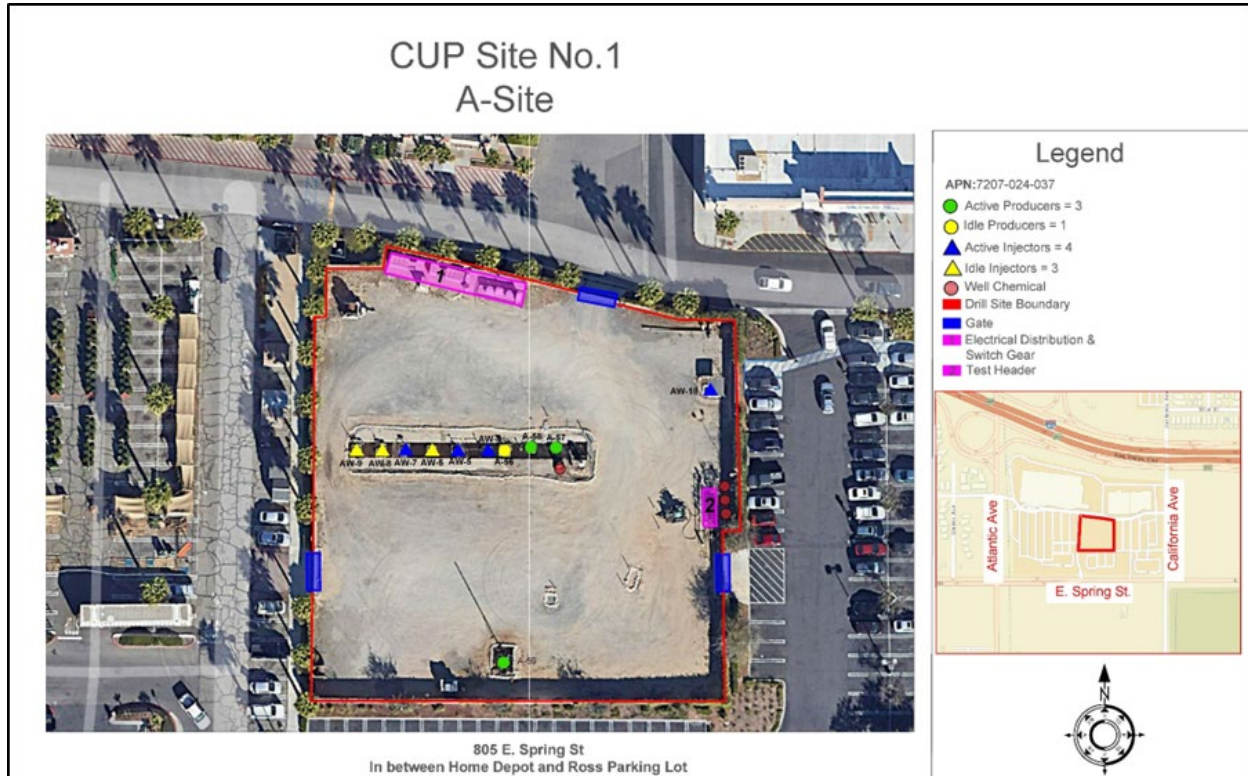


Figure 2.3-1: CUP Site #1

2.3.2 Site #2 (Site “B”, Signal Hill West Unit)

Site #2 is an approximately 8.76-acre site located south of E. Spring Street, east of Orange Avenue, and north of E. 29th Street. The site is both a well/extraction site and central processing facility. The existing gas processing facility and power plant/turbine are also located at Site #2. Primary existing structures/facilities include the 7,000-square-foot natural gas

processing facility, which extracts and stores natural gas using various processes (scrubbers, compressors, Low Temperature Separation [LTS] Unit, surge vessels, glycol heater, etc.). In addition to the natural gas processing facility, Site #2 also includes nine water injector wells (one idle and eight active) and eight production wells (four idle and four active), as well as the natural gas power turbine, electrical substation, water injection plant, oil processing and storage tanks, and other ancillary structures/facilities (i.e., employee changing room, office). There are three locked/gated access points which connect to E. 29th Street along the southern perimeter of the site.

The Project includes modifications to the existing gas system, specifically installation of a redundant LTS system to ensure greater operational flexibility and safety. In addition, SHP permitted and installed a natural gas flare at Drill Site #2 in 2022, which is currently operational and would continue operating for the duration of the CUP extension. The Cimarron-certified ultra-low emissions “CEB 800” burner uses proprietary technology for ultra-low emission combustion of waste gas streams (99.9% volatile organic compound [VOC] destruction). Figure 2-3 shows the layout of Site #2 and the existing structures onsite, as well as the proposed gas system modification structures (highlighted pink [Map ID #19 and 20]). Table 2.3-1 provides a summary of existing and proposed stationary equipment and tanks, including associated storage capacities.

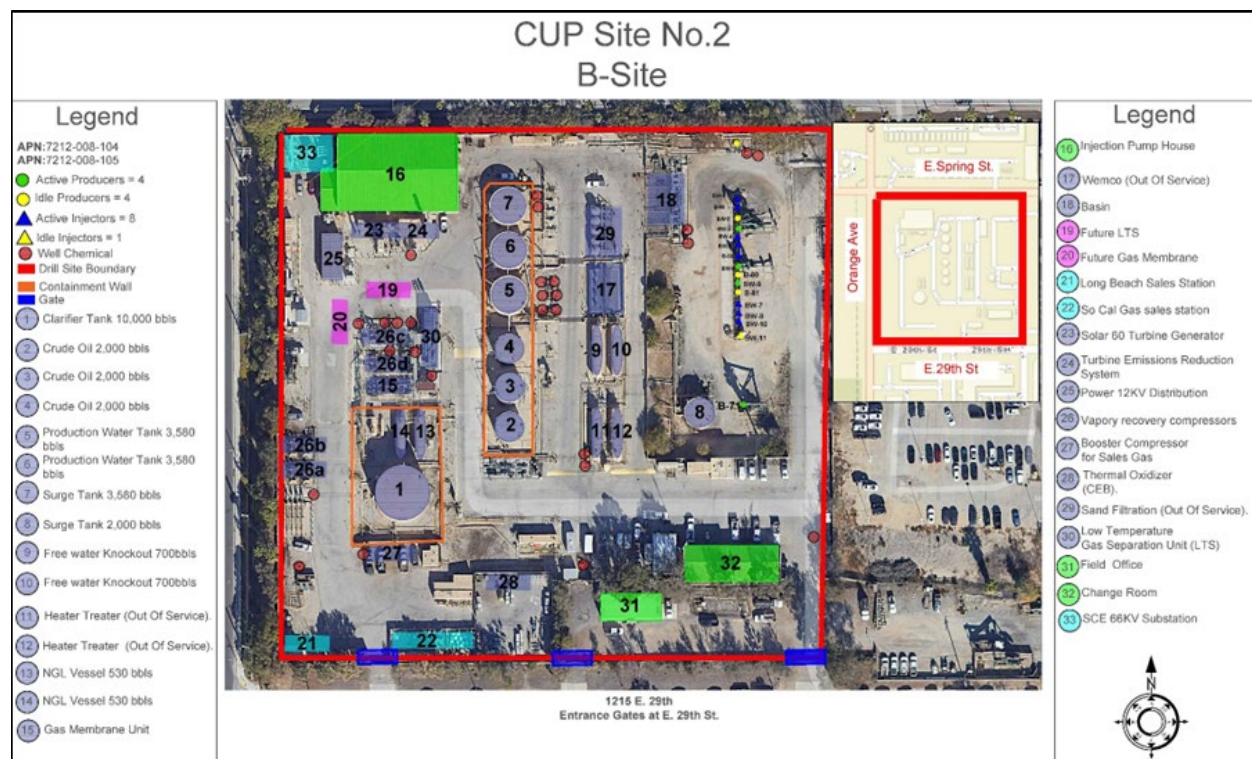


Figure 2.3-2: CUP Site #2

Table 2.3-1: CUP Site #2 Stationary Equipment/Tank Summary

Map ID #	Equipment Description	Storage Capacity (barrels [bbls])
	Existing Equipment	
1	Clarifier Tank	10,000 bbls
2	Crude Oil Tank	2,000 bbls
3	Crude Oil Tank	2,000 bbls
4	Crude Oil Tank	2,000 bbls
5	Production Water Tank	3,580 bbls
6	Production Water Tank	3,580 bbls
7	Surge Tank	3,580 bbls
8	Surge Tank	2,000 bbls
9	Free-Water Knockout Unit	700 bbls
10	Free-Water Knockout Unit	700 bbls
11	Heater Treater Units (OUT OF SERVICE)	N/A
12	Heater Treater Units (OUT OF SERVICE)	N/A
13	Natural Gas (NGL) Vessel	530 bbls
14	Natural Gas (NGL) Vessel	530 bbls
15	Gas Membrane Unit	N/A
16	Injection Pump House	N/A
17	Wemco Oil-Water Separator System (OUT OF SERVICE)	N/A
18	Basin	N/A
21	Long Beach Sales Station (Natural Gas)	N/A
22	Southern California Gas Sales Station (Natural Gas)	N/A
23	Solar 60 Turbine Generator	N/A
24	Turbine Emissions Reduction System	N/A
25	Power 12KV Distribution	N/A
26	Vapory Recovery Compressors	N/A
27	So. Cal Gas Booster Compressor	N/A
28	Thermal Oxidizer (CEB)	N/A
29	Sand Filtration (OUT OF SERVICE)	N/A
30	Low Temperature Gas Separation Unit (LTS)	N/A
31	Field Supervisor Office	N/A
32	Employee Changing Room	N/A
33	Southern California Edison (SCE) 66KV Substation	N/A

Map ID #	Equipment Description	Storage Capacity (barrels [bbls])
	Proposed Equipment that Would be Installed under the Project (i.e., gas system modification)	
19	Low Temperature Separation (LTS)	N/A
20	Gas Membrane Unit	N/A

2.3.3 Site #3 (Site “D”, Signal Hill West Unit)

Site #3 is an approximately 1.65-acre site located northeast of the intersection of Walnut Avenue and E. Willow Street. Site #3 is used for the recovery of petroleum hydrocarbons through the continued operation of production and drilling facilities, and serves as a gathering site for oil, gas, and water production and a distribution site for water injection. No buildings are located onsite. Existing structures and facilities include seven water injector wells (two idle and five active), seven production wells (three idle and four active), as well as 10 vacant well slots that have yet to be developed. There are three access points located along the western and eastern boundary of the site. The entire perimeter of the site is fenced and screened with landscaping, and the entrances are gated/locked as needed to prevent public access. Figure 2.3-3 shows the layout of Site #3 and the existing structures onsite.

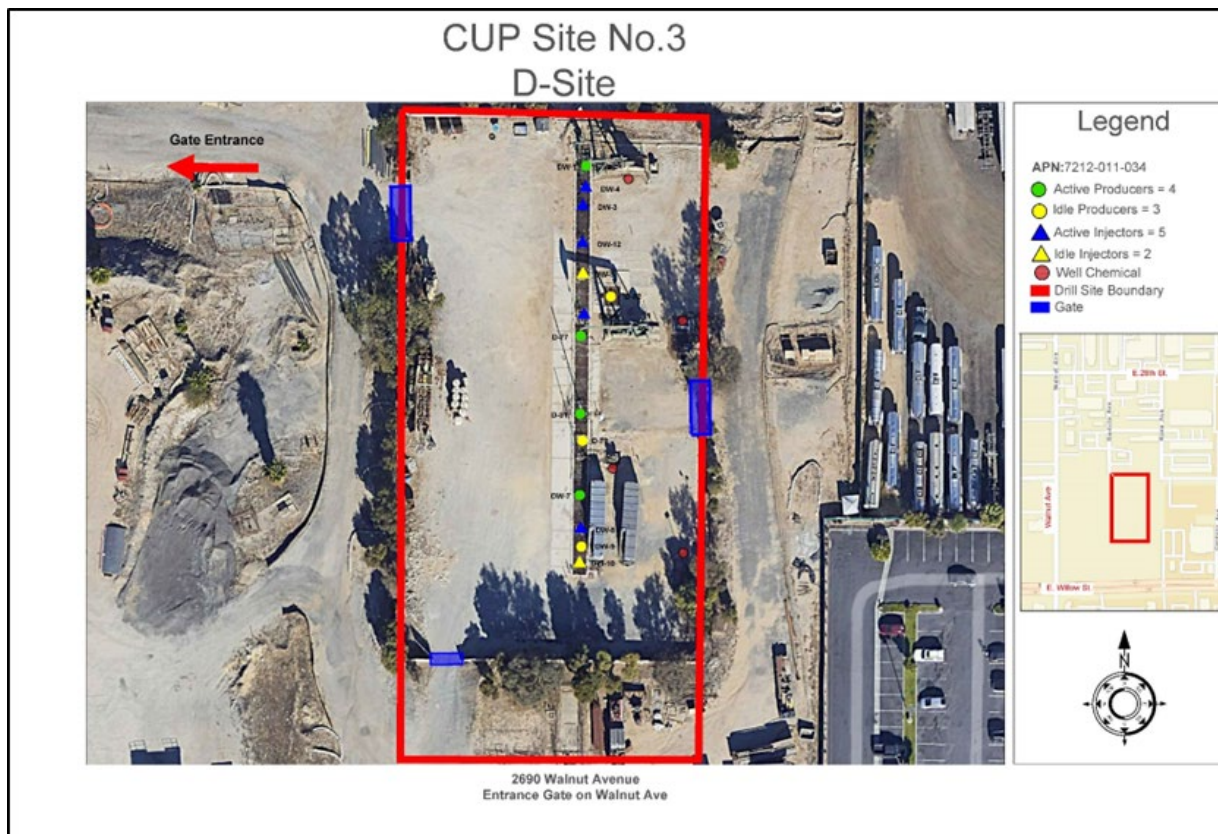


Figure 2.3-3: CUP Site #3

2.3.4 Site #4 (North Site, Signal Hill Central Unit)

CUP Site #4 is an approximately 1.23-acre site located at the southern end of Junipero Avenue. The site is comprised of one parcel tucked behind two large warehouse buildings (Home Depot and Costco Wholesale developed on SHP-owned property) to the north of Panorama Drive.

Site #4 would continue to be used for the recovery of petroleum hydrocarbons through the continued operation of production and drilling facilities, and serve as a gathering site for oil, gas, and water production and a distribution site for water injection. No buildings are located onsite. Existing structures include four water injector wells (two idle and two active), eight active production wells (no idle wells), three vacant well slots that have yet to be developed, as well as ancillary structures/facilities (i.e., electrical panel, pipe manifold). Existing access points are located east of the site connecting to Juniper Avenue/Combella Drive, and north of the site behind Costco. The entire perimeter of the site is fenced and screened with landscaping, and the entrance is gated/locked as needed to prevent public access. Figure 2.3-4 shows the layout of Site #4 and the existing structures onsite.

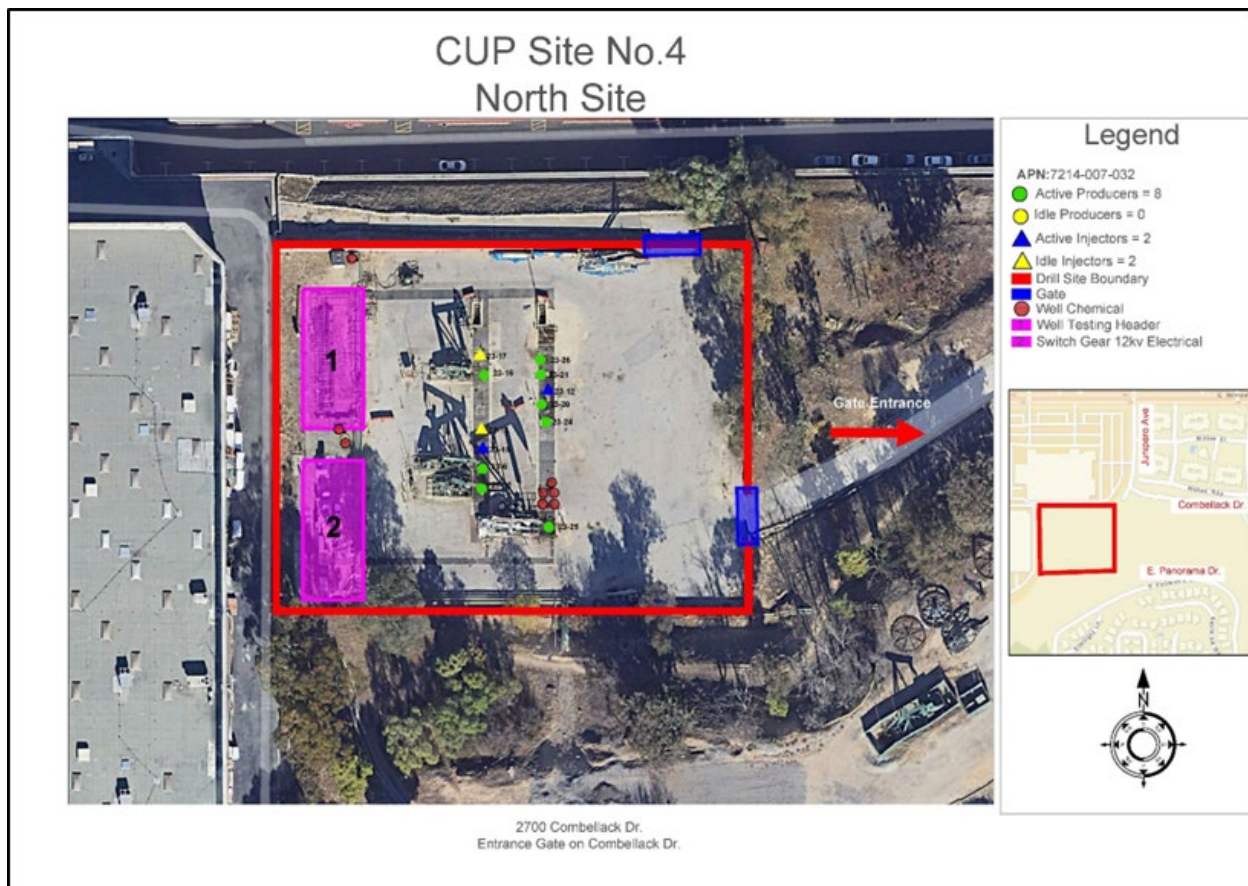


Figure 2.3-4: CUP Site #4

2.3.5 Site #5 (Central Site, Signal Hill Central Unit)

Site #5 is an approximately 7.35-acre site located south of Combellack Drive, west of Temple Avenue, and north of E. Panorama Drive. Residential neighborhoods (developed on SHP-owned property) are located on top of the hillside to the south of site, and immediately to the east.

The main components of Site #5 are the central processing facilities, which include a fluid dehydration plant, a water injection plant, oil and gas shipping equipment, and a Southern California Edison electrical substation. Table 2.3-2 provides a summary of the existing stationary equipment and tanks, including associated storage capacities, located at Site #5. No new equipment or expanded storage capacity is proposed at Site #5.

Site #5 also serves as a site for oil, gas, and water production, a distribution site for water injection, and a control center for electrical systems. The site has two buildings: a modular office occupied by Global Solutions, Inc., and a water injection plant (reinforced block). The site also contains three water injectors (one idle and two active), six production wells (five idle and one active), six well slots that have yet to be developed, and other ancillary structures (e.g., natural gas tank, a diesel tank, pipe manifold/electrical panel, etc.). Site access is provided by a paved road that connects to E. Panorama Drive at the southern corner of the property. Figure 2.3-5 shows the layout of CUP Site #5 and the existing structures onsite.

Table 2.3-2: CUP Site #5 Stationary Equipment/Tank Summary

Map ID #	Equipment Description	Storage Capacity (barrels [bbls])
	Existing Equipment	
1	Crude Oil Tank	5,000 bbls
2	Crude Oil Tank	5,000 bbls
3	Wash Tank – Crude Oil Brine Water	5,000 bbls
4	Raw Blend Tank – Brine Water	5,000 bbls
5	Brine Water Tank	3,000 bbls
6	Skim Tank – Crude Oil	3,000 bbls
7	Clean Brine Tank – Brine Water	5,000 bbls
8	Filter Wash Tank – Brine Water	3,000 bbls
9	Overflow Tank – Crude Oil	7,200 bbls
10	Diesel Tanks (x2)	32 bbls each (1,000 gallons each)
11	Free Water Knockouts (Oil/Water/Gas)	795 bbls
12	Free Water Knockouts (Oil/Water/Gas)	795 bbls
13	Free Water Knockouts (Oil/Water/Gas)	800 bbls
14	Injection Pump House	N/A

15	Field Office	N/A
16	SCE 66KV Substation	N/A
17	12KV Switch Gear	N/A

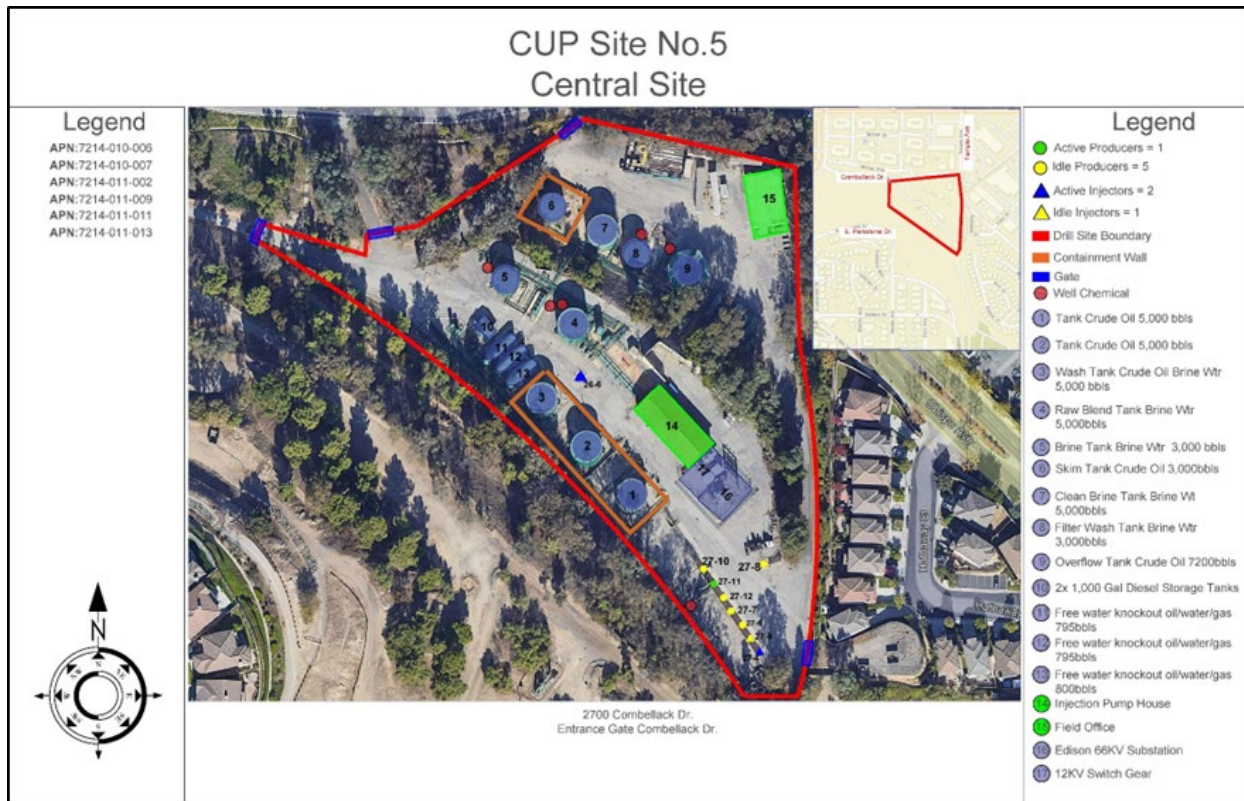


Figure 2.3-5: CUP Site #5

2.3.6 Site #6 (Historic Central Water Plant, Signal Hill East Unit)

Site #6 is bounded by E. Grant Street to the south, Redondo Avenue to the east, and 20th Street to the north. Site #6 is an inactive facility that is used as a locker room for SHP field employees. The site historically served as a central water plant for the East Unit. The main site components include inactive tanks and fluid dehydration plant, inactive water injection plant, inactive oil and gas shipping equipment, and a Southern California Edison electrical substation. The site also has one reinforced block building used as a field office and electrical control room, and two active production wells. In addition, in September 2021, SHP submitted a Notice of Intent to CalGEM to drill one additional well at the site, which is still pending review by the State. Table 2.3-3 provides a summary of the existing stationary equipment and tanks, including associated storage capacities, located at Site #6. No new equipment or expanded storage capacity is currently proposed at Site #6 as part of the Project; however, SHP may elect to bring the site back online, if needed, during the CUP permit period. If SHP were to elect to reactivate the site, it would require replacement of existing stationary equipment and tanks to meet current safety regulations. Reactivation of the site would not result in an increase in production or storage

volumes, but would provide back-up capability as needed. As these activities are currently speculative, they are not evaluated in this CEQA document and would require site-specific analysis at such time as they are proposed. The entire perimeter of the site is fenced and screened with landscaping, with two gated/locked access points along E. Grant Street and 20th Street. Figure 2.3-6 shows the layout of Site #6 and the existing structures onsite.

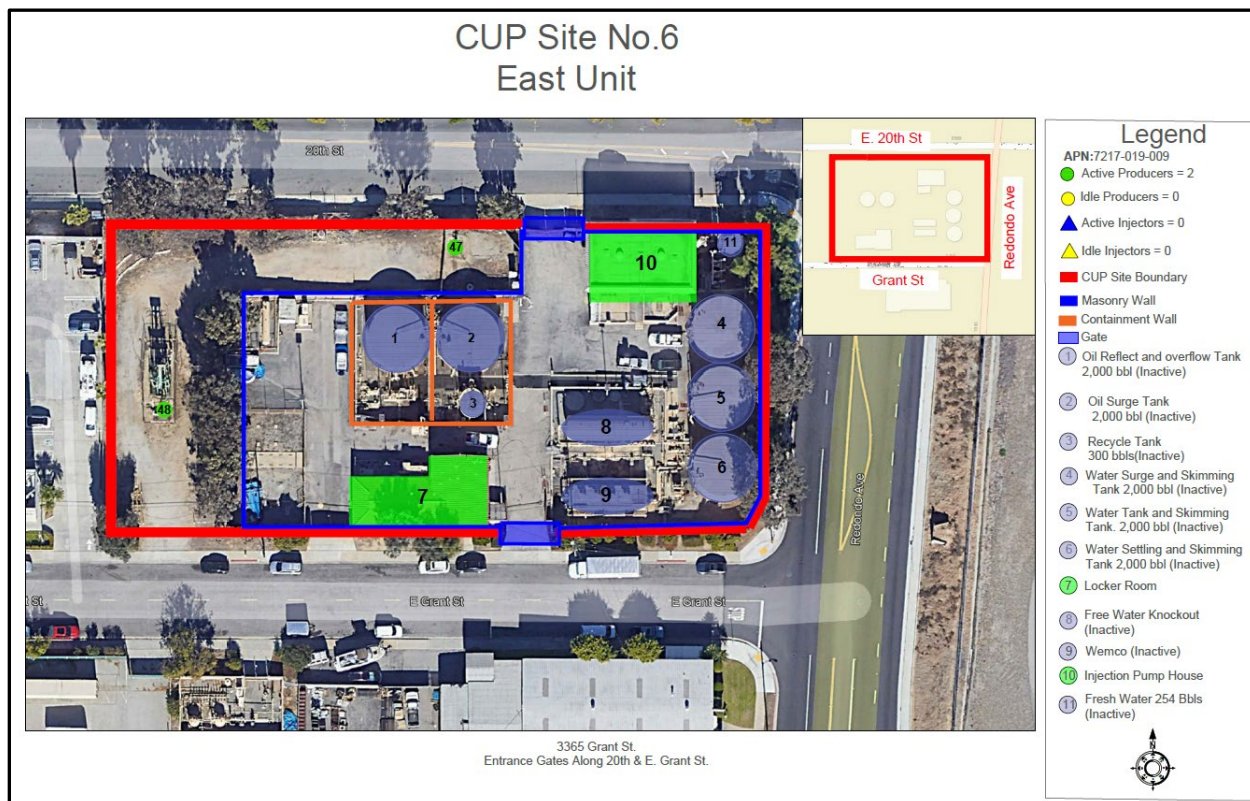


Figure 2.3-6: CUP Site #6

Table 2.3-3: CUP Site #6 Stationary Equipment/Tank Summary

Map ID #	Equipment Description	Storage Capacity (barrels [bbls])
	Existing Equipment	
1	Oil Reflect & Overflow Tank (INACTIVE)	2,000 bbls
2	Oil Reflect & Overflow Tank (INACTIVE)	2,000 bbls
3	Recycle Tank	300 bbls
4	Water Surge & Skimming Tank (INACTIVE)	2,000 bbls
5	Water Surge & Skimming Tank (INACTIVE)	2,000 bbls
6	Water Surge & Skimming Tank (INACTIVE)	2,000 bbls
7	Employee Locker Room	N/A
8	Free Water Knockout (INACTIVE)	N/A

9	Wemco Oil-Water Separator System (INACTIVE)	N/A
10	Injection Pump House	N/A
11	Fresh Water Tank (INACTIVE)	254 bbls

2.3.7 Site #7 (Site No. 1, Signal Hill East Unit)

Site #7 is an approximately 0.59-acre site located south of E. Grant Street. Site #7 is used for the recovery of petroleum hydrocarbons through the continued operation of production and drilling facilities, and serves as a gathering site for oil, gas and water production and a distribution site for water injection. There are no buildings located onsite. Existing structures and facilities include one active oil production well, a test substation, and various pipe manifolds. Access to the site is from E. Grant Street. Figure 2.3-7 shows the layout of Site #7 and the existing structures onsite.

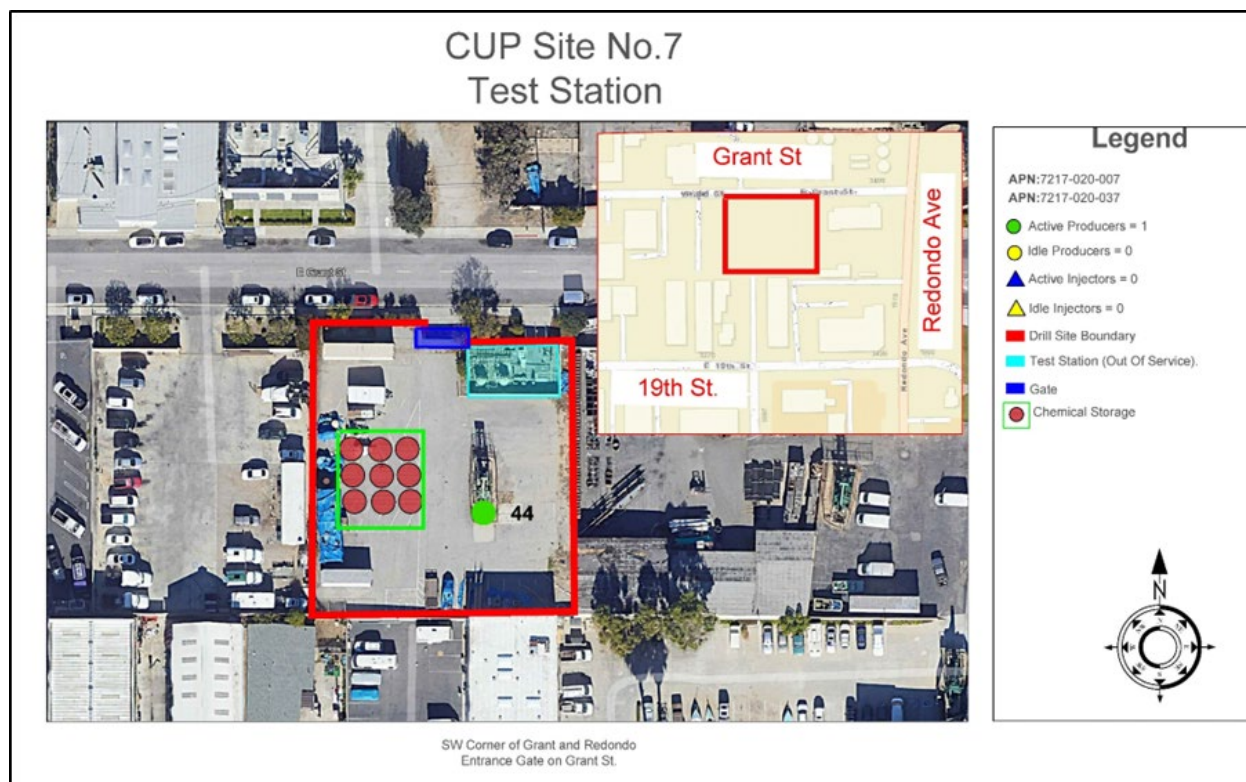


Figure 2.3-7: CUP Site #7

2.4 Project Components

The Proposed Project consists of three distinct activities which are described in detail in this section:

- 1. Continued Operations** - SHP would continue their existing operations at the current activity level for the duration of the CUP extension. The activities consist of continued operations of all existing wells; well servicing and maintenance; redrilling operations; oil processing,

storage and transfer; natural gas and natural gas liquids processing, storage and transfer; produced water separation and injection; and electrical production from a natural gas turbine-powered generator. In addition, SHP permitted and installed a natural gas flare at Drill Site #2 in 2022, which is currently under construction and anticipated to be operational in summer 2023 and would continue operating for the duration of the CUP extension. Each of these activities is described in detail in Section 2.4.1 below.

2. **New Wells and Well Cellars** - SHP proposes to drill up to 46 new wells within the drill sites over the 20-year period. All new wells would be located within the existing drill site boundaries and may be drilled within the existing open slots in the well cellars already present on site or in new well cellars that could be constructed within the existing drill sites. Activities associated with constructing new well cellars and drilling new wells are described in Section 2.4.2 below.
3. **Upgrades to Natural Gas Processing Facility** - SHP proposes to upgrade the natural gas processing facility at Drill Site #2 to facilitate sale of excess natural gas to Southern California Gas Company and promote efficiency and redundancy in operations. The construction activities associated with the proposed upgrades are described in detail in Section 2.4.3.

2.4.1 Continued Operations

The following sections describe activities and operations which would continue under the proposed Project.

2.4.1.1 Project Personnel and Hours of Operation

To ensure ongoing operations at the CUP sites continue to operate in a safe and secure manner, all seven drill sites would continue to be monitored 24 hours per day, 365 days per year. A total of 12 to 14 employees per day would continue to work at the seven CUP sites. Employee vehicular access and parking would continue to be provided by existing access points and designated parking areas. No change from historical activity is proposed or anticipated.

During intermittent redrilling operations, an additional 4 to 8 employees/vendors per day would work at the specific CUP Site(s) where the activities are occurring. Redrilling operations require work 24 hours a day, and other activities/operations would continue to occur during daytime hours only. Table 2.4-1 summarizes the current activities and associated operational hours, along with average vehicle trips and travel distance associated with existing operations which would continue for the duration of the CUP period.

Table 2.4-1: Typical Hours and Days of Operation and Vehicle Trips

Activity ⁶	Description	Vehicle Type	Days per Week	Hours per Day	Roundtrips (inbound + outbound)	One-Way Trips	Avg. Roundtrip Distance (Miles)	Daily VMT
Operations Surveillance ^{1, 2}	Routine site visits to ensure equipment is operating properly/check for leaks.	Light-Duty	Monday–Sunday	24 hours/day	2	4	7	14
Plant Operations ^{1, 3}	Continual monitoring of equipment and processes to ensure safety.	Light-Duty	Monday–Sunday	24 hours/day	2	4	5	10
Surface Equipment Maintenance & Repairs ^{1, 7}	Maintenance crew or mechanic for repairs and scheduled maintenance.	Light-Duty	Monday–Friday	7:00 a.m. – 7:00 p.m.	6	12	7	42
Down Hole Well Servicing ^{1, 7}	Well servicing rig and ancillary equipment as required.	Light-Duty	Monday–Friday	7:00 a.m. – 7:00 p.m.	2	4	6.5	13
Redrilling Operations ^{4, 7}	Drilling rig, crews and miscellaneous equipment as required.	Light-Duty	Monday–Sunday	24 hours/day	8	16	5	40
Misc. Vendor / Contractor Maintenance & Site Visitors ^{1, 7}	Chemical shot trucks, vacuum trucks, well test equipment, landscape maintenance crews, third-party environmental testing technicians, regulatory inspectors, City or public facility tours, etc.	Light-Duty	Monday–Friday	7:00 a.m. – 7:00 p.m.	2	4	7	14
Materials / Equipment Delivery & Removal ⁵	Pipe tripping, truck deliveries, etc. (except emergencies)	Heavy-Duty	Monday–Friday Saturday	7:00 a.m. – 7:00 p.m. 7:00 a.m. – 5:00 p.m.	4	8	5	20
				Existing Daily Vehicle Trips:	26	52	Existing Daily VMT:	153

Table Notes:

1. A total of twelve (12) to fourteen (14) employees per day currently work at and travel between the seven (7) CUP sites during the course of normal operations. These existing employees and associated vehicle trips are collectively represented by the existing daily, light-duty vehicle activity (14 roundtrips total) shown above.
2. Represents two (2) well tester vehicles moving between the seven (7) CUP sites each day (total roundtrip distance from start to finish is approx. 7 miles).
3. Represents two (2) plant operators/vehicles working in two (2), 12-hour shifts at the plant facilities (average roundtrip distance from SHP office to/from plant facilities [primarily CUP Site #2] is approx. 5 miles).
4. Redrilling activity would not occur on a typical operational day. However, on intermittent days when drilling/redrilling were occurring, eight (8) additional employee/contractor vehicles would travel from SHP's office to the farthest CUP Site (i.e., roundtrip distance to CUP Sites #6 and #7 is approx. 5 miles) to conduct these operations.
5. Although heavy-duty truck activity would be infrequent, it's assumed four (4) heavy-duty trucks would travel to/from the CUP sites on a given day. These trips represent tanker trucks, larger material deliveries, equipment/drill rig transports, etc.
6. Trips represent automobile and light-duty trucks for all activities, except "Materials/Equipment Delivery & Removal" which represents heavy-duty truck activity.
7. Daily trips for "Surface Equipment Maintenance & Repairs", "Down Hole Well Servicing", "Redrilling Operations" and "Misc. Maintenance & Site Visitors" include contractors/vendors as well as SHP employees.

2.4.1.2 Well Servicing and Maintenance

SHP would continue to conduct routine well servicing and maintenance activities at the CUP sites, on an as-needed basis, and would continue to prepare and submit an Annual Well Maintenance Report to the City in accordance with CUP requirements. These activities include facility tours, environmental testing, landscape maintenance, and well testing. Vehicle trips associated with these activities are captured in Table 2.4-1 above. In addition, the emergency regulations for SB1137 include certain modifications to the equipment and currently active wells used at each of the drill sites.

2.4.1.3 Redrilling of Existing Wells

SHP would continue to redrill production and injection wells on an intermittent, as-needed basis, at the CUP sites. Downhole redrilling activities include reperforating the well at different depths, sidetracking, deepening and reworking operations. The activity levels associated with redrilling, as well as the equipment and processes utilized, would not change, and SHP would continue these operations in the same manner as they have historically, including the use of non-hazardous drilling fluids (“drilling mud”). The redrilling procedures for production and injection wells are essentially the same. Table 2.4-2 summarizes the number of existing wells that were redrilled annually between 2009 and 2019. Based on this historic data, the annual average number of existing wells that required redrilling in any given year is one and the maximum number of existing wells that were redrilled in a given year was six. For this Project, SHP would not exceed the annual maximum number of redrilling operations (6), in any given year over the 20-year continued operation period. Redrilling existing wells requires an approved permit from CalGEM⁴, inspections by the Oil Services Coordinator as well as City permits.

Table 2.4-2: Summary of the Number of New Wells Drilled and Existing Wells Redrilled Annually Between 2009 and 2021

Year	Number of New Wells Drilled	Number of Existing Wells Redrilled	Total Wells Requiring Downhole Rig Work
2009	2	0	2
2010	2	1	3
2011	1	3	4
2012	2	4	6
2013	3	0	3
2014	2	1	3
2015	0	0	0

⁴ All redrilling activities require a permit from CalGEM prior to implementation. Under SB 1137, CalGEM would be prohibited from issuing permits for redrilling activities within designated Health Protection Zones. Therefore, the total number of wells redrilled annually during the CUP period may be zero.

Year	Number of New Wells Drilled	Number of Existing Wells Redrilled	Total Wells Requiring Downhole Rig Work
2016	0	0	0
2017	0	0	0
2018	0	0	0
2019	0	1	1
2020	0	0	0
2021	0	0	0

Redrilling/well servicing activities for a single well at a given CUP site are generally completed within a single week. SHP uses two rigs for their redrilling operations, depending on the depth to be drilled. The lighter-duty drilling rig is SHP's Rig #5. This rig has a 2008 Cameron/Hubbard C-500 draw-works and mast powered by a 450 horsepower (hp) U.S. Environmental Protection Agency (USEPA) Tier 4 clean burn engine. The remainder of Rig #5's equipment is electrically powered. Rig #5 is typically used for shallower wells (7,000-feet below ground surface [bgs] or less) and redrills on smaller well sites. SHP's Rig #6 is a heavier-duty drilling rig with a 1000 hp electrically powered draw-works motor. All of Rig #6's equipment is electrically powered. For electric power, SHP's drilling rigs are designed to plug directly into SHP's private electrical distribution system. On average, SHP utilizes Rig #5 and Rig #6 evenly (each rig is used about 50% of the time during redrilling). The following list summarizes the specific equipment utilized during the redrilling process:

- Drilling mast and drawworks (used all days – Rig #6 all electric);
- Circulating pumps (mud pumps (used all days – all electric));
- Mud tanks, cleaners, etc. (all electric);
- Drill pipe;
- Backhoe (average 4-hours per drilling day - diesel);
- Crane trucks (average 8-hour days per well - diesel)
- Downhole specialty well logging truck (18-hours per well - diesel);
- Ancillary casing and logging tools (used during logging only – electric);
- Well servicing/completion rig (used after drilling/redrilling to equip a well with downhole production equipment, on average five, 10-hour days per well - diesel); and
- Vacuum truck (average 4-hours per drilling day - diesel).

Note that Rig #6 is fully electrically powered (i.e., no fuel consumed during drilling/redrilling operations). Rig #5 is mostly electrified, however minimal amounts of diesel fuel are required to power the draw-works engine.

2.4.1.4 Oil Processing, Storage and Transfer

Of the seven CUP sites, four (CUP Sites #1, #3, #4 and #7) are primarily used to extract oil, gas, and other byproducts (e.g., produced water) which are then transported via an existing network of pipes to the central processing facilities, located at CUP Site #2 and CUP Site #5 which contain the processing and storage tanks within the West, Central, and East units. CUP Site #2 also houses the natural gas processing and electric power generation facilities. CUP Site #6 was “historically” the central water processing facility for the East Unit; however, the site is currently inactive, and oil, water, and natural gas extracted from the East Unit is currently routed to either CUP Site #2 or #5 for processing. CUP Site #6 contains processing and tank storage facilities that are idle, but available as backup to CUP Site #5. The central processing facilities (CUP Site #2 and #5) also have active production and injection wells onsite. Once oil is processed at the central processing facilities, it is transferred to existing pipes operated by Crimson Pipeline that are located on CUP Sites #2 and #5 which transfer the oil to refineries located in Wilmington or Long Beach.

A list of facilities present at each CUP site is provided in Table 2-2 and described in more detail in Section 2.3.

2.4.1.5 Utilities & Energy Generation/Consumption

Electricity, water, and natural gas are both generated and consumed as part of ongoing operations under CUP 97-03. The existing gas processing and turbine power plants located at CUP Site #2 generate electric power directly, by recycling natural gas produced at SHP’s extraction sites. This electricity is then used to power the CUP sites and SHP’s other offsite operations to the extent feasible, reducing the need to purchase power from offsite producers. Approximately 4.5 to 5 Megawatts (MW) per day (or 70 percent) of the electricity demand for operations is generated onsite, the remainder 1.5 to 2 MW per day is purchased from Southern California Edison. CUP Site #2 generates onsite electricity through the existing natural gas processing plant and the combustion turbine. The gas plant processes and removes liquids from the gas produced at wells covered under CUP 97-03, in addition to produced gas from other local wells operated by SHP. The processed natural gas is then transferred to the onsite combustion turbine (i.e., power plant) where it is converted into electrical power. Currently, approximately 70% of the processed natural gas is consumed directly within the onsite power turbine. The remaining quantity of gas produced is sold through the onsite sales meters and existing delivery pipelines to the City of Long Beach or burned using the recently installed flare. In addition, Southern California Gas Company is in the process of installing a sales meter and delivery pipeline on an easement at CUP Site #2, to facilitate transfer of SHP produced gas.

SHP’s light-duty vehicles are gasoline-powered and fueled offsite. No change in gasoline fuel use is proposed. SHP’s heavy-duty vehicles are powered by diesel. There are two existing permitted aboveground diesel tanks (2,000 gallons total) located at CUP Site #5. No change in diesel fuel use, storage, or handling is proposed.

Potable water for operations conducted under CUP 97-03 is provided by the City of Signal Hill. SHP's current operations consume an average of 9,500 gallons per day on normal operating days, and an additional 2,100 gallons per day when new wells are being drilled (redrilling does not consume additional water resources). The proposed gas system modifications at CUP Site #2 would not increase water use for the Project. No future change in potable water use and produced water recycling/reinjection is proposed as part of the Project. Water produced by the production wells is 100% recycled for secondary recovery/waterflood operations in accordance with SHP's active Class II Underground Injection Control permit (UIC Project #41206002).

Project employees and other onsite personnel would continue to utilize existing sewer-connected restrooms at CUP Sites #2, #5, and #6, or other portable bathroom facilities located onsite at the remaining CUP sites.

2.4.1.6 Hazardous Materials and Storage

The primary hazardous materials stored and used are corrosion control chemicals. Hazardous materials/production chemicals are used at all CUP sites. Table 2.4-3 lists the hazardous materials currently stored at the various CUP sites.

Table 2.4-3: Hazardous Materials Stored at CUP Sites and Classifications

Material	CUP Site(s)	Department of Transportation Hazard Class ^a	Physical Hazard Class ^b	Health Hazard Class ^c
Ammonia	2	2.2	Corrosive	T, I
Biocide 8407	7	8	-	T, I
Oils / Grease	2	-	Flammable	-
Corr Film A/B	7	3	Flammable Liquid, Class I-C	T, I
Corrtreat 14970	2, 3, 4, 5, 7	8	Combustible Liquid, Class II	C, T, I
Corrtreat 15190	7	3	Flammable Liquid, Class I-A	T, I
Diethanolamine	2	-	-	T, I
D-Limonene	7	3	Flammable Liquid, Class I-C	AH, T, I
Ethylene glycol	2	3	Combustible Liquid, Class III-B	C, T, I
Floctreat 7960	1, 2, 5, 7	-	Combustible Liquid, Class III-B	-
Floctreat 12008	2, 7	-	Combustible Liquid, Class III-B	I
Methanol	2	3	Flammable Liquid, Class I-A	AH, T, I
Methylene Chloride	7	-	-	C, T, I
MT 9403 Scale	5	3	Flammable Liquid, Class I-C	T, I
Multitreat 9403NC	4, 7	-	Combustible Liquid, Class III-B	AH, T, I
Multitreat 9302	2, 5, 7	6.1	Combustible Liquid, Class III-B	T, I
Phasetreat 17756	1, 7	3	Combustible Liquid, Class II	AH, C, T, I
Phasetreat 14224	2, 3, 4	3	Flammable Liquid, Class I-C	AH, T, I
PT 13948 Emulsion	4	3	Flammable Liquid, Class 1-B	T
Scaletreat 1012	3, 4, 7	3	Combustible Liquid, Class III-B	T, I
Scaletreat 402	7	-	Combustible Liquid, Class III-A	I

Material	CUP Site(s)	Department of Transportation Hazard Class ^a	Physical Hazard Class ^b	Health Hazard Class ^c
Scavtreat 6804	1, 2, 4, 7	6.1	-	T, I
Scavtreat 1193	1, 5, 7	3	Combustible Liquid, Class II	AH, T, I
Scavtreat 1092	2, 5, 7	8	Corrosive	T, I
Shell Sol Industrial	2	3	Combustible Liquid, Class II	
Flammable Liquid,	T, I			
Solvtreat 3033	7	8	Combustible Liquid, Class II	T, I
Solvtreat 12086	2, 5, 7	3	Flammable Liquid, Class I-C	AH, T, I
Summit PGS-150	2	3	Combustible Liquid, Class III-B	
Flammable Liquid,	T, I			
Summit NGP-100	2	-	-	I
Turbo T Oil 68	2	-	-	I
Waxtreat 3635T	7	3	Flammable Liquid, Class I-A	AH, C, T, I
Propane Gas	2	2.1	Flammable Gas	SA
Propane Liquid	2	2.1	Flammable Gas	SA, I
Propane R290	2	2.1	Flammable Gas	
Gas Under Pressure	-			
Natural Gas Liquids	2	3	Flammable Liquid, Class I-A	AH, C, T, I
Natural Gas	2, 5	2.1	Flammable Gas	SA, AH, C, T, I
Crude Oil	2, 5	3	Flammable Liquid, Class I-C	AH, C, T, I
Diesel Fuel	5	3	Combustible Liquid, Class II	AH, C, I
Used Oil	2	3	Combustible Liquid, Class III-B	T, I

Source: SHP, 2022b; SHP, 2022c; SHP, 2022d; SHP, 2022e; SHP, 2022f; SHP, 2022g.

- a. Department of Transportation Hazard Classes
 - 2.1 = Flammable gas
 - 2.2 = Non-flammable compressed gas
 - 3 = Flammable and combustible liquid
 - 6.1 = Poisonous materials
 - 8 = Corrosive materials
- b. Physical Hazard Classes – Flash Point, Boiling Point
 - Flammable Liquid Class I-A = <73 °F, < 100°F
 - Flammable Liquid Class I-C = 73-100 °F, N/A
 - Combustible Liquid, Class II = 101-140 °F, N/A
 - Combustible Liquid, Class III-A = 141-199 °F, N/A
 - Combustible Liquid Class III-B = >200 °F, N/A
- c. Health Hazard Classes
 - AH = Aspiration Hazard
 - C = Carcinogenicity
 - Toxicity
 - I = Skin Corrosion Irritant, Eye Damage, Eye Irritant and/or Respiratory Skin Sensitization
 - SA = Simple Asphyxiant
 - T = Acute, Reproductive, and/or Specific Organ

These CUP sites maintain Hazardous Materials Business Plans (HMBP), which are updated annually by SHP and reviewed/approved by the Los Angeles County Fire Department (i.e., the Certified Unified Program Agencies [CUPA]). Bulk storage of hazardous materials/production chemicals was recently relocated to CUP Site #7 and a supplemental HMBP was completed and approved on October 20, 2022. SHP also updates their hazardous materials inventories and associated reports annually and on an as-needed basis through the California Environmental Reporting System (CERS). Minimal quantities of hazardous waste are generated as a byproduct of existing oil and gas production processes at Sites #2 and #5. The Project would not result in additional hazardous waste generation, and hazardous waste would continue to be handled

and properly disposed of in accordance with local and state requirements (i.e., City, Los Angeles County Fire Department, and state/California Department of Toxic Substances Control).

Various production, maintenance and operations chemicals are used at the CUP site facilities for routine activities as summarized in Table 2.4-3 above. While the detailed inventory of chemicals and their onsite amount may vary, the chemical categories listed in Tables 2.4-4 (Central and East units) and 2.4-5 (West Unit) (generic name and/or purpose) are expected to be at the respective facilities at any time during operations. These chemicals are stored on storage pads with secondary containment, within larger contained areas (with berms and/or walls) such as inside aboveground tank batteries, within portable or permanent individual secondary containment cradles, or within maintenance/supply sheds or curbed areas. Descriptions of existing above-ground storage tanks and contents are included in the Drill Site descriptions above in Section 2.3.

Table 2.4-4: Chemicals Stored at Signal Hill Central (CUP Sites #4 and #5) and East Units (CUP Sites #6 and #7)

Storage Container Type	Container Volume	Chemical Category
Cans & Drums	30 gallons – 200 gallons	Engine & machine oils, e.g., lube oil, gear oil, hydraulic oils, transmission oil
Cans, Drums & Plastic Tanks	55 – 500 gallons	Solvents and degreasers
Drums & Plastic Tanks	55 – 300 gallons	Water clarifiers, flotation aids, demulsifiers, clarifiers
Plastic Tanks	100 – 500 gallons	Bactericides
Drums & Plastic Tanks	55 – 300 gallons	Corrosion inhibitors, scale remover
Drums & Plastic Tanks	55 – 300 gallons	Miscellaneous oil and produced water treatment chemicals & additives

Table 2.4-5: Chemicals Stored at Signal Hill West Unit (CUP Sites #1, #2, and #3)

Storage Container Type	Container Volume	Chemical
Drums	30 gallons – 200 gallons	Engine & machine oils, e.g., lube oil, gear oil, hydraulic oils, transmission oil
Drums & Plastic/Metal Totes	55 – 500 gallons	Solvents and degreasers
Drums & Plastic/Metal Totes	55 – 300 gallons	Corrosion inhibitors, scale remover miscellaneous oil and produced water treatment chemicals & additives

2.4.2 New Wells

SHP proposes to drill new wells (both production and injection wells) at the seven CUP sites on an as-needed basis, over the duration of the proposed CUP extension period. As with current operations, these activities would occur entirely within the existing CUP boundaries.

SHP's oil and gas production has been, and will continue to be, cyclical and dependent upon market demands, economic cycles, and other factors beyond SHP's control (e.g., geological studies, production capacity of wells drilled, availability of required materials and services, etc.). As such, SHP's drilling activities for both production and injection wells would vary from year to year. SHP estimates that over the 20-year CUP period, it would propose to drill up to 46 new wells (total of all new wells at the seven sites). Drilling of new wells requires a discretionary permit from CalGEM, as well as ministerial permits from the City. Under the emergency regulations promulgated in accordance with SB 1137, CalGEM is prohibited from issuing permits for new wells within designated Health Protection Zones. Based on the location of the CUP drill sites, all would be within designated Health Protection Zones; therefore, at such time that SB 1137 is effective, the City understands that CalGEM would not issue permits for any new wells.

However, for the purposes of CEQA review of the CUP extension, the City is considering the whole project as proposed by SHP, including the potential for drilling new wells in the future. Accordingly, the maximum number of new wells that would be drilled in any given year is five, and the average number of new wells to be drilled in a given year is two. The combined total maximum of new drill/redrills in any given year is nine.

Drilling activity associated with the new wells would be the same process as described for redrilling. Consistent with existing operations, during intermittent drilling operations, an additional 4 to 8 employees/contractors per day would work at the specific CUP Site where the activities are occurring. While drilling of new wells would range in duration dependent upon the target depth of the well and specific geologic conditions encountered, on average a new well can generally be completed within a month.

2.4.3 Well Cellar Construction

SHP proposes to construct new ancillary well cellars at the CUP drills sites, as needed. The maximum number of new well cellars that may be constructed over the 20-year life of the Project is 20 and the well cellars may be located anywhere within the existing boundaries of each of the drill sites. Construction of new well cellars also require a building permit from the City and a methane site assessment per Section 16.24 of the Signal Hill Municipal Code. As with SHP's current protocols, new well cellars would be constructed by excavating a shallow hole (approximately 6-feet wide, 6-feet long, and 5-feet deep) using a back-hoe type excavator (new well cellars can be excavated within a single day). Once excavation is complete, a pre-cast concrete box or a large diameter galvanized round steel pipe would be placed into the excavated hole to secure the new well cellar. Needed connectivity to power or other equipment would be considered as part of the building permit review.

Consistent with SHP's existing protocols, onsite areas where new well cellars are proposed would be inspected and monitored prior to and during excavation. If potentially contaminated soil is encountered, that soil would be isolated in a stockpile pending evaluation by an environmental engineer, sampling, and/or lab analysis to determine the proper disposal

procedure of the contaminated soil. Well cellar excavation, monitoring, and soil evaluation/sampling would continue to be conducted in accordance with applicable City, state, and federal regulations.

To construct a new well cellar, the backhoe would have to operate at the given CUP Site for up to 4 hours to excavate the necessary depression. The pre-cast concrete box would then be transported to the appropriate CUP Site via delivery truck. As such, well cellar construction would generally be completed within a single day, using SHP's existing equipment and onsite employees, as well as two (2) additional onsite employees/contractors.

Consistent with SHP's existing protocols, construction activities would occur Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m., and the excavation work would be done per SHP's existing SCAQMD Rule 1166 permit. Any soil encountered that exceeds Rule 1166 protocols will be handled per Rule 1166 mandates.

2.4.4 CUP Site #2 Gas Processing System Modification

The current natural gas processing facility processes up to 2,000 thousand standard cubic feet (MCF) of natural gas per day. The natural gas produced in the mature Long Beach Oilfield has a high content of natural gas liquids (butane, propane, etc.) and inert gases (principally nitrogen and carbon dioxide). The current LTS unit and related membrane unit are critical to process this gas to meet utility pipeline specifications. The gas processing facility also provides gas vacuum to production tanks and other facilities. The current LTS and membrane units are the only mission critical components in the facility that are not backed-up, and therefore installation of the redundant system would ensure the facility can maintain safe operation during periods of maintenance or repairs.

SHP proposes to modify its current natural gas processing system at CUP Site #2 by adding a back-up LTS and a back-up membrane unit for the removal of inert gas. The estimated area of disturbance for the gas processing system modification is approximately 0.1 to 0.2 acres.

SHP would connect the upgraded system to a new gas sales meter and pipeline provided by the Southern California Gas Company that is currently under construction and located on an area of Site #2 that has an approved easement between SHP and Southern California Gas Company.⁵ This sales outlet is in addition to and will provide back-up to the current Long Beach Energy gas sales outlet. As part of the proposed Project, SHP would add a booster compressor to the gas processing system to provide the line pressure required to move gas into the Southern California Gas Company system. SHP also proposes to add a "CEB" technology clean burning combustion unit to handle waste gas streams that currently are recycled through the facility.

⁵ The installation and operation of the gas meter and pipeline are already approved activities by the City and are considered the environmental baseline condition and not considered a component of the proposed Project.

The proposed modifications at CUP Site #2 would provide SHP operational flexibility and back-up capacity for its critical gas processing equipment.

The proposed LTS unit would be sized to process 2,000 MCF/day and the membrane unit sized to process 1,500 MCF/day. Both pieces of equipment would be sized at lower process rates than the current equipment, which will ensure operational efficiency. Ultimately, the addition of the back-up LTS and membrane units to facilitate the Southern California Gas Company connection would allow for improved operational efficiency and flexibility for the entire natural gas processing system at CUP Site #2.

The foundations and electrical installations require building permits from the City of Signal Hill, which were issued in fall 2022. The foundations would be located immediately adjoining existing facilities at CUP Site #2. Process piping and electrical conduits in and around the actual equipment packages would be located aboveground.

2.5 Construction Details

Construction for the additional components would be completed in two phases. The booster compressor and CEB burner would be installed in Phase 1 following Project approval. The LTS and membrane units would be installed in Phase 2, approximately 1 year after Phase 1. Both Phase 1 and Phase 2 would span approximately 12 weeks, with construction activities occurring Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m. During temporary construction activities, it is estimated that up to six (6) additional contractors would be needed onsite and would travel to and from CUP Site #2 each day.

The construction process would start with excavations for underground process piping, electrical conduits, and control cable conduits as well as reinforced concrete foundations for each piece of equipment. The LTS and membrane units would be delivered by the supplier with certain piping and controls already installed and mounted on an independent steel skid unit. The skid units would be installed on the foundations and secured per the foundation plans.

Table 2.5-1 provides the construction equipment and vehicles required to complete the natural gas processing facility modifications, the estimated on-site engine operating hours for the construction equipment, and the vehicle trips required to and from the construction site. It is estimated that each daily vehicle and truck trip to and from the construction site would require a travel distance of 10 miles or less one way.

Table 2.5-1: Construction Equipment and Vehicle Activity Summary for Natural Gas Processing Facility Improvements

Equipment	Onsite Engine Activity		Offsite Vehicle Activity	
	Total Operating Engine Hours	Average Engine Hours/Day	Total Vehicle Trips Generated	Average Vehicle Trips/Day
Backhoe	40	8	0	0
Dump Truck (6 wheel)	32	4	2	2
Water Truck	40	2	0	0
Crane Truck with Flat Bed Trailer	104	8	4	2
Construction Gear Truck	0	0	84	4
Electrician's Gear Truck	0	0	32	4
Welder with Welder's Truck	144	2	36	4
Concrete/Pavement Saw	16	2	0	0
Redi-Mix Concrete Truck	64	2	8	2

2.5.1 Construction Vehicle Trips

The vehicle trips associated with Project construction are described below in Table 2.5-2. Project vehicle trips would be generated during construction of the proposed gas system modifications at CUP Site #2, construction of new well cellars, and drilling new wells. These additional vehicle trips would be temporary, and once construction is complete, would not contribute to additional ongoing vehicles trips associated with operations. To drill the proposed new wells, there would be an increase of up to eight vehicle roundtrips per day during construction at CUP sites. In addition, larger heavy-duty trucks would also be used to transport the drill rigs/ancillary equipment as needed resulting in an estimated additional eight roundtrips. Construction of the proposed gas system modifications would require up to six additional contractor light-duty vehicles each day. Additionally, a maximum of four additional heavy-duty trucks (flatbed equipment deliveries, and ready-mix concrete trucks) would travel to CUP Site #2 on a given construction day. Construction of a new well cellar would require two additional onsite employees/contractors (equivalent to four additional daily vehicle trips), and one additional heavy-duty truck to transport equipment.

Assuming temporary gas system construction vehicle trips and vehicle trips associated with well cellar construction and drilling new wells all occurred within a single day, the Project would generate an estimated maximum equivalent of 68 additional daily vehicle trips (equivalent to 34 roundtrips, and an estimated 174 vehicle miles traveled [VMT] per day) due to employees, contractors, and heavy-duty work trucks travelling to and from the CUP sites.

Table 2.5-2: Vehicle Trips Associated with Project Construction

Activity	Frequency	Vehicle Type	Roundtrips (inbound + outbound)	One-Way Trips	Average Roundtrip Distance (miles)	Daily VMT
Gas System Modification - Contractor/Gear Trucks ¹	Daily	Light-Duty	6	12	3	18
Gas System Modification - Heavy-Duty Trucks (Equipment/Deliveries) ¹	Daily	Heavy-Duty	2	4	5	10
Gas System Modification - Ready-Mix Concrete Trucks ¹	Daily	Heavy-Duty	2	4	10	20
Well Cellar Construction - Employee/Contractor ²	Intermittently	Light-Duty	2	4	3	6
Well Cellar Construction - Equipment Delivery ²	Intermittently	Heavy-Duty	1	2	5	5
Drilling/Redrilling Operations – Employee/Contractor ³	Intermittently	Light-Duty	8	16	5	40
Drilling/Redrilling Operations – General Heavy-Duty Truck Activity ⁴	Intermittently	Heavy-Duty	4	8	5	20
		Proposed Daily Vehicle Trips	25	50	Proposed Daily VMT	119

Table Notes:

1. Construction of the gas system modifications would be temporary (completed in approx. 6 months or less), and vehicle trips would occur Monday-Friday only. Although vehicle activity would be intermittent, conservatively it's assumed all penitential contractor light-duty and heavy-duty/Ready-mix concrete truck trips would occur in a single construction day. Once the system is fully installed, existing SHP employees/contractors would continue to conduct operations (i.e., there would be no permanent increase in vehicle trips to/from CUP Site #2 as a result of the gas system modifications).
2. Although well cellar construction would not occur on a typical operational day, conservatively its assumed one (1) SHP employee and one (1) equipment delivery roundtrip using a flatbed truck would occur.
3. On intermittent days when drilling is occurring, eight (8) additional employee/contractor vehicles would travel from SHP's office to the farthest CUP Site (i.e., roundtrip distance to CUP Sites #6 and #7 is approx. 5 miles) to conduct these operations.
4. Although heavy-duty truck activity would be infrequent, it's assumed four (4) heavy-duty trucks would travel to/from the CUP sites on a given day when drilling new wells. These trips represent tanker trucks, larger material deliveries, equipment/drill rig transports, etc.

SECTION 3 Evaluation of Environmental Impacts

3.1 Aesthetic Resources

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.1 Environmental Setting

The existing visual setting includes the current state of the CUP sites which are all developed and operational oil and gas extraction and processing facilities. Visual features in and around the seven CUP sites and the surrounding public viewpoints of potential concern are discussed below.

In accordance with the City's Oil and Gas Code, the entire perimeter of each CUP Site is screened from public view, through a combination of existing block walls, fences/screens, and landscaping. Perimeter landscaping has also been planted along the majority of the CUP Site boundaries, especially those facing public rights-of-way. Each access point is gated and locked. Signs are located at the access points and on the perimeter fencing to identify the operations and warn the public that no public access/trespassing is allowed. The CUP sites are monitored 24 hours per day by SHP employees.

Nighttime lighting has been installed at the CUP sites. Existing nighttime lighting is minimal and only installed where necessary to ensure employee safety or site security. In compliance with applicable City standards and industry practices, the existing lighting has been installed in a way

which confines illumination to the site and/or to areas that do not include light-sensitive uses and minimizes glare onto adjacent properties.

3.1.1.1 Roadways

The CUP sites are located adjacent to numerous public roadways and rights-of-ways. Nearby prominent roadways include the following: Interstate 405 (I-405), Atlantic Avenue, and E. Spring Street (near CUP Site #1); Orange Avenue (adjacent to CUP Site #2); E. Willow Street (south of CUP Site #3); Temple Avenue/Obispo Avenue (east of CUP Site #5); and, Redondo Avenue (east of CUP Sites #6 and #7).

No designated scenic highways are located within the boundaries of the City of Signal Hill. No candidate or officially designated state scenic highways are located within the City. The closest eligible state scenic highway is located southeast of the City and includes a portion of State Route 1 (SR-1) which ends at the Traffic Circle neighborhood in Long Beach (Caltrans 2018). The closest CUP sites (#6 and #7) are located approximately 0.6 miles from the eligible segment of highway. Due to the distance between the nearest CUP site as well as intervening topography and built-out urban structures, the Project would not be visible from this portion of SR-1 (Sespe Consulting 2022a). The City of Signal Hill designated a roadway that surrounds the Hilltop area as a scenic route. The roadway includes Panorama Drive, 23rd Street, 21st Street and portions of Temple Avenue. This scenic route provides a link between the Civic Center/Hinshaw Park and the Alamitos 1 Well State Historical Monument, which is located on the east side of the Hill at Temple and Hill streets. The route provides views of urban Southern California from the Hilltop area (City 1986). CUP sites #4 and #5 are visible from Panorama Drive in the Hilltop area, but the sites are visually screened with trees and fencing and do not obstruct views from the roadway.

The existing topography surrounding most CUP sites is generally flat. Signal Hill, which is located within the center of the City limits, represents the only elevated topographical feature in the Project vicinity. Various public hiking trails are located in the areas near CUP Sites #4 and #5.

3.1.1.2 Local Viewpoints and Scenic Vistas

The hilltop area of Signal Hill is considered a very valuable resource in the City, and views from the hilltop are a valued public resource, including the scenic vistas from Hilltop, Sunset View, and Discovery Well parks (City 2001). One of the CUP sites (CUP Site #5) is located within the Hilltop Area Specific Plan area and in the vicinity of these parks. CUP Site #5 is located downslope from the scenic hilltop vista areas, and while visible from the vista areas, the site does not obstruct views, as it is visually screened with trees and fencing.





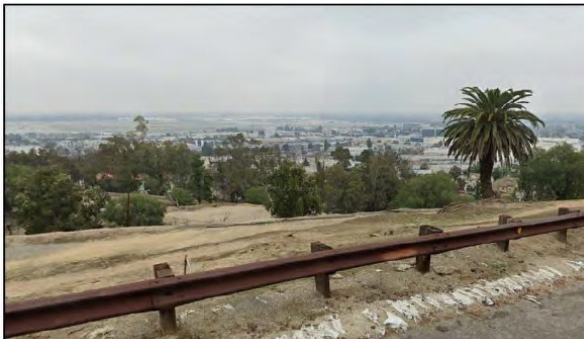
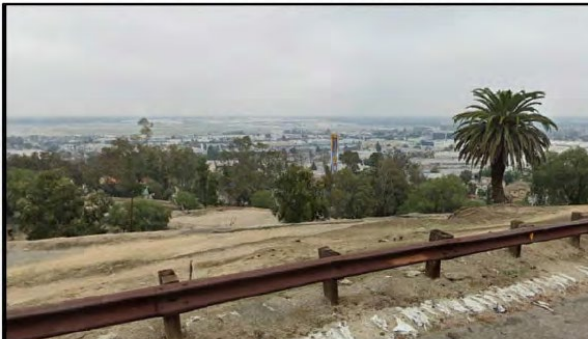


As part of the visual impact analysis completed for the Project, various viewsheds were mapped in the field. Viewsheds were established by determining publicly accessible areas surrounding the CUP site perimeters that would have a potentially unobstructed or partial line-of-sight view

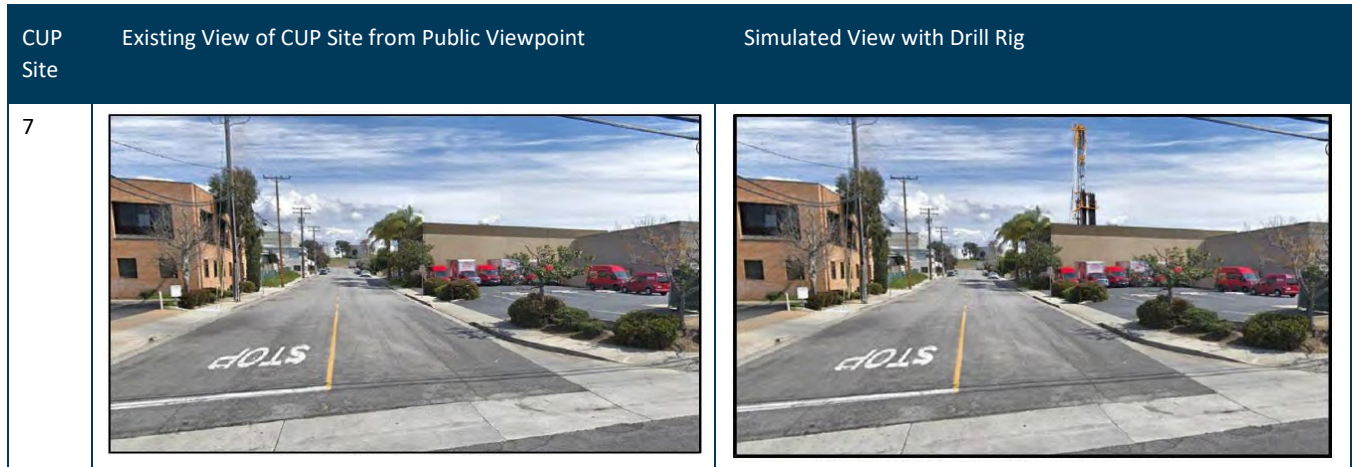
of the proposed Project activities. The areas surrounding the CUP sites are mostly flat and developed with existing buildings, fences/walls, and landscaping, and these existing structures and screening generally obscure views of the CUP sites from more distant viewpoints. Therefore, the Project viewsheds are generally limited to areas located immediately adjacent to the perimeter of the CUP sites along publicly accessible roadways (Sespe Consulting 2022a).

Public viewpoints were analyzed for each of the seven CUP sites. These seven locations represent areas that are heavily travelled, surrounding the Project site and along nearby routes of travel, and are therefore considered to have potential visual sensitivity. Visual impacts at these closest viewpoints conservatively account for potentially affected views at locations farther from the CUP sites. Photo simulations were developed for each public viewpoint and are provided in Table 3.1-1 below. These show the existing view for each CUP site as well as the simulated view with the addition of a drilling rig.

Table 3.1-1: Existing and Simulated Views of CUP Sites

CUP Site	Existing View of CUP Site from Public Viewpoint	Simulated View with Drill Rig
1		
2		

CUP Site	Existing View of CUP Site from Public Viewpoint	Simulated View with Drill Rig
3		
4		
5		
6		



Source: Sespe Consulting 2022a

3.1.2 Regulatory Setting

3.1.2.1 U.S. Bureau of Land Management Visual Resources Management System

The U.S. Bureau of Land Management (BLM) developed the Visual Resources Management (VRM) System to objectively rate the quality of visual resources and evaluate changes in scenic quality attributed to a proposed change in land use. This methodology is a federal standard and is based on the BLM visual impact assessment procedures provided in the *Visual Resources Management Manual-Section 8400* (BLM 1984). This system uses quantitative and qualitative methods to measure potential visual impacts and includes the following: defining the project setting and viewshed, identifying sensitive view receptors for assessment, analyzing the baseline visual quality and character of the identified views, depicting the visual appearance of the project from the identified views, assessing the project's impacts to those views in comparison to their baseline visual quality and character, and proposing methods to mitigate any potentially significant visual impacts identified. The visual impact analysis completed for the Project followed this methodology (Sespe Consulting 2022a).

3.1.2.2 California Scenic Highway Program

Caltrans manages the State Scenic Highway Program and provides guidance to agencies seeking official designation of a State Scenic Highway. A highway may be designated as "scenic" depending on how much of the natural landscape can be seen by travelers, the scenic quality of the surrounding landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. Highways may also be identified as "candidate" scenic highways, pending official designation. State laws that govern the Scenic Highway Program are found in the Street and Highways Code, Sections 260 through 263. Caltrans maintains a list of eligible and officially designated State scenic highways, which are identified in Section 263 of the Streets and Highways Code (Caltrans 2022). As described in Section 3.1.1 above, no officially designated State scenic highways are located within the City of Signal Hill.

3.1.2.3 Signal Hill General Plan

The Land Use Element (2001) and the Environmental Resources Element (1986) of the City of Signal Hill General Plan address aesthetics in goals and policies, as outlined in Table 3.1-2. The Land Use Element also includes that pumping units shall be painted and landscaped to soften visual impacts.

Table 3.1-2: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Land Use	Goal 3: Assure a safe, healthy, and aesthetically pleasing community for residents and businesses.	Policy 3.2: Enhance the interface between existing and future development and oil production activities to protect the access to the resource while mitigating adverse impacts of oil field operations within an urban area.	The entire perimeter of each CUP Site is screened from public view, through a combination of block walls, fences/screens, and landscaping. The Project would not be inconsistent with the visual character of the surrounding urban environment (which has a long history of oil and gas operations).
		Policy 3.3: Ensure a sensitive transition between commercial or industrial uses and residential uses by means of such techniques as buffering, landscaping, and setbacks.	The entire perimeter of each CUP Site is screened from public view, through a combination of block walls, fences/screens, and landscaping. All Project operations would be conducted within existing CUP site footprints. While the drill rig would be partially visible during intermittent drilling/redrilling operations, visual effects would be temporary. Drill rigs have been operating at the CUP sites for decades, and views of the equipment are not inconsistent with the existing, developed urban character of the area.
		Policy 3.12: Encourage and promote high quality design and physical appearance in all development projects.	Existing perimeter barriers and landscaping would continue to be maintained throughout the life of the Project.
Environmental Resources	Goal 1: Maintain and enhance the identity and aesthetic quality of Signal Hill as a City with striking view potential, and a City that is carefully managing its transition from resource extraction to balanced land uses.	Policy 1.1: Protect views both to and from the Hill and other scenic features. This will extend to all new development, and to major rebuilding and additions.	All CUP sites are visually screened around the perimeter and operations would not occur outside the existing perimeter. CUP Site #6 currently has two wells outside of the fenced area which the City is requiring to be fenced and will be completed in spring 2023. Continued intermittent use of drill rigs at the CUP sites would not be inconsistent with the visual character of the surrounding areas (including areas atop the hill adjacent to the CUP

Element	Goal	Policy	Applicability
			Site #4 and #5). The Project would not impact views from/of scenic features within Signal Hill.
	Goal 2: Maintain and enhance the City's unique cultural, aesthetic and historic areas.	Protect and enhance the State Historical Landmark at the Alamitos Well Site #1.	The City has an extensive oil and gas history, and existing facilities (including CUP sites) have been in operation for decades. The Project would not impact existing historical structures or areas. Alamitos Well Site #1 is located approximately 0.2 miles south of CUP Site #5. Due to distance and intervening topography/landscaping, Project operations within the CUP sites would not be visible from this location.
	Goal 4: Manage the production of economically valuable resources in the city to achieve a balance between current market forces and long-term community values.	Policy 4.1: Improve the interface between oil production activities and urban development, both for existing and new projects.	Project would adhere to the CUP conditions of approval specific to landscape and fencing. Visual impacts from use of a drill rig at CUP sites would be temporary and views of equipment would not be considered inconsistent or intrusive compared to the existing character of the area.
		Policy 4.4: Minimize and eliminate where feasible the adverse environmental impact of resource-production activities. Also provide adequate setback and open space where oil-production activities continue adjacent to urban development.	CUP sites are screened from nearby land uses through the use of perimeter walls and landscaping. Any new well cellars constructed and/or wells drilled within the CUP sites would comply with the setback requirements outlined within the City's Oil and Gas Code (Title 16).

Source: City 1986, 2001

The City adopted a view policy and in the Hilltop Area Specific Plan (SP-2), a view ordinance, with the goal of balancing existing residential views and the right of property owners to develop vacant property in accordance with the Hilltop Area Specific Plan or other zoning standards. The Hilltop Area Specific Plan aims to preserve the public view and prohibits construction of new dwellings that may interrupt the unobstructed views from the Hilltop, Sunset View, or Discovery Well parks (City 2001). CUP Site #5 is located within this specific plan area. However, the site is visually screened from residential views, and the Project would not result in any development of vacant areas which would have the potential to impact existing views from the surrounding area.

3.1.2.4 City Oil & Gas Code

The City adopted Title 16 of the City's Municipal Code, known as the Oil and Gas Code, in 1986. Certain aesthetic requirements were mandated with the adoption of the Signal Hill Oil Code in 1986, specifically all pumping units and tanks must be painted and five trees and seven shrubs must be planted for each pumping unit and tank (City 2001). In addition to landscaping and painting, Title 16 also includes standards for lighting and height requirements which SHP follows and would continue to implement as part of the Project. To provide visual screening in accordance with Title 16, perimeter landscaping and/or decorative concrete block walls/fencing surround each of the CUP sites.

3.1.3 Impact Assessment

AES (a). Would the project have a substantial adverse effect on a scenic vista?

Less than Significant. None of the CUP drill sites are located within a designated scenic vista and the Project would not result in any changes in the footprint or size of the drill sites. The primary scenic vistas within the Project vicinity are views from Signal Hill located within the central portion of the City, which is located south of CUP Sites #4 and #5. Since public viewpoints on the hill are at a slightly higher elevation compared to the lower, flat topography found throughout the remainder of the City, ongoing Project operations and new Project activities occurring at CUP Sites #4 and #5, could be potentially visible from publicly-accessible areas atop the hill looking north.

As part of the Visual Impact Analysis, the BLM's VRM rating system was used to quantify visual impacts resulting from drilling new wells and continued redrilling operations at the seven public viewpoints discussed in Section 3.1.1.2. Using this system, a potentially significant impact would result if the Project could potentially lower the visual quality of an identified viewpoint by -3 points or more. Visual simulations were developed to compare the existing Project site views to the simulated temporary views of the drill rig when the equipment would operate at each of the CUP sites. Based on this analysis, the Project would not reduce the visual ratings of any of the public viewpoints by 3 points or more (Sespe Consulting 2022a).

Based on the visual analysis, views from all seven CUP sites are not anticipated to be significantly changed or be adversely impacted as a result of ongoing operations. The use of the drill rig at any of the CUP sites for redrilling operations would be intermittent, and any visual effects resulting from redrilling operations would be temporary. For example, redrilling/well servicing activities at a given CUP site are generally completed within a single week. Once redrilling is complete, the drill rig would be moved offsite for storage, and the visual quality of the surrounding area would be returned to the existing conditions. Visual impacts resulting from ongoing operations at nearby viewpoints are expected to only be reduced slightly due to temporary operation of the drill rig at each CUP site. Therefore, continued operations at the

drill sites would not have a substantial adverse effect on scenic vistas surrounding the CUP sites, and impacts would be less than significant.

Based on the visual analysis completed, views from all seven CUP sites are not anticipated to be significantly changed or be adversely impacted as a result of new Project activities. New Project activities associated with the gas system modifications at CUP Site #2 and new well cellars would not be visible from public viewpoints. As with redrilling operations, the activities associated with drilling new wells would be visible at each of the CUP sites. Due to the height of the drill rig equipment (ranging from approximately 110-feet to 118-feet above the ground surface), existing visual screening and landscaping would not be sufficient to obscure views of the drill rig when operating at a CUP site. However, the use of the drill rig at any of the CUP sites would be intermittent, and visual effects resulting from drilling new wells operations would be temporary (approximately 1 month for each new well drilled). Once drilling is complete, the drill rig would be moved offsite for storage, and the visual quality of the surrounding area would be returned to the existing conditions. Visual impacts resulting from the new Project activities at nearby viewpoints are expected to only be reduced slightly due to temporary operation of the drill rig at each CUP site. Overall, if the maximum of five wells are drilled and six wells are redrilled in a given year, the drill rig would be visibly active at the drill sites for a maximum 6.5 months of each year for the first 10 years of the project, although spread among the different drill sites and not concentrated at any one specific site.

As described in the Environmental Setting, Drill Site #5 is the only drill site that is within the Hilltop Area Specific Plan Area which is a local scenic area. While the drill rig would be partially visible when operating at CUP Site #5, only the top portion of the drill rig is expected to be visible from the adjacent hill (i.e., along Panorama Drive). Additionally, because the existing urban setting is densely developed with numerous existing large/tall structures within the immediate vicinity of CUP Site #5, temporary views of the drill rig at CUP Site #5 (as well as CUP Site #4) are not expected to degrade the regional visual quality, or adversely impact views from or of the top of Signal Hill. Views of the surrounding natural landforms and ridgelines from public viewpoints would be maintained during construction and operations for new Project activities, and therefore the Project is not expected to impede scenic views from atop the hill. Therefore, the Project would not have a substantial adverse effect on scenic vistas surrounding the CUP sites, and impacts would be less than significant.

AES (b). Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. There are no candidate or designated state scenic highways within the immediate vicinity of the CUP sites. The closest state scenic highway is a portion of SR-1 located approximately 0.6 miles southeast of CUP Sites #6 and #7 which is eligible but not officially designated. Due to the distance between the highway and the CUP sites, as well as intervening topography, structures, and landscaping, the CUP sites would not be visible from SR-1.

Ongoing operations would not result in any changes in the footprint or size of the drill sites. Since CUP sites are not visible from any scenic highways, ongoing operations would have no impact on scenic resources within a scenic highway.

New Project activities would occur entirely within the existing CUP site boundaries and would not result in any changes to the size of the seven drill sites which would make them visible from a scenic highway. Therefore, Project activities would not substantially damage scenic resources within a state scenic highway, and no impacts would occur.

AES (c). In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant. SHP would continue to operate the drill sites in accordance with the Conditions of Approval specified in CUP 97-03 to ensure consistency with Signal Hill Municipal Code, as listed in Table 2.1-1 of the Project Description. Several of these conditions are related to aesthetics, including fencing and landscaping. SHP's continued compliance with applicable requirements outlined within the City's Oil and Gas Code (Title 16) would ensure visual resources in and around the CUP sites are sufficiently protected and ensure that ongoing operations remain compatible with applicable City general plan policies and zoning ordinances related to scenic quality. The continuation of oil and gas operations at CUP sites would not significantly impact the visual character or degrade the aesthetic quality of the surrounding environment. As shown in the visual simulations (Table 4.1-1), the continued intermittent use of drill rigs at the CUP sites to redrill wells would not be inconsistent with the visual character of the surrounding urban environment which also has a long history of oil and gas operations. Therefore, the impacts would be less than significant.

Construction and operations for new Project activities at the drill sites would be in accordance with the Conditions of Approval specified in CUP 97-03. Drilling new wells and redrilling operations would be the only new Project activities visible to the public and would not significantly impact the visual character or degrade the aesthetic quality of the surrounding environment. As shown in the visual simulations (Table 4.1-1), intermittent use of drill rigs at the CUP sites to drill new wells would be consistent with the visual character of the surrounding urban environment which also has a long history of oil and gas operations. New Project activities would not conflict with any applicable City of Signal Hill policies or ordinance governing scenic quality. The existing CUP sites are screened from nearby land uses through the use of perimeter walls and landscaping. The Project would not substantially degrade the existing visual character of the Project site or surrounding areas, would not significantly obstruct or impact scenic views, or conflict with any applicable City policies or plans meant to protect scenic resources. Therefore, the impacts would be less than significant.

AES (d). Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant with Mitigation Incorporated. Operations at the CUP sites would continue to occur primarily during daylight hours. Ongoing operations include redrilling wells, which may require drilling activity over a 24-hours period. Temporary nighttime lighting may be necessary during these operations. Any additional nighttime lighting required for safety during redrilling operations would be temporary and spread among all the drill sites. However, if required, temporary nighttime lighting during ongoing operations could have a *potentially significant* impact on adjacent residential areas.

No additional permanent nighttime lighting structures are proposed as part of the new Project activities. The gas plant modifications at CUP Site #2 would not require the installation of additional lighting, as existing fixtures would sufficiently light the onsite areas during construction and operation. Additionally, none of the proposed structures or operational activities associated with the Project are expected to result in a new source of glare. Consistent with existing CUP conditions and the City's Oil and Gas Code, any new structures, such as those associated within the gas plant modifications at CUP Site #2, would be painted with non-reflective, muted tones.

Drilling activity could occur over a 24-hours period, as new wells are drilled. Temporary nighttime lighting may be necessary during these operations. As discussed in the Project Description, drilling new wells would likely be spread among all of the drill sites and not concentrated at any one drill site in any given year. Overall, if the maximum of five wells are drilled and six wells are redrilled in a given year, temporary nighttime lighting may be required for a maximum 6.5 months of each year for the first 10 years of the project, although spread among the different drill sites and not concentrated at any one specific site. If required, temporary nighttime lighting could have a *potentially significant* impact on adjacent residential areas.

Mitigation Measure AES-1: If nighttime lighting is required, high pressure sodium and/or cut-off fixtures (or equivalent International Dark Sky Association-approved fixtures) would be used instead of mercury-vapor fixtures. Nighttime lighting would also be designed to confine illumination to the specific working areas on CUP sites and would avoid spillover into offsite areas with light-sensitive uses, including adjacent residential areas. If required, nighttime lighting would be limited to portable lights or small lights affixed to equipment (e.g., vehicles, drill rigs, etc.) for safety purposes.

Residual Impacts

Incorporation of **MM AES-1** would ensure that measures are in place to reduce potential impacts on of nighttime lighting on light-sensitive uses to a less than significant level.

3.2 Agriculture and Forestry Resources

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.2.1 Environmental Setting

No portion of the Project area is zoned for or designated as agriculture or forest land. All CUP sites are located within land zoned as commercial, industrial, and residential and the areas surrounding the CUP sites are developed with commercial, industrial, and residential uses. The California Department of Conservation (CDOC) maintains an important farmland finder which maps all CUP sites located in the City of Signal Hill as Urban and Built-Up Land (CDOC 2016). The closest mapped prime farmland is located over 4.5 miles from the Project area in Orange County (CDOC 2016). There are no Williamson Act lands in the vicinity of the Project area (CDOC 2017).

3.2.2 Regulatory Setting

There are no applicable regulations or policies related to agriculture and forestry that apply to the Project.

3.2.3 Impact Assessment

AG (a). Would the project 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?

No Impact. The CUP sites are currently developed and none occur in or near farmland areas. All CUP sites are mapped as Urban and Built-Up Land (CDOC 2016). The closest mapped prime farmland is located over 4.5 miles from the Project area in Orange County (CDOC 2016). Continued operations would occur within the existing boundaries of the CUP sites, and therefore no impacts to farmland would occur.

New Project activities, including drilling/operation of new wells and upgrades to the natural gas processing facility would occur entirely within the boundaries of the existing CUP sites which do not occur in or near farmland areas. Therefore, no impacts would occur.

AG (b). Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. No portion of the Project area is zoned for or designated as agriculture. There are no Williamson Act lands in the vicinity of the Project area. Continued operations would occur within the existing boundaries of the CUP sites, and therefore no impacts would occur.

New Project activities would occur entirely within the boundaries of the existing CUP sites, which are not zoned for agriculture. No impacts would occur.

AG (c). Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. No portion of the Project area is zoned for or designated as forest land or timberland. All CUP sites are located within land zoned as commercial, industrial, and residential and the areas surrounding the CUP sites are developed urban areas. Continued operations would occur within the existing boundaries of the CUP sites, and therefore no impacts would occur.

New Project activities would occur entirely within the boundaries of the existing CUP sites, which are developed urban areas. No forest land or timberland is designated in the area, and therefore no impacts would occur.

AG (d). Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As described under Impact AG (c) above, no forest land is present in or in the vicinity of the CUP sites. Therefore, no impacts would occur as a result of continued operations or new Project activities.

AG (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?

No Impact. The CUP sites are on previously disturbed, developed land within the City of Signal Hill. There would be no impacts to prime, unique farmland, Williamson Act contract land, timberland, or forest land from either continued operation of the CUP sites or new Project activities, which include drilling/operations of new wells and installing upgrades to the existing gas plant.

3.3 Air Quality

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
e) Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.1 Environmental Setting

The proposed Project site is located within the Los Angeles County portion of the South Coast Air Basin. Los Angeles County is designated as a state nonattainment area for ozone (O₃), fine particulate matter (PM) less than 2.5 microns in diameter (PM_{2.5}), PM 10 microns or less in diameter (PM₁₀) and lead. Los Angeles County is an attainment or maintenance area for carbon monoxide (CO), nitrogen dioxide (NO₂) and sulfur dioxide (SO₂).

The SCAQMD is the air pollution agency responsible for monitoring air quality conditions and regulating stationary sources of air pollution in the South Coast Air Basin. The proposed Project is located in the South Los Angeles County Coastal subregions, which is served by the Long Beach-Signal Hill Air Monitoring Station located at 1710 E. 20th Street Signal Hill. A review of the monitoring data from 2019-2021 indicates that concentrations of ozone as measured at this monitoring station exceeded the state and national 8-hour standards four days in 2020. PM₁₀ was not monitored at this station, but at the nearest station with PM₁₀ data (South Long Beach), the state standard for PM₁₀ was exceeded 12.2 days in 2021. The annual state standard for PM₁₀ was exceeded three days in 2019, and two days in 2019. PM_{2.5} is also not monitored at this station, but at the nearest station with PM_{2.5} data (South Long Beach), the national standard for PM_{2.5} was exceeded ten days in 2020 and 4 days in 2021 (CARB 2022a).

3.3.1.1 Criteria Air Pollutants

Air quality is defined by ambient air concentrations of seven specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. These specific

pollutants, known as “criteria air pollutants,” are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include CO, O₃, nitrogen oxides (NO_x), sulfur oxides (SO_x), PM_{2.5}, PM₁₀, and lead (Pb) (Table 3.3-1).

3.3.1.2 Local Climate

The climate of Southern California is classified as Mediterranean and is characterized by warm, dry summers and mild winters with moderate rainfall. Prevailing daily winds in the region are westerly, with a nighttime return flow. Within the proposed Project site and in its vicinity, wind predominately blows from the east-southeast at approximately 5.77 miles per hour (SCAQMD 2022a).

The annual average temperature in the proposed Project area is 62.6 degrees Fahrenheit (°F). Total precipitation on the proposed Project site and vicinity averages approximately 12 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer.

The topography and climate of Southern California combine to make the South Coast Air Basin an area of high air pollution potential. A warm upper layer of air mass descends over the cool, moist marine layer and forms a cap over the cooler surface layer, which inhibits the pollutants from dispersing upward during the summer months. Light winds during the summer further limit ventilation and abundant sunlight triggers photochemical reactions that produce O₃ and the majority of PM.

3.3.1.3 Sensitive Receptors

The California Air Resource Board (CARB) has identified the following groups who are most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The areas surrounding the CUP sites are highly developed with several uses. The following summarizes the nearest sensitive receptors to each site:

- CUP Site #1 – Residences approximately 860 feet to the west,
- CUP Site #2 – Residences approximately 1,350 feet to the northwest,
- CUP Site #3 – Residences approximately 680 feet to the southwest,
- CUP Site #4 – Residences approximately 500 feet to the northeast,
- CUP Site #5 – Residences approximately 25 feet to the west,
- CUP Site #6 – Residences approximately 85 feet to the north, and

– CUP Site #7 – Residences approximately 310 feet to the north.

Table 3.3-1: Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS (ppm)	CAAQS (µg/m ³)	NAAQS (ppm)	NAAQS (µg/m ³)
Ozone (O ₃)	1-hour	0.09	180	--	--
	8-hour	0.07	137	0.070	137
Nitrogen Dioxide (NO ₂)	1-hour	0.18	339	0.100	188
	Annual	0.03	57	0.053	100
Sulfur Dioxide (SO ₂)	1-hour	0.25	655	0.075	196
	3-hour	--	--	0.5	1,300
	24-hour	0.04	105	0.14 (for certain areas)	0.030 (for certain areas)
	Annual arithmetic mean	--	--	0.03	--
Carbon Monoxide (CO)	1-hour	20	23 (mg/m ³)	35	40 (mg/m ³)
	8-hour	9	10 (mg/m ³)	9	10 (mg/m ³)
Particulates (as PM ₁₀)	24-hour	--	50	--	150
	Annual arithmetic mean	--	20	--	--
Particulates (as PM _{2.5})	24-hour	--	--	--	35
	Annual	--	12	--	12
Lead (Pb)	30-day	--	1.5	--	--
	Calendar average	--	--	--	1.5 (for certain areas)
	3-month (rolling average) ¹	--	--	--	0.15
Sulfates (as SO ₄)	24-hour	--	25	--	--
Hydrogen Sulfide	1-hour	0.03	42	--	--
Vinyl Chloride	24-hour	0.01	26	--	--

Source: CARB 2022b

Notes: A rolling average is a calculation to analyze data points by creating series of averages of different subsets of the full data set. ppm = part(s) per million; µg/m³ = microgram(s) per cubic meter

3.3.1.4 Dust Control

Most of the CUP site operational areas are paved, and therefore have a minimal potential to generate fugitive dust. In unpaved onsite areas where vehicles regularly travel, SHP uses gravel to stabilize the soil. Although infrequent, in periods of sustained high winds or instances when a new well cellar is being excavated, SHP would continue to use a mobile water truck to apply water, as needed, to control fugitive dust. SHP would continue to monitor onsite dust conditions and take necessary measures if/when onsite employees observe fugitive dust moving beyond the CUP boundaries at any of the CUP sites.

3.3.2 Regulatory Setting

3.3.2.1 California Air Resources Board, Statewide Portable Equipment Registration Program

CARB implements the Statewide Portable Equipment Registration Program. CARB allows owners of portable engines and other types of equipment to register units under this program to operate their equipment throughout California without having to obtain individual permits from local air districts (CARB 2022c).

As part of this program, SHP is required to follow the operating conditions set forth by CARB as part of registration, as well as inspections by the local air district, SCAQMD. Inspections are required within one year of initial registration or renewal date.

3.3.2.2 South Coast Air Quality Management District

SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards. Programs include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases. As part of this permitting program, SCAQMD issues permits to operate equipment. SCAQMD does not issue individual permits for wells, but it oversees permitting for oil- and gas-related equipment/facilities, including boilers, steam generators and process heaters, flares, tanks, and portable equipment. These permits include conditions specific to the type of equipment which operators must follow (SCAQMD 2022b).

SHP maintains various SCAQMD permits for applicable facilities within the West Unit (CUP Sites #1, #2, and #3), Central Unit (CUP Sites #4 and #5), and East Unit (CUP Sites #6 and #7), and they are subject to the Annual Emissions Reporting requirements. SHP also conducts fence line air emissions monitoring at their West Unit (CUP Site #2) facility.

3.3.3 Impact Assessment

AIR (a). Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Potentially Significant. Air quality impacts from proposed projects within City of Signal Hill are controlled through policies and provisions of the City of Signal Hill General Plan (City of Signal Hill 1986), SCAQMD's Final 2016 Air Quality Management Plan (SCAQMD 2016), SCAQMD's draft 2022 Air Quality Management Plan (SCAQMD 2022c) and Southern California Association of Government's (SCAG's) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2020). 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 recently finalized AQMP was adopted by the Governing Board of the SCAQMD on March 3, 2016 (SCAQMD 2016). An inventory of existing emissions from industrial facilities is included in the baseline inventory in the 2016 AQMP, as well as projections of the future emissions which are based on source category growth factors provided by the SCAG. The 2016 AQMP also identifies emission reductions from existing sources and air pollution control measures that are necessary to comply with applicable state and federal ambient air quality standards. In order to demonstrate that a project would not cause further air quality degradation in either the SCAQMD's plan to improve air quality within the air basin, or the federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the SCAQMD's adopted Air Quality Attainment Plans (AQAP) for O₃ and PM₁₀.

Ongoing operations of the existing facilities would serve existing and intended land uses and would not affect regional employment or job growth. Specifically, the land use type for the Project is an existing oil and gas operation, and continuation of these existing operations was anticipated in the current growth assumptions. Therefore, continued operations are consistent with the growth assumptions of the applicable AQAP. Existing uses on and surrounding the CUP Sites would also not be changed with continued operations of the existing facilities.

New Project activities would also serve existing and intended land uses and would not affect regional employment or job growth. As such, new Project activities would be consistent with the growth assumptions of the applicable AQAP. In order to determine whether the Project would lead to an exceedance of any applicable air quality standards, a detailed analysis of Project emissions will be conducted and this issue will be addressed in detail in the EIR prepared for the project.

AIR (b). Would the Project 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?

Potentially Significant. Ongoing operations consist of well servicing and maintenance, redrilling operations, oil processing, storage and transfer, natural gas and natural gas liquids processing, storage and transfer, produced water separation and injection, and electrical production from a natural gas turbine-powered generator. In addition, ongoing operations emit criteria pollutants from the use of combustion sources such as diesel workover rig engines, equipment trucks, water trucks, workover rig crew trucks/vehicles, and portable lift equipment; through venting or fugitive losses from use of chemicals, valves, fittings, pumps, compressors, and wellheads. In addition, ongoing operations have the potential to generate fugitive dust at unpaved sites as a result of vehicle travel and high-wind events. As noted above, Los Angeles County is designated as a state nonattainment area for O₃, PM_{2.5}, and PM₁₀, and lead. However, ongoing operations would not exceed emissions above SCAQMD thresholds. Further, all existing facilities are subject to the requirements of SCAQMD Rule 1148 series as applicable (1148, 1148.1, and 1148.2), and other rules that reduce emissions of volatile organic compounds (VOCs) (e.g. Rules 1173, 1176, and 1178). Ongoing operations would also continue to comply with prohibitory rules, as applicable, such as Rule 403, for the control of fugitive dust. As such, the impacts of continuing ongoing operations for the proposed duration of the CUP period would be less than significant.

New project activities over the 20-year period, including construction of up to 20 well cellars, drilling/redrilling and operation of up to 46 new wells, and upgrades to the natural gas processing facility, would result in an increase in emissions of criteria pollutants from baseline conditions with use of combustion sources such as diesel drill and completion/workover rig engines, equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment; through venting or fugitive losses from use of chemicals; or valves and fittings, pumps, compressors; and well heads. In addition, impacts to air quality would occur as a result of soil disturbance and fugitive dust emissions. These emissions, when considered in conjunction with continued operations for 20 years, could be potentially significant and will be analyzed in detail as part of the EIR prepared for the Project.

AIR (c). Would the Project expose sensitive receptors to substantial pollutant concentrations?

Potentially Significant. Land uses that are generally considered more sensitive to air pollution than others include hospitals, schools, residences, playgrounds, child-care centers, athletic facilities, and retirement/convalescent homes. The CUP sites are located adjacent to several land use types including residential, industrial/commercial, and schools. As noted above, several CUP sites are located near (within 1,000 feet) to sensitive receptors, with residences and a school being the nearest receptors to several sites. New stationary sources are required to comply with SCAQMD's Rule No. 1401, which specifies the limits for maximum individual

cancer risk and non-cancer acute and Chronic Hazard Index. The significance level of in Rule No. 1401 is defined as a 70-year excess cancer risk of one per million for new stationary sources that do not install Toxic Best Available Control technology or ten in one million for new stationery sources that install Toxic Best Available Control technology and shall not exceed a Hazard Index threshold of 1.0 for any of the receptor locations.

SHP's CUP Sites are subject to the requirements of AB 2588. As such, ongoing operations at the current activity level do not currently exceed the applicable thresholds for health risks (i.e., greater than 10 per one million exposures or non-cancer hazard index greater than 1.0). Accordingly, continued ongoing operations for the proposed duration of the CUP extension are considered to have a less than significant impact relative to exposure of sensitive receptors to substantial pollutant concentrations. However, given the anticipated implementation of SB 1137 and the potential for controversy related to human health risks of continued oil production operations, additional detailed analysis will be conducted as part of the EIR process.

New project activities when considered in conjunction with continued operations include drilling/reworking of up to 46 new wells, construction and operation of up to 20 new well cellars, and construction and operation of natural gas processing facility upgrades. A detailed analysis of emissions as well as a health risk assessment will be performed for the new project activities including new well drilling/redrilling activities (e.g., diesel particulate matter [DPM]), operation of the additional 46 wells and 20 new well cellars, as well as additional emissions associated with the gas plant upgrades. Accordingly, the potential impacts could be potentially significant and will be addressed in greater detail in the EIR prepared for the Project.

AIR (d). Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant. Ongoing operations at the current activity level are subject to SCAQMD Rule 402 (Nuisance) which 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 addition, existing operations are subject to SCAQMD Rule 1148.1 and 1173 requirements. As part of compliance with Rule 1148.1, SHP is required to maintain an Odor Mitigation Plan that includes monitoring and mitigation requirements. Accordingly, continued compliance with Rules 402, 1148.1, and 1173 would ensure that ongoing operations of the existing facilities would not result in emissions that would adversely affect a substantial number of people and impacts are expected to be less than significant.

Potential sources of operational odors generated by new project activities include drilling and redrilling and operation of new wells and the new gas system modification, both of which would have vapor recovery that is routed to the turbine at CUP Site #2 would also be subject to

SCAQMD Rule 1148.1 and 1173 requirements. As part of compliance with Rule 1148.1, SHP is required to maintain an Odor Mitigation Plan that includes monitoring and mitigation requirements. In addition, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances. Therefore, potential operational-source odor impacts would be considered less than significant.

3.4 Biological Resources

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.4.1 Environmental Setting

The Environmental Resources Element of the City of Signal Hill General Plan describes the biological resources present in Signal Hill. Historically, the dominant plant community in the City was coastal sage scrub. However, following development of the area, this native community has been replaced by ruderal species due to brush clearing activities. Remnants of sage scrub communities may be found in some of the brushy, open areas adjacent to existing oil wells within the city limits (City 1986). Available habitat in Signal Hill is degraded and as such, most animals are expected to be common, widespread, and highly adaptable species. No plant or wildlife species designated as rare, threatened, or endangered by the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), or California Native

Plant Society (CNPS) have been located or are expected to occur within the City of Signal Hill (City 1986).

3.4.1.1 Vegetation Communities and Land Cover Types

The CUP sites are all previously disturbed and developed sites with limited vegetation present. Ornamental vegetation is primarily located outside of the drill site fenceline and some vegetation is present within the sites. A biological reconnaissance survey was conducted at the CUP sites on June 8, 2022, to characterize the existing vegetation communities and potential wildlife habitats. The disturbed/developed land cover areas at the CUP sites support ornamental trees and patches of scattered non-native vegetation such as flax-leaved horseweed (*Erigeron bonariensis*), pigweed (*Amaranthus albus*), Bermuda grass (*Cynodon dactylon*), puncture vine (*Tribulus terrestris*), and other non-native grasses (*Bromus* sp.), which are present at a low cover. The tree dominated vegetation communities identified during the survey include eucalyptus groves and ornamental trees (ECORP 2022a). Results of the survey for each CUP site are included in Table 3.4-1.

Table 3.4-1: Existing Vegetation Communities and Land Cover Types Observed at CUP Sites

CUP Site	Vegetation Communities and Land Cover Types
1	Consists of mostly disturbed/developed areas with injectors primarily located in the middle portion of the site. Climbing fig (<i>Ficus pumila</i>), an evergreen climbing vine, was observed growing on the walls surrounding the site. Chinese elm trees (<i>Ulmus parvifolia</i>) were observed within the site and palm trees (<i>Washingtonia</i> sp.) are located outside bordering the site.
2	Consists primarily of disturbed/developed areas with injectors, above ground pipes, storage tanks, and other structures were observed at the time of the survey. Ornamental trees occur in some portions of the site including Brazilian peppertree (<i>Schinus terebinthifolius</i>), Chinese elm, and ash trees (<i>Fraxinus</i> sp.). One native mulefat (<i>Baccharis salicifolia</i>) shrub was observed on the western slope of the site. Eucalyptus trees (<i>Eucalyptus</i> spp.) were observed outside the site boundary along the northern portion of the site and the canopies of the trees overhang the site boundary.
3	Consists of disturbed/developed areas with injectors and other structures observed within the site. Ornamental trees including eucalyptus trees, bottlebrush (<i>Melaleuca viminalis</i>), and wattle trees (<i>Acacia</i> sp.) are located primarily outside the CUP site; however, the tree canopies overhang the site boundary.
4	Consists of disturbed/developed areas with injectors, above ground pipes and other structures present primarily along the western portion of the site. Ash and eucalyptus tree canopies overhang the site boundary primarily on the western and southern portions.
5	Eucalyptus groves are present within and adjacent to the site to the south and southwest. The vegetation community is dominated by eucalyptus trees with an open and continuous sparse to intermittent shrub layer. Low density of other ornamental trees and shrubs including Chinese elm and Peruvian peppertree (<i>Schinus molle</i>) are also present within this community along the western edge of the site. Ornamental trees and shrubs located in the middle and north/northeast portions of the site include a mix of Mexican fan palm tree, eucalyptus trees, pine trees (<i>Pinus</i> sp.), jade (<i>Crassula ovata</i>), and common non-native ice plant (<i>Carpobrotus</i> sp.). The rest of the site is considered disturbed/developed with existing structures, above ground pipes, and storage tanks.

CUP Site	Vegetation Communities and Land Cover Types
6	Consists of mainly disturbed/developed areas with existing structures and a storage tank. Ornamental trees are present within the western portion of the site. Eucalyptus and pepper trees were observed outside the site and their canopies overhang the site boundary.
7	Consists of disturbed/developed areas with some structures and an active oil producer located on the eastern portion of the site. No vegetation was observed at this site.

Source: ECORP 2022a

3.4.1.2 Common Wildlife

The CUP sites provide suitable foraging, nesting, and cover habitats that could be used by locally common wildlife species. During the biological survey the following wildlife species were observed/detected: common raven (*Corvus corax*), house sparrow (*Passer domesticus*), mourning dove (*Zenaidura macroura*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), barn swallow (*Hirundo rustica*), Allen's hummingbird (*Selasphorus sasin*), western fence lizard (*Sceloporus occidentalis*), and side-blotched lizard (*Uta stansburiana elegans*). No raptor species were observed, but red-tailed hawk (*Buteo jamaicensis*) is a species that is typically seen in similar habitat within ornamental and eucalyptus trees. Any of the common mammal species found in the suburban areas of southern California may use or traverse various CUP sites on occasion including raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and small rodents (ECORP 2022a).

The ornamental trees, eucalyptus groves, shrubs, utility poles, and structures/buildings on the CUP sites provide potential nesting habitat for migratory birds and raptors. Habitat for ground-nesting bird species is present on each of the CUP sites. The trees and other vegetation located adjacent to the CUP sites could also provide nesting habitat for bird species. During the biological survey, nesting activity was observed in the ornamental trees located on CUP Sites #6 and #7. No roosting bats were observed at any of the CUP sites, but potential suitable roosting habitat for bats is present in the existing structures/buildings and ornamental trees located on the CUP sites (ECORP 2022a).

3.4.1.3 Special Status Species

Special status species are plants and animals that meet the definition of rare, threatened, or endangered pursuant to §15380 of the CEQA Guidelines. Special status species discussed in this document include the following:

- Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA).
- Species listed or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA).

- Species that are recognized as candidates for future listings by agencies such as USFWS, National Oceanic and Atmospheric Administration’s National Marine Fisheries Service, and CDFW.
- Species defined by CDFW as Species of Special Concern.
- Species classified as Fully Protected by CDFW.
- Bat species listed by the Western Bat Working Group as priority species.
- Plant species, subspecies, and varieties defined as rare or threatened by the California Native Plant Protection Act (California Fish and Game Code § 1900 et seq.).
- Plant species listed by the CNPS as List 1 and 2 and some List 3 plants under CEQA (CEQA Guidelines §15380).

A literature review using the CDFW’s California Natural Diversity Database (CNDDDB) and the CNPS online inventory was conducted to identify a list of potential special status species that could occur in the Project area (ECORP 2022a). The CNDDDB is an inventory of the status and locations of rare plants and animals in California managed by CDFW. A list of special status species with potential to occur on or adjacent to the Project site was generated from the results of the literature review and the CUP sites were evaluated for suitable habitat that could support listed plant or wildlife species.

Most of the special status wildlife and plant species identified by CNDDDB and CNPS that occur in the region surrounding the CUP sites have very specific habitat needs that are not present within the Project area. Therefore, these species were eliminated from further consideration. Following the site visit to evaluate existing conditions on each of the CUP sites, a determination was made that all the plant species reported in the literature review have a low potential or are presumed absent from the CUP sites due to a lack of suitable habitat and/or a lack of recent documented occurrences (ECORP 2022a).

Based on the background literature review, three special status wildlife species were identified as having a moderate or low to moderate potential to occur within the Project area: overwintering monarch butterfly (*Danaus plexippus*), silver-haired bat (*Lasionycteris noctivagans*), and big free tailed bat (*Nyctinomops macrotis*).

Big Free Tailed Bat

This species is a CDFW Species of Special Concern (SSC) and is a seasonal migrant. Big free tailed bats roost mainly in the crevices of cliff rocks though there is documentation of roosting in buildings, caves, and tree cavities. This species typically lives in deserts and arid grasslands where rocky outcrops, canyons, or cliffs provide ideal roosts. The big free tailed bat was documented in Long Beach in 1983 approximately 1.5 to 2.5 miles southwest of the CUP sites. Based on the recorded occurrence of this species 1.5 miles from the CUP sites and the presence of potential suitable roosting habitat in the ornamental trees within the CUP sites and existing

structures/buildings located in CUP Sites #5, #6, and #7, this species has a low to moderate potential to occur (ECORP 2022a).

Silver-haired Bat

Silver-haired bats are listed as a medium priority species by the Western Bat Working Group. This species often roosts in tree cavities or in bark crevices on tree trunks, especially during migration. However, some individuals overwinter in buildings, which may allow them to spend the winter in places that would otherwise be too cold. This species was documented in 1986 approximately 1.6 miles southwest of CUP Site # 1 (approximately 2.7 miles west of CUP Sites #6 and #7) in Long Beach just south of the intersection of 20th Street and Maine Avenue; and 5 miles northeast of the CUP sites between I-605 and SR-91. Based on the presence of potential suitable roosting habitat in the ornamental trees within or surrounding the CUP sites, as well as the existing structures/buildings located in CUP Sites #5, #6 and #7, this species was determined to have a low to moderate potential to occur.

Monarch Butterfly Overwintering Population

This species is a federal candidate for listing as endangered under the ESA. Overwintering monarch butterflies require dense stands of non-native trees, particularly eucalyptus planted in the mild coastal zone which provide appropriate microclimate. Overwintering sites must provide shelter from wind and a varied light environment ranging from full sun to deep shade. Overwintering populations of monarch butterflies have been documented approximately 1 mile southeast, 2.4 miles northeast, 3.7 miles east, and 4.4 miles west of the CUP sites. The eucalyptus groves located on CUP Site #5 provide potentially suitable roosting habitat. However, overwintering populations have not been documented onsite and they were not observed during the biological survey. Based on the recorded observations of monarch butterflies in the region surrounding the CUP sites and the presence of suitable eucalyptus groves, the monarch butterfly has a moderate potential to occur on CUP Site #5 (ECORP 2022a).

3.4.1.4 Critical Habitat

Critical habitat is a term that is defined and used in the federal ESA. Critical habitat includes specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management or protection. Critical habitat may also include areas that are not currently occupied by an endangered or threatened species, but that will be needed for its recovery. None of the CUP sites are located within critical habitat for threatened and endangered species.

3.4.1.5 Wetlands

The USFWS National Wetland Inventory Wetlands Mapper identifies existing wetlands and riparian areas. A desktop review using this mapper showed no wetlands present at or in the

vicinity of the CUP sites. A formal aquatic resources delineation was not completed as part of the biological site visit. However, no jurisdictional waters of the U.S. or waters of the State were identified on the CUP sites (ECORP 2022a).

3.4.1.6 Wildlife Corridors

A wildlife corridor allows movement between historically connected habitats/natural areas and facilitates movement between these habitat areas without other disturbances, like traffic or development. They allow exchange of individuals between populations and connect various habitats required for species to complete their life history, like feeding and breeding grounds.

The Project area was assessed for the ability to facilitate wildlife movement and for the presence of wildlife corridors during the biological resources survey. The CUP sites do not function as wildlife movement corridors because the sites are disturbed/developed, support minimal vegetation cover, and are surrounded by roads and urban development. The CUP sites do not support native habitat that would support wildlife movement and the fencing and gates on the sites and the surrounding structures are not conducive to wildlife movement. The CUP sites are not located along any major drainages or washes that would be considered movement corridors for wildlife. Wildlife may use the limited vegetation on the CUP sites during local movement, but the sites are not part of a regional wildlife movement corridor or a corridor between natural habitat areas (ECORP 2022a).

3.4.2 Regulatory Setting

3.4.2.1 Clean Water Act

The Clean Water Act (CWA) has provisions for protecting biological resources within the aquatic environment through identification of beneficial uses and prohibitions on fill of wetlands or other waters of the United States. The primary function of the CWA is in protecting biological resources in this instance are to ensure that any impacts to wetlands or other waters of the United States are compensated for and provide a framework for ensuring that water quality is maintained or improved. No wetlands or other waters of the United States are present on or in the vicinity of the CUP sites.

3.4.2.2 Endangered Species Act

The federal ESA protects threatened and endangered species by prohibiting federal actions that would jeopardize the continued existence of such species or result in destruction or adverse modification of any critical habitat of such species. If effects to listed species are anticipated, Section 7 of the ESA requires consultation regarding protection of such species be conducted with the USFWS and/or the National Marine Fisheries Service prior to project implementation. (16 USC 1531, 1536).

3.4.2.3 Migratory Bird Treaty Act

Congress passed the Migratory Bird Treaty Act (MBTA) in 1918 to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. The prohibition applies to birds included in the respective international conventions between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and Russia.

Migratory bird species receive federal protection under the MBTA and state protection under the CEQA §15380(d). In the case of bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), additional protection is offered under the federal Bald and Golden Eagle Protection Act. All birds, except European starlings, English house sparrows, rock doves (pigeons), and non-migratory game birds such as quail, pheasant, and grouse, are protected under the MBTA. No permit is issued under the MBTA; however, a project would need to employ measures that would avoid or minimize impacts to protected migratory birds.

3.4.2.4 California Endangered Species Act

The CESA focuses on protecting all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation.

3.4.3 Impact Assessment

BIO (a). *Would the Project 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 CDFW or USFWS?*

Less than Significant with Mitigation. Although evidence of the presence of bats was not observed on any of the CUP sites during a biological survey, the existing structures/buildings (CUP Sites #5, #6, and #7) and ornamental trees at the CUP sites could provide potential habitat for two species of special-status bats (silver-haired bat and big free-tailed bat) and other common species of bats. Ongoing operations could have a *potentially significant* impact on a special status bat species if present in an existing structure or trees that is proposed to be removed or trimmed as part of ongoing operations. Similarly, new Project activities could have a *potentially significant* impact on a special status bat species if present in an existing structure or trees to be removed or trimmed prior to construction.

Overwintering populations of monarch butterflies have not been documented onsite and they were not observed during the biological survey. No impacts to potentially suitable habitat for monarch butterflies are anticipated as a result of the Project.

Vegetation present on the CUP sites, as well as the existing utility poles and buildings/structures may support the nesting activities of raptors and other migratory and

resident bird species. Nesting bird activity was observed on the CUP sites during the biological survey. Similarly, ground-nesting bird species also have the potential to occur. If new construction, vegetation maintenance, or tree removal activities are conducted during the nesting season (February 1 through August 31), there is a potential that nesting birds could be impacted by Project activities. Ground-disturbing construction activities could directly affect birds and their nests through the removal of habitat on the Project site and indirectly through increased noise, vibrations, and human activity. Ongoing operations could have a *potentially significant* impact on nesting birds if vegetation management activities occur during the nesting season. New Project activities could have a *potentially significant* impact on nesting birds if construction or vegetation management activities occur during the nesting season.

Mitigation Measure BIO-1: Pre-construction Bat Surveys. If existing structures or trees will be demolished or removed from the CUP sites that have potential for bats, a pre-construction bat survey shall be conducted to avoid take or other adverse impacts to bats classified as SSC or to maternity colonies of non-SSC bat species. A qualified bat biologist shall be retained to conduct a bat habitat assessment to evaluate structures proposed for demolition, or tree removal that could potentially provide bat roosting habitat as result of the Project. The bat habitat assessment shall be conducted no less than 30 days prior to the start of Project activities. If no suitable roosting habitat is identified, no further measures are necessary. If suitable roosting habitat and/or signs of bat use are identified during the assessment, focused surveys shall be conducted by a qualified bat biologist to determine the approximate size of the colony(s) and species present. Focused surveys shall include a combination of nighttime emergence counts and acoustic techniques appropriate for the roosting habitat and time of year. If focused surveys determine the presence of roosting bats within structures or trees, a Bat Management Plan that includes Project-specific avoidance and minimization measures to reduce impacts to roosting bats shall be prepared by a qualified bat biologist prior to the commencement of construction activities. The Project-specific Bat Management Plan may include any of the following as necessary and appropriate to the findings of the focused surveys: spatial and temporal avoidance measures, no-disturbance buffers, passive exclusion of bats outside of the maternity season (if necessary). The avoidance and minimization measures in the Bat Management Plan shall be implemented during structure demolition/removal and tree removal activities.

Mitigation Measure BIO-2: Pre-construction Nesting Bird Surveys. When feasible, new construction, new Project ground-disturbing activities, vegetation management, and tree removal shall be conducted during the non-breeding season for birds (approximately September 1 through January 31) to avoid impacts on nesting birds. If activities with the potential to disrupt nesting birds are scheduled to occur during the bird breeding season (February 1 through August 31), a pre-construction nesting bird survey shall be conducted by a qualified biologist who is experienced in the identification of avian species and conducting nesting bird surveys no more than 3 days prior to the start of the construction, vegetation

management, or tree removal activities. The nesting bird survey shall include the areas where the activities will occur and adjacent areas where the activities have the potential to cause indirect impacts to nesting birds. If nesting birds are not observed during the survey, construction activities, vegetation management, or tree removal may begin. If nesting birds (including nesting raptors) are observed during the survey, avoidance or minimization measures shall be implemented by the Project biologist to avoid potential Project-related impacts to active nests. Measures may include but not be limited to biological monitoring during the activities, seasonal work restrictions, or establishment of a no-work buffer around active nests until nesting has been completed as determined through periodic nest monitoring conducted by the biologist. The size of the no-work buffer shall be determined by the Project biologist (depending on the species) until the juveniles have fledged and there has been no evidence of a second attempt at nesting, as determined by the Project biologist.

Residual Impacts

Incorporation of **MM BIO-1** and **MM BIO-2** would ensure that appropriate surveys are conducted for special status species and measures are in place to reduce potential impacts on special status species, if present, to a less than significant level. MM BIO-1 would be implemented prior to removal of existing structures or trees on the CUP sites that have potential for bats, to avoid take or other adverse impacts to special status bats or to maternity colonies of native bat species. To avoid impacting nesting birds during new construction or vegetation management activities, MM BIO-2 would be implemented during the nesting season.

BIO (b). Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. No riparian habitat or other sensitive natural communities are present at the CUP sites. Therefore, no impact would occur as a result of ongoing operations, which would occur within the existing CUP sites.

Construction and operations related to new Project activities would also occur entirely within the boundaries of the existing CUP sites, and therefore no impacts on riparian habitat or sensitive communities would occur.

BIO (c). Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. There are no wetlands located on or in the vicinity of the CUP sites. Therefore, the ongoing operations, which would occur within the existing CUP sites, would have no impact.

Construction and operations related to new Project activities would also occur entirely within the boundaries of the existing CUP sites, and therefore there would be no impact on wetlands.

BIO (d). Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation. The CUP sites do not currently function as wildlife movement corridors. The CUP sites are disturbed/developed and do not support native habitat that would support wildlife movement. In addition, the existing fencing and gates on the sites and the surrounding roads and urban development are not conducive to wildlife movement. Wildlife may use the limited vegetation on the CUP sites during local movement, but the sites are not part of a regional wildlife movement corridor or a corridor between natural habitat areas. Continued operations would not result in impacts on wildlife movement. New Project activities, including drilling and operation of new wells, and modifications to the gas plant at CUP Site #2 would not result in impacts on wildlife movement.

Impacts to maternity roosting sites of any native bat species, regardless of status, may be considered a significant impact to a native wildlife nursery site. Evidence of the presence of roosting bats was not observed on any of the CUP sites during the biological reconnaissance survey. However, potential suitable roosting habitat for bats is present in the existing structures/buildings (CUP Sites #5, #6 and #7) and ornamental trees on the CUP sites. Because suitable habitat is present, ongoing operations could have a *potentially significant* impact on a maternity roost site if present in trees to be removed or trimmed.

Because suitable habitat is present at the CUP sites, new Project activities could have a *potentially significant* impact on a maternity roost site if present in an existing structure or trees to be removed or trimmed as part of construction.

Residual Impacts

Incorporation of **MM BIO-1** would ensure that measures are in place to reduce potential impacts on a native wildlife nursery site to a less than significant level. Prior to removal of existing structures or trees on the CUP sites that have potential for bats, surveys would be conducted to determine if bats are present and to ensure impacts to any bat maternity roosts do not occur.

BIO (e). Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. There are no local policies for protection of biological resources which are applicable to the Project area, which is disturbed/developed with non-native vegetation present. Ornamental trees, which are a requirement under the City's conditions of approval and Oil and Gas Code, may require maintenance or removal as part of ongoing operations, and those activities would be done in accordance with City requirements. Therefore, no impact would occur as a result of continued ongoing operations.

New Project activities may require trimming or removal of vegetation prior to construction activities. However, since these activities would be done in accordance with conditions of approval and City requirements, there would be no impact.

BIO (f). Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. No habitat conservation plans or natural community conservation plans are adopted which cover the CUP sites. The CUP sites are all previously disturbed and developed sites that have been actively used for oil and gas production and processing for the past two decades. Non-native vegetation and ornamental trees are the primary vegetation located on and adjacent to the CUP sites. No native habitat is present which is subject to a conservation plan. Therefore, no impacts on conservation plans for biological resources would result from continued operations of the drill sites.

New Project activities would occur entirely within the developed CUP sites which do not support native habitat. No impacts would occur from drilling or operation of new wells or installing upgrades to the gas plant that would conflict with conservation plans.

3.5 Cultural Resources

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.5.1 Environmental Setting

Cultural resources include the locations of human activity, occupation, or usage that contain materials, structures, or landscapes that were used, built, or modified by people. Cultural resources consist of a variety of prehistoric and historic archaeological resources including sites, objects, buildings, structures, districts, and properties of religious and cultural significance including traditional cultural properties. Historic properties, as defined in 36 CFR 800, the implementing regulations of the National Historic Preservation Act (NHPA), are cultural resources that meet the criteria to be included in or eligible for inclusion in the National Register of Historic Places (NRHP).

The Environmental Resources Element of the Signal Hill General Plan describes historical resources located in Signal Hill, which include oil development and historical structures. Oil was discovered in 1921 and provided the City with the financial resources to develop. The discovery led to speculative oil development of the area and resulted in one of the largest historical oil fields in the state. The first well, Alamitos #1 Discovery Well (Historic Landmark # 580), located at the northeast corner of Hill Street and Temple Avenue, is designated as a state historical monument (City 1986). Alamitos #1 Discovery Well is located approximately 0.14 miles south of CUP Site #5 and 0.43 miles northwest of CUP Site #6. No designated Los Angeles County historical landmarks are located within any CUP site (ECORP 2022b).

A records search of the California Historical Resources Information System (CHRIS) was conducted on July 25, 2022, with the South Central Coastal Information Center at the California State University-Fullerton. The purpose of the records search was to determine the extent of previous surveys within the boundaries of the CUP sites, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural

properties exist within the Project area. In addition to the records search, a review of historic maps and aerial photographs was also conducted.

The CUP sites are all located on previously disturbed and developed parcels. The CHRIS records search results indicated that approximately 45 percent of the CUP sites have been previously surveyed for cultural resources. Previous studies included the entire area for CUP Site #1, #2, and #3. There are no known resources on file at the South Central Coastal Information Center or listed on the NRHP or CRHR within CUP Sites #1 and #3. However, the records search results show that one resource overlaps CUP Site #2. Although this resource has been determined eligible for listing, it is not currently listed in the NRHP (ECORP 2022b).

CUP Sites #4, #5, #6, and #7 have not been previously surveyed for cultural resources. There are no previously recorded resources located on these CUP sites on file at the South Central Coastal Information Center. In addition, there are no known resources listed on the NRHP or CRHR within these sites.

3.5.2 Regulatory Setting

3.5.2.1 National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires that every federal agency "take into account" how each of its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register of Historic Places (National Park Service 2012).

3.5.2.2 California Register of Historical Resources: California Environmental Quality Act and California Public Resources Code

The cultural resources provisions of CEQA provide for the documentation and protection of significant prehistoric and historic-era resources. Before the approval of discretionary projects and the commencement of agency undertakings, the potential impacts of the project on archaeological and historical resources must be considered (PRC Sections 21083.2 and 21084.1 and the CEQA Guidelines [CCR Title 14, Section 15064.5]). The significance of an archaeological or historical resource per the CEQA Guidelines is an important consideration in terms of their management. Listing on the CRHR, or eligibility for listing on the CRHR, is the primary consideration in whether or not a resource is subjected to further research and documentation. The significance of cultural resources is measured against the criteria outlined in the CRHR. Determining the CRHR eligibility of historic and prehistoric sites located within the study area is guided by the specific legal context of the site's significance as outlined in PRC Sections 21083.2 and 21084.1 and the CEQA Guidelines (CCR Title 14, Section 15064.5). In the CRHR cultural resources are defined as buildings, sites, structures, or objects that may have historical,

architectural, archaeological, cultural, or scientific importance. A cultural resource may be eligible for listing on the CRHR if it:

- a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- b. Is associated with the lives of persons important in our past;
- c. Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or
- d. Has yielded, or may be likely to yield, information important in prehistory or history.

The significance of a prehistoric archaeological resource is normally defined relative to criterion (d), and its ability "to yield, information important in prehistory." This is assessed by the type of information the resource may inform about research questions that explain prehistoric behavior. As a result, the condition or "integrity" of a prehistoric resource is critical; if the resource has been damaged and/or its original horizontal and/or vertical depositional context has been disturbed, it is possible that the ability of that resource to contribute to understanding prehistoric behavior has been compromised.

The significance of an historic-era archaeological resource and/or a built architectural resource is commonly associated with any of the four criteria listed above. Relative to criterion (d), such a resource is not normally considered "important in history" if it is less than 50 years old, given that it would otherwise not be sufficiently unique in terms of its number and distribution. The integrity of an historic-era archaeological resource is also a factor relative to its potential significance, similar to a prehistoric archaeological resource.

As a matter of policy, public agencies avoid damaging effects on historic and archaeological resources, particularly those that are CRHR-eligible. When impacts cannot be avoided, their effects can be mitigated through avoidance during construction phases, incorporation of a site into open space, capping resources with stable fill, deeding a site into a conservation easement, or data recovery through archaeological testing and excavation (CEQA Guidelines Section 15126.4 (b)(3)).

CEQA Guidelines also require consideration of unique archaeological sites (Section 15064.5). If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archaeological resource as outlined in the PRC Section 21083.2, it may be treated as a significant historical resource. Treatment options under Section 21083.2 include preserving such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation, or study in place without excavation and curation if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource".

CEQA Guidelines Section 15064.5(e) of the State also requires that excavation activities stop whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the coroner determines that the remains are those of Native Americans, the NAHC must be contacted within 24 hours. At that time, CEQA Guidelines Section 15064.5(d) directs the lead agency to consult with the appropriate Tribe(s) as identified by the NAHC and directs the lead agency (or applicant) to develop an agreement with the Tribe(s) for the treatment and disposition of the remains.

3.5.2.3 California Health and Safety Code Sections 7050.5 and 7052

In accordance with the California Health and Safety Code Sections 7050.5 and 7052, if human remains are uncovered during ground-disturbing activities, all such activities in the vicinity of the find shall be halted immediately, and the City's designated representative would be notified. SHP's representative would immediately notify the City planner, county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]).

3.5.2.4 California Public Resources Code Section 5097.9

The City's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. If remains are discovered, SHP would contact the City and the City or its appointed representative and the professional archaeologist shall contact the Most Likely Descendent (MLD), as determined by the NAHC, regarding the remains. The MLD, in cooperation with the City, would determine the ultimate disposition of the remains.

3.5.2.5 Signal Hill General Plan

The Environmental Resources Element (1986) of the Signal Hill General Plan addresses cultural resources in goals and policies, as outlined in Table 3.5-1.

Table 3.5-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Environmental Resources	Goal 2: Maintain and enhance the City's unique cultural, aesthetic and historic areas.	Policy 2.1: Protect and enhance the State Historical Landmark at the Alamitos Well Site # 1.	Project areas are not located within this historical landmark site and would not impact it.

Element	Goal	Policy	Applicability
		Policy 2.2: Protect and enhance architectural resources in the City consistent with their significance and importance. Develop ways of encouraging these resources to remain intact as the City grows and develops.	CUP drill sites do not contain significant architecture resources, and continued operation of drill sites would not impact architectural resources in the City.

Source: City 1986

3.5.3 Impact Assessment

CUL (a). Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

Less than Significant with Mitigation Incorporated. The results of the CHRIS records search indicate that 45 percent of the CUP sites have been previously surveyed for cultural resources, with one previously recorded resource located within CUP Site #2. The Lomita Gasoline Company/Petrolane property was determined eligible for listing in the NRHP for local significance under Criteria A and C in 1989. Within the property, the Compressor House is also eligible for listing in the NRHP for local significance under Criterion A.

There are no previously recorded resources located on the other CUP sites (Sites #1 and #3 through #7) on file at the South Central Coastal Information Center or listed on the NRHP or CRHR within these sites. Because approximately 55 percent of the CUP sites have not been previously surveyed for cultural resources, there may be additional cultural resources that did not appear in either the records search or the review of historic maps and aerial photographs.

Ongoing operations would not require new excavation activities and therefore impacts on historical resources would be less than significant.

New Project activities would require excavation during construction for the new well cellars and the foundations for the gas plant modifications, which could result in a *potentially significant* impact if any archaeological features are present.

Mitigation Measure CUL-1: In the event that any archaeological features are discovered during construction, all work shall stop, and a qualified archaeologist shall be notified. The archaeologist shall record the site and work with the City to identify an alternate location within the boundaries of the CUP sites that will avoid impacting cultural resources. The archaeologist shall prepare a report according to current professional standards.

Residual Impacts

Implementation of **MM CUL-1** would reduce potentially significant impacts resulting from inadvertent damage or destruction of unknown historic-era cultural resources during excavation associated with new well cellars required for drilling new wells, and installing upgrades to the gas processing plant to a less than significant level.

CUL (b). Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant with Mitigation Incorporated. CUP Sites #1 through #3 have been previously surveyed for cultural resources. However, approximately 55 percent of the CUP sites (Sites #4 through 7) have not been previously surveyed for cultural resources, and there may be additional archaeological resources that did not appear in either the records search or the review of historic maps and aerial photographs.

Continued operations of the drill sites would not require new excavation activities and therefore no impacts on archaeological resources are anticipated.

New Project activities would require excavation during construction for the new well cellars and the foundations for the gas plant modifications, which could result in a *potentially significant* impact if any archaeological features are present.

Residual Impacts

Implementation of **MM CUL-1** would reduce potentially significant impacts resulting from inadvertent damage or destruction of unknown archaeological resources during continued operations, drilling of new wells, and installing upgrades to the gas processing plant to a less than significant level.

CUL (c). Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant with Mitigation Incorporated. Due to the previously disturbed nature of the CUP sites, encountering and disturbing human remains is unlikely. However, if human remains were discovered during excavation activities, SHP would implement the protocols discussed in Section 3.5.2 above to ensure impacts would be less than significant. If the discovery includes human remains, the County Coroner must be contacted to implement Section 7050.5 of the Health and Safety Code and, if required, Section 5097 et seq. of the Public Resources Code.

Ongoing operations would not require new excavation activities and therefore, no impacts are anticipated.

New Project activities would require excavation during construction for the new well cellars and the foundations for the gas plant modifications, which could result in a *potentially significant* impact if human remains are present.

Residual Impacts

Implementation of **MM CUL-1** would reduce potentially significant impacts resulting from inadvertent damage or destruction of unknown human remains during construction for new wells and installing upgrades to the gas processing plant to a less than significant level.

3.6 Energy

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.6.1 Environmental Setting

Energy capacity, or electrical power, is generally measured in watts while energy use is measured in watt-hours. For example, if a light bulb has a capacity rating of 100 watts, the energy required to keep the bulb on for 1 hour would be 100 watt-hours. If ten 100-watt bulbs were on for 1 hour, the energy required would be 1,000 watt-hours or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts, which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

The existing gas processing and turbine power plants located at CUP Site #2 generate electric power directly, by recycling natural gas produced at SHP's extraction sites. This electricity is then used to power the CUP sites and SHP's other offsite operations to the extent feasible, reducing the need to purchase power from offsite producers. Approximately 4.5 to 5 MW per day (or 70 percent) of the electricity demand for operations is generated onsite, the remainder 1.5 to 2 MW per day is purchased from SCE. During 2020, Southern California Edison delivered a total of approximately 103,597 GWh of electricity to its customers (California Energy Commission 2022a).

3.6.2 Regulatory Setting

3.6.2.1 Corporate Average Fuel Economy Standards

Congress enacted the Corporate Average Fuel Economy standards in 1975 to reduce energy consumption and increase the fuel economy of cars and light trucks. Corporate Average Fuel Economy standards are regulated by the Department of Transportation National Highway Traffic and Safety Administration (NHTSA) and the USEPA calculates fuel economy levels and sets related GHG standards. Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to

combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction of CO₂ emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of vehicles. USEPA and NHTSA have also adopted the Phase 2 medium- and heavy-duty vehicles standards, which cover certain trailers for model years 2018 through 2027 and semi-trucks, large pickup trucks, vans, and all buses and work trucks with model years 2021 through 2027. These standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles (DOT 2014, USEPA 2022a).

3.6.2.2 Energy Policy Act of 2005

The Energy Policy Act of 2005 addresses energy production in the U.S, including: energy efficiency; renewable energy; oil and gas; coal; tribal energy, nuclear matters and security; vehicles and motor fuels; hydrogen; electricity; energy tax incentives; hydropower and geothermal energy; and climate change technology. A provision of the Energy Policy Act is that it provides loan guarantees for entities that develop or use innovative technologies to avoid production of greenhouse gases. It also increases the amount of biofuel that must be mixed with gasoline sold in the U.S. (USEPA 2022b).

3.6.2.3 Senate Bill 1389

SB 1389 (Public Resources Code Sections 25300–25323) requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report to assess major energy trends and issues facing the state’s electricity, natural gas, and transportation fuel sectors and provide policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state’s economy; and protect public health and safety (Public Resources Code Section 25301[a]). CEC’s 2021 Integrated Energy Policy Report provides findings and recommendations for energy issues facing the state, including energy efficiency and reliability, decarbonizing buildings and California’s natural gas system, forecasting California’s energy demand, and quantifying the benefits of clean transportation programs, such as California’s transition to zero-emission vehicles. The 2021 report also provides trend updates for California’s sources of crude oil and nuclear plants (CEC 2021).

3.6.2.4 Senate Bill 350, Clean Energy and Pollution Reduction Act

SB 350 established clean energy, clean air, and GHG reduction goals, which included reducing GHGs to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050. The CEC works with other state agencies, including the California Public Utilities Commission, CARB, and the California Independent System Operator to implement this bill. SB 350 increases the state’s renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030, which will increase the use of Renewables Portfolio Standard eligible resources including

solar, wind, biomass, geothermal, and others. In addition, California is required to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To meet these goals and reduce GHG emissions, the CEC will require large utilities to develop and submit integrated resource plans, which detail how utilities will meet their customers' resource needs, reduce GHG emissions, and increase clean energy resource use (CEC 2022b).

3.6.2.5 CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to DPM emissions (Title 13 California Code of Regulations Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emissions standards for off-road diesel construction equipment greater than 25 horsepower (hp) such as loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, encourages the retirement, replacement, or repower of older engines with newer emissions-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

3.6.2.6 Assembly Bill 1575

Assembly Bill (AB) 1575 was adopted in 1975 by the California State Legislature and amended Public Resources Code Section 21100(b)(3) to require EIRs to consider the wasteful, inefficient, and unnecessary consumption of energy resources caused by a project. Since the passage of AB 1575, the California Natural Resources Agency finalized updates to the CEQA Guidelines in December 2018. New CEQA Guidelines Section 15126.2(b) treats "wasteful, inefficient, or unnecessary" energy consumption as a significant environmental impact.

3.6.2.7 Assembly Bill 1493

AB 1493, was passed in 2002, in response to the transportation sector accounting for a majority of California's greenhouse gas (GHG) emissions. It requires CARB to adopt regulations and set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles

manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase 1 of the legislation established standards for model years 2009 through 2016 and Phase 2 established standards for model years 2017 through 2025 (CARB 2022d).

3.6.2.8 Signal Hill General Plan

The Environmental Resources Element (1986) of the Signal Hill General Plan generally addresses resource conservation issues, including for energy, in goals and policies as outlined in Table 3.6-1. The Land Use Element (2001) includes an implementation measure for its goals/policies which is related to energy.

Table 3.6-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Environmental Resources	Goal 7: Maintain and provide information to the community on environmental problems, opportunities, progress and issues.	Policy 7.1: Disseminate information about the values of alternative energy technology, including use of solar energy in Signal Hill. Policy 7.2: Develop a public information program in conjunction with the oil production industry to explain programs and progress toward improving the resource production/urban development interface.	The majority of the General Plan policies, goals, and implementation measures related to energy are general in nature. These policies are potentially applicable to the Project.
Land Use	Implementation Measure 51 for Goals/Policies	The City will consider adopting energy conservation regulations consistent with state law and local needs.	The Project area would be subject to City regulations.

Source: City 1986, 2001

3.6.2.9 Signal Hill Sustainability Programs

The City implements a variety of programs and frameworks meant to promote sustainable practices including those related to reduced fossil fuel consumption and increased use of renewable energy sources. The City supports Energy Upgrade California, which is a statewide initiative which encourages people to integrate energy management practices into their daily lives. Signal Hill urges residents and small businesses to become more conscious about energy use. Specific sustainability policies promoted by the City include the following: Municipal Green Building, Electrical Vehicle Charging Station, and the Sustainable Purchasing policies (City 2022a). The goals and policies outlined within the City's sustainability programs are generalized and not specific to the Project. However, the Project would continue to incorporate energy saving infrastructure and operational procedures as feasible, to reduce the existing and future energy consumption associated with CUP 97-03, as applicable and required by City regulations.

3.6.3 Impact Assessment

ENG (a). Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant. SHP would continue their existing operations at the current activity level for the duration of the CUP extension. Ongoing operations would not include modifications to the natural gas processing facility or the resulting increase in efficiency. Fuel energy consumed during redrilling operations would be temporary and would not represent a substantial demand on energy resources. In addition, energy conservation would occur through compliance with the CARB anti-idling and emissions regulations that require that equipment not used for more than five minutes be turned off. Compliance with this regulation would result in less fuel combustion and energy consumption and thus minimize the Project's redrilling-related energy use. Ongoing operations are not expected to have an environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

As described in Section 2, as part of the new Project activities, SHP proposes to install upgrades to the natural gas processing facility at Drill Site #2 to promote efficiency and redundancy in operations. The equipment modifications, as specifically described in Section 2 of this document, would include installation of the following equipment: (1) a sales gas booster compressor; (2) a redundant low temperature separation (LTS) unit; (3) a redundant CO₂ capture and sequestration unit ("CO₂ unit"); and, (4) a Cimarron certified ultra-low emissions "CEB 800" burner. The redundant LTS and CO₂ units would allow the gas processing facility to remain online during intermittent periods of maintenance or repairs. Additionally, operating the old and new units in parallel would also increase the efficiency of the facility. The new units would be sized for handling 2,000 thousand standard cubic feet per day of natural gas each and would be installed contiguous to the existing equipment. In addition, the CEB 800 burner uses proprietary technology for ultra-low emission combustion of waste gas streams (99.9% volatile organic compound [VOC] destruction). The current gas facility operation generates a low volume high BTU/high VOC waste gas stream that currently has to be cycled back through the processing facility, which frequently causes process upsets. Diverting the waste gas stream to the CEB 800 burner would improve overall plant operation, efficiency, and reliability. Further, SHP would continue to offset approximately 70 percent of their energy consumption through production of electricity at natural gas-powered turbine/electric generation facility located at CUP Site #2. The electrical generation facility is powered by natural gas produced by SHP's extraction sites, which reduced SHP's need to purchase offsite power.

For drilling of new wells, SHP currently uses two rigs for their operations, depending on the depth to be drilled. The lighter-duty drilling rig is SHP's Rig #5. This rig has a 2008 Cameron/Hubbard C-500 drawworks and mast powered by a 450 horsepower (hp) USEPA Tier 4

engine. The remainder of Rig #5's equipment is eclectically powered. SHP's Rig #6 is a heavier-duty drilling rig with a 1,000 hp electrically powered drawworks motor. All of Rig #6's equipment is electrically powered. On average, SHP utilizes Rig #5 and Rig #6 (all electric) evenly (each rig is used about 50 percent of the time during redrilling). Fuel energy consumed during drilling of new wells would be temporary and would not represent a substantial demand on energy resources. In addition, energy conservation would occur through compliance with the CARB anti-idling and emissions regulations that require that equipment not used for more than five minutes be turned off. Compliance with this regulation would result in less fuel combustion and energy consumption and thus minimize the Project's drilling-related energy use. Project construction equipment would also be required to comply with USEPA and CARB engine emission standards. These emission standards require highly efficient combustion systems to maximize fuel efficiency and reduce unnecessary fuel consumption. Accordingly, the new Project activities are not expected to have an environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during construction or operations and impacts would be less than significant. This potential impact will be addressed in greater detail in the EIR.

ENG (b). Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant. Ongoing operations would occur within an active oil field at the existing facilities and would not conflict with or obstruct any state or local renewable energy or energy efficiency plans. In addition, approximately 70 percent of all electricity required for operations is currently provided by the natural gas-powered turbine/electric generation facility located at CUP Site #2, reducing the need to purchase offsite power. The facility is powered by natural gas produced by SHP's extraction sites. Therefore, impacts are expected to be less than significant.

New Project activities would occur within an active oil field at the existing facilities and would not conflict with or obstruct any state or local renewable energy or energy efficiency plans. The modifications to the natural gas processing facility would improve efficiency, but would not increase the total quantity of natural gas produced/extracted. Therefore, impacts are expected to be less than significant. This potential impact will be addressed in greater detail in the EIR.

3.7 Geology and Soils

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.7.1 Environmental Setting

3.7.1.1 Geology and Soils

The City of Signal Hill is located in the Peninsular Ranges Geomorphic Province within an area known as the Los Angeles Coastal Plain. Signal Hill is a surface expression of the northwesterly Newport-Inglewood structural fault zone and is underlain by thousands of feet of marine and nonmarine sediments that rest above metamorphic basement rock. The current surface expression of the area consists of Holocene- and Pleistocene-age sediments. Generally, the sediments present in Signal Hill are composed of weathered alluvium and are classified as silts

and sands (City 1986). The dominant geologic unit is Qop which is comprised of old paralic deposits consisting primarily of silt and sand with scattered gravel and fossiliferous lenses, capped locally with a reddish-brown weathered (soil) zone of clayey silt to clayey sand. This unit is described as being potentially corrosive to concrete, having limited expansion potential, and moderate expansion potential in clayey sections (City 2016). The remainder of Signal Hill consists of Qya and Qyfa geologic units. Qya consists of young alluvial floodplain deposits composed mostly of soft clay, silt and loose to moderately dense sand and silty sand. Qyfa consists of young alluvial fan and valley deposits composed of clay, sand, gravel and cobbles. These units have localized areas of moderate to high expansion potential and are considered to have a higher potential for liquefaction. Areas mapped as these units are those areas which the CDOC mapped as liquefaction zones. All of the CUP sites are situated within the Qop soil type (City 2016). The geologic units designated in Signal Hill are shown in Figure 3.7-1 and described in Table 3.7-1.

Table 3.7-1: Geologic Units in Signal Hill

Unit	Description
Qop	Old paralic deposits (late to middle Pleistocene; include the Lakewood Formation, terrace deposits, and Palos Verdes sand) – In the Signal Hill area, these are composed primarily of silt and sand with scattered gravel and fossiliferous lenses, capped locally with a reddish-brown weathered (soil) zone of clayey silt to clayey sand. These interfingering strandline, beach, estuarine, and colluvial deposits are mostly poorly sorted, moderately permeable, and medium dense to dense. The silt and sand sections, where exposed in slope faces, are susceptible to erosion and surficial slumping; the clayey sections may have a moderate expansion potential. May be corrosive to concrete.
Qya	Young alluvial floodplain deposits (Holocene and Late Pleistocene) – Composed mostly of soft clay, silt and loose to moderately dense sand and silty sand. These deposits are mostly poorly consolidated, poorly sorted, and permeable, and therefore potentially susceptible to liquefaction and differential settlement. Locally, these deposits may have a moderate to high expansion potential.
Qyfa	Young alluvial fan and valley deposits (Holocene and Late Pleistocene) – Composed of clay, sand, gravel and cobbles. These deposits are mostly poorly consolidated and poorly sorted, and are therefore compressible, potentially susceptible to collapse, liquefaction, and seismically-induced differential settlement. Locally, these deposits may have a moderate to high expansion potential.
Not mapped	Artificial fill (compacted and uncompacted) – deposits of various thicknesses are known to occur locally in the Signal Hill area but are not mapped in the General Plan. These deposits are typically associated with petroleum exploration and drilling activities, grading, and construction. Fills impacted with petroleum hydrocarbons and heavy metals may be encountered in areas that were previously part of an oilfield. These deposits are mostly poorly consolidated, poorly sorted, potentially compressible, and may have a moderate to high expansion potential.

Source: City 2016

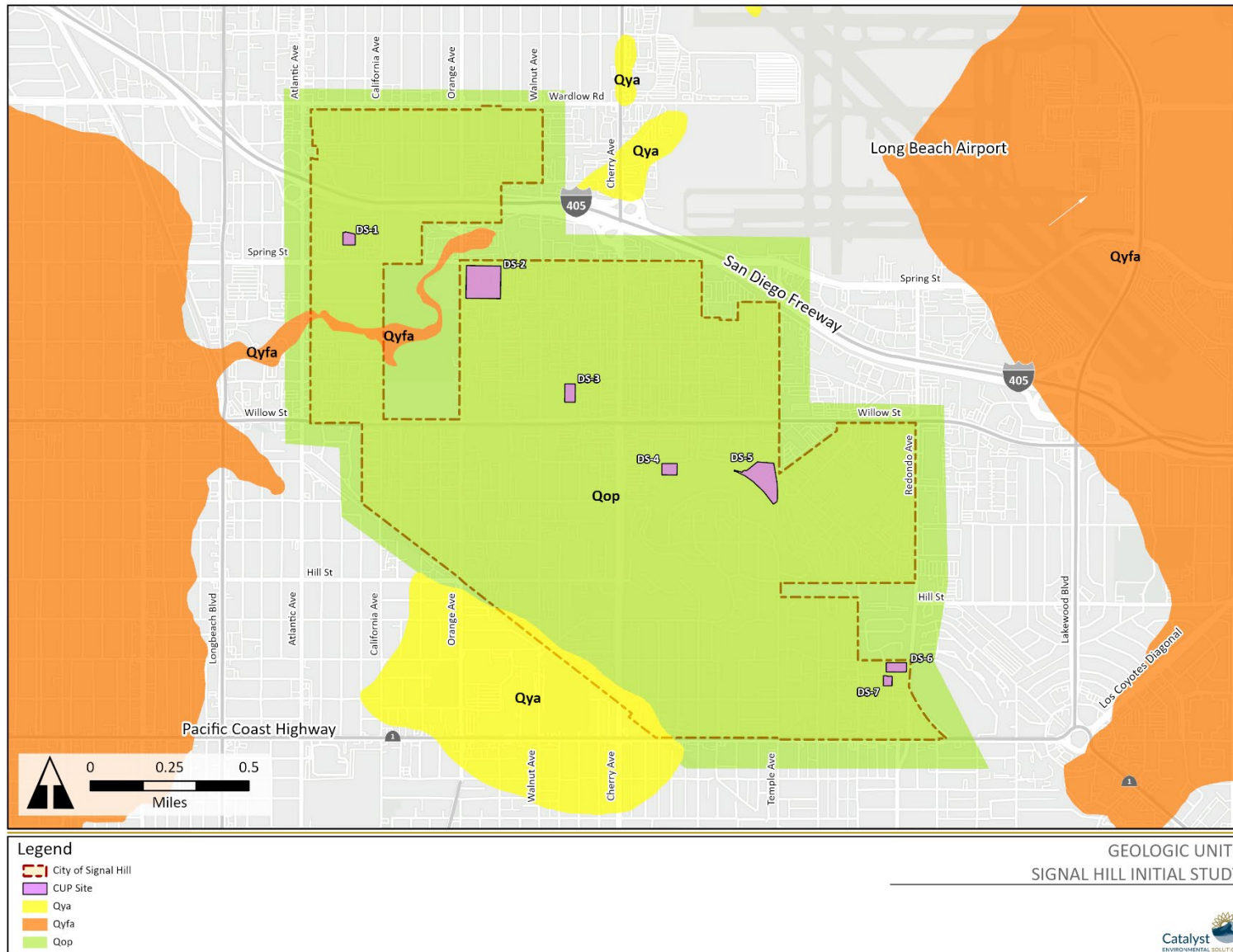


Figure 3.7-1: Geologic Units Designated in Signal Hill

3.7.1.2 Faulting and Seismicity

The City of Signal Hill is located in a seismically active region, and major regional faults create the risk of substantial earth shaking and potential ground rupture in the area. Within Los Angeles County, there are over 50 active and potentially active fault segments, an undetermined number of buried faults, and at least four blind-thrust faults capable of producing damaging earthquakes. Earthquakes and associated ground shaking present a multitude of potentially dangerous consequences that can include ground rupture, ground failure, liquefaction, and landslides.

The California Geological Survey defines an active fault as a fault showing evidence for activity within the last 11,000 years. The Newport-Inglewood Fault System is a seismically active system that cuts diagonally across Signal Hill. This fault is the most significant seismic feature in the area and contains five faults which are within or in the immediate vicinity of Signal Hill, four of which are active or potentially active (Cherry Hill, Pickler, Northeast Flank, and Reservoir Hill faults) (City 2016) as shown in Figure 3.7-2. The Newport-Inglewood Fault System is designated as an Alquist-Priolo fault zone (City 2016). CUP Sites #4 through #7 are located within an Alquist-Priolo fault zone. CUP Sites #1, #2, and #3 are not located within an Alquist-Priolo fault zone (CDOC 2021).

The CDOC maps earthquake hazard zones, which are defined areas subject to the following three types of geologic ground failures: (1) fault rupture, where the surface of the earth breaks along a fault; (2) liquefaction, in which the soil temporarily turns to quicksand and cannot support structures; and, (3) earthquake-induced landslides (CDOC 2021). As shown in Figure 3.7-3, limited areas within the City of Signal Hill pose potential seismically-induced landslide and liquefaction risks. None of the CUP sites are located within a liquefaction zone. A small portion of CUP Site #5 is located within a seismically induced landslide zone. None of the other CUP sites are located within areas susceptible to seismically induced landslides (CDOC 2021, City 2016).

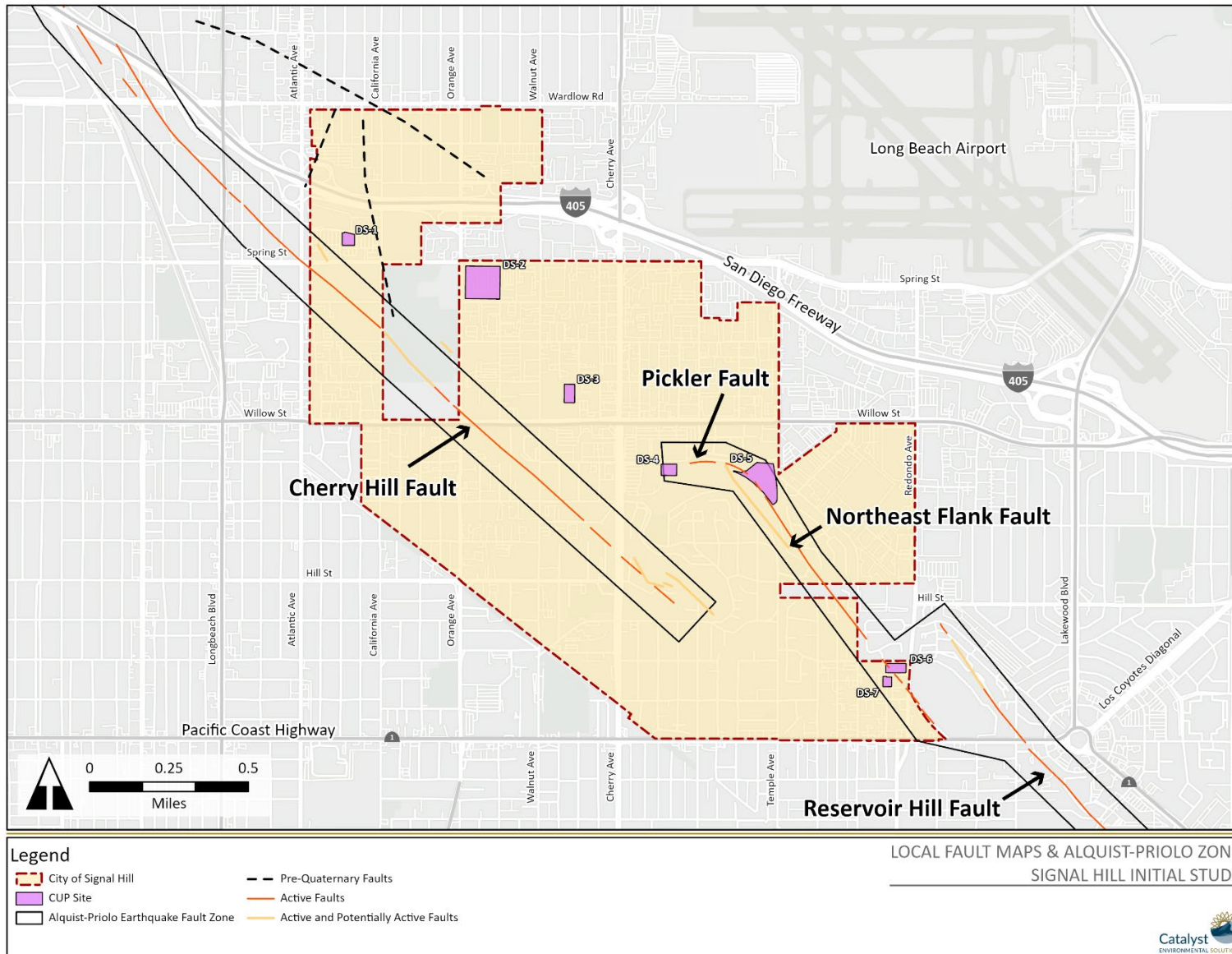


Figure 3.7-2: Designated Fault Zones in Signal Hill

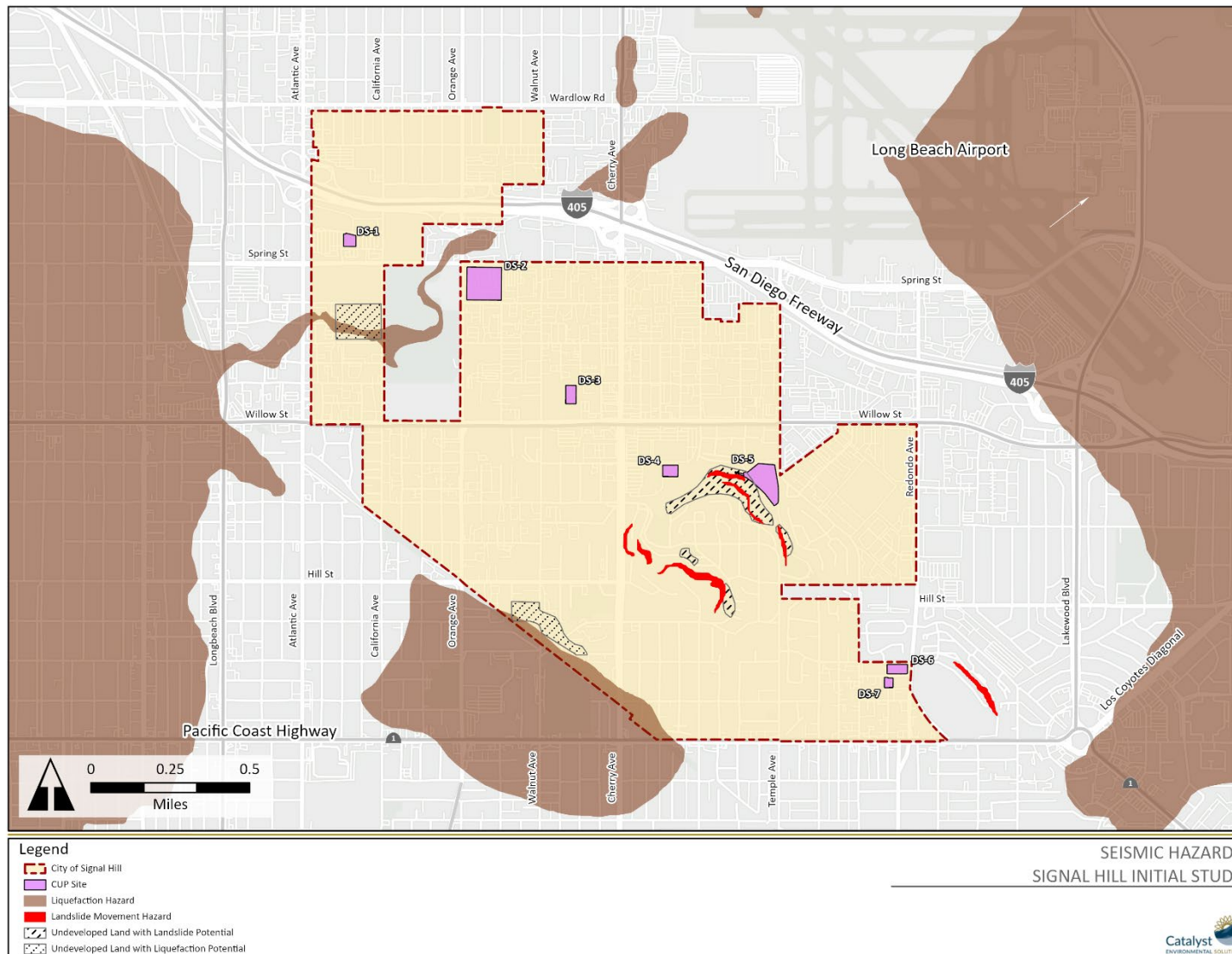


Figure 3.7-3: Liquefaction and Landslide Movement Hazards in Signal Hill

3.7.1.3 Landslides

Unstable hillslopes are areas susceptible to landslides. Landslides consist of the downslope movement of soil and rock under the influence of gravity. The geologic and topographic features of the landscape are the primary determinants of the shear strength of the hillslope materials (i.e., resistance to landslides) and hillslope shear stress (i.e., propensity for landsliding). Landslides occur when the shear stress exceeds the shear strength of the materials forming the slope (Highland and Bobrowsky 2008). The best indicator of high landslide potential is evidence of previous landsliding (Highland and Bobrowsky 2008). Landslides can be classified as active or dormant, based on how recently they have moved. Active landslides typically display cracks or sharp, bare scarps. Vegetation is usually sparser on active landslides than on adjacent stable ground, and if trees are present, they are usually leaning, indicating that ground movement has occurred since they became established. Dormant landslide features have typically been modified by weathering, erosion, and vegetative growth and succession. Active landslides are generally more unstable than dormant landslides and may require mitigation measures to avoid mobilization. Excavation, the use of heavy equipment, soil saturation, or the removal of root support can mobilize active landslides. Although dormant landslides are less likely to be mobilized by human activities, portions of dormant landslides (e.g., their steep headwalls and margins) are often unstable.

As shown in Figure 3.7-3, areas that are susceptible to landslides are located in areas of higher elevation within Signal Hill. The City was most recently impacted in 1998 when a portion of steep, unstable natural slope below Panorama Drive eroded due to heavy El Niño rains (City 2016). As stated in the City General Plan Safety Element (2016), no significant landslide events have occurred in the City of Signal Hill since the adoption of the 2012 Mitigation Plan. There are two remaining areas with landslide potential in the City, one is located north of Panorama Drive and the other is located southwest of Sunset View Park (City 2016). A small portion of CUP Site #5 is located immediately adjacent to a seismically induced landslide zone and within an area of undeveloped land with landslide potential. None of the other CUP sites are located within areas susceptible to seismically induced landslides or within a liquefaction zone (CDOC 2021, City 2016).

3.7.1.4 Subsidence

Subsidence is the sinking or gradual lowering of the earth's surface. Natural geologic causes of subsidence include basin-downwarp, fault movement, sediment compaction, and relaxation of deep earth stresses. Man-made causes include groundwater pumping, mining, oil and gas production, river channelization, and surface loading (City 2016).

The Port of Long Beach area experienced significant subsidence historically, primarily due to oil and gas extraction in the Wilmington Oilfield (City 2016). To address subsidence, the City of Long Beach successfully tested waterflooding and repressuring operations, which halted the

subsidence and mostly stabilized surface elevations (Baghdikian et al. 2010). To prevent further subsidence, water was injected into areas where oil was removed. The City of Long Beach instituted a water injection volume equal to 105% of the total volume of produced fluids (oil, gas, and water) to prevent further reservoir compaction and subsidence (Baghdikian et al. 2010). The maximum elevation loss was 29 feet, which created a land surface “subsidence bowl”, the extent of which affected the Signal Hill area by up to 2 feet as shown in Figure 4.7-4 (Baghdikian et al. 2010, City of Long Beach 2022). CUP Sites #5, #6, and #7 are located within the portion of Signal Hill that was affected by the identified subsidence up to 2 feet, and the other CUP sites are located outside the affected area. Surface elevation is monitored annually in the City of Long Beach, which found that elevations throughout the Alamitos Bay, Naples, Central City, Civic Center, the offshore islands, and the City of Long Beach north of the Wilmington Oil Field (area closest to Signal Hill CUP sites) were stable during the 12-month period of November 2020 through November 2021 (City of Long Beach Energy Resources Department 2021).

The Wilmington Oilfield is located deeper underground than the Long Beach Oilfield (within which the CUP sites are located), therefore, Signal Hill is not subject to the same subsidence concerns as the Port of Long Beach area (City 2016). However, as part of current operations for the CUP drill sites, SHP employs the same strategy of injecting water into the oil formation, which minimizes the risk of future subsidence resulting from oil extraction in Signal Hill (City 2016). All injection activities are conducted in accordance with SHP’s approved Class II Underground Injection Control (UIC) permit and CalGEM updated UIC regulations (adopted April 2019), which requires that injected fluids are confined both vertically and horizontally to the intended formation and which specifies both the total volume of fluid that may be injected and the rate at which injection may occur.

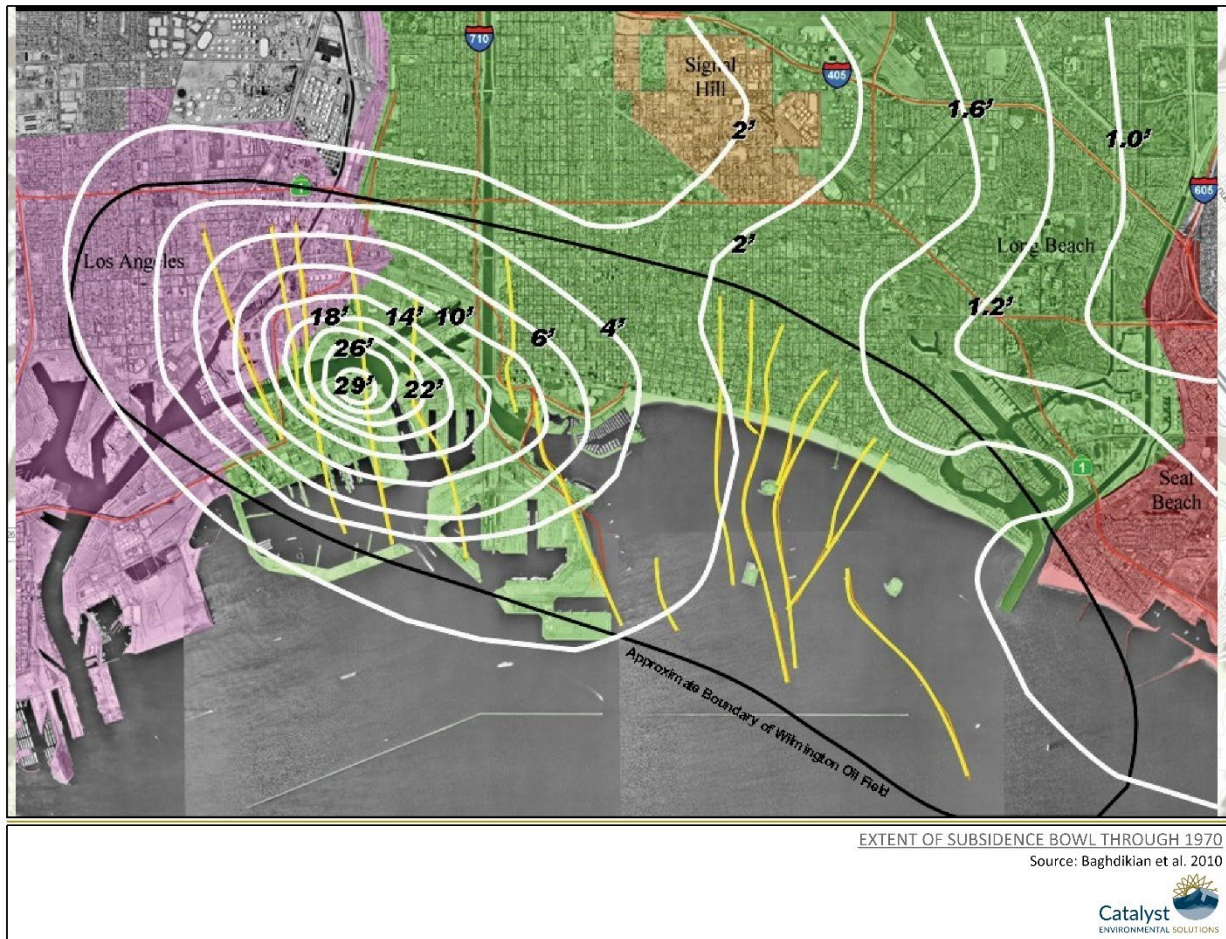


Figure 3.7-4: Extent of Subsidence Bowl through 1970

3.7.1.5 Paleontological Resources

The majority of the City of Signal Hill is underlain by old paralic deposits of late to middle Pleistocene age which have the potential to include paleontological resources as marine mollusks have been observed in these deposits in Signal Hill (PCR 2017). Accordingly, excavations into these deposits have the potential to encounter paleontological resources.

3.7.2 Regulatory Setting

3.7.2.1 Alquist-Priolo Earthquake Fault Zoning Act, California Public Resources Code Sections 2621– 2630

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC Sections 2621–2630) was passed in 1972 to reduce the hazard of surface faulting on structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones

around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. Because the Project would not involve the construction of any buildings, Project activities are not subject to permitting approvals based on this act.

3.7.2.2 California Public Resources Code

PRC, Chapter 1.7, Sections 5097.5 and 30244, include additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, define the removal of paleontological “sites” or “features” from state lands as a misdemeanor, and prohibit the removal of any paleontological “site” or “feature” from state land without permission of the jurisdictional agency. These protections apply only to State of California land; therefore, this is not applicable to the Project which would occur on private land.

3.7.2.3 Federal Safe Drinking Water Act and California Underground Injection Control Regulations

CalGEM regulates oil and gas drilling activities to occur within a specified area that will have minimal impact underground due to the existing conditions of the natural resources found there and determination that it will not impact clean water that can be used as a source of agricultural or drinking water. CalGEM, USEPA, and the State Water Resources Control Board (SWRCB) have jointly developed a process to ensure protection of aquifers that supply clean water for drinking or agricultural use are not impacted, as documented in the 1982 USEPA Primacy Agreement with the Division of Oil, Gas, and Geothermal Resources (now CalGEM) (Department of Conservation 2015) and the July 31, 2018 Memorandum of Agreement with the SWRCB (SWRCB and DOC 2018). The first step of the process involves with CalGEM and SWRCB concurring that an aquifer meets certain criteria set forth in PRC §3131 and § 146.4 of Title 40 of the Code of Federal Regulations, including documentation that the aquifer is not currently and would not in the future become a source of drinking water. Following concurrence and public review of the proposal, the agencies jointly submit the request for the exemption from the federal Safe Drinking Water Act to the USEPA, which makes the final determination. The final determination from USEPA is published in the form of a Record of Decision and Class II UIC permits may only be issued for projects that would inject fluids into those aquifers that are determined to not be underground sources of drinking water by the USEPA. The 2019 updated UIC Regulations then ensure that oil and gas injection activities are authorized to inject fluids only in those formations that are exempt and that fluids are confined both vertically and horizontally to those defined areas.

3.7.2.4 Seismic Hazards Mapping Act

The only hazards addressed by the Alquist-Priolo Fault Zoning Act are those related to surface fault rupture, not other earthquake hazards. As such, the state passed the Seismic Hazards Mapping Act in 1990 to address non-surface rupture seismic hazards, which include liquefaction, landslides, and strong seismic ground shaking. Under the Seismic Hazards Mapping Act, the State Geologist is required to identify and map the locations of these secondary seismic hazards (CDOC 2019).

3.7.2.5 Signal Hill General Plan

The Safety Element (2016) of the Signal Hill General Plan address geology in goals and policies, as outlined in Table 3.7-2.

Table 3.7-2: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Safety	Goal 1: Prevention: Strive to prevent man-made disasters and minimize the potential for natural disasters to impact the community.	Policy 1.d: Maintain, revise, and enforce appropriate standards and codes to minimize seismic and geologic risks.	The Project would continue to be subject to all previous regulations and requirements (e.g., Conditions of CUP Approval) and any future changes to the City of Signal Hill Municipal Code regarding seismic designs and controls
		Policy 1.k: Regulate development in Alquist-Priolo Earthquake Fault Zones consistent with levels of acceptable risk. Require the submission of geologic and seismic reports, as well as soils engineering reports, in relation to applications for land development permits whenever seismic or geologic problems are suspected.	CUP Sites #4 through 7 are located within an Alquist-Priolo fault zone. These sites are already developed drill sites and Project operations would be consistent with applicable regulations.

Source: City 2016

3.7.2.6 Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act of 2002 codifies the generally accepted practice of limited vertebrate fossil collection and limited collection of other rare and scientifically significant fossils by qualified researchers. Researchers must obtain a permit from the appropriate state or federal agency and agree to donate any materials recovered to recognized public institutions, where they would remain accessible to the public and other researchers (NPS 2020).

3.7.3 Impact Assessment

GEO (a). Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. 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.

ii. Strong seismic ground shaking?

iii. Seismic-related ground failure, including liquefaction?

iv. Landslides?

Less than Significant. Four CUP sites are located within an Alquist-Priolo Earthquake Fault Zone (CUP Sites #4 through 7). Projects that involve the building of habitable structures in these zones require geotechnical investigations prior to construction. The Project involves the continued operation of drill sites, drilling new wells, and gas plant modifications within the footprint of existing drill sites and does not involve the construction of any habitable structures; therefore, a geotechnical investigation is not required.

The Project is located in a seismically-active region of southern California, and it is possible that a seismic event could occur during construction or continued operations; however, this possibility exists currently regardless of the proposed Project. The Project area is susceptible to strong ground shaking and ground failure during seismic events produced by local faults. Because the CUP sites are flat and most surrounding areas are flat as well, landslides are not typically of concern. However, existing topography at CUP Site #5 gently slopes from south to north, and a small portion of this site is located immediately adjacent to a seismically-induced landslide zone and within an area of undeveloped land with landslide potential. None of the other CUP sites are located within areas susceptible to seismically induced landslides, and none of the CUP sites are located within a liquefaction zone (CDOC 2021, City 2016).

Ongoing existing operations would continue to be subject to all previous regulations and requirements (e.g., Conditions of CUP Approval) as well as any future changes to the City of Signal Hill Municipal Code regarding seismic designs and controls. Therefore, the impacts would be less than significant.

New Project activities include drilling new wells, installing new well cellars, and installing foundations for the natural gas facility modifications, which all require ground disturbance within the footprint of existing drill sites. While it is likely that the Project area would be subject to future earthquakes, new Project activities including drilling new wells, well cellar construction, and gas plant modifications would be conducted in accordance with all applicable requirements for seismic safety in the Uniform Building Code. Construction as well as operations of new wells and the gas plant would continue to be subject to all previous

regulations and requirements (e.g., Conditions of CUP Approval) as well as any future changes to the City of Signal Hill Municipal Code regarding seismic designs and controls.

The 1998 MND identified potentially significant adverse impacts relative to seismic safety at the proposed gas processing plant for the geology and soil resources checklist items. Mitigation was identified (Mitigation Measure #1 in the 1998 MND) that requires the City to review all building plans to ensure compliance with the Uniform Building Code and compliance with the City's grading and paving standards. The foundations and electrical installations for the natural gas modifications at CUP Site #2 would require building permits from the City of Signal Hill. The foundations would be located immediately adjoining existing facilities at CUP Site #2. If required, appropriate building permits would also be obtained from the City of Signal Hill prior to construction of new well cellars. Mitigation Measure #1 in the 1998 MND has been successfully implemented to date and would continue to be implemented moving forward. The potential seismic hazards from the proposed new Project activities would not be higher than under current operating conditions and impacts are considered less than significant.

GEO (b). Would the Project result in substantial soil erosion or the loss of topsoil?

Less than Significant. Ongoing Project operations would include redrilling operations, but since redrilling occurs within existing well cellars, it does not require excavation activities which would require soil to be stockpiled. Therefore, no impacts would occur.

Construction activities associated with the new Project activities, including excavating new well cellars and the modification to the gas processing system at CUP site #2 would involve the exposure and stockpiling of soils for a limited time, allowing for possible erosion. Although, the temporary nature of these activities would not be expected to result in substantial erosion. During construction, transport of sediments from the proposed Project site by stormwater runoff and winds would be prevented through appropriate Best Management Practices (BMPs). In addition, Rule 403 dust control measures would be implemented, as required by the SCAQMD. Coverage under the CWA, Section 402, NPDES general construction permit would not be required for the construction of the new well cellars or the gas processing system at CUP site #2 as the area of disturbance for these activities would be less than one acre. With adherence to Rule 403 as well as all applicable regulations and implementation of appropriate BMPs, new Project impacts associated with soil erosion or the loss of topsoil would be less than significant.

GEO (c). Would the Project 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 landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant. The CUP sites have been previously disturbed and are not located on soils or geologic units that are identified as unstable. Project structures have been constructed consistent with the Uniform Building Code requirements and standard engineering practices to reduce potential impacts associated with unstable soils. Ongoing operations would adhere to

all applicable state and local requirements, and therefore impacts related to lateral spreading, subsidence, liquefaction, or collapse resulting from unstable soils would be less than significant.

Ground disturbance associated with new Project activities includes the excavation of new well cellars for drilling new wells and foundations for the gas plant modifications. Well cellar excavation, monitoring, and soil evaluation/sampling would continue to be conducted in accordance with applicable City, state, and federal regulations. The CUP sites are in areas mapped as geologic unit Qop, which has a limited expansion potential, with moderate expansion potential present only in localized clayey areas (City 2016). Soils within the Project area are composed primarily of silt and sand which are generally non-expansive to slightly expansive. Fill materials may also be encountered during well cellar installation. These soils would not present potential impacts to the Project facilities related to soil expansion. Project structures would be constructed consistent with the Uniform Building Code requirements and standard engineering practices to reduce potential impacts associated with unstable soils. With adherence to all applicable state and local requirements, impacts from new Project activities related to lateral spreading, subsidence, liquefaction, or collapse resulting from unstable soils would be less than significant.

GEO (d). Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less than Significant. Expansive soils are defined as fine-grained clayey soils that have the potential to shrink and swell with repeated cycles of wetting and drying. Soils present in Signal Hill are composed of weathered alluvium and are classified as silts and sands. Soils at the CUP sites are mapped as Qop, which has a limited expansion potential, with moderate expansion potential present only in localized clayey areas.

Ongoing operations would not result in construction of new structures, and all Project structures have previously been constructed consistent with all applicable state and local requirements. Therefore, no impacts would occur.

New Project structures, including well cellars and gas plant modifications would be constructed consistent with the Uniform Building Code requirements and standard engineering practices to reduce potential impacts associated with expansive soils. With adherence to all applicable state and local requirements, impacts related to expansive soils would be less than significant.

GEO (e). Would the Project 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?

No Impact. Ongoing operations would not require use of or installation of septic tanks or alternative wastewater disposal systems, and no impact would occur.

New Project activities would not include installation of septic tanks or alternative wastewater disposal systems and, therefore, there would be no impact.

GEO (f). Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated. Ongoing operations would not involve excavation activities, and therefore no potential impacts related to paleontological resources would occur.

The CUP sites are situated within previously disturbed areas and no paleontological resources or unique geologic features were reported during previous development activities associated with the Project facilities. However, since the majority of Signal Hill, including the CUP sites, are underlain by deposits that have the potential to include paleontological resources, there is potential to encounter resources during excavation activities which could result in a *potentially significant* impact. The new Project activities that would require excavation include well cellar construction and foundation installation for the gas system modifications.

MM GEO-1: All contractors and earth moving personnel shall be given Worker Environmental Awareness Program training by a qualified paleontological resource specialist prior to any ground-disturbing activities to discuss the activity's potential for impacting paleontological resources. The training shall inform personnel of the types of artifacts and features that may be encountered, the procedures to be followed if paleontological materials are unearthed at a Project site, contact information for appropriate reporting parties, and the regulatory requirements for the protection of paleontological resources. If unrecorded paleontological resources are encountered during Project-related ground-disturbing activities, a qualified paleontological resources specialist shall be contacted to assess the potential significance of the find. If an inadvertent discovery of paleontological materials is made during Program-related activities, ground disturbances in the area of the find will be halted, and a qualified professional paleontologist will be notified regarding the discovery. The paleontologist shall determine whether the resource is potentially unique and, if so, develop appropriate mitigation, such as avoidance or data recovery.

Residual Impacts

Incorporation of **MM GEO-1** would protect resources and develop treatment measures to effectively eliminate potentially significant impacts to previously undiscovered paleontological resources. Therefore, impacts would be reduced to a less than significant level.

3.8 Greenhouse Gas Emissions

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.8.1 Environmental Setting

Recent significant changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near Earth's surface. Global warming has been attributed to the accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities appears to be closely associated with global warming.

The standard state definition of GHG includes six substances: CO₂; methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulfur hexafluoride (SF₆) (CARB 2014). Tropospheric O₃ (a short-lived, not-well-mixed gas) and black carbon are also important climate pollutants. CO₂ is the most abundant GHG, and collectively CO₂, CH₄, and N₂O amount to 80 percent of GHG effects.

For each GHG, a global warming potential has been calculated to reflect how long emissions remain in the atmosphere and how strongly energy is absorbed on a per-kilogram basis relative to CO₂. Global warming potential is a metric that indicates the relative climate forcing of a kilogram of emissions when averaged over the period of interest (both 20-year and 100-year horizons are used for the global warming potentials shown in Table 3.8-1). To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent of CO₂, denoted as CO₂e. CO₂e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect.

Table 3.8-1: Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide	100	1	1
Nitrous Oxide	121	264	265
Nitrogen Trifluoride	500	12,800	16,100
Sulfur Hexafluoride	3,200	17,500	23,500
Perfluorocarbons	3,000-50,000	5,000-8,000	7,000-11,000
Black Carbon	days to weeks	270-6,200	100-1,700
Methane	12	84	28
Hydrofluorocarbons	Uncertain	100-11,000	100-12,000

Source: CARB 2014

The primary effect of rising global concentrations of atmospheric GHG is a rise in the average global temperature of approximately 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using emission rates shows that further warming is likely to occur given the expected rise in global atmospheric GHG concentrations from innumerable sources of GHG emissions worldwide, which would induce further changes in the global climate system during the current century. Adverse impacts from global climate change worldwide and in California include:

- Declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in atmospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (USEPA 2009);
- Rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets (Intergovernmental Panel on Climate Change 2007);
- Changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones (IPCC 2007);
- Declining Sierra Mountains snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years (CalEPA 2006);
- Increasing the number of days conducive to O₃ formation (e.g., clear days with intense sun light) by 25 to 85 percent (depending on the future temperature scenario) in high O₃

areas located in the Southern California area and the San Joaquin Valley by the end of the 21st Century (CalEPA 2006); and

- Increasing the potential for erosion of California’s coastlines and seawater intrusion into the Sacramento Delta and associated levee systems due to the rise in sea level (CalEPA 2006).

Scientific understanding of the fundamental processes responsible for global climate change has improved over the past decade. However, there remains significant scientific uncertainties. For example, uncertainties exist in predictions of local effects of climate change, occurrence of extreme weather events, and effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the climate system, the uncertainty surrounding the implications of climate change may never be eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or would cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it may not be possible to link specific development projects to future specific climate change impacts, though estimating project-specific impacts is possible.

3.8.2 Regulatory Setting

3.8.2.1 [Executive Order S-3-05](#)

On June 1, 2005, Executive Order S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. It calls for the Secretary of CalEPA to be responsible for coordination of State agencies and progress reporting.

3.8.2.2 [Executive Order B-30-15](#)

In April 2015, Governor Edmund Brown issued an Executive Order establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown’s Executive Order S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the Executive Order aligns California’s 2030 GHG reduction goal with the European Union’s reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

3.8.2.3 [Assembly Bill 32 \(AB 32\)](#)

In September 2006, the California Global Warming Solutions Act of 2006, also known as AB 32, was signed into law. AB 32 focuses on reducing GHG emissions in California and requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to Statewide levels in 1990 by 2020. CARB initially determined that the total Statewide aggregated GHG 1990

emissions level and 2020 emissions limit was 427 million metric tons of CO₂e. The 2020 target reduction was estimated to be 174 million metric tons of CO₂e.

To achieve the goal, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce Statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved.

3.8.2.4 Senate Bill 32 (SB 32)

SB 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires the state board to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

3.8.2.5 Senate Bill 375 (SB 375)

Acknowledging the relationship between land use planning and transportation sector GHG emissions, SB 375 was passed by the State Assembly on August 25, 2008, and signed by the Governor on September 30, 2008. This legislation links regional planning for housing and transportation with the GHG reduction goals outlined in AB 32. Reductions in GHG emissions would be achieved by, for example, locating employment opportunities close to transit.

Under SB 375, each Metropolitan Planning Organization would be required to adopt a Sustainable Community Strategy to encourage compact development that reduce passenger VMT and trips so that the region will meet a target, created by CARB, for reducing GHG emissions. If the Sustainable Community Strategy is unable to achieve the regional GHG emissions reduction targets, then the Metropolitan Planning Organization is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target could be achieved through alternative development patterns, infrastructure, and/or transportation measure

3.8.2.6 Southern California Association of Governments

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS) on September 3, 2020. The 2020–2045 RTP/SCS reaffirms the land use policies that were incorporated into the 2016–2040 RTP/SCS. The 2020–2045 RTP/SCS describes how the region can attain the GHG emission-reduction targets set by CARB by achieving a 19 percent reduction by 2035 compared to the 2005 level on a per capita basis. Compliance with and implementation of 2020 RTP/SCS policies and strategies would have co-

benefits of reducing per capita criteria air pollutant emissions associated with reduced per capita VMT.

3.8.2.7 Climate Change Scoping Plan

In 2008, CARB approved the original *Climate Change Scoping Plan* as required by AB 32. Subsequently, CARB approved updates to the *Climate Change Scoping Plan* in 2014 (First Update) and 2017 (2017 Update), with the *2017 Update* considering SB 32 (adopted in 2016) in addition to AB 32. The original *Climate Change Scoping Plan* proposed a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. The original *Climate Change Scoping Plan* identified a range of GHG reduction actions that included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

The original *Climate Change Scoping Plan* called for a “coordinated set of solutions” to address all major categories of GHG emissions. Transportation emissions were addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard (LCFS), and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations were encouraged and, sometimes, required to use energy more efficiently. Utility energy providers were required change to include more renewable energy sources through implementation of the Renewables Portfolio Standard. Additionally, the original Climate Change Scoping Plan emphasized opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicated that substantial savings of electricity and natural gas would be accomplished through “improving energy efficiency by 25 percent.”

On November 16, 2022, CARB adopted California’s *2022 Scoping Plan for Achieving Carbon Neutrality* (CARB 2022e). The *2022 Scoping Plan* builds upon the framework established by the original *Climate Change Scoping Plan* and the First Update while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health. The *2017 Scoping Plan Update* includes policies to require direct GHG emissions reductions at some of the state’s largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade program, which constrains and reduces emissions at covered sources.

3.8.2.8 California Green Building Standards (CALGreen Code)

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2017. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The 2019 CALGreen code updates were published July 1, 2019, with an effective date of January 1, 2020.

The California Energy Code (California Code of Regulations, Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. Compliance with Title 24 is enforced through the building permit process.

3.8.2.9 CEQA Guidelines Amendments

SB 97 required the Governor's Office of Planning and Research to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. Noteworthy revisions to the CEQA Guidelines include the following:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;
- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and
- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

3.8.2.10 SCAQMD Interim CEQA GHG Thresholds

SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds in October 2008. The SCAQMD proposed the use of a percent emission reduction target (e.g., 30 percent) to determine significance for commercial/residential projects that emit greater than 3,000 metric tons per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 metric tons per year of CO₂e for stationary source/industrial projects where the SCAQMD is the lead agency. However, SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects) and has formed a GHG Significance Threshold Working Group to further evaluate potential GHG significance thresholds and provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Guidance documents have not yet been published. The proposed Project does not include the construction or operation of any stationary sources; therefore, the interim significance threshold is not applicable to the proposed Project.

3.8.3 Impact Assessment

GHG (a). Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Potentially Significant. Ongoing operations consist of well servicing and maintenance, redrilling operations, oil processing, storage and transfer, natural gas and natural gas liquids processing, storage and transfer, produced water separation and injection, and electrical production from a natural gas turbine-powered generator. In addition, ongoing operations emit GHGs from the use of combustion sources such as diesel workover rig engines, equipment trucks, water trucks, workover rig crew trucks/vehicles, and portable lift equipment; through venting or fugitive losses from use of chemicals, valves, fittings, pumps, compressors, and wellheads.

Currently, approximately 70 percent of the processed natural gas is consumed directly within the onsite power turbine. The remaining quantity of gas produced is sold through the onsite sales meters and existing delivery pipelines to the City of Long Beach and/or SoCal Gas. Continued operations would support the local supply of available sales gas in the City of Long Beach and SoCal Gas distribution systems, thereby replacing gas supplies that are currently transported to the area over long distances from nonlocal sources. Because the availability of the sales gas would reduce reliance on gas supplies from non-local sources, the overall potential fugitive emissions associated with natural gas transmission lines are reduced as a result of continued operations of the Project, thereby reducing potential adverse effects on air quality and from greenhouse gas emissions. SHP is subject to USEPA's Greenhouse Gas Reporting Program (GHGRP) and California's Mandatory Reporting of Greenhouse Gas Emissions. As a result, SHP has submitted its GHG emissions data to both USEPA and CARB in the required reporting years and maintains a plan for accurately capturing and recording this data. In 2021, SHP emitted a verified 44,131 MT CO₂e from its oil and gas production activities,

which includes the usage of natural gas and other fuels from stationary source operations. The SHP facilities are subject to the applicable cap and trade requirements to offset any significant impacts with regard to GHG, as required. SHPs ongoing operation emissions inventory is included in the development of the California GHG AB 32 Emission Inventory and thus consistent with the 2022 Scoping Plan. Therefore, ongoing operational impacts relative to GHGs are considered less than significant.

As described in Section 2, new project activities include installation of upgrades to the natural gas processing facility at Drill Site #2, drilling and operation of up to 46 new wells, and construction and operation of up to 20 new well cellars. These activities will generate additional GHG emissions from construction equipment, mobile sources, and indirect electricity. These emissions will be quantified in a detailed analysis as part of the EIR prepared for the Project. As such, impacts related to GHGs are considered potentially significant and will be addressed in further detail in the EIR.

GHG (b). Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant. SHP is subject to USEPA's GHGRP and California's Mandatory Reporting of Greenhouse Gas Emissions. As a result, SHP has submitted its GHG emissions data to both USEPA and CARB in the required reporting years and maintains a plan for accurately capturing and recording this data. In 2021, SHP emitted a verified 44,131 MT CO₂e from its oil and gas production activities, which includes the usage of natural gas and other fuels from stationary source operations. Further, the SHP facilities are subject to the applicable cap and trade requirements to offset any significant impacts with regard to GHG, as required, and existing operations of SHP facilities have been considered in GHG inventories.

The Project would result in minor improvements that would improve the efficiency and reliability of existing onsite operations and enable the sale of gas to third parties for ultimate distribution. Further, due to the nature of the project and construction/operational conditions anticipated, the project is not anticipated to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. As described previously, the proposed Project would reduce fugitive emissions associated with natural gas transmission and reduce or avoid potential additional GHG-related emissions from independent gas producers. Thus, impacts are expected to be less than significant. This potential impact will be addressed in greater detail in the EIR.

3.9 Hazards and Hazardous Materials

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.9.1 Environmental Setting

Potential fire hazards are associated with all oilfield operations due to the potential for explosion or fire resulting from the ignition of accumulated methane gas and overheating of pumps due to mechanical failures can cause oil well fires. However, as stated in the Safety Element, existing active wells in Signal Hill pose only minor fire hazards. The liquid extracted from wells is a mixture of salt water and oil which is substantially less combustible than pure oil. In addition, required blowout prevention equipment significantly reduces potential hazards from oil well fires (City 2016).

SHP maintains three separate Spill Prevention Containment and Countermeasures (SPCC) and spill contingency plans (i.e., Central, West, and East units) that cover the seven CUP sites. These plans would continue to be updated as needed throughout the proposed 20-year life of the Project. SHP also maintains five separate HMBPs for CUP Sites #1 through #5, and an HMBP for CUP Site #7 is currently in process and anticipated to be completed/approved by the end of

2022 (CUP Site #6 does not store hazardous materials, and therefore is not subject to the HMBP requirements). HMBPs are updated annually and submitted to the Los Angeles County Fire Department for review and approval, and these plans would continue to be updated as needed throughout the proposed 20-year life of the Project. An inventory of the chemicals stored at the various CUP sites is provided in the Project Description in Tables 2.4-3. These chemicals are stored on storage pads with secondary containment, within larger contained areas (with berms and/or walls) such as inside aboveground tank batteries, within portable or permanent individual secondary containment cradles, or within maintenance/supply sheds or curbed areas. Descriptions of existing above-ground storage tanks and contents are included in the drill site descriptions in Section 2.3 of the Project Description.

In addition to site-specific safety and spill containment plans and procedures, SHP also maintains a supplemental Emergency Action Plan and Process Safety Manual (which includes an Injury and Illness Prevention Plan). SHP would continue to implement additional measures beyond regulatory requirements as-needed, and ensure that every onsite employee (and contractor as applicable) receives site-specific training to ensure a safe work environment is maintained, and that proper emergency response procedures are followed.

3.9.2 Regulatory Setting

3.9.2.1 U.S. Department of Transportation Oil Pollution Act of 1990 (49 CFR Part 194)

The U.S. Department of Transportation's (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) implements the Oil Pollution Act of 1990 to decrease the likelihood of onshore oil pipeline spills, reduce environmental consequences of spills, and ensure well-planned and fast responses to spills. Facility response plans are a requirement for operators of any onshore oil pipelines which could cause significant harm to the environment by discharging oil into waters of the United States (DOT 2018). The purpose of a facility response plan is to address, prepare, and plan for responding to a worst-case discharge. It also establishes the communication, containment, and clean-up procedures in the event of a worst-case discharge. SHP complies with this requirement by preparing facility response plans for their various facilities.

3.9.2.2 U.S. Department of Transportation Hazardous Materials Registration (49 CFR Part 107)

Operators and transporters of certain hazardous materials are required to file an annual registration statement with the DOT. This program funds grants which are provided to various states and Indian tribes for emergency response planning and training. This program began in 1992 and is administered by PHMSA (DOT 2022). SHP must comply with this requirement and is required to file registrations statements annually with DOT.

3.9.2.3 U.S. Environmental Protection Agency, Spill Prevention Control and Countermeasure Plan (40 CFR 112)

The SPCC rule is implemented by the USEPA. The purpose is to help facilities prevent a discharge of oil into navigable waters or adjoining shorelines, and requires facilities to develop, maintain, and implement an SPCC plan. The goal of an SPCC plan is to prevent an oil spill and control any spill that occurs. Facilities subject to 40 CFR 112 include those with underground oil tank capacities exceeding 42,000 gallons or aboveground oil tanks exceeding a total capacity of 1,320 gallons (USEPA 2022c). SHP facilities which exceed these amounts are required to have an SPCC. SHP maintains three separate SPCC plans (i.e., Central, West, and East units) that cover their seven CUP 97-03 sites. These plans would continue to be updated as needed throughout the proposed 20-year life of the Project.

3.9.2.4 California Geologic Energy Management Division, Pipeline Management Plan

CalGEM oversees oil, natural gas, and geothermal industries in order to protect public health, safety, and the environment as well as achieve California's climate change and clean energy goals. CalGEM regulates drilling, operation, and permanent closure of energy resource wells. CalGEM requires operators to submit Pipeline Management Plans for evaluation of risk assessment (CalGEM 2019). SHP maintains a Pipeline Management Plan as part of their operations.

3.9.2.5 California Geologic Energy Management Division, Spill Contingency Plan (Title 14 Section 1722.9)

Spill contingency plans are required and intended to prevent and respond to unauthorized releases. There are specific guidelines on the requirements under this regulation which must be included in a spill contingency plan. Plans prepared pursuant to the USEPA's SPCC regulations may fulfill this spill contingency plan requirement if they contain all the required sections and are deemed adequate by CalGEM (CalGEM 2022). SHP is responsible for preparing spill contingency plans for facilities, which include any required information that is not already adequately described under the facility's SPCC plan. SHP maintains three separate spill contingency plans (i.e., Central, West, and East units) that cover their seven CUP 97-03 sites.

3.9.2.6 State of California Department of California Highway Patrol

The Department of California Highway Patrol oversees application and approval of licenses for transportation of hazardous materials for commercial operators. SHP is required to obtain a hazardous materials transportation license as part of Project operations.

3.9.2.7 County of Los Angeles Fire Department

The Los Angeles County Fire Department serves as the CUPA for SHP's operations, and the County Fire Code contains various provisions related to safety, site design, and access

applicable to the Project. Additionally, due to the uniqueness of the oil field and pumping operations in the City, alternate methods of fire protection have been approved for oil and gas facilities within the City's jurisdiction. SHP would continue to adhere to the applicable regulations published by the County Fire Department.

The Health Hazardous Materials Division is a CUPA under the Los Angeles County Fire Department, that administers the following permit programs in Los Angeles County: Hazardous Waste Generator Program, Hazardous Materials Release Response Plans and Inventory Program, California Accidental Release Prevention Program, Aboveground Storage Tank Program, and Underground Storage Tank Program. The Los Angeles County Fire Department administers annual facility permits under these programs (Los Angeles County Fire Department 2022a). SHP is required to obtain permits annually to operate facilities which are regulated under these programs. Each facility permit includes a list of the applicable programs.

As a CUPA, the County Fire Department implements the HMBP Program and is responsible for enforcement and administration. The California Environmental Protection Agency (CalEPA) oversees implementation of the HMBP program at the state level. SHP is required to submit HMBPs to the County Fire Department for review and approval as part of this program. SHP maintains five separate HMBPs for CUP Sites #1 through #5, while an HMBP for CUP Site #7 is in process (CUP Site #6 does not store hazardous materials, and therefore is not subject to the HMBP requirements). HMBPs are updated annually and submitted to the County Fire Department for review and approval, and these plans would continue to be updated as needed throughout the proposed 20-year life of the Project.

None of the CUP 97-03 facilities have underground storage tanks (USTs), and none are proposed as part of this Project.

3.9.2.8 Signal Hill General Plan

The Environmental Resources Element (1986), Land Use Element (2001), and Safety Element (2016) of the City of Signal Hill General Plan address hazards and hazardous materials in goals and policies, as outlined in Table 3.9-1.

Table 3.9-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Environmental Resources	Goal 5: Ensure minimal degradation to the physical environment from development or operational activities, and require restoration of the environment where degradation has occurred.	Policy 5.3: Eliminate the unsafe storage, use and transport of hazardous industrial and commercial chemicals and substances through regulations, planning and development review processes.	SHP maintains Hazardous Materials Business Plans for sites which store hazardous materials. SHP registers with the Department of Transportation to transport hazardous materials. SHP would continue to adhere to

Element	Goal	Policy	Applicability
			applicable regulations published by the County Fire Department.
Safety	Goal 1: Prevention: Strive to prevent man-made disasters and minimize the potential for natural disasters to impact the community.	Policy 1.c: Regulate the location, use, storage, and transportation of hazardous and toxic materials and protect the public from these hazards.	SHP maintains Hazardous Materials Business Plans for sites which store hazardous materials. SHP registers with the Department of Transportation to transport hazardous materials.
Land Use	Goal 3: Assure a safe, healthy, and aesthetically pleasing community for residents and businesses.	Policy 3.6: Provide for undesirable or hazardous commercial or industrial uses while avoiding concentrating those uses in close proximity to schools or residential neighborhoods, and ensure adequate monitoring of those uses, which involve hazardous materials to avoid industrial accidents, chemical spills, fire, and explosions.	Project sites are covered under Spill Prevention Control and Countermeasure Plans and spill contingency plans as required by CalGEM and USEPA.

Source: City 1986, 2001, 2016

3.9.3 Impact Assessment

HAZ (a). Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant with Mitigation Incorporated. As part of operations, hazardous materials are stored and transported at the CUP sites. SHP follows the required spill control and contingency plans as well as HMBPs and would continue to update and maintain these plans as needed to reduce risks associated with storing hazardous materials. Therefore, the impacts of continued operations would be less than significant. However, because this issue is one that is particularly considered under implementation of SB 1137 as an issue of public health and safety, it will be discussed in greater detail in the EIR.

New Project activities would not result in a change or increase in the quantities of hazardous materials used or stored onsite with the exception of CUP Site #7, which requires an HMBP to be prepared to address changes in the quantities of hazardous materials used or stored at that site. In addition, SHP maintains a hazardous materials transportation license as part of Project operations and registers annually with the DOT for hazardous materials. With implementation of these plans and compliance with all applicable regulations for hazardous materials, impacts would be less than significant for CUP Sites #1 through 6. For CUP Site #7, SHP is in the process of preparing an HMBP to address changes in the quantities of hazardous materials used or stored at that site which without an HMBP could result in a *potentially significant* impact.

MM HAZ-1: Prepare and Implement a HMBP for CUP Site #7. The HMBP shall comply with all applicable regulations and, at a minimum, include the following:

- An inventory of hazardous materials at CUP Site #7;
- Emergency response plans and procedures to be followed in the event of a reportable release or threatened release of a hazardous material;
- Requirements to train employees in safety procedures in the event of a release or threatened release of a hazardous material, including onboarding for new employees and annual refresher courses for existing employees; and,
- A site map that depicts north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, evacuation staging areas, hazardous material handling and storage areas, and emergency response equipment.

The HMBP shall be certified and submitted to the California Environmental Reporting system.

Residual Impacts

Incorporation of **MM HAZ-1** would ensure that appropriate protocols and measures are in-place to reduce potential impacts from the routine use, transport, and disposal of hazardous material at CUP Site #7 to a less than significant level.

HAZ (b). Would the Project 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?

Less than Significant. The 1998 MND identified a potentially significant adverse impact relative to the accidental release of hazardous substances and the exposure of people to existing sources of potential health hazards. Mitigation was identified (Mitigation Measure #4a in the 1998 MND) to reduce impacts to a level of less than significant. In accordance with the 1998 MND, SHP has and would continue to implement this measure as part of ongoing Project operations and therefore impacts would be less than significant. However, because this issue is one that is particularly considered under implementation of SB 1137 as an issue of public health and safety, it will be discussed in greater detail in the EIR.

New Project activities would not result in any new hazardous materials being stored at the various CUP sites. Additionally, SHP would continue to implement and maintain an Emergency Action Plan and Process Safety Manual. Impacts would be less than significant.

MM #4a in 1998 MND and MM HAZ-1 in 2015 MND: Prior to approval of the proposed Project, SHP shall demonstrate compliance with applicable hazardous material rules and regulations, to include, at minimum, an Emergency Action Plan as required by the Fire Department addressing spill, fire, and explosion hazards and relative risk of upset to adjacent land uses.

HAZ (c). Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than Significant with Mitigation Incorporated. Two existing CUP sites are located within 0.25 miles of an existing school. CUP Site #6 and #7 are within 0.25 miles of Richard D. Browning High School. Existing chemicals required for operation of the drill sites include hazardous materials. SHP has the required spill control and contingency plans as well as HMBPs, for sites which store hazardous materials, and would continue to update and maintain these plans as needed as part of ongoing operations. CUP Site #6 does not store hazardous materials, and therefore is not subject to the HMBP requirements. For ongoing operations at CUP Site #7, SHP is in the process of preparing an HMBP to address changes in the quantities of hazardous materials used or stored at that site which without an HMBP could result in a *potentially significant* impact.

Operations associated with new Project activities would require the same chemicals as ongoing operations, and therefore SHP would implement and update applicable spill control and contingency plans and HMBPs. Similarly, without an HMBP for CUP Site #7 to address changes in the quantities of hazardous materials used or stored at that site, new Project activities could have a *potentially significant* impact.

Residual Impacts

Incorporation of **MM HAZ-1** would ensure that appropriate protocols and measures are in-place to reduce potential impacts from the routine use, transport, and disposal of hazardous material at CUP Site #7 to a less than significant level.

HAZ (d). Would the Project 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 it create a significant hazard to the public or the environment?

No Impact. The CUP sites are not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Department of Toxic Substances Control 2022). Ongoing operations would continue within the existing CUP sites and therefore would not result in a significant hazard to the public or environment.

New project activities would also occur entirely within the existing boundaries of the CUP sites, which are not on a hazardous materials sites list, and therefore would have no impact on the public or environment.

HAZ (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 airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. CUP sites are located less than two miles away from Long Beach Airport. However, none of the CUP sites are located within any airport land use plan areas. For the sites located

within two miles of a public airport or private airstrip, continued Project operations would not involve construction or expansion of the airport or result in the addition of sensitive receivers inside of the 65 dBA CNEL noise contour. As such, ongoing operations would not have the potential to expose people residing or working in the Project area to safety hazards or excessive noise levels associated with airstrip operations or aircraft; therefore, no impact would occur.

New Project activities would not involve construction or expansion of the airport. In addition, the Project would not result in the addition of sensitive receivers inside of the 65 dBA CNEL noise contour. As such, drilling and operation of new wells and installation of upgrades to the natural gas processing facility would not have the potential to expose people residing or working in the Project area to safety hazards or excessive noise levels associated with airstrip operations or aircraft; therefore, no impact would occur.

HAZ (f). Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. Ongoing operations would not interfere with implementation of an emergency response plan or evacuation plan. No changes would be made to the existing access points for the CUP sites, which provide access for emergency vehicles, if needed.

New Project activities would not result in any changes to the existing emergency access points at the CUP sites or interfere with implementation of an emergency response plan or evacuation plan. No impacts would occur.

HAZ (g). Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant. The CUP sites are located within urbanized/developed areas and are outside of designated fire hazard severity zones. Continued operation of the drill sites would not increase the risk of loss, injury or death involving wildland fires. There is negligible risk of producing a spark that could result in increased wildfire risk. Therefore, ongoing operations would have a less than significant impact.

No new Project activities would exacerbate the long-term existing fire risk associated with ongoing oil production operations. However, outside of normal operations, there would be a minimal amount of additional vehicles and equipment onsite as needed for drilling new wells and natural gas processing facility modifications which carry the unlikely potential to release a spark which could ignite nearby vegetation. Thus, impacts are considered less than significant.

3.10 Hydrology and Water Quality

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. result in a substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. 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; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.10.1 Environmental Setting

The City of Signal Hill is located within the boundaries of both the Los Cerritos Channel and the Lower Los Angeles River watersheds. The Los Cerritos Channel Watershed consists of a small, urbanized watershed that encompasses 17,711 acres in the Los Cerritos Channel and Alamitos Bay Watershed Management Area. This watershed includes the cities of Bellflower, Cerritos, Downey, Lakewood, Long Beach, Paramount, and Signal Hill as well as unincorporated land. Approximately 531 acres of Signal Hill is included in this watershed which makes up 3% of the total watershed area (Los Cerritos Channel Watershed Group 2017). This watershed has an associated watershed management plan. Signal Hill also comprises approximately 774 acres of the Lower Los Angeles River Watershed and is located within the Lower Los Angeles River Watershed Management Area which has an associated watershed management plan (Lower Los Angeles River Watershed Group 2015). The Newport-Inglewood Fault is the topographical

feature that dictates the direction that surface water drains into these two watersheds. Surface water runoff originating on Signal Hill's north side slope (north of the Newport-Inglewood Fault) generally flows into the Los Cerritos Channel Watershed, while the runoff from the south side slope generally flows into the Lower Los Angeles River Watershed (Sespe Consulting 2022b).

Los Angeles River Reach 1 is the closest surface water body to Signal Hill, located approximately 1.2 miles east from the City's eastern boundary. All surface water runoff is directed to surface water bodies outside the City via Municipal Separate Storm Sewer ("MS4") discharges. The City is surrounded by areas under the jurisdiction of the City of Long Beach; therefore, any discharges originating from within the City must pass through the City of Long Beach before reaching any receiving waters (Sespe Consulting 2022b). The City is served by two stormwater flood control facilities, the Hamilton Bowl and the California Bowl, which control major portions of the City's drainage before discharging to the MS4 and provide opportunities for urban-runoff capture, treatment, infiltration, and monitoring. Specifically, the Hamilton Bowl is a 15-acre flood control facility, owned and operated by the Los Angeles County Flood Control District. Approximately half of the City's stormwater runoff flows to the Hamilton Bowl where it is retained and eventually discharged into the Los Angeles River (Sespe Consulting 2022b).

3.10.1.1 Topography and Climate

The topography of Signal Hill is defined by the hill located in the central southeast portion of the City which formed along the Newport-Inglewood Fault Zone. Elevation in the City ranges from 25 feet above sea level in the southwest portion to 370 feet above sea level at the hilltop plateau (City 1986). Slopes generally vary from 10 to 80 percent, with the steepest slopes occurring along and adjacent to the Hilltop area. The greatest percentage of slope change occurs on the southerly slopes of Signal Hill with an average of 40 percent slope and increasing to as much as 80 percent slope. Slopes in the adjacent areas are more gradual and primarily ranges from 5 to 10 percent (City 1986).

The City is located within Southern California's coastal plain, and experiences a Mediterranean climate with warm, dry summers and mild winters. Historical climate data collected from the Western Regional Climate Center's Long Beach Daugherty Field Station for the period of January 1, 1949, to June 9, 2016, indicates an average monthly temperature maximum of 83.9°F for August and an average monthly minimum of 45.3°F for December. Average annual precipitation has historically been approximately 12 inches, with the most precipitation occurring between November and April (Sespe Consulting 2022b).

3.10.1.2 Surface Runoff and Drainage

The CUP sites were designed for onsite containment of stormwater and other quantities of incidental water that may fall within the CUP boundaries using existing retaining walls, site design/drains, and stormwater BMPs. As such, with the exception of CUP Site #5, it was determined that the CUP sites have no potential for offsite discharge during storm events and,

therefore, are exempt from the State's Industrial General Permit (IGP) and do not require Storm Water Pollution Prevention Plans (SWPPP). Specifically, the SWRCB has approved Notices of Non-Applicability (NONAs) for all CUP sites with the exception of CUP Site #5. The Project would not include any changes to existing onsite drainage conditions or containment structures, and therefore there would continue to be no potential for offsite discharge at these sites.

CUP Site #5 maintains an active SWPPP (WDID Number: 4 19I025902). The existing SWPPP includes the following: specific prohibitions, effluent limitations, source identification, practice to reduce pollutants, assessment of pollutant sources, materials inventory, preventative maintenance program, spill prevention and response procedures, general storm water management practices, training, record keeping, sampling procedures and monitoring program. Stormwater BMPs which manage off-site sediment transport during operations and rain events are also outlined in the SWPPP. The SWPPP would continue to be implemented and updated as needed during Project operations.

All CUP sites are located within a City drainage area (North, South, or West) as described in the Environmental Resources Element of the General Plan (City 1986), with the exception of CUP Site #1. CUP Site #1 is situated in a region north of the West Drainage Area that directs stormwater to the west, ultimately reaching the Los Cerritos Channel. The West Drainage Area generally conveys water either to the California Bowl Detention Basin via a storm drain south of Interstate 405 or a minor storm drain located on Columbia Street, which both ultimately outlet to the Lower Los Angeles River. Both the North and East Drainage Areas direct runoff toward a storm drain originating on East Spring Street that continues in a westerly direction into the City of Long Beach. Stormwater is carried through the City of Long Beach and ultimately is discharged to the Los Cerritos Channel. The South Drainage Area discharges most of its runoff into the Hamilton Bowl Detention Basin, which is fed by several storm drains including the 19th Street drain. All other runoff in the South Drainage Area is discharged south of the Pacific Coast Highway into the City the Long Beach. All runoff originating in the South Drainage Area ultimately discharges to the Lower Los Angeles River (Sespe Consulting 2022b). Table 3.10-1 provides the applicable City drainage areas and larger watersheds for each CUP Site, as well as the onsite drainage conditions and general direction of runoff at each site.

Table 3.10-1: CUP Site Drainage Conditions and Watershed

CUP Site	Drainage Area	Existing Onsite Drainage Conditions	Watershed
1	N/A	Flat site, within center of paved parking lot. Existing ground surface is compacted soils/gravel. Stormwater generally drains to the center of the site, where it's captured in the existing well cellar sump and recycled through the existing water separation/processing system. Other than small gaps where existing access gates are located (3 total), site is surrounded by an existing block wall, which contains stormwater/prevents offsite discharges.	Los Cerritos Channel

CUP Site	Drainage Area	Existing Onsite Drainage Conditions	Watershed
2	West	Generally flat site the majority of which is paved. Other than small gaps where existing access gates are located (3 total), the majority of the site is surrounded by an existing block wall. Stormwater generally drains to the low-point in the northeast corner of the site, where it's captured in the existing well cellar sump and recycled through the existing water separation/processing system. The site generally does not discharge stormwater offsite.	Lower Los Angeles River
3	North	Flat site with existing ground surface of compacted soils/gravel. Stormwater generally drains to the center of the site, where it's captured in the existing well cellar sump and recycled through the existing water separation/processing system. Other than small gaps where existing access gates are located (3 total), the site is completely surrounded by a block wall, which contains stormwater and prevents offsite discharges.	Los Cerritos Channel
4	North	Entire site is paved and flat. Other than the small gaps where access gates are located (2 total), the site is completely surrounded by a block wall, which contains stormwater/prevents offsite discharges. Stormwater is directed toward the center of the site, where it is captured in the existing well cellar sump and recycled through SHP's existing water separation/processing system.	Los Cerritos Channel
5	North	Existing topography gently slopes from south to north, to the northeast corner of the site toward Combella Drive and Temple Avenue/Obispo Avenue. Surrounded by a combination of existing block walls, concrete paneled fencing, and chain-link fences with silt fencing attached. Stormwater is gathered by a series of drains located throughout the facility and is gravity fed to a collection separator (weir box) prior to being discharged to a storm drain line. Stormwater that falls on the southeast portion of the site is also captured in the existing well cellar sump and recycled through the existing water separation/processing system.	Los Cerritos Channel
6	South	Generally flat site, majority of which is paved. Surrounded by an existing block wall that contains stormwater/prevents offsite discharges. Stormwater generally drains to the center of the site, where it's captured in the existing drainage system.	Los Cerritos Channel
7	South	Entire site is paved and generally flat. Other than small gaps where access gates are located (2 total), site is surrounded by an existing block wall which contains stormwater/prevents offsite discharges. Stormwater that falls on the eastern portion of the site is also captured in the existing well cellar sump and recycled through the existing water separation/processing system.	Lower Los Angeles River

Source: Sespe Consulting 2022b

3.10.1.3 Flood Hazards

In general, Signal Hill is not subject to flood hazards and there are no special flood hazard areas in the City. Due to topography, infrequent but intense rainfall can present minimal flooding problems in parts of the City. Areas with the greatest potential for rainfall-related flooding are in localized areas to the south, southeast, and southwest of the Hilltop area (City 2016).

According to the Federal Emergency Management Agency's most recent Federal Insurance Rate Map all seven CUP sites are located in areas designated as Zone X, which indicates "areas of minimal flood hazard" (Sespe Consulting 2022b).

3.10.1.4 Groundwater

Signal Hill and the surrounding area overlie two main groundwater basins, the West Coast Basin and the Central Basin. These groundwater basins are separated by the Newport-Inglewood Fault Zone, which partially restricts the flow of groundwater.

Signal Hill's water supply consists primarily of groundwater produced from the Central Basin and treated surface water. The City currently utilizes two groundwater production wells which make-up approximately 90% of the water supply (City 2022b). Imported water is used as a supplemental supply during periods of high demand or in the case that a well is shut down for maintenance or other issues that may arise (City 2021a). The total pumping capacity of wells operated by the City is 3,585 gallons per minute. As stated in the City's Urban Water Management Plan, the newest well, Well No. 9, came online in October 2017 and is located within the City, northeast of the intersection of Cherry Avenue and 28th Street (City 2021a). The City has drilled another well, Well No. 10, which is anticipated to be completed in 2022. Once Well No. 10 is completed and online, the City water supply is expected to be wholly provided by groundwater (City 2021a). CUP Sites #2, #3, and #4 are located within approximately 0.5 mile of City Well No. 9.

The City pays a replenishment assessment to the Water Replenishment District (WRD) of Southern California for each acre-foot of water that is pumped out of the Central Basin. The WRD manages the groundwater replenishment and groundwater quality activities in 43 cities that overlie the Central Basin and West Coast Basin in southern Los Angeles County (WRD 2022).

Groundwater Quality

Historical over-pumping of groundwater has resulted in seawater intrusion, primarily in the West Coast Basin, and seawater intrusion barriers and spreading grounds are being operated to minimize additional future impacts (Flow Science 2014). A review of groundwater samples collected from monitoring and production wells was conducted to characterize groundwater quality. Results showed that constituent concentrations in groundwater production zones were below applicable regulatory thresholds in the groundwater basins with the exception of total dissolved solids (TDS) and chloride primarily in the West Coast Basin, where seawater intrusion has resulted in exceedances of California's Secondary Maximum Contaminant Levels (MCLs) (Flow Science 2014). In their 2014 report, Flow Science also indicated that Superfund sites located in the Los Angeles basin have not impacted groundwater quality in the Signal Hill-Long Beach area and that contamination events and subsequent cleanups in the Signal Hill-Long Beach area appear to have been limited to soil and to shallow aquifers that are not used for drinking water production (Flow Science 2014).

SHP employs waterflood techniques to enhance oil recovery which involves using wells to inject fluid (primarily water with minor concentrations of additives) into the reservoir to flush oil into extraction wells. All of SHP waterflood operations are conducted in accordance with CalGEM's

approved UIC permit for the field, which requires that injected fluids are demonstrated to be contained both vertically and horizontally to the intended formation. Based on their review, Flow Science concluded that the potential impacts of historical waterflood operations on drinking water aquifers are limited (Flow Science 2014). As described in Section 3.7, Geology and Soils, in 2019 CalGEM updated its UIC Regulations. As part of its ongoing permit-by-permit review, CalGEM began review of SHP's UIC permit in 2020 to ensure compliance with all provisions of the updated regulations, including an area of review analysis to ensure that no conduits exist which would allow the injected fluids to adversely affect underground sources of drinking water.

Overall, groundwater quality within the Central and West Coast basins remains very good in Water Year 2020-2021, with only some areas facing poor water quality from natural or anthropogenic sources (WRD 2022). Some of the water quality constituents were above the Primary MCLs, which are the drinking water standards established for public health. Some water quality constituents were above the Secondary MCLs, which impact the aesthetics of the water, such as taste, odor, and color, but do not impact health (WRD 2022). For constituents that do not have enforceable levels established, the Cal-EPA, SWRCB, Division of Drinking Water (DDW) established health-based advisory levels known as Notification Level and Response Level.

The following water quality constituent maximums were detected above the Primary MCLs in the Central Basin based on data collected from Water Year 2018-2021 by DDW: arsenic (3% of sampled production wells), Trichloroethylene (9% of sampled production wells), Tetrachloroethylene (6% of sampled production wells), perchlorate (1% of sampled production wells), and hexavalent chromium (3% of sampled production wells). In addition, the following water quality constituents maximums were detected above the Secondary MCLs based on data collected from Water Year 2018-2021 by DDW: iron (6% of sampled wells) and manganese (17% of sampled wells). Lastly, 1,4-dioxane was detected at concentrations above the Notification Level in 71 percent of production wells that were tested (WRD 2022).

Due to the quality of the groundwater in the Central Basin, minimal water treatment occurs prior to entering the potable water system. Groundwater quality is not expected to be a constraint on groundwater as a source of water in the future for the City (City 2021a). The City provides annual water quality reports which analyzes over 50 regulated and unregulated organic chemicals. None of these chemicals were detected at or above the reporting limit in groundwater or surface water sources in 2021 (City 2021b).

Groundwater Levels

On average, water levels fell by nearly 4 feet across the WRD's service area⁶ in WY 2020-2021 (WRD 2022). In Water Year 2020-2021, groundwater levels decreased across the Central Basin with the greatest decrease occurring in the northern portion of the basin where water levels decreased by up to 20 feet compared to the previous year (WRD 2022). Decreases in water level ranged from 3 to 15 feet in other areas of the Central Basin, with the majority of the basin decreasing between 1 to 5 feet in groundwater elevation (WRD 2022). The City boundaries fall within the area with a decrease of 1 to 5 feet as well as areas of no significant change in groundwater elevation. Changes in groundwater levels within the West Coast Basin were variable in Water Year 2020-2021. Overall, water levels remained relatively unchanged from the previous year, and some areas have increased by up to 4 feet or decreased by 2 feet compared to Water Year 2019-2020. Overall, there was a loss in groundwater storage within the Central Basin of approximately 66,900 acre-feet in Water Year 2020-2021, and there was no appreciable change in groundwater storage in the West Coast Basin (WRD 2022).

3.10.2 Regulatory Setting

3.10.2.1 Clean Water Act

The CWA establishes the basic structure for regulating discharges of pollutants into the Waters of the United States and regulating quality standards for surface waters, including lakes, rivers, and coastal wetlands. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. Under the CWA, USEPA has implemented pollution control programs and has developed national water quality criteria recommendations for pollutants in surface waters. In California, the SWRCB and its nine RWQCBs administer various sections of the CWA.

Section 402 of the CWA establishes the NPDES. Under Section 402, a permit is required for point source discharges of pollutants into navigable waters of the United States (other than dredge or fill material). Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In California, the NPDES Permit program is administered by the SWRCB. These permits require development and adherence to SWPPPs, which include best management practices (BMPs) to control stormwater discharges.

Section 303 of the CWA requires that California adopt water quality standards. In addition, under CWA Section 303(d), states are required to identify "impaired waterbodies" (those not

⁶ WRD's service area includes 43 cities that overlie the Central Basin and West Coast Basin in southern Los Angeles County.

meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for development of control plans to improve water quality. USEPA then approves the state's recommended list of impaired waters or adds to and/or removes waterbodies from the list.

In accordance with Section 303(d) of the CWA, the SWRCB has listed both the Los Angeles River Reach 1 and Los Cerritos Channel as water quality impaired. Los Angeles River Reach 1 (Estuary to Carson Street) is water quality impaired for: indicator bacteria, cyanide, ammonia, cadmium, copper (dissolved), lead, nutrients (algae), trash, zinc (dissolved), and pH. The Los Cerritos Channel is water quality impaired for: ammonia, Bis(2ethylhexyl) phthalate, chlordane (sediment), copper, indicator bacteria, lead, trash, zinc, and pH (SWRCB 2022).

3.10.2.2 Federal Safe Drinking Water Act and California Underground Injection Control Regulations

CalGEM regulates oil and gas drilling activities to occur within a specified area that will have minimal impact underground due to the existing conditions of the natural resources found there and determination that it will not impact clean water that can be used as a source of agricultural or drinking water. CalGEM, USEPA, and the SWRCB have jointly developed a process to ensure protection of aquifers that supply clean water for drinking or agricultural use are not impacted, as documented in the 1982 USEPA Primacy Agreement with the Division of Oil, Gas, and Geothermal Resources (now CalGEM) (Department of Conservation 2015) and the July 31, 2018 Memorandum of Agreement with the SWRCB (SWRCB and DOC 2018). The first step of the process involves with CalGEM and SWRCB concurring that an aquifer meets certain criteria set forth in PRC §3131 and § 146.4 of Title 40 of the Code of Federal Regulations, including documentation that the aquifer is not currently and would not in the future become a source of drinking water. Following concurrence and public review of the proposal, the agencies jointly submit the request for the exemption from the federal Safe Drinking Water Act to the USEPA, which makes the final determination. The final determination from USEPA is published in the form of a Record of Decision and Class II UIC permits may only be issued for projects that would inject fluids into those aquifers that are determined to not be underground sources of drinking water by the USEPA. The 2019 updated UIC Regulations then ensure that oil and gas injection activities are authorized to inject fluids only in those formations that are exempt and that fluids are confined both vertically and horizontally to those defined areas.

3.10.2.3 Porter-Cologne Water Quality Control Act

The Porter-Cologne Act requires the RWQCBs to adopt water quality control plans (Basin Plans) for the protection of surface water and groundwater quality. The Act also authorizes the RWQCBs to issue waste discharge requirements (WDRs), including NPDES Permits. Any activity, discharge, or proposed activity or discharge from a property or business that could affect California's surface, coastal, or groundwater will (in most cases) be subject to a WDR. The

California Water Code authorizes the SWRCB and the RWQCBs to conditionally waive WDRs if this is in the public interest. For this Project, the Los Angeles RWQCB is the board with jurisdictional authority.

3.10.2.4 Industrial General Permit

The Industrial General Permit regulates industrial stormwater discharges and authorized non-stormwater discharges from facilities in California. Both the State Water Resources Control Board and Regional Water Quality Control Boards enforce this permit. In order to comply with the NPDES General Permit for Storm Water Discharges Association with Industrial Activities, a SWPPP is required for oil and gas facilities (“...exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations”) (SWRCB 2021). SHP maintains compliance with SWPPPs by implementing BMPs for both source controls and treatment controls, to reduce or eliminate pollutants in storm water runoff from facility properties. SWPPPs are submitted to the SWRCB through the SMARTS system.

The majority of the SHP CUP sites are exempt from the Industrial General Permit (IGP), in accordance with Section I.B.23 of the RWQCB’s Industrial General Permit Order 2014-0057-DWQ and relatedly Section 402(I)(2) of the CWA. Specifically, all sites covered under CUP 97-03 are considered exempt from the IGP through either an approved NONAs or through termination coverage, as the sites do not have the potential to discharge to Waters of the United States, with the exception of CUP Site #5, which currently maintains coverage under the IGP and implements a SWPPP.

The area of disturbance for the gas processing system modification is estimated to be approximately 0.1 to 0.2 acres, which is similar for the disturbance area for new well cellars. Since this would be less than one acre, an NPDES General Construction Permit would not be required for the Project.

3.10.2.5 Waste Discharge Requirements

RWQCBs oversees permitting for discharges of wastewater and stormwater, as well as water basin planning and regulatory programs to attain and maintain compliance with applicable water quality standards and objectives. The RWQCB is responsible for permitting discharge of produced water to percolation and evaporation ponds, drilling sumps, and wastewater disposal sumps, through issuance of WDRs, or other forms of discharge authorization such as CWA Section 401 water quality certification and WDR waivers. In addition, the RWQCB also oversees the cleanup of petroleum-related spills and releases, as well as spills and releases of other chemicals.

The CUP sites do not have any Industrial Wastewater Permits (county or state), and produced water is collected, processed, and reinjected at the existing injection sites. No industrial wastewater is discharged from the existing facilities, nor would any discharges result from the Project.

3.10.2.6 Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties

The Los Angeles RWQCB's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. The basin plan designates beneficial uses for surface and ground waters, sets objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and describes implementation programs to protect all waters in the region (LARWQCB 2014).

3.10.2.7 Signal Hill General Plan

The Environmental Resources Element (1986) and Land Use Element (2001) of the City of Signal Hill General Plan addresses hydrology and water quality in goals and policies, as outlined in Table 3.10-2.

Table 3.10-2: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Environmental Resources	Goal 5: Ensure minimal degradation to the physical environment from development or operational activities, and require restoration of the environment where degradation has occurred.	Policy 5.2: Protect water quality and conserve water supplies through reducing and eliminating contamination from industrial operations or resource development activities. Cooperate and participate in regional water quality and water supply plans, programs and implementation measures.	Containment structures are used onsite which prevent spills.
Land Use	Goal 3: Assure a safe, healthy, and aesthetically pleasing community for residents and businesses.	Policy 3.18: Minimize the impacts of storm water runoff to the maximum extent practicable, on the biology, water quality and integrity of natural drainage systems and water bodies	Project would continue to implement SWPPP at CUP Site #5. Project would not include changes to existing onsite drainage conditions or containment structures.
		Policy 3.19: Maximize to the extent practicable, the percentage of permeable surfaces to allow more percolation of storm water runoff into the ground	Project would continue to implement SWPPP at CUP Site #5. Other CUP sites would continue to have no potential for offsite discharge.
		Policy 3.20: Minimize to the extent practicable, the amount of storm water directed to impermeable areas and to the municipal separate storm water	Project would continue to implement SWPPP at CUP Site #5. Project would not include changes to existing onsite

Element	Goal	Policy	Applicability
		system. Build storm water pollution prevention systems into all development projects including maximizing landscaped areas and providing areas for storm water storage and sedimentation.	drainage conditions or increase runoff potential at any CUP sites.
		Policy 3.21: Require new projects to include permanent controls to reduce storm water pollutant loads from development sites including parking lots to the maximum extent practicable.	Project would continue to implement SWPPP at CUP Site #5. Other CUP sites would continue to have no potential for offsite discharge.

Source: City 1986, 2001

3.10.2.8 City of Signal Hill Municipal Code—Chapter 12.16

The intent of Chapter 12.16 of the Municipal Code is to protect public health, welfare, and safety and to reduce the quantity of pollutants discharged to Waters of the U.S. Specifically, the provisions outlined in Chapter 12.16 intend to accomplish the following:

- Eliminate non-storm water discharges to the municipal storm drain system;
- Eliminate the discharge of pollutants into the municipal storm drain system;
- Reduce pollutants in storm water discharges to the maximum extent practicable;
- Protect and enhance the quality of Waters of the U.S. in a manner consistent with provisions of the CWA; and
- Reduce contribution of pollutants from the MS4 through interagency coordination.

This chapter focuses on ensuring any commercial, industrial, or construction activity complies with all USEPA and SWRQB stormwater discharge requirements through pollutant reduction strategies, including BMPs and low impact development with emphasis put on compliance with the municipal separate storm sewer system (MS4) Permit.

3.10.2.9 Lower Los Angeles River & Los Cerritos Watershed Management Programs

The City of Signal Hill is a permittee under the Los Angeles RWQCB Order No. R4-2012-0175, adopted on November 08, 2012, which enacted WDRs for MS4 discharges within the coastal watersheds of Los Angeles County. The MS4 Permit established strict numerical limits regarding the quantity of pollutants that can be discharged by stormwater and urban runoff. To comply with the MS4 Permit, the City has submitted Watershed Management Programs for the Lower Los Angeles River and the Los Cerritos Channel watersheds. Both programs include a commitment to reduce the quantity of pollutants carried by soil and sediment.

3.10.2.10 Los Angeles County Department of Public Works – Hydrology Manual

The Hydrology Manual (Los Angeles County Department of Public Works 2006) establishes the Los Angeles County Department of Public Work's hydrologic design procedures and techniques that are applicable to the design of local storm drains, retention and detention basins, pump stations, and major channel projects. The standards set forth in the manual dictate all hydrology calculations done under Public Works' jurisdiction. The Project would not alter existing stormwater drainage or retention conditions at the CUP sites, and therefore the standards would not apply.

3.10.3 Impact Assessment

HYD (a). Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant with Mitigation Incorporated. Most of the CUP sites have been designed to contain stormwater or other quantities of incidental water that may fall within the site boundaries which is generally directed toward the existing well cellars/sumps or floor drain where it is contained and recycled through SHP's existing water separation/processing system. All sites covered under CUP 97-03 are considered exempt from the IGP through either an approved NONAs or through termination coverage, as the sites do not have the potential to discharge to Waters of the United States, with the exception of CUP Site #5, which currently maintains coverage under the IGP and implements a SWPPP.

As part of ongoing operations, SHP would continue to maintain and follow HMBPs for sites that store hazardous materials (CUP Sites #1 through #5). Ongoing operations would not result in a change or increase in the quantities of hazardous materials used or stored onsite, with the exception of CUP Site #7. For CUP Site #7, SHP is in the process of preparing an HMBP to address changes in the quantities of hazardous materials used or stored at that site which without an HMBP could result in a *potentially significant* impact. SHP also maintains three SPCC Plans which cover existing operations at all CUP sites and would cover ongoing Project operations as well. The existing SPCC plans identify procedures, controls, devices, and facilities to prevent or minimize the release of petroleum products to surface water and groundwater. Produced water at the CUP sites is collected, processed, and reinjected at the existing injection sites. No industrial wastewater is discharged from the existing facilities, nor would any discharges result from continued operations. As part of ongoing operations, redrilling activities would continue at the CUP sites. However, all work would be completed in existing well cellars, and no new excavation would occur. SHP would not exceed the annual maximum number of redrilling operations (6), in any given year over the 20-year continued operation period. As part of ongoing operations, SHP's SPCC plans would continue to be updated as needed throughout the proposed 20-year life of the Project. As such, the potential for the Project to impact surface water quality due to accidental releases or spills of hazardous substances is considered unlikely,

as suitable measures would continue to be implemented through the SPCC plans, in accordance with applicable federal and state regulations. Therefore, impacts would be less than significant.

New Project activities would not result in a change or increase in the quantities of hazardous materials used or stored onsite with the exception of CUP Site #7, which requires a HMBP to be prepared to address changes in the quantities of hazardous materials used or stored at that site. New Project activities would not change or increase onsite storage conditions; therefore, the existing SPCC plans and the spill prevention and containment measures included would remain sufficient for the Project. Although significant changes are not anticipated, following Project approval, the existing SPCC plan for the West Unit would be updated to include appropriate response and control measures for the proposed modification to the existing natural gas processing system at CUP Site #2. These plans would continue to be updated as needed throughout the proposed 20-year life of the Project. As such, the potential for the Project to impact surface water quality due to accidental releases or spills of hazardous substances is considered unlikely, as suitable measures would continue to be implemented through the SPCC plans, in accordance with applicable federal and state regulations.

Produced water at the CUP sites is collected, processed, and reinjected at the existing injection sites. No industrial wastewater is discharged from the existing facilities, nor would any discharges result from Project construction. The existing SWPPP at CUP Site #5 would continue to be implemented and updated as needed. New Project activities would not result in any changes to existing onsite drainage conditions or containment structures. Accordingly, there would be no potential for new offsite discharges at CUP Sites #1-4 and #6-7, and discharges at CUP Site #5 would be in compliance with the IGP and SWPPP. Therefore, potential impacts associated with the new Project activities, including drilling new wells and installing upgrades to the natural gas processing facility, are considered less than significant.

New Project activities would include drilling new wells, which would include construction of new ancillary well cellars. New well cellars are constructed by excavating a shallow hole (approximately 6-feet wide, 6-feet long, and 5-feet deep) using a back-hoe type excavator. Consistent with SHP's existing protocols, onsite areas where new well cellars are proposed would be inspected and monitored prior to and during excavation. In addition, drilling and redrilling operations would continue at the CUP sites. Up to 46 new wells may be drilled over the 20-year period of the CUP. Standard industry BMPs would be implemented during construction activities to minimize the potential of exposing site soils to erosion and mobilizing sediments in stormwater as well as preventing the accidental release of hazardous materials such as fuels, oils, grease, and lubricants from construction equipment. With implementation of the standard industry BMPs, the potential for impacts to water quality from Project construction activities would be less than significant.

Based on a review of groundwater quality conducted for the City of Signal Hill, it was found that subsurface operations within the Signal Hill-Long Beach area to date have little impact on water

quality within drinking water aquifers (Flow Science 2014). Ongoing Project operations would be the same as current operations, and therefore it is anticipated that impacts on groundwater quality would be less than significant. Since new Project activities and operations would be similar to current operations onsite, it is anticipated that impacts on groundwater quality as a result of the Project would also be less than significant.

New Project activities would not involve any changes to existing onsite drainage conditions, containment structures or hazardous materials storage at the CUP sites with the exception of CUP Site #7. SHP has and would continue to implement site-specific pollution and erosion control plans (i.e., SPCCs, HMBPs, SWPPPs) at the currently applicable CUP sites. New Project activities would occur within the existing facility footprints, and would not involve activities that would otherwise impact surface or groundwater quality, or violate RWQCB water quality standards and WDRs. Therefore, there would be no new potential for offsite discharge and impacts to water quality at CUP Sites #1-6 as a result of the Project, and potential impacts at these CUP sites would remain less than significant. For CUP Site #7, SHP is in the process of preparing an HMBP to address changes in the quantities of hazardous materials used or stored at that site which without an HMBP could result in a *potentially significant* impact.

Residual Impact

Incorporation of **MM HAZ-1** would ensure that appropriate protocols and measures are in-place to reduce potential impacts to water quality from a release of hazardous material at CUP Site #7 to a less than significant level.

HYD (b). Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant. Water produced by the production wells is 100% recycled for secondary recovery/waterflood operations in accordance with SHP's active Class II UIC permit. Produced water at the CUP sites is collected, processed, and reinjected at the existing injection sites. SHP's current operations consume an average of 9,500 gallons of potable water per day on normal operating days, which is the amount currently supplied by the City of Signal Hill. Redrilling operations do not require additional water. Ongoing Project operations would not result in an increase in potable water use and therefore impacts would be less than significant.

An additional 2,100 gallons per day is required when new wells are being drilled which is an approximately 22 percent increase compared to normal operating days (redrilling does not consume additional water resources). SHP estimates that over the 20-year CUP period, it would drill up to 46 new wells (total of all new wells at the seven sites). The maximum number of new wells that would be drilled in any given year is five, and the average number of new wells to be drilled in a given year is two. Depending on the target depth of the well and specific geologic conditions encountered, on average drilling a new well can be completed within a month. Assuming a total of 20 drilling days per month, this would require approximately 42,000 gallons

of water in addition to normal operations to complete one new well. The proposed gas system modifications at CUP Site #2 would not increase water use for the Project. Following completion of drilling, no future change in potable water use or produced water recycling/reinjection would occur as a result of the new Project activities.

In 2020, the City's potable water demand was 1,918 acre-feet (AF) and the City's groundwater right in the Central Basin is 2,022 acre-feet per year (AFY) (City 2021a). The City's groundwater production wells make up approximately 90% of the water supply (City 2022b), and in 2020, the City's potable water supply was 97 percent groundwater and 3 percent imported water (City 2021a). If the maximum number of new wells were drilled in a given year, this would result in approximately 0.64 AF of additional water, which represents approximately 0.03% of the City's overall groundwater right in the Central Basin. Accordingly, new Project activities would not substantially decrease groundwater supplies or interfere with groundwater recharge and, therefore, impacts would be less than significant.

HYD (c). Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in a substantial erosion or siltation on- or off-site;

Less than Significant. Continued Project operations would not result in any changes to the existing drainage patterns onsite. Stormwater BMPs which manage off-site sediment transport during operations and rain events are implemented at CUP Site #5, which is the only site that discharges offsite. During ongoing operations, SHP would continue to maintain existing containment/drainage structures and implement site-specific erosion control plans (i.e., SWPPPs) and related BMPs as applicable. Therefore, ongoing operations would have a less than significant impact.

New Project activities, including drilling new wells and upgrades to the natural gas processing facility, would not alter the existing drainage patterns onsite. The new natural gas processing equipment would generally be installed on top of existing paved surfaces with minimal ground disturbance for underground process piping, electrical conduits and control cable conduits as well as reinforced concrete foundations for each piece of equipment which would be entirely within the existing containment boundary of CUP Site #2. Installation of the gas system structures would not create new slopes, permanently exposed soil, or other topographic conditions which could increase the chance of surface runoff or erosion/siltation. Additionally, the natural gas processing system modification would not increase the amount of total paved surfaces or introduce new onsite features that would alter the existing drainage pattern at CUP Site #2.

Construction of additional well cellars for drilling new wells would be constructed within the boundaries of the existing CUP sites, and in accordance with the City's setback requirements. Consistent with SHP's existing protocols, onsite areas where new well cellars

are proposed are inspected and monitored prior to and during excavation. Well cellar excavation, monitoring, and soil evaluation/sampling would continue to be conducted in accordance with applicable City, state, and federal regulations. Once constructed, the new well cellar would act as a containment structure and therefore increase the containment capacity of the given CUP Site. During construction and ongoing operations for new Project activities, SHP would continue to maintain existing containment/drainage structures and implement site-specific erosion control plans (i.e., SWPPPs) and related BMPs as applicable. New Project activities would not substantially alter the existing drainage pattern of the CUP sites or surrounding areas through alteration of existing streams, rivers or through the addition of impervious surfaces, and therefore impacts would be less than significant.

ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*

Less than Significant. The CUP sites were designed for onsite containment of stormwater and other quantities of incidental water that may fall within the CUP boundaries. Therefore, most CUP sites have no potential for offsite discharge during storm events and are exempt from the State's IGP and do not maintain SWPPP. CUP Site #5 operates under a SWPPP and SHP implements BMPs related to stormwater discharge. Therefore, ongoing Project operations would have a less than significant impact.

New Project activities would not include any changes to existing onsite drainage conditions or containment structures, and therefore there would continue to be no potential for offsite discharge at these sites. CUP Site #5 would continue to be operated under a SWPPP, and SHP would continue to implement BMPs related to stormwater discharge under the construction and operation of new Project activities. Therefore, new Project activity impacts related to surface runoff and offsite flooding would be less than significant.

iii. *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;*

Less than Significant. Ongoing Project operations would not include any changes to existing onsite drainage conditions or containment structures, and therefore there would continue to be no potential for offsite discharge at CUP Sites #1-4 and #6-7. As part of the SWPPP, SHP implements BMPs at CUP Site #5 to reduce the potential for polluted runoff due to contact with onsite chemicals including petroleum, automotive coolant, hydraulic fluid, gasoline, diesel fuel, and small amounts of general maintenance products. The sources of potential pollution from this facility are crude petroleum, lubricants and coolant from any vehicles or equipment that are used onsite. In general, all petroleum is enclosed in tanks that are also surrounded by a secondary containment. All chemicals located onsite are contained within covered containers, which are placed within secondary containment structures. Therefore, these chemicals are not considered to be potential sources of storm

water pollution from this facility. Stormwater that falls onto the site is gathered by a series of drains located throughout the facility and is gravity-fed to a collection separator (weir box) prior to being discharged to a storm drain line. As part of ongoing operations, SHP would continue to implement BMPs for loading/unloading of materials which can pollute stormwater; outdoor equipment/material storage areas; industrial parking lots, access roads, and other paved areas; oil well production and drilling rig operations; and stormwater management. No vehicle/equipment fueling, maintenance, or cleaning is conducted onsite and therefore no BMPs are required for these operations. Impacts due to ongoing Project operations would be less than significant.

New Project activities would not include any changes to existing onsite drainage conditions or containment structures, and therefore there would continue to be no potential for offsite discharge at CUP Sites #1-4 and #6-7. SHP would continue to implement BMPs at CUP Site #5 to reduce the potential for polluted runoff due to contact with onsite chemicals. With continued implementation of these BMPs, impacts associated with new Project activities would be less than significant.

iv. Or impede or redirect flood flows?

No Impact. Neither ongoing Project operations or construction/operations associated with new Project activities would include any changes to existing onsite drainage conditions or containment structures, and therefore would not impede or redirect flood flows. No impacts would occur.

HYD (d). In flood hazard, tsunami, or seiche zones, would the Project risk release of pollutants due to project inundation?

Less than Significant. The CUP sites are designated by FEMA as Zone X, which are areas of minimal flood hazard, and are not located in a tsunami or seiche zone (CDOC 2022, City 2016). With minimal flood hazards at the CUP sites, and no water features on or nearby the sites that would cause substantial flooding, the risk of pollutant release due to CUP site inundation during ongoing Project operations as well as new Project activities is less than significant.

HYD (e). Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant. Both the Central and West Coast basins are listed in the very low priority category by the Department of Water Resources and therefore are not required to develop groundwater sustainability plans (DWR 2022). However, the WRD developed the Groundwater Basins Master Plan for the West Coast and Central groundwater basins, which aims to identify projects and programs to enhance basin replenishment, increase reliability of groundwater resources, improve and protect groundwater quality, and ensure that the groundwater supplies are suitable for beneficial uses (WRD 2016).

As part of continued operations at the CUP sites, SHP would implement site-specific BMPs to protect surface and ground water quality, and would continue to comply with existing conditions of approval to ensure operations would not adversely impact water resources. Therefore, impacts would be less than significant.

New Project activities would not obstruct implementation of a water quality control plan or sustainable groundwater management plan, as construction and operations would not impair any beneficial uses or degrade water quality. As described under HYD (a) above, the Project would have a less than significant impact on water quality. The Project would implement BMPs during construction as well as part of the SWPPP for CUP Site #5 which has stormwater discharges to prevent impacts on water quality. Additionally, the Project would have no potential for new offsite runoff or create new onsite conditions with the potential to adversely impact water quality in violation of applicable regulations and management plans. New Project activities would not result in new waste streams or discharges that would be subject to regulation under an applicable water quality control plan. SHP would continue to implement site-specific BMPs to protect surface and ground water quality, and would continue to comply with existing conditions of approval to ensure operations would not adversely impact water resources. Therefore, impacts would be less than significant.

3.11 Land Use and Planning

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.11.1 Environmental Setting

The CUP sites are generally located in developed urban areas dispersed throughout the City of Signal Hill. Table 3.11-1 describes each CUP Site as well as the land uses within the immediately vicinity. Although not part of CUP 97-03, many of the adjacent properties/land uses are either owned by SHP and leased out to various residential, commercial, or industrial tenants, or were previously owned by SHP and sold for redevelopment. Table 2.2-1 in the Project Description includes general plan and zoning designations for each of the CUP sites, which are summarized in Table 3.11-2 below.

Table 3.11-1: Surrounding Land Uses

CUP Site	Adjacent Land Use Designations	Description
No. 1	Commercial	Located within the central portion of an existing shopping center parking lot (Gateway Center developed on SHP-owned property). Site is surrounded on all sides by existing parking/commercial developments.
No. 2	Commercial/Industrial	Located at the southeastern corner of E. Spring Street/Orange Avenue, north of E. 29th Street. Site is directly adjacent to existing commercial/industrial properties to the east (Honda dealership developed on SHP-owned property) and south (various commercial offices/warehouses).
No. 3	Commercial/Industrial	Located at the north of E. Willow Street and east of Walnut Avenue. Site is directly adjacent to existing commercial/industrial properties to the north (miscellaneous scrapyards) and east (industrial storage yard/fast food/retail developed on SHP-owned property). Other SHP oil and gas operations not part of CUP 97-03 are located nearby to the west and south of the site.
No. 4	Commercial/Industrial	Located directly behind the existing Home Depot and Costco Wholesale retail stores (both developments were facilitated by/located on SHP-owned property). Other SHP oil and gas operations not part of CUP 97-03 are located nearby to the east and south of the site.
No. 5	Residential/Industrial	Located southwest of Combellack Drive and Temple Avenue/Obispo Avenue, adjacent to existing residential neighborhoods (developed on SHP-owned

CUP Site	Adjacent Land Use Designations	Description
		property) located to the north and south. Other SHP industrial land uses not part of CUP 97-03 are located nearby.
No. 6	Residential/Industrial	Located south of 20th Street, west of Redondo Avenue, and north of E. Grant Street. Residential neighborhoods (developed on SHP-owned property) are located to the north across 20th Street, while existing industrial uses (also developed on SHP-owned property) surround the site to the west, south, and east.
No. 7	Industrial	Located just south of CUP Site #6, southwest of E. Grant Street and Redondo Avenue. Site is surrounded by existing industrial facilities (developed on SHP-owned property) on all sides.

Table 3.11-2: CUP Site Designations

CUP Site	Parcel Number	General Plan Designation	Zoning Designation
West Unit			
Site #1	7207-024-037	Commercial General (3.2)	Commercial Corridor Specific Plan (SP-6)
Site #2	7212-008-104	Commercial General (3.2) General Industrial (4.2)	Commercial Corridor Specific Plan (SP-6)
	7212-008-105	General Industrial (4.2)	General Industrial (GI)
Site #3	7212-011-034	Town Center (3.1)	Commercial Corridor Specific Plan (SP-6)
Central Unit			
Site #4	7214-007-032	Town Center (3.1)	Town Center Specific Plan (SP-1)
Site #5	7214-010-006	Low Density Residential (1.1)	Planned Develop District-2 (PD-2) Hilltop Area Specific Plan (SP-2)
	7214-011-013	Low Density Residential (1.1)	Planned Develop District-2 (PD-2) Hilltop Area Specific Plan (SP-2)
East Unit			
Site #6	7217-019-009	Public Institution (PI-4.1)	Light Industrial (LI)
Site #7	7217-020-005	Public Institution (PI-4.1)	Light Industrial (LI)
	7217-020-006	Public Institution (PI-4.1)	Light Industrial (LI)

3.11.2 Regulatory Setting

3.11.2.1 Signal Hill General Plan

The Land Use Element (2001) of the City of Signal Hill General Plan addresses land use and planning in goals and policies, as outlined in Table 3.11-3.

Table 3.11-3: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Land Use	Goal 1: Manage growth to achieve a well-balanced land use pattern that accommodates existing and future needs for housing, commercial and industrial land, open space, and community facilities and services, while maintaining a healthy, diversified economy adequate to provide future City revenues.	Policy 1.5 - The distribution and intensity of land uses shall be consistent with the land use map and descriptions for each of the land use categories in Section VI of the Land Use Element.	Project would occur on already developed and currently operating CUP sites, which are consistent with the City's land use map and zoning designations.

Source: City 2001

3.11.2.2 Signal Hill Zoning Designations

The various zoning designations applicable to the Project specify land uses that are permitted subject to a Conditional Use Permit, which include oil well and appurtenant facilities subject to the provisions of Title 16 (Oil and Gas Code) and Chapter 20.74 of the Signal Hill Municipal Code.

3.11.2.3 Title 16 Oil and Gas Code

The City of Signal Hill Oil and Gas Code regulates the drilling for production, processing, storage, and transport by pipeline of petroleum and other hydrocarbon substances; timely and proper well abandonment and well site restoration and removal of oil and gas related facilities; reclamation and remediation of host sites; and final disposition of pipelines in compliance with applicable laws and permits so that these activities may be conducted in conformance with federal, state, and local requirements, and to mitigate the impact of oil-related activities on urban development. SHP currently operates in accordance with the City of Signal Hill Oil and Gas Code and would continue to do so as part of the Project.

3.11.3 Impact Assessment

LUP (a). Would the Project physically divide an established community?

No Impact. The CUP drill sites have been in operation since 1998 and are located within existing communities. Ongoing operations would occur entirely within the boundary of the CUP sites, and therefore would not divide an established community.

No new Project activities are proposed outside of the footprint of the CUP sites, therefore, the Project would not result in division of any established community.

LUP (b). Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The CUP drill sites are operated in accordance with the Oil and Gas Ordinance adopted in 2016. Additionally, drill sites are operated in accordance with all prior conditions of approval which were adopted to mitigate potential environmental effects. Therefore, ongoing Project operations would not conflict with any City land use plans, policies, or regulations and no impacts would occur.

New project activities would be implemented in accordance with the Oil and Gas Ordinance as well as all prior conditions of approval. Therefore, no impacts would occur as a result of drilling new wells, constructing well cellars, or installing upgrades to the gas plant.

3.12 Mineral Resources

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 a value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.12.1 Environmental Setting

The Mineral Resource Zone classification areas in Signal Hill are shown in the California Geological Survey's mineral resources map, "Generalized Mineral Land Classification Map of Los Angeles County: South Half" (CGS 1994). The CUP sites are located within the MRZ-3 zone, for which the significance of mineral deposits cannot be determined from the available data. The City of Signal Hill planning documents do not identify any mineral resources.

Although the Project area is not designated as having significant mineral deposits, which are nonfuel mineral resources, the CUP sites are existing oil production and drilling sites within the Long Beach Oil field where substantial subsurface petroleum deposits are present. As described in the 2015 MND, continued extraction of resources from the Long Beach Oil Field is not considered a loss in the availability of important mineral resources in the same way that constructing a development 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 resources unavailable for other uses.

3.12.2 Regulatory Setting

Sections 2761(a) and (b) and 2790 of the Surface Mining and Reclamation Act provide for a mineral lands inventory process termed classification-designation. The California Division of Mines and Geology and the State Mining and Geology Board are the state agencies responsible for administering this process. The primary objective of the process is to provide local agencies with information on the location, need, and importance of minerals within their respective jurisdictions. It is also the intent of this process that this information be considered in future land-use decisions planning decisions. Under Surface Mining and Reclamation Act, local land use jurisdictions are the enforcing lead agencies for mineral resource issues, which state agencies guide and regulate city and county enforcement of Surface Mining and Reclamation Act.

3.12.3 Impact Assessment

MIN (a). Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?

No Impact. The proposed Project would result in the production of a known mineral resource (e.g., petroleum) that is of value to the region and the residents of the State. Ongoing operations would occur entirely within the boundaries of the existing CUP sites, and extension of the CUP would ensure there is no loss of availability of the resources. Therefore, no adverse impacts would occur.

New Project activities would occur within the existing boundaries of the CUP sites, and would further result in the production of a known mineral resource of value to the region and the State. Therefore, no adverse impacts would occur.

MIN (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?

No Impact. The Signal Hill General Plan does not designate important mineral resource recovery sites within the City limits in planning documents. Ongoing operations would occur entirely on developed CUP sites which are currently used for oil production. New Project activities would occur entirely within the boundaries of the developed CUP sites which are currently used for oil production. As described above the Project would result in the production of a known mineral resource. No adverse impacts would occur resulting in the loss of availability of a locally important mineral recovery site.

3.13 Noise

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Noise. Would the project:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.13.1 Environmental Setting

3.13.1.1 Definitions

The following terms are employed in this noise impact assessment

- Decibel (dB): A unit division, on a logarithmic scale, whose base is the tenth root of ten, used to represent ratios of quantities proportional to power. In simple terms, if the power is multiplied by a factor of ten, then ten is added to the representation of the power on the decibel scale. If 0 dB represents 1 unit of power, 30 dB represents one thousand units, 60 dB represents one million units, etc.
- A-Weighted Sound Level (dBA): Sound pressure level measured using the A-weighting network, a filter which discriminates against low and very high frequencies in a manner similar to the human hearing mechanism at moderate sound levels. The A-weighted sound level is generally used when discussing environmental noise impacts.
- L₅₀, L₂₅, L_{8.3}, L_{1.7}: The A-weighted noise level that is equaled or exceeded by the designated percentage of time within the sample. In other words, L₅₀ is the noise level that is exceeded 50% of the time (i.e., 30 minutes in an hour), L₂₅ is the noise level exceeded 25% of the time (i.e., 15 minutes in an hour), L_{8.3} is exceeded 8.3% of the time (i.e., 5 minutes in an hour), etc.
- Maximum Noise Level (L_{max}). The instantaneous maximum noise level measured during the sample period.

- Equivalent Continuous Noise Level (L_{eq}). The average noise level over a designated time period. This is often referred to as "equivalent sound level", hence the "eq" subscript. The "equivalence" is to a sound of constant level that has the same total acoustic energy content.
- Ambient (i.e., Background) Noise Level: The current noise level in the vicinity of the proposed Project that results from the combination of all sources, near and far. Please note, ambient noise measurements presented in this Noise Impact Analysis include noise generated by SHP's existing permitted operations under CUP 97-03 (see Section 3.2).
- Noise-Sensitive Receptors: Per the City of Signal Hill – General Plan, noise-sensitive receptors are those uses that have associated human activities that may be subject to stress or significant interference from noise. Potentially sensitive uses as designated by the City primarily include residences, schools, churches, and libraries.
- Day-Night Average Level (L_{dn} – dBA): The long-term time average sound level, weighted as follows:
 - Frequency response is filtered using the A-weighting network.
 - Daytime noise (7:00 a.m. to 10:00 p.m.) is not weighted.
 - Nighttime noise (10:00 p.m. to 7:00 a.m.) is weighted by +10 decibels.
- Community Noise Equivalent Level (CNEL – dBA): The long-term time average sound level, weighted as follows:
 - Frequency response is filtered using the A-weighting network.
 - Daytime noise (7:00 a.m. to 7:00 p.m.) is not weighted.
 - Evening noise (7:00 p.m. and 10:00 p.m.) is weighted by +5 decibels.
 - Nighttime noise (10:00 p.m. and 7:00 a.m.) is weighted by +10 decibels.

3.13.1.2 Local Noise Environment

As discussed in detail in Section 2, the Project includes activities within the existing seven CUP sites. The CUP sites are located throughout the City, within developed urban areas, adjacent to lands designated for industrial, commercial and residential uses. Noise at and around the Project area is characteristic of a densely populated urban area, with major noise sources being I-405; Pacific Coast Highway; and noise from aircraft taking off from and landing at the Long Beach Airport, which is located roughly one mile northwest of CUP Site #5.

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior

noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses, as are commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

Noise measurements at the closest sensitive receptors in each direction from the CUP sites were evaluated. To quantify the existing ambient (i.e., baseline) noise environment experienced at applicable property lines and receptors closest to the Project, a total of ten (10) 24-hour noise measurements were collected at eight (8) locations surrounding each CUP Site over the course of two weeks (beginning April 12th, 2022 and ending April 27th, 2022). Measurements at these closest receptors conservatively account for other potentially affected receptors located farther from the Project site(s) and equipment noise sources. The locations of the baseline noise measurements and the corresponding Project site receptors are summarized in Table 3.13-1.

Table 3.13-1: Summary of Sensitive Receptor Locations

CUP Site	Receptor	Receptor Type	Description
CUP Site #1	R1	Residence	Residential neighborhoods located east of CUP Site #1, across Atlantic Avenue.
	R2	Commercial	Commercial receptor (Home Depot) located immediately northeast of CUP Site #1, within the Gateway shopping center.
	R3	Commercial	Commercial receptor (Ross Dress for Less & Petco) located immediately northwest of CUP Site #1, within the Gateway shopping center.
	R4	Commercial	Commercial receptor (Jack in the Box) located immediately south of CUP Site #1, within the Gateway shopping center
CUP Site #2	R5	Commercial	Commercial receptor (business park with various tenants) located south of CUP Site #2, across E. 29th Street.
	R6	Commercial	Commercial receptor (Long Beach Honda) located east of CUP Site #2.
	R7	Industrial	Industrial receptor (Rain for Rent) located north of CUP Site #2, across E. Spring Street.
CUP Site #3	R8	Residence	Residential apartment complex located southwest of CUP Site #3, across the intersection of Walnut Avenue and E. Willow Street.
	R9	Commercial	Commercial receptor (Food 4 Less) located southwest of CUP Site #3, across E. Willow Street.
	R10	Commercial	Commercial receptor (2 H Construction) located west of CUP Site #3, across Walnut Avenue.
	R11	Commercial	Commercial receptor (99 Cents Only Store) located east of CUP Site #3.

CUP Site	Receptor	Receptor Type	Description
	R12	Industrial	Industrial receptor (miscellaneous auto repair shops) located northeast of CUP Site #3.
CUP Site #4	R13	Residence	Residential apartment complex located northeast of CUP Site #4, across the intersection of Junipero Avenue and Combella Drive.
	R14	Commercial	Commercial receptor (Costco Wholesale) located north of CUP Site #4.
	R15	Commercial	Commercial receptor (Home Depot) located immediately west of CUP Site #4.
CUP Site #5	R16	Residence	Residential neighborhoods located north of CUP Site #5, across Combella Drive.
	R17	Residence	Residential neighborhoods located immediately east of CUP Site #5.
	R18	Residence	Residential neighborhoods located southwest of CUP Site #5.
CUP Site #6	R19	Residence	Residential neighborhoods located north of CUP Site #6, across 20th Street.
	R20	Residence	Residential neighborhoods located northeast of CUP Site #6, across the intersection of 20th Street and Redondo Avenue.
	R21	Commercial	Commercial receptor (Platt Investigations, Inc.) located immediately west of CUP Site #6.
CUP Site #7	R22	Commercial	Commercial receptor (Don Miller & Sons Plumbing) located immediately east of CUP Site #7.

Table 3.13-2 presents the ambient noise levels measured near the receptors within the Project site vicinity on April 12th through the 14th, and April 25th through 28th, 2022. Noise from the SHP's existing operations under CUP 97-03 were captured in the ambient noise levels, as the CUP Sites were operating while the measurements were taken. Table 3.13-2 summarizes the daytime (7:00 a.m. – 10:00 p.m.), nighttime (10:00 p.m. – 7:00 a.m.), and 24-hour average (L_{eq}) exterior noise levels, as well as 24-hour CNEL exterior noise level measured within the vicinity of the CUP Sites/Project receptors. The ambient noise level metrics shown in Table 3.13-2 are utilized to address the applicable Signal Hill and Long Beach criteria.

Table 3.13-2: Ambient Noise in Project Vicinity

CUP Sites/Receptors	Average Daytime L_{eq} (7:00 a.m.-10:00 p.m.) (dBA)	Average Nighttime L_{eq} (10:00 p.m.-7:00 a.m.) (dBA)	24-Hour L_{eq} (dBA)	CNEL (dBA)
CUP Site #1 (R1 – R4)	74.4	61.9	72.4	73.7
CUP Site #2 (R5 – R7)	66.7	66.3	66.5	73.0
CUP Site #3 (R8 – R12)	58.5	56.8	57.9	63.7
CUP Site #4 (R13 – R15)	69.3	59.5	67.5	69.5

CUP Sites/Receptors	Average Daytime L_{eq} (7:00 a.m.-10:00 p.m.) (dBA)	Average Nighttime L_{eq} (10:00 p.m.-7:00 a.m.) (dBA)	24-Hour L_{eq} (dBA)	CNEL (dBA)
CUP Site #5 (R16 – R18)	57.8	55.1	57.0	62.3
CUP Site #6 (R19 – R21)	59.8	52.5	58.2	61.7
CUP Site #7 (R22)	57.8	56.8	57.5	63.5

Source: Sespe 2022c

3.13.2 Impact Assessment

NOI (a). Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant with Mitigation Incorporated. To address the CEQA Guidelines Appendix G, Noise Threshold Criteria (a), the applicable City of Signal Hill General Plan and Municipal Code standards are utilized. Additionally, for those noise receptors located within the City of Long Beach (i.e., Receptors R1, R7, R19 and R20), applicable Long Beach standards are also utilized. Lastly, a +3 dBA or greater increase in noise levels at nearby receptors due to onsite Project noise sources would also be considered a *potentially significant* impact.

Noise sensitive areas typically include residential areas, schools, convalescent hospitals, acute care facilities, and park and recreational areas. The CUP sites are located in a highly urbanized area characterized by a wide variety of land uses with numerous sensitive receptors located within and in the vicinity of several CUP sites. The following summarizes the nearest sensitive receptors to each site:

- CUP Site #1 – Residences approximately 860 feet to the west,
- CUP Site #2 – Residences approximately 1,350 feet to the northwest,
- CUP Site #3 – Residences approximately 680 feet to the southwest,
- CUP Site #4 – Residences approximately 500 feet to the northeast,
- CUP Site #5 – Residences approximately 25 feet to the west,
- CUP Site #6 – Residences approximately 85 feet to the north, and
- CUP Site #7 – Residences approximately 310 feet to the north.

As summarized in Section 2, the Project is primarily the continuance of SHP's existing consolidated oil and gas operations at the seven CUP Sites covered under CUP 97-03 for the proposed 20-year term. Although drilling and redrilling operations have and would continue to occur in the same manner and location (i.e., within the CUP Site boundaries), and with the same equipment/drill rigs that SHP currently uses, conservatively this analysis treats these existing operations as a "new" noise source, and therefore quantifies potential impacts at

nearby receptors as a result of drilling/redrilling activity during the proposed 20-year term of the Project. The remainder of SHP's existing and ongoing oil and gas operations (e.g., oil/gas extraction, tanks/conveyances, off-road equipment, on-road vehicles, routine maintenance/servicing, ancillary operations, natural gas processing and the power turbine at CUP Site #2, etc.) were captured within the ambient noise levels (see Table 3.13-2), as all seven CUP Sites were fully active and operational while the measurements were being collected. Ongoing operation of the existing facilities would continue comply with the mandatory requirements of the applicable noise ordinance of the SHMC. With compliance with the applicable SHMC noise ordinance, the ongoing operation of the existing facilities would have a less than significant impact relative to this impact criteria. This potential impact will be addressed in greater detail in the EIR.

With respect to new project activities, the following sections summarize the methodologies, assumptions and reference noise levels utilized in the analyses of each Project activity with the potential to generate noise at nearby sensitive receptors, specifically the following: 1) Gas System Modification – Construction; 2) Gas System Modification – Operations; 3) Drilling (new wells); and, 4) Redrilling (existing wells). In addition, the estimated noise levels resulting from new project activities are presented below. The predicted noise level change experienced at each receptor/property line as result of the Project is quantified and compared to the applicable thresholds to determine the potential significance of Project impacts. Where Project noise levels exceed applicable thresholds, feasible mitigation measures are proposed.

Natural Gas Processing Facility Modification – Construction

To determine noise impacts during construction of the proposed natural gas processing system modifications at CUP Site #2, various noise reference data was utilized. Per information provided by SHP, mobile equipment (e.g., backhoe, crane, etc.) and other smaller tools (e.g., concrete saw, welder/torch, drum mixer, etc.) would operate onsite to prepare the surface foundations, install/anchor the new equipment (e.g., compressor, LTS unit, CO₂ unit, burner, etc.), and conduct ancillary construction activities as needed. The natural gas modifications would be installed within the northwestern portion of CUP Site #2, adjacent to the existing natural gas/vapor recovery systems.

To determined worst-case noise impacts during construction of the gas system modifications, it is assumed that the construction equipment summarized in Table 3.13-8 below would operate simultaneously at-grade in the onsite construction area closest to the nearest SHP property line and/or each affected receptor. Note that due to large existing structures found at CUP Site #2, specifically the onsite field office/power turbine infrastructure located immediately north of the proposed gas system modification area, as well as the block walls that surrounds CUP Site #2, line-of-sight would either be partially or fully blocked between onsite construction activities and offsite receivers. Therefore, some shielding and noise attenuation due to these intervening structures was accounted for in the impact calculations (Sespe 2022c).

Table 3.13-3 shows the type and quantity of equipment estimated to be utilized at CUP Site #2 during construction of the gas system modifications. Usage fraction (%) and maximum sound pressure level (L_{max}) noise data shown for mobile sources are FHWA default values.

Table 3.13-3: Gas System Modifications – Construction Equipment Noise References

Equipment Noise Source	L_{max} @ 50-feet (dBA)	Usage (%)	L_{eq} @ 50-feet (dBA)
Backhoe	80	40%	76
Concrete Saw	90	20%	83
Crane	85	16%	77
Drum Mixer	80	50%	77

Source: FHWA 2006

Per information provided by SHP, and in accordance with Section 9.16.050 of the City's Municipal Code (see Section 3.13.2.5), construction of the proposed gas system modifications would be limited to Monday through Friday, between the hours of 7:00 a.m. and 6:00 p.m. Note, this construction schedule is also consistent with the Long Beach construction noise ordinance (see Section 8.80.202 of the Long Beach Municipal Code). Because certain City criteria applies to noise effects over a 24-hour period (e.g., CNEL noise levels), it was assumed that the construction equipment summarized in Table 3.13-3 would operate simultaneously for up to 11-hours in a given day, at-grade, in the applicable construction area in closest proximity to nearest Project property boundary/sensitive receptor.

Table 3.13-4 below shows the estimated daytime (7:00 a.m. – 10:00 p.m.) average (L_{eq}), as well as the 24-hour CNEL noise levels experienced at nearby receptors as a result of construction equipment operating at CUP Site #2. Note that only receptors within the vicinity of CUP Site #2 are considered below (i.e., Receptors R5, R6 and R7). To determine worst-case noise impacts, it was assumed that the construction equipment summarized in Table 3.13-3 would operate simultaneously at-grade in the onsite location closest to each affected receptor (Sespe 2022c). Note that minimal shielding and noise attenuation due to distance and intervening structures/topography structures (e.g., field office, power turbine infrastructure, block walls, etc.) was accounted for in the impact calculations (Sespe 2022c).

Table 3.13-4: Gas System Modifications – Predicted Construction (Temporary^a) Noise Levels at Receptors (L_{eq} dBA)^a

Time Period	Receptor	Receptor Type	Baseline ^b	Equipment Source	Total Project	Increase due to Project ^c	Potentially Significant?
Daytime	R5	Commercial	66.7	63.4	68.4	+1.7	No
Daytime	R6	Commercial	66.7	62.0	68.0	+1.3	No
Daytime	R7	Industrial	66.7	60.2	67.6	+0.9	No
Nighttime	R5	Commercial	66.3	---	66.3	0.0	No

Time Period	Receptor	Receptor Type	Baseline ^b	Equipment Source	Total Project	Increase due to Project ^c	Potentially Significant?
Nighttime	R6	Commercial	66.3	---	66.3	0.0	No
Nighttime	R7	Industrial	66.3	---	66.3	0.0	No

Source: Sespe 2022c

Notes:

- Note that construction activities would occur during daytime hours only (7:00 a.m. and 6:00 p.m.). Therefore, there would be no nighttime activities (10:00 p.m. to 7:00 a.m.) and/or noise levels.
- Baseline noise levels represent the actual measured noise levels within the vicinity of CUP Site #2 (see Table 3.13-2).
- A potentially significant impact would result of the Project were to generate noise that exceeds the existing measured ambient noise levels by +3 decibels or more.

As shown in Table 3.13-9, the estimated Project noise levels resulting from the construction of the natural gas system modifications would not exceed the applicable City of Signal Hill or City of Long Beach noise standard at any receptors located within the vicinity of CUP Site #2. Noise level increases experienced at nearby receptors due to onsite construction ranged from +0.5 dBA to +1.7 dBA above existing ambient levels, which is below the applicable +3 decibel threshold. Therefore, construction noise impacts are considered less than significant, with no noise controls or mitigations required.

Natural Gas Processing Facility Modification – Operation

Once construction of the natural gas processing system modifications at CUP Site #2 are complete, the equipment would be placed into full operation. As discussed in Section 2.0, the following new components would operate: (i) a sales gas booster compressor; (ii) a redundant LTS unit; (iii) a redundant CO₂ capture and sequestration unit (“CO₂ unit”); and, (iv) a Cimarron certified ultra-low emissions “CEB 800” burner. The new units would be sized for handling 2,000 million standard cubic feet per day of natural gas each and would be installed contiguous to the existing equipment. As with SHP’s existing natural gas plant at CUP Site #2, the new units would operate continuously, 24-hours per day, except during intermittent periods of maintenance or repairs.

Per information provided by SHP, Table 3.13-5 summarizes approximated noise-generating components that would operate continuously 24-hours per day at CUP Site #2 as part of the modified natural gas processing system. As with the construction impact analysis, conservatively it was assumed the plant components would operate simultaneously at-grade, in the onsite location closest to each affected SHP property line/sensitive receptor. Additionally, some noise attenuation was assumed due to shielding provided by the large power turbine building and the existing block walls which surround CUP Site #2, as these existing structures would partially or complete shield onsite equipment noise sources (Sespe 2022c).

Table 3.13-5: Gas System Modifications – Operational (Long-Term) Component Noise References

Equipment Noise Source	L _{max} @ 50-feet (dBA)	Usage (%)	L _{eq} @ 50-feet (dBA)
Compressor (air)	80	40%	76
Generator	82	50%	79
Pumps	77	50%	74
Ventilation Fan	85	100%	75

Source: Sespe 2022c

Table 3.13-6 below shows the estimated daytime (7:00 a.m. – 10:00 p.m.) and nighttime (10:00 p.m. – 7:00 a.m.) average (L_{eq}) noise levels experienced at nearby receptors as a result of the modified gas system equipment operating at CUP Site #2. Note that only receptors within the vicinity of CUP Site #2 are considered below (i.e., Receptors R5, R6 and R7). Additionally, appropriate noise attenuation due to existing perimeter block walls and the three-story power plant building was also incorporated at Receptors R5 and R7 (Sespe 2022c).

Table 3.13-6: Gas System Modifications – Predicted Operational Noise Levels at Receptors (L_{eq} dBA)

Time Period	Receptor	Receptor Type	Baseline ^a	Equipment Source	Total Project	Increase due to Project ^b	Potentially Significant?
Daytime	R5	Commercial	66.7	60.5	67.6	+0.9	No
Daytime	R6	Commercial	66.7	59.0	67.4	+0.7	No
Daytime	R7	Industrial	66.7	57.2	67.2	+0.5	No
Nighttime	R5	Commercial	66.3	60.5	67.3	+1.0	No
Nighttime	R6	Commercial	66.3	59.0	67.0	+0.7	No
Nighttime	R7	Industrial	66.3	57.2	66.8	+0.5	No

Source: Sespe 2022c

Notes:

- Baseline noise levels represent the actual measured noise levels within the vicinity of CUP Site #2 (see Table 3.13-2).
- A potentially significant impact would result of the Project were to generate noise that exceeds the existing measured ambient noise levels by +3 decibels or more.

As shown in Table 3.13-6, the estimated Project noise levels resulting from the 24-hour operations of the natural gas system modifications would not exceed the applicable noise standard at nearby receptors. Equipment noise level increases at nearby receptors ranged from a +0.5 dBA to +1.0 dBA, well below the applicable +3 dBA threshold. Note that because none of the receptors located within the vicinity of CUP Site #2 are noise-sensitive land uses (i.e., residences), the Signal Hill's General Plan CNEL standard is not applicable.

While operational noise levels experienced at nearby sensitive receptors would be less than significant, the City of Signal Hill and SHP's existing CUP 97-03 also require that noise generated by the gas processing plant not exceed 70 decibels when evaluated at the CUP Site #2 property

boundaries as well (per SHMC Section 9.16.020). As shown in Table 3.13-7, the Project noise levels resulting from the 24-hour operations of the natural gas system modifications is estimated to exceed 70 dBA at the closest western property boundary by approximately +1.0 decibels. While a +1.0 dBA change in noise is generally below the threshold of human perception (Bolt Beranek and Neuman, Inc. 1973), nonetheless **MM NOISE-1** is recommended to ensure Project's operational gas system noise would be less than significant.

Table 3.13-7: Gas System Modifications – Predicted Operational Noise Levels at Property Boundaries (L_{eq} dBA)

Property Boundary	Distance – Source to Property Boundary	Equipment Noise Level @ Property Boundary (dBA)	Applicable Threshold (dBA)	Level of Exceedance (dBA)	Potentially Significant?
North	165-feet	64.1	70	0.0	No
South	375-feet	62.0	70	0.0	No
East	425-feet	63.9	70	0.0	No
West	105-feet	71.0	70	+1.0	Yes

Source: Sespe 2022c

Values shown in **bold** represent a potentially significant impact.

Drilling (New Wells) & Redrilling (Existing Wells)

SHP uses two company-owned drilling rigs for their drilling/redrilling operations, depending on the depth to be drilled. The lighter-duty drilling rig is SHP's Drill Rig #5. The majority of Drill Rig #5 components are electrically powered, with the exception of the drawworks and mast which are powered by a portable diesel-powered engine. SHP's larger, heavier-duty Drill Rig #6 is fully electrically powered (i.e., no engines or generators used during drilling/redrilling operations). Generally, SHP's Drill Rig #5 is utilized for well servicing/redrilling, while the larger Drill Rig #6 is used to drill new wells.

To quantify noise generated by SHP's ongoing drilling/redrilling operations at the CUP Sites, average and maximum noise levels resulting from drilling and redrilling activities presented in the City's General Plan – Noise Element (City 2009) were utilized. As presented in the General Plan, the City performed noise testing during drilling operations conducted at a well in the parking lot of the Costco/The Home Depot center located at the southeast corner of Cherry Avenue and Willow Street (close to CUP Site #4). Measurements were collected along the fence of the derrick enclosure, in an open area, with no buildings or topographical changes that could affect the measured noise levels. Per the City's General Plan, Table 3.13-8 presents the noise levels measured within the vicinity of the drilling operations, at various distance intervals. Note that the General Plan measurements not only capture noise resulting from drill rig operations, but also capture ancillary activities occurring within the vicinity, including generators, mud pumps, and other equipment (i.e., equipment and personnel moving throughout the derrick enclosure). Additionally, the General Plan measurements were heavily influenced by noise coming from "generator trailers". As discussed above, SHP's drill rigs are mostly electrified and

would not require the significant use of generators, other than intermittently for the drawworks when operating Drill Rig #5. Therefore, the noise levels presented in Table 3.13-8 conservatively accounts for the estimated total noise resulting from SHP's ongoing drilling/redrilling operations.

Table 3.13-8: Drilling/Redrilling Reference Noise Level(s)

Measurement Distance (feet)	L_{eq} @ 50-feet (dBA)	Measured Maximum (L_{max})
120	65	75
120	62	70
80	65	76
60	68	86
80	76	78
120	76	81
120	75	78
80	73	82
60	73	77
80	69	79

Source: City 2009

To simplify the Project impact calculations, the General Plan noise levels summarized in Table 3.13-13 were normalized to a reference distance of 50-feet. Specifically, it's estimated that receptors at a reference distance of 50-feet would experience an average (L_{eq}) noise level of 78.2 dBA, and maximum noise level of 84.5 dBA during drilling/redrilling operations (Sespe 2022c). Furthermore, where redrilling operations for most operators would normally have to occur continuously (i.e., 24-hours per day), SHP's Drill Rig #5 has specialized components that allow redrilling operations to occur during daytime (generally between 7:00 a.m. and 7:00 p.m.) hours only (i.e., SHP is able to shutdown redrilling operations each night). While redrilling would occur during daytime hours only, drilling of new wells requires continuous 24-hour drill rig operations in a given day. Therefore, to determine worst-case noise impacts, it was assumed that during redrilling the Drill Rig #5 would operate for 12-hours per day at each CUP Site, and for drilling of new wells, the applicable drill rig (both Drill Rig #5 or #6 can be used for drilling new wells) would operate continuously for 24-hours a day at each CUP Site. Lastly, while most drilling/redrilling would continue to occur within the existing well cellars at each CUP Site, there is a potential that SHP could construct new well cellars in other onsite locations within the existing CUP boundaries to allow for the construction of new oil production and/or water injection wells. Therefore, conservatively it was assumed that drilling/redrilling could occur anywhere within the CUP boundaries, other than areas with significant existing infrastructure (i.e., tanks, piping, buildings/structures, etc.) that would preclude the construction of new well

cellars. Additionally, the required minimum drilling setbacks outlined in Section 16.16.030 of the Municipal Code was also accounted for (Sespe 2022c)

Although both processes would utilize identical drill rigs/ancillary equipment, due to operational differences of drilling new wells compared to the redrilling of existing wells, specifically that drilling occurs continuously for 24-hours per day while redrilling occurs during daytime (7:00 a.m. – 7:00 p.m.) hours only, noise impacts from drilling and redrilling were quantified separately (Sespe 2022c).

Redrilling: SHP would continue to redrill existing oil production and water injection wells at all seven of the CUP Sites on an as needed basis. As discussed previously, while the majority of redrilling would continue to occur within the existing well cellars, there is a potential that SHP could construct new well cellars in other onsite locations within the existing CUP boundaries, where future redrilling could also occur. Therefore, conservatively it was assumed that redrilling could occur in the onsite locations closest to each affected receptor (Sespe 2022c).

Table 3.13-9 shows the estimated daytime (7:00 a.m. – 10:00 p.m.) and nighttime (10:00 p.m. – 7:00 a.m.) average (L_{eq}) and 24-hour CNEL noise levels experienced at nearby receptors as a result of redrilling operations. Note that the estimated Project noise levels presented in Table 3.13-14 below take into account noise attenuation provided by acoustical blanket sound proofing required to be installed around the operating drill rig, as well as the existing block walls/barriers surrounding the CUP Sites (see Section 3.13.2.5).

Lastly, as discussed above, SHP would continue to conduct redrilling operations during daytime hours only (generally between 7:00 a.m. and 7:00 p.m.). Because certain City criteria applies to noise effects over a cumulative 24-hour period (i.e., CNEL noise levels), it was assumed that the drill rig during redrilling would operate for up to 12-hours in a given day. Additionally, because redrilling would not generate noise during nighttime hours (10:00 p.m. – 7:00 a.m.), nighttime significance criteria were excluded from the redrilling noise analysis.

Table 3.13-9: Redrilling – Predicted Noise Levels at Receptors (CNEL and L_{eq} dBA)^a

Time Period ^a	CUP Site	Receptor	Receptor Type	Baseline ^b	Equipment Source	Total Project	Increase due to Project ^c	Potentially Significant?
CNEL	#1	R1	Residence	73.7	37.5	73.7	0.0	No
		R2	Commercial	73.7	52.0	73.7	0.0	No
		R3	Commercial	73.7	53.3	73.7	0.0	No
		R4	Commercial	73.7	52.0	73.7	0.0	No
	#2	R5	Commercial	73.0	45.1	73.0	0.0	No
		R6	Commercial	73.0	48.4	73.0	0.0	No
		R7	Industrial	73.0	45.4	73.0	0.0	No
	#3	R8	Residence	63.7	43.2	63.8	0.0	No

Time Period ^a	CUP Site	Receptor	Receptor Type	Baseline ^b	Equipment Source	Total Project	Increase due to Project ^c	Potentially Significant?
		R9	Commercial	63.7	40.1	63.8	0.0	No
		R10	Commercial	63.7	46.3	63.8	+0.1	No
		R11	Commercial	63.7	50.6	63.9	+0.2	No
		R12	Industrial	63.7	53.5	64.1	+0.4	No
	#4	R13	Residence	69.5	45.3	69.5	0.0	No
		R14	Commercial	69.5	57.9	69.8	+0.3	No
		R15	Commercial	69.5	55.3	69.6	+0.2	No
	#5	R16	Residence	62.3	55.5	63.1	+0.8	No
		R17	Residence	62.3	49.2	62.5	+0.2	No
		R18	Residence	62.3	45.7	62.4	+0.1	No
	#6	R19	Residence	61.7	55.7	62.7	+1.0	No
		R20	Residence	61.7	46.0	61.8	+0.1	No
		R21	Commercial	61.7	57.5	63.1	+1.4	No
	#7	R22	Commercial	63.5	54.7	64.0	+0.5	No
Daytime 7 a.m. – 10 p.m.	#1	R1	Residence	74.4	37.5	74.4	0.0	No
		R2	Commercial	74.4	52.0	74.4	0.0	No
		R3	Commercial	74.4	53.3	74.4	0.0	No
		R4	Commercial	74.4	52.0	74.4	0.0	No
	#2	R5	Commercial	66.7	45.1	66.8	0.0	No
		R6	Commercial	66.7	48.4	66.8	+0.1	No
		R7	Industrial	66.7	45.4	66.8	0.0	No
	#3	R8	Residence	58.5	43.2	58.6	+0.1	No
		R9	Commercial	58.5	40.1	58.6	+0.1	No
		R10	Commercial	58.5	46.3	58.7	+0.3	No
		R11	Commercial	58.5	50.5	59.1	+0.6	No
		R12	Industrial	58.5	53.5	59.7	+1.2	No
	#4	R13	Residence	69.3	45.3	69.3	0.0	No
		R14	Commercial	69.3	57.9	69.6	+0.3	No
		R15	Commercial	69.3	55.3	69.5	+0.2	No
	#5	R16	Residence	57.8	55.5	59.9	+2.0	No
		R17	Residence	57.8	49.2	58.4	+0.6	No
		R18	Residence	57.8	45.7	58.1	+0.3	No

Time Period ^a	CUP Site	Receptor	Receptor Type	Baseline ^b	Equipment Source	Total Project	Increase due to Project ^c	Potentially Significant?
	#6	R19	Residence	59.8	55.7	61.2	+1.4	No
		R20	Residence	59.8	46.0	60.0	+0.2	No
		R21	Commercial	59.8	57.5	61.8	+2.0	No
	#7	R22	Commercial	57.8	54.7	59.6	+1.7	No
Nighttime ^a 10 p.m. – 7 a.m.	#1	R1	Residence	61.9	0.0	61.9	0.0	No
		R2	Commercial	61.9	0.0	61.9	0.0	No
		R3	Commercial	61.9	0.0	61.9	0.0	No
		R4	Commercial	61.9	0.0	61.9	0.0	No
	#2	R5	Commercial	66.3	0.0	66.3	0.0	No
		R6	Commercial	66.3	0.0	66.3	0.0	No
		R7	Industrial	66.3	0.0	66.3	0.0	No
	#3	R8	Residence	56.8	0.0	56.8	0.0	No
		R9	Commercial	56.8	0.0	56.8	0.0	No
		R10	Commercial	56.8	0.0	56.8	0.0	No
		R11	Commercial	56.8	0.0	56.8	0.0	No
		R12	Industrial	56.8	0.0	56.8	0.0	No
	#4	R13	Residence	59.5	0.0	59.5	0.0	No
		R14	Commercial	59.5	0.0	59.5	0.0	No
		R15	Commercial	59.5	0.0	59.5	0.0	No
	#5	R16	Residence	55.1	0.0	55.1	0.0	No
		R17	Residence	55.1	0.0	55.1	0.0	No
		R18	Residence	55.1	0.0	55.1	0.0	No
	#6	R19	Residence	52.5	0.0	52.5	0.0	No
		R20	Residence	52.5	0.0	52.5	0.0	No
		R21	Commercial	52.5	0.0	52.5	0.0	No
	#7	R22	Commercial	56.8	0.0	56.8	0.0	No
24-Hour	#1	R1	Residence	72.4	37.5	72.4	0.0	No
		R2	Commercial	72.4	52.0	72.5	0.0	No
		R3	Commercial	72.4	53.3	72.5	+0.1	No
		R4	Commercial	72.4	52.0	72.5	0.0	No
	#2	R5	Commercial	66.5	45.1	66.6	0.0	No
		R6	Commercial	66.5	48.4	66.6	+0.1	No

Time Period ^a	CUP Site	Receptor	Receptor Type	Baseline ^b	Equipment Source	Total Project	Increase due to Project ^c	Potentially Significant?
	#3	R7	Industrial	66.5	45.4	66.6	0.0	No
		R8	Residence	57.9	43.2	58.0	+0.1	No
		R9	Commercial	57.9	40.1	58.0	+0.1	No
		R10	Commercial	57.9	46.3	58.2	+0.3	No
		R11	Commercial	57.9	50.5	58.6	+0.7	No
		R12	Industrial	57.9	53.5	59.2	+1.3	No
	#4	R13	Residence	67.5	45.3	67.5	0.0	No
		R14	Commercial	67.5	57.9	67.9	+0.4	No
		R15	Commercial	67.5	55.3	67.8	+0.3	No
	#5	R16	Residence	57.0	55.5	59.4	+2.3	No
		R17	Residence	57.0	49.2	57.7	+0.7	No
		R18	Residence	57.0	45.7	57.3	+0.3	No
	#6	R19	Residence	58.2	55.7	60.1	+1.9	No
		R20	Residence	58.2	46.0	58.5	+0.3	No
		R21	Commercial	58.2	57.5	60.9	+2.7	No
	#7	R22	Commercial	57.5	54.7	59.3	+1.8	No

Source: Sespe 2022c

Notes:

a. Note that redrilling activities would occur during daytime hours only (7:00 a.m. and 7:00 p.m.). Therefore, there would be no nighttime activities and/or noise levels.

b. Baseline noise levels represent the actual measured noise levels within the vicinity of each CUP Site/receptor (see Table 3.13-2).

c. A potentially significant impact would result of the Project were to generate noise that exceeds the existing measured ambient noise levels by +3 decibels or more.

Based upon the operating parameters and assumptions summarized above, Table 3.13-9 shows the estimated Project noise levels at affected receptors resulting from ongoing redrilling operations at each of the CUP Sites. As shown, redrilling noise levels would not exceed the applicable City of Signal Hill or City of Long Beach noise standard at any receptors located within the vicinity of the CUP Sites. Redrilling equipment noise level increases at nearby receptors ranged from a +0.1 dBA to +2.7 dBA, which are below the applicable +3 decibel above the ambient threshold. Therefore, redrilling noise impacts are considered less than significant, with no additional noise controls or mitigations required.

Drilling: SHP would also continue to drill new oil production and water injection wells at all seven of the CUP Sites on an as needed basis. Drilling of new wells would involve identical equipment as described previously for redrilling; however, drilling new wells would require the

drill rig to operate onsite continuously for 24-hours in a given day (redrilling would occurring during daytime hours only). Other than the daily operating hours, the same assumptions described above related to the equipment utilized, the location of proposed activities, the attenuation provided by acoustical barriers and existing perimeter walls, etc., would remain applicable.

Based upon these operating parameters and assumptions, Table 3.13-10 shows the estimated Project noise levels at affected receptors resulting from drilling operations at each of the CUP Sites. As shown, estimated worst-case, unmitigated noise levels would potentially exceed certain City of Signal Hill and City of Long Beach noise standards if a new onsite well were drilled within close proximity to Receptors R16, R19, R21 and R22. Specifically, if any new wells were drilled in the northern portion of CUP Site #5, adjacent to Combellack Drive, estimated noise levels at Receptor R16 would potentially exceed the applicable CNEL and average (L_{eq}) noise standards (Sespe 2022c). Additionally, if a new well were drilled within the western/northern portions of CUP Site #6 or in the eastern portion of CUP Site #7, applicable Signal Hill/Long Beach 24-hour CNEL, and nighttime average (L_{eq}) noise levels would be potentially significant at Receptors R19, R21 and R22. Therefore, unmitigated drill nose impacts are considered *potentially significant*.

Table 3.13-10: Drilling – Predicted Noise Levels at Receptors (CNEL and L_{eq} dBA)^a

Time Period	CUP Site	Receptor	Receptor Type	Baseline ^a	Equipment Source	Total Project	Increase due to Project ^b	Potentially Significant?
CNEL	#1	R1	Residence	73.7	47.2	73.7	0.0	No
		R2	Commercial	73.7	61.7	74.0	+0.3	No
		R3	Commercial	73.7	63.0	74.1	+0.4	No
		R4	Commercial	73.7	61.7	74.0	+0.3	No
	#2	R5	Commercial	73.0	54.8	73.1	+0.1	No
		R6	Commercial	73.0	58.1	73.1	+0.1	No
		R7	Industrial	73.0	55.1	73.1	+0.1	No
	#3	R8	Residence	63.7	52.9	64.1	+0.3	No
		R9	Commercial	63.7	49.7	63.9	+0.2	No
		R10	Commercial	63.7	55.9	64.4	+0.7	No
		R11	Commercial	63.7	60.3	65.4	+1.6	No
		R12	Industrial	63.7	63.2	66.5	+2.7	No
	#4	R13	Residence	69.5	55.0	69.6	+0.2	No
		R14	Commercial	69.5	67.6	71.6	+2.2	No
		R15	Commercial	69.5	65.0	70.8	+1.3	No
	#5	R16	Residence	62.3	65.2	67.0	+4.7	Yes

Time Period	CUP Site	Receptor	Receptor Type	Baseline ^a	Equipment Source	Total Project	Increase due to Project ^b	Potentially Significant?
		R17	Residence	62.3	58.9	63.9	+1.6	No
		R18	Residence	62.3	55.4	63.1	+0.8	No
	#6	R19	Residence	61.7	65.4	66.9	+5.2	Yes
		R20	Residence	61.7	55.7	62.7	+1.0	No
		R21	Commercial	61.7	67.2	68.3	+6.6	Yes
	#7	R22	Commercial	63.5	64.4	67.0	+3.5	Yes
Daytime 7 a.m. – 10 p.m.	#1	R1	Residence	74.4	40.5	74.4	0.0	No
		R2	Commercial	74.4	55.1	74.4	+0.1	No
		R3	Commercial	74.4	56.4	74.4	+0.1	No
		R4	Commercial	74.4	55.1	74.4	+0.1	No
	#2	R5	Commercial	66.7	48.1	66.8	+0.1	No
		R6	Commercial	66.7	51.5	66.9	+0.1	No
		R7	Industrial	66.7	48.5	66.8	+0.1	No
	#3	R8	Residence	58.5	46.2	58.7	+0.2	No
		R9	Commercial	58.5	43.1	58.6	+0.1	No
		R10	Commercial	58.5	49.3	59.0	+0.5	No
		R11	Commercial	58.5	53.6	59.7	+1.2	No
		R12	Industrial	58.5	56.5	60.6	+2.1	No
	#4	R13	Residence	69.3	48.4	69.3	0.0	No
		R14	Commercial	69.3	60.9	69.9	+0.6	No
		R15	Commercial	69.3	58.3	69.6	+0.3	No
	#5	R16	Residence	57.8	58.6	61.2	+3.4	Yes
		R17	Residence	57.8	52.2	58.9	+1.1	No
		R18	Residence	57.8	48.8	58.4	+0.5	No
	#6	R19	Residence	59.8	58.7	62.3	+2.5	No
		R20	Residence	59.8	49.0	60.2	+0.3	No
		R21	Commercial	59.8	60.6	63.2	+3.4	Yes
	#7	R22	Commercial	57.8	57.8	60.8	+3.0	Yes
Nighttime 10 p.m. – 7 a.m.	#1	R1	Residence	61.9	40.5	62.0	0.1	No
		R2	Commercial	61.9	55.1	62.7	+0.8	No
		R3	Commercial	61.9	56.4	63.0	+1.1	No
		R4	Commercial	61.9	55.1	62.7	+0.8	No

Time Period	CUP Site	Receptor	Receptor Type	Baseline ^a	Equipment Source	Total Project	Increase due to Project ^b	Potentially Significant?
	#2	R5	Commercial	66.3	48.1	66.4	+0.1	No
		R6	Commercial	66.3	51.5	66.4	+0.1	No
		R7	Industrial	66.3	48.5	66.4	+0.1	No
	#3	R8	Residence	56.8	46.2	57.1	+0.4	No
		R9	Commercial	56.8	43.1	56.9	+0.2	No
		R10	Commercial	56.8	49.3	57.5	+0.7	No
		R11	Commercial	56.8	53.6	58.5	+1.7	No
		R12	Industrial	56.8	56.5	59.6	+2.9	No
	#4	R13	Residence	59.5	48.4	59.8	+0.3	No
		R14	Commercial	59.5	60.9	63.3	+3.8	No
		R15	Commercial	59.5	58.3	62.0	+2.5	No
	#5	R16	Residence	55.1	58.6	60.2	+5.1	Yes
		R17	Residence	55.1	52.2	56.9	+1.8	No
		R18	Residence	55.1	48.8	56.0	+0.9	No
	#6	R19	Residence	52.5	58.7	59.6	+7.2	Yes
		R20	Residence	52.5	49.0	54.1	+1.6	No
		R21	Commercial	52.5	60.6	61.2	+8.7	Yes
	#7	R22	Commercial	56.8	57.8	60.3	+3.5	Yes
24-Hour	#1	R1	Residence	72.4	40.5	72.4	0.0	No
		R2	Commercial	72.4	55.1	72.5	+0.1	No
		R3	Commercial	72.4	56.4	72.5	+0.1	No
		R4	Commercial	72.4	55.1	72.5	+0.1	No
	#2	R5	Commercial	66.5	48.1	66.6	+0.1	No
		R6	Commercial	66.5	51.5	66.7	+0.1	No
		R7	Industrial	66.5	48.5	66.6	+0.1	No
	#3	R8	Residence	57.9	46.2	58.2	+0.3	No
		R9	Commercial	57.9	43.1	58.0	+0.1	No
		R10	Commercial	57.9	49.3	58.5	+0.6	No
		R11	Commercial	57.9	53.6	59.3	+1.4	No
		R12	Industrial	57.9	56.5	60.3	+2.4	No
	#4	R13	Residence	67.5	48.4	67.6	+0.1	No
		R14	Commercial	67.5	60.9	68.4	+0.9	No

Time Period	CUP Site	Receptor	Receptor Type	Baseline ^a	Equipment Source	Total Project	Increase due to Project ^b	Potentially Significant?
		R15	Commercial	67.5	58.3	68.0	+0.5	No
	#5	R16	Residence	57.0	58.6	60.9	+3.8	Yes
		R17	Residence	57.0	52.2	58.3	+1.2	No
		R18	Residence	57.0	48.8	57.6	+0.6	No
	#6	R19	Residence	58.2	58.7	61.5	+3.3	Yes
		R20	Residence	58.2	49.0	58.7	+0.5	No
		R21	Commercial	58.2	60.6	62.5	+4.3	Yes
	#7	R22	Commercial	57.5	57.8	60.6	+3.1	Yes

Source: Sespe 2022c

Values in **bold** represent a potentially significant impact.

Notes: a. Baseline noise levels represent the actual measured noise levels within the vicinity of each CUP Site/receptor (see Table 3.13-2).

b. A potentially significant impact would result of the Project were to generate noise that exceeds the existing measured ambient noise levels by +3 decibels or more.

Note that although estimated drilling noise levels at Receptor R14 were found to be slightly elevated (i.e., estimated to generated noise levels approximately +3.8 dBA above the existing measured ambient noise levels), R14 represents that backside of a commercial receptor. As such, store employees would only occupy this area intermittently and temporarily, and Project noise would not be audible to shoppers inside the structure (i.e., The Home Depot).

Furthermore, it's presumed the store would be closed/unoccupied for the majority of the nighttime hours. For these reasons, even though estimate nighttime noise levels slightly exceed the +3 threshold at Receptor R14, noise levels resulting from drilling within CUP Site #4 are considered less than significant, with no additional mitigation measures required.

As shown in Table 3.13-10, noise resulting from the drilling of new wells would be potentially significant at CUP Sites #5, #6 and #7, specifically within the vicinity of Receptors R16, R19, R21 and R22. All Project activities would be required to comply with the mandatory requirements of the applicable noise ordinance of the SHMC. In addition, if any drilling or redrilling would occur within 600 feet of an occupied building, then Section 16.16.110 of the SHMC would require soundproofing sufficient to ensure that expected noise levels do not exceed the noise limits contained in Chapter 9.16 of SHMC. In addition, implementation of **MM NOISE-2** and **MM NOISE-3** would ensure that impacts would be reduced to less than significant. With compliance with the applicable SHMC noise ordinance and implementation of **MM NOISE 2** and **NOISE-3**, the proposed Project would have a less than significant impact relative to this impact criteria. This potential impact will be addressed in greater detail in the EIR.

Well Cellar Construction

As discussed in Section 2.0, while SHP would primarily continue drilling/redrilling operations within the existing well cellars at each CUP Site, at times a new ancillary well cellar may need to be created. At most, a single backhoe would have to operate at the given CUP Site for no more than 4 hours to excavate the necessary well cellar depression. Additionally, well cellar construction would occur during daytime hours only (7:00 a.m. and 6:00 p.m.), Monday through Friday, consistent with Section 9.16.050 of the City's Municipal Code. Due to the short duration and low equipment activity levels associated with well cellar construction, and the fact that well cellar construction would occur during daytime hours only, noise and vibration impacts are expected to be de minimis when compared to louder drilling/redrilling operations. As such, noise effects associated with well cellar construction have been excluded from this noise impact analysis.

Mitigation Measures

MM NOISE-1: Following installation of the gas system modification system at CUP Site #2, equipment noise levels shall be verified through onsite noise measurements along the western CUP Site property boundary. In the event that actual measured noise levels exceed 70 dBA when measured at this location, or exceed the ambient noise levels measured in April 2022 (see Table 3.13-2 above) by more than 3 dBA, additional noise control measures shall be implemented until the measured noise levels no longer exceed the applicable standards.

MM NOISE-2: If a new well is drilled within line-of-sight of an occupied building at CUP Sites #5, #6 or #7, SHP should implement one or more of the following control measures, to ensure that drilling noise levels do not exceed the applicable standards published by the City of Signal Hill or the City of Long Beach:

- Prohibit the drilling of new wells within the following setback areas at CUP Sites #5, #6 and #7 (see Figure 6 and Figure 7 in Appendix A, which shows the approximate setback areas):
 - 210-feet of the residences (i.e., Receptor 16) located north of CUP Site #5 across Combella Drive.
 - 270-feet of the residential neighborhoods (i.e., Receptors R20 and R21) located north of CUP Site #6, across 20th Street.
 - 150-feet of the commercial building (i.e., Receptor R22) located immediately east of CUP Site #7.
- If onsite drilling operations occur within the setback areas at CUP Sites #5, #6 and #7 noted above, SHP shall implement one of the following additional measures:
 - Install additional temporary sound barriers (e.g., curtains, shoots, etc.) affixed to the noisiest components of the drill rig, when occurring within the setback areas noted

above. Temporary barriers should have a minimum Sound Transmission Class (STC) rating of 25 (STC-25), and should be of sufficient length/height to block line-of-sight between the equipment source (e.g., engines, generators, etc.) and the affected receptor. If needed, temporary barriers may be installed in multiple layers to ensure noise is sufficiently attenuated.

- Construct new permanent barriers (e.g., concrete block walls, concrete paneling, etc.) along the CUP Site perimeters adjacent to the affected receptor(s). Perimeter walls should be installed prior to commence evening and nighttime drilling operations, and should be constructed of sufficient length/height to block line-of-sight between the drill rig and the receptor.

MM NOISE-3: Following implementation of MM NOISE-2 during drilling operations at CUP Sites #5, #6 and #7, the effectiveness of the control measures shall be verified through onsite noise measurements upon commencement of drilling operations. In the event that actual measured noise levels exceed the applicable numeric standards and/or conflict with the assumptions contained within this analysis, additional noise control measures shall be implemented until the measured noise levels no longer exceed the applicable standards published by the City of Signal Hill or the City of Long Beach.

Residual Impacts

SHP would continue to comply with applicable provisions of the Signal Hill Municipal Code related to noise, including but not limited to responding quickly to neighbor complaints and City inspections, curtailing certain operations during nighttime hours, upgrading equipment exhaust mufflers, as well as conducting subsequently focused noise studies and deploying additional acoustical barriers/sound walls as needed throughout the life of the Project.

Incorporation of **MM NOISE-1** would ensure that appropriate protocols and measures are in-place to reduce potential impacts from the operation of the gas modification system at CUP Site #2 to a less than significant level.

Referring to the noise propagation calculations presented in Table 3.13-10, by ensuring that new well drilling at CUP Sites #5, #6 and #7 occurs at a minimum distance from nearby residential and commercial receptors, noise levels would be sufficiently attenuated as they are reduced by -3 decibels with each added doubling of distance between the noise source and receivers of concern. Therefore, in accordance with **MM NOISE-2**, so long as SHP does not drill any new wells within 210-feet of the apartment complex(s) located north of CUP Site #5 across Combella Drive, within 270-feet of the residential neighborhoods located north of CUP Site #6 across 20th Street, or within 150-feet of the commercial building located immediately east of CUP Site #7, Project noise resulting from drilling operations would be below the applicable noise thresholds acceptable at all affected receptors (Sespe 2022c). However, if new drilling is conducted within these designated areas, then **MM NOISE-2** (or some combination of the measures found therein) and **MM NOISE-3** shall be implemented.

In addition, temporary acoustical blankets have been estimated to provide approximately -9 decibels of attenuation (further reductions can be realized if blankets are installed in multiple layers), while perimeter barriers are estimated to provide decibel reductions ranging from -3 to -9 decibels (depending on the length/height of the barrier) (Sespe 2022c). Therefore, through the use of additional temporary noise blankets affixed directly to the drill rig, or the construction of permanent new perimeter block walls adjacent to affected receptors (or some combination thereof), drilling noise levels would have a less than significant impact at nearby receptors adjacent to CUP Sites #5, #6 and #7. Specifically, if a new well were drilled in the north portion of CUP Site #5, or the western/northern portion of CUP Site #6, new perimeter barriers shall be installed to ensure Project noise levels at nearby residences and commercial receptors is sufficiently controlled and contained onsite (Sespe 2022c).

Through continued adherence to the existing conditions of approval described in Section 3.13.2, and implementation of **MM NOISE-1**, **NOISE-2** and **NOISE-3**, described above, Project impacts to nearby receptors would be less than significant.

NOI (b). Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant. Ongoing operations consist of well servicing and maintenance, redrilling operations, oil processing, storage and transfer, natural gas and natural gas liquids processing, storage and transfer, produced water separation and injection, and electrical production from a natural gas turbine-powered generator. These activities have not been observed to create ground vibration at or beyond the property line. As such, impacts associated with ongoing operations would be less than significant.

New project activities would result in varying degrees of temporary ground vibration, depending on the specific off-road equipment used and operations involved. Ground vibration generated by off-road equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, with low rumbling sounds and detectable vibrations at moderate levels, and damage to nearby structures at the highest levels.

The FTA's Transit Noise and Vibration Impact Assessment (FTA 2018) document provides guidelines for assessing vibration impacts resulting from construction activities. Table 3.13-11 below lists reference vibration source levels for common types of equipment, in terms of peak particle velocity (PPV) in units of inches per second at a reference distance of 25-feet.

Table 3.13-11: Vibration Source Level for Equipment

Equipment	PPV (inches/second) 25 feet
Vibratory Roller	0.210
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003

Source: Caltrans 2020; FTA 2018

To assess Project vibration impacts at each receptor location, the reference PPV value of 0.089 inches per second (i.e., caisson drilling and/or large bulldozer) was utilized, as it was assumed that nothing larger or more powerful than the drill rig or large bulldozer would operate on the Project site in close proximity to nearby receptors. The distance shown represents the measured distance from the closest boundary of the active operational areas to the nearest receptor. Using this information, Table 3.13-12 summarizes the predicted groundborne vibration impacts resulting from Project operations. Significance was determined by comparing the predicted change in groundborne vibration to the applicable Caltrans vibration threshold of 0.035 PPV for human receptors.

Table 3.13-12: Predicted Project Vibration Levels at Receptors

CUP Site	Receptor	Receptor Type	Distance (feet)	Predicted Vibration PPV (in/sec) ^a	Applicable Threshold PPV (in/sec)	Potentially Significant?
#1	R1	Residence	960	0.002	> 0.035	No
	R2	Commercial	180	0.010	> 0.035	No
	R3	Commercial	155	0.012	> 0.035	No
	R4	Commercial	180	0.010	> 0.035	No
#2	R5	Commercial	400	0.004	> 0.035	No
	R6	Commercial	385	0.004	> 0.035	No
	R7	Industrial	385	0.004	> 0.035	No
#3	R8	Residence	705	0.002	> 0.035	No
	R9	Commercial	1,010	0.002	> 0.035	No
	R10	Commercial	495	0.003	> 0.035	No
	R11	Commercial	300	0.006	> 0.035	No
	R12	Industrial	215	0.008	> 0.035	No
#4	R13	Residence	550	0.003	> 0.035	No
	R14	Commercial	130	0.015	> 0.035	No

CUP Site	Receptor	Receptor Type	Distance (feet)	Predicted Vibration PPV (in/sec) ^a	Applicable Threshold PPV (in/sec)	Potentially Significant?
	R15	Commercial	175	0.010	> 0.035	No
#5	R16	Residence	170	0.011	> 0.035	No
	R17	Residence	125	0.015	> 0.035	No
	R18	Residence	525	0.003	> 0.035	No
#6	R19	Residence	167	0.011	> 0.035	No
	R20	Residence	360	0.005	> 0.035	No
	R21	Commercial	135	0.014	> 0.035	No
#7	R22	Commercial	132	0.014	> 0.035	No

Source: Sespe 2022c

Notes: a. The Project vibration levels shown above are considered “barely perceptible” per Caltrans/FTA guidance (Caltrans 2020).

As shown in Table 3.13-12, estimated Project vibration levels experienced at nearby receptors are below the applicable Caltrans significance criteria for human receptors. Note that because the human receptor threshold of 0.035 PPV is more conservative than the building threshold of 0.1 PPV (in/sec), it can also be presumed that the Project’s vibration levels would not have the potential to damage nearby historic buildings or other critical sites. Note that the predicted Project vibration levels generated at nearby human receptors would be considered “barely perceptible” per the applicable Caltrans criteria (see Table 3.13-3) for human response (i.e., ≤ 0.035 PPV inches per second). Therefore, groundborne vibration impacts to nearby receptors resulting from Project operations would be less than significant with no mitigation required. This potential impact will be addressed in greater detail in the EIR.

NOI (c). For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant. The proposed Project site is located within 2.0 miles of a public airport or public use airport. Specifically, the Long Beach Airport is located approximately 1.0 miles away to the northeast of CUP Site #5. While the Project site is located within 2.0 miles of a public airport, none of the CUP Sites are located within the “65 dB CNEL Noise Contour” area as designated by the Los Angeles County Airport Land Use Commission, nor are any of the CUP Sites located within the Planning Boundary/Airport Influence Area or Runway Protection Zone (Los Angeles County Airport Land Use Commission 2003). Furthermore, the Project does not involve creation of a new noise-sensitive land uses (i.e., residences). For these reasons, the Project would have a less than significant impact related to airport/airstrip noise levels, with no mitigation required.

3.14 Population and Housing

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING. Would the project:				
a) Induce substantial unplanned population 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.14.1 Environmental Setting

The existing CUP sites are located in developed urban areas. The City of Signal Hill is located in Los Angeles County in the southern area of the greater Los Angeles Metropolitan Area. Signal Hill covers just over two square miles and is surrounded by the City of Long Beach (City 2022d). As of July 2021, the total population of Signal Hill is approximately 11,563. This is an approximate 2.5 percent decrease in population from April 2020 (U.S. Census Bureau 2022). The largest growth in population occurred in the 10 years between 1980 and 1990, and a significant increase also occurred from 2000 to 2010 (City 2014). From April 2010 to January 2020, the City's population grew by 696 persons or 6.3 percent. The annual average increase in population during this period was almost 70 persons (City 2022d).

A total of 12 to 14 employees per day would continue to work at the seven CUP sites during the course of normal operations. During intermittent redrilling operations and drilling new wells, an additional 4 to 8 employees/vendors per day would work at the specific CUP Site(s) where the activities are occurring. During temporary construction activities associated with the gas processing system upgrades, it is estimated that up to 6 additional workers would be needed onsite at CUP Site #2 each day. Well cellar construction would require an additional two onsite employees/contractors. These employees/contractors would be at the site(s) on a temporary basis and would not contribute to an increase in the local population.

3.14.2 Regulatory Setting

3.14.2.1 Signal Hill General Plan

The Land Use Element (2001) of the Signal Hill General Plan addresses public services in goals and policies, as outlined in Table 3.14-1.

Table 3.14-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
	Goal 1: Manage growth to achieve a well-balanced land use pattern that accommodates existing and future needs for housing, commercial and industrial land, open space, and community facilities and services, while maintaining a healthy, diversified economy adequate to provide future City revenues.	Policy 1.1 - Encourage and manage growth in order to accommodate year 2010 moderate growth population, household and employment projections.	The Project would not impact housing needs as it would not generate population.

Source: City 2001

3.14.3 Impact Assessment

POP (a). Would the Project induce substantial unplanned population 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)?

No Impact. Ongoing operations would not include the construction of new homes or businesses and would not extend roads or other infrastructure. Therefore, the ongoing Project operations would not induce substantial unplanned population growth, and there would be no impacts.

New Project activities would not include the construction of new homes or businesses and would not extend roads or other infrastructure that is accessible to the public. Therefore, Project activities would not induce substantial unplanned population growth, and there would be no impacts.

POP (b). Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The CUP sites are developed well sites located on private property. Ongoing operations would occur within the boundaries of the existing CUP sites and would not displace any existing housing. Therefore, there would be no impacts.

New Project activities would be located entirely within the existing footprint of the developed CUP sites on private property and would not displace any existing housing. Therefore, there would be no impacts.

3.15 Public Services

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES. Would the project:				
a) 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 public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.15.1 Environmental Setting

The CUP sites are located in urban areas within Signal Hill which are serviced by the Los Angeles County Fire Department, which provides all fire protection services and emergency medical/paramedic services within the City of Signal Hill. The closest fire station to the Project is Signal Hill Station #60 which is located at 2300 E. 27th Street (City 2022c).

Police services in the Project area are provided by the Signal Hill Police Department which is located at 2745 Walnut Avenue (Signal Hill Police 2022). The Signal Hill Police Department has mutual aid agreements in place with the Long Beach Police Department, Los Angeles County Sheriff's Department, and other regional law enforcement agencies, which allow for assistance from other agencies in the event of a major crime or natural disaster that could not effectively be handled with the available local resources in Signal Hill (City 2016).

None of the CUP sites occur on school properties or within parks.

3.15.2 Regulatory Setting

3.15.2.1 Signal Hill General Plan

The Safety Element (2016) and the Land Use Element (2001) of the Signal Hill General Plan address public services in goals and policies, as outlined in Table 3.15-1.

Table 3.15-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Safety	Goal 1: Prevention: Strive to prevent man-made disasters and minimize the potential for natural disasters to impact the community.	Policy 1.h: As development and population growth occurs, review service levels and adjust service accordingly to meet the demands of continued growth and development, tourism, and other factors which could change fire-rescue service needs.	The Project would not result in an increase in population and therefore would not increase the demand for public services.
Land Use	Goal 1: Manage growth to achieve a well-balanced land use pattern that accommodates existing and future needs for housing, commercial and industrial land, open space, and community facilities and services, while maintaining a healthy, diversified economy adequate to provide future City revenues.	Policy 1.11 - Encourage a wide range of responsive and accessible public facilities and community services, including fire and police protection, library and educational, cultural and recreational opportunities, and other municipal services.	The Project would not impact the responsiveness or accessibility of public services.

Source: City 2016, 2001

3.15.3 Impact Assessment

PUB (a). 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 public services:

- i. Fire protection?***
- ii. Police protection?***
- iii. Schools?***
- iv. Parks?***
- v. Other public facilities?***

No Impact. Ongoing operations would not generate increased population or result in development that would increase the demand on fire protection services, police protection service, or schools and parks, such that constructing new or expanding existing services and facilities would be required to maintain response times and service ratios. Ongoing operations would not create new housing or permanent employment opportunities. No other public facilities exist in the area that would be affected by ongoing Project operations, and no impact would occur.

New Project activities would not generate population or result in development that would increase the demand on fire or police protection or services and facilities such that constructing new or expanding existing services and facilities would be required to maintain response times and service ratios. Project construction would result in a temporary increase in onsite workers, but would not create permanent employment opportunities that would increase population or result in the need for new schools or parks. No other public facilities exist in the area that would be affected by temporary construction associated with drilling new wells and installing upgrades at CUP Site #2. Therefore, no impacts would occur as a result of new Project activities.

3.16 Recreation

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. RECREATION. Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.16.1 Environmental Setting

Signal Hill recreational facilities include various parks throughout the city and walkways and trails which the public can access. The following parks are located within the city: Signal Hill Park, Hilltop Park, Sunset View Park, Discovery Well Park, Hill brook Park, and Raymond Arbor Park (City 2003).

In 1989, the City adopted a Park and Recreation Master Plan into the general plan (City 1989). The Signal Hill General Plan requires 4 acres of designated park or recreation space per 1,000 city population, including both passive recreational areas/open spaces and active recreational facilities (City 1986). The Park and Recreation Master Plan was intended to help the City achieve this general plan goal and envisioned a total of 48 acres of parks, open space, and trails.

3.16.2 Regulatory Setting

3.16.2.1 Signal Hill General Plan

The Land Use Element (2001) and the Environmental Resources Element (1986) of the Signal Hill General Plan address recreation in goals and policies, as outlined in Table 3.16-1.

Table 3.16-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Land Use	Goal 1: Manage growth to achieve a well-balanced land use pattern that accommodates existing and future needs for housing, commercial and industrial land, open space, and community facilities and services, while maintaining a healthy, diversified economy	Policy 1.12 - Increase the amount and improve the network of public and private open space areas for active or passive recreation.	Existing drill sites are fenced and signed and no public access is available. All Project activities would take place within the existing site footprints.

Element	Goal	Policy	Applicability
	adequate to provide future City revenues.		
Environmental Resources	Goal 3: Provide and maintain a variety of parks and recreational facilities, both passive and active, that will be conveniently located throughout the community.	Policy 3.1 - Provide parkland and recreational facilities in neighborhoods of the City currently not served with such facilities.	Existing drill sites are fenced and signed and no public access is available.
		Policy 3.2 - Ensure accessibility of local and regional parklands of all types to all users, including the young, the elderly and the handicapped.	Access to existing drill site footprints would remain the same. Project implementation would not impede public access to existing parks.
		Policy 3.3 - Provide (within economic capabilities) as full a range of activities as possible, including active and passive recreation, biking, walking, jogging, picnicing and "viewing."	No public access is allowed within Project sites. Project implementation would not impede access to recreational facilities in the vicinity.

Source: City 1986, 2001

3.16.3 Impact Assessment

REC (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?

No Impact. Ongoing Project operations would not increase the local population or the use of existing recreational facilities. A total of 12 to 14 employees per day would continue to work at the seven CUP sites during the course of normal operations. During intermittent redrilling operations, an additional 4 to 8 employees/vendors per day would work at the specific CUP site(s) where the activities are occurring. This temporary increase in workers would not result in the deterioration of local recreational facilities and no impact would occur.

New Project activities would not increase the local population or the use of existing recreational facilities. During intermittent drilling operations associated with new wells, an additional 4 to 8 employees/contractors per day would work at the specific CUP Site where the activities are occurring. Any intermittent redrilling operations also require an additional 4 to 8 employees/vendors per day at the specific CUP site(s) where the activities are occurring. This temporary increase in workers would not result in the deterioration of local recreational facilities. There would be no permanent increase in the number of employees onsite for normal

operations following completion of Project activities. No impacts on recreational facilities would occur.

REC (b). Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Project is located entirely within the existing footprint of existing drill sites and there is no public access to these sites. Ongoing Project operations would not increase the population and would not include construction or expansion of any recreational facilities. Therefore, ongoing operations would have no impact.

New Project activities do not include construction or expansion of any recreational facilities and would also occur entirely within the boundaries of the existing CUP sites, which are not accessible to the public. Project activities would result in a temporary increase in onsite workers, but would not result in an increase in population which would necessitate any expansion of recreational facilities. Therefore, Project activities would have no impact.

3.17 Transportation

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION. Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.17.1 Environmental Setting

Signal Hill's transportation system includes roads of varying sizes and capacities; public transportation systems which consist of bus, light rail, and paratransit service; airports; and seaports. Roadways in Signal Hill are used for both local and pass-through traffic between neighborhoods in Long Beach. Major north-south through routes include Cherry and Orange avenues, and major east-west through routes include Spring and Willow streets and Pacific Coast Highway (City 2009b). The San Diego Freeway (Interstate 405) crosses the northern portion of the City and is owned and maintained by Caltrans.

Access to the CUP sites is provided by the following roadway types which are located throughout Signal Hill: principal arterial, minor arterial, collector street, and local street. Principal arterials support the heaviest traffic volumes and serve traffic within Signal Hill as well as traffic passing through the city. Minor arterials serve traffic traveling to local destinations and connect the various parts of Signal Hill and nearby areas. Collector streets collect local traffic from residential neighborhoods and commercial and industrial areas. Collectors carry less traffic than minor arterials and feed traffic to minor and principal arterials. Local streets carry the lowest traffic volumes of all streets in the city, and mostly provide access to local destinations, rather than passing through traffic (City 2009b). Currently SHP vehicles travel between the CUP sites along the following public roadways in the City: E. Sprint Street, Orange Avenue, E. 29th Street, Walnut Avenue, E. Willow Street, Junipero Avenue, Combellack Drive, Temple Avenue/Obispo Avenue, and E. Grant Street.

The City evaluated traffic operations and congestion impacts, in addition to VMT impacts, for its General Plan Housing Element update, which was adopted September 27, 2022 (City 2022d). In the traffic impact study for the Housing Element (Meridian Consultants 2022), the City

identified its most congested intersections and roadway segments and evaluated the LOS and congestion impacts from the future build-out of its Housing Element. Congested segments included the north-south roadways of Orange Avenue, Walnut Avenue, and Cherry Avenue and the east-west roadways of Spring Street, Willow Street, and Burnett Street as well as the main signalized intersections in this grid roadway network. The transportation analysis conducted for the City's Housing Element update found that these existing operational deficiencies were especially pronounced during morning and evening weekday peak hours, specifically between the hours of 7 and 9 a.m. and 4 to 6 p.m., Monday through Friday (Sespe 2022c). The CUP sites are located generally within or just outside these roadway areas and existing CUP Site daily operational traffic (which would remain the same on a permanent basis with implementation of the Project) currently occurs on these major roadways (Sespe 2022c). Temporary increases in vehicle trips related to the Project would also occur on these same roadways.

A total of 12 to 14 employees per day would continue to work at the seven CUP sites during the course of normal operations. During intermittent redrilling operations, an additional 4 to 8 employees/vendors per day would work at the specific CUP Site(s) where the activities are occurring. Employee vehicular access and parking would continue to be provided by existing access points which are gated and locked and designated parking areas. No change from historical activity is proposed or anticipated for ongoing operations at the CUP sites. Table 2.4-1 in the Project Description summarizes the current activities and associated average vehicle trips and travel distance associated with existing operations which would continue under the Project. Based on the table, the maximum number of daily trips if all existing operations occurred concurrently, including redrilling, would be 52 vehicle trips per day (equivalent to 26 roundtrips, and an estimated 118 VMTs per day) spread across the seven CUP sites. This represents a maximum, as it is not typical for all operations to occur at the same time. The average trips per day required for current operations at the CUP sites would not increase under the Project.

3.17.2 Regulatory Setting

The U.S. Department of Transportation is the primary federal department concerned with transportation regulation and consists of multiple agencies, including the FHWA, FTA, and Federal Motor Carrier Safety Administration. Federal transportation regulations are primarily found in CFR 23 and 49. Caltrans is the primary state agency responsible for implementing regulations on the state's highways and freeways. State regulations are primarily found in California's Streets and Highways Code and Vehicle Code and regulate many aspects of transportation such as truck operation and routes.

3.17.2.1 Senate Bill 743

The Office of Planning and Research published its proposal for the comprehensive updates to the CEQA Guidelines in November 2017 which included proposed updates related to analyzing

transportation impacts pursuant to Senate Bill 743. These updates indicated that VMT be the primary metric used to identify transportation impacts. In December of 2018, OPR published the most recent version of the Technical Advisory on Evaluating Transportation Impacts (December 2018), which provides guidance for VMT analysis. The Office of Administrative Law approved the updated CEQA Guidelines and lead agencies were required to implement the updated guidelines by July 1, 2020.

3.17.2.2 County of Los Angeles

The County of Los Angeles adopted transportation analysis methods and project CEQA thresholds through the Transportation Impact Analysis Guidelines document (Los Angeles County Public Works 2020). Many of the Los Angeles County methods and criteria included in the document are the same as those published by OPR in their Technical Advisory document, including the net increase of 110 or more daily vehicle trips. In addition to trip count screening thresholds, the County's document also provides baseline VMT per capita data which can be used to determine a project's potential transportation impacts under CEQA. Specifically, Los Angeles County has adopted a threshold of 16.8 percent below the existing VMT of the region (North County or South County). For the South County region, which includes the City and the Project area, the existing baseline VMT per capita is an average of 18.4 miles per employee per day. Therefore, by applying the 16.8 percent below baseline metric, an appropriate VMT threshold for the Project would be approximately 15.3 VMTs per employee per day (Sespe 2022c).

3.17.3 Impact Assessment

TRA (a). Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant with Mitigation Incorporated. The average vehicle trips per day for ongoing Project operations are presented in Table 2.4-1 and would remain unchanged under the Project. As such, ongoing operations would not create additional vehicle trips on roadways within the City of Signal Hill that could potentially conflict with a program, plan, ordinance or policy addressing the circulation system. Additionally, the ongoing operation of the existing facilities would not change the manner in which vehicles access the existing CUP Sites onto adjacent public roadways, or require the construction of new access roads or alterations of existing roadways, or bicycle/pedestrian facilities. Existing ingress/egress access points would continue to sufficiently serve the CUP Sites throughout the proposed 20-year life of the Project. As a result, the ongoing operation of the existing facilities would not impact any City program, plan, ordinance, or policy related to transit, roadway, bicycle, or pedestrian facilities, and impacts would be less than significant.

With regard to new Project activities, vehicle trips would be generated during construction of the proposed gas system modifications at CUP Site #2, construction of new well cellars, and

drilling/redrilling of new wells. Table 2.5-5 summarizes the vehicle trips associated with construction of the gas modification system, well cellar construction, and drilling and redrilling activities with the total daily VMT calculated under the conservative assumption that the temporary vehicle trips associated with construction activities for drilling new wells, new well cellars, and the gas system modifications occurred within a single day. As summarized in Table 2.4-5, the new project activities would generate an estimated maximum of 50 additional daily vehicle trips (equivalent to 25 roundtrips, and an estimated 119 VMTs per day) due to employees, contractors, and heavy-duty work trucks travelling to and from the CUP sites. These additional vehicle trips would be temporary, and once construction is complete, would not contribute to additional ongoing daily vehicles trips associated with operations. Assuming a minimum of 12 employees per day, the calculated VMT per capita (i.e., per employee) would be 9.9 VMTs per employee per day (i.e., 119 VMT/12 employees), which is below the calculated Los Angeles County threshold of 15.3 VMTs per employee per day (refer to Section 3.17.2.2 above).

As discussed above, per SB 743 and OPR's subsequent guidance related to CEQA transportation evaluations, a project's Level of Service (LOS) effects related to roadway capacity, vehicle delays and traffic congestion are no longer considered under CEQA. LOS is a technical engineering non-CEQA criteria used to evaluate the delays at intersections and roadway segments and uses a grading system of LOS A through LOS F to describe the operational characteristics with LOS A indicating free flowing operations with little delay and LOS F indicating long delays and congestion. Typically, LOS D or better are considered accepted traffic operations. While construction activities associated with the gas system modifications at CUP and well cellar construction would generate some additional vehicle activity on Signal Hill roadways, these effects would be temporary, and the total number of additional vehicles would be minimal compared to existing traffic volumes. Other than these temporary effects, the proposed Project would not generate any new permanent daily vehicle trips (i.e., continue to generate a small number of daily trips spread out throughout the day). The continuation of the existing level of daily vehicle travel from SHP's existing operations would have a less than significant impact on roadway operations. Temporary increases in truck trips generated by the Project could have a *potentially significant impact* if the timing of those trips occurred during peak hours and contributed to congestion within City-designated congested roadway segments. As discussed below, implementation of **MM TRA-1** would ensure that impacts would be reduced to less than significant. This potential impact will be addressed in greater detail in the EIR.

Mitigation Measures

MM TRA-1: During temporary construction activities, specifically construction of the gas system modifications and/or well cellar construction, larger equipment and construction material deliveries shall be avoided during peak hours. Specifically, heavy-duty trucks shall abstain from travelling to and from the CUP sites between the hours of 7:00 a.m. and 9:00 a.m., and 4:30 p.m. and 6:30 p.m., Monday through Friday.

Residual Impacts

Incorporation of **MM TRA-1** would ensure that the new Project activities would not exacerbate existing congestion problems within the City, specifically as a result of larger and slower-moving heavy-duty trucks moving to and from the CUP sites to facilitate construction. With implementation of this measure, the temporary increase in vehicle trips generated by Project construction would have a less than significant impact on the traffic system and would not conflict with any transportation-related program, plan, ordinance, or policy.

TRA (b). Would the Project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Less than Significant. State CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts, with the applicable methodology based on project type, and specifying other criteria for conducting VMT analysis. Daily trips for ongoing Project operations would remain at the same level of daily trips described in Table 2.4-1. This would not represent any increase in baseline levels and therefore would have no impact.

As detailed for impact criteria (a), conservatively accounting for all new Project vehicle activity, including goods movements converted to automobile trips, the Project would temporarily increase trips per day by a maximum of 50 additional daily vehicle trips (equivalent to 25 roundtrips, and an estimated 119 VMTs per day) during construction. This maximum is based on a conservative assumption that construction associated with Project activities (drilling new wells, new well cellars, and the gas system modifications) occurs simultaneously on the same day. Daily trips for Project operations following completion of new wells and upgrades to the natural gas facility would remain at the same level as current operations described in Table 2.4-1. New Project activities would not result in any permanent increases in on- or off-site vehicle activities compared to existing baseline levels.

The Project's maximum daily vehicle trip count is below OPR's screening threshold of 110 trips per day, as well as the County's VMT threshold of 16.8 percent below the existing baseline VMT per capita levels within the South County region. Therefore, the new Project activities would result in less than significant transportation impacts as described in the Technical Advisory on Evaluating Transportation Impacts (OPR 2018). Accordingly, new Project activities would not conflict or be inconsistent with CEQA Guidelines detailed in Section 15064.3, subdivision (b) and, therefore, impacts would be less than significant.

TRA (c). Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant. Ongoing operations would not increase vehicle trips or result in any hazards due to design features or incompatible uses. Existing site access would remain the same and impacts would be less than significant.

New Project activities would not result in permanent changes or increases in the number of existing delivery and employee/contractor daily vehicle trips during operations, or changes to the existing ingress/egress at CUP site access points. The Project would not create roadway hazards due to geometric design features or incompatible uses. Temporary increases in vehicle trips during construction activities for drilling new wells, well cellars, and the gas system modification would not increase hazards or require any road or driveway improvements. Therefore, new Project activities would not result in alterations to nearby roadways, installation or expansion of driveways or geometric design features, or creation of incompatible uses along these roadways, and impacts would be less than significant.

TRA (d). Result in inadequate emergency access?

Less than Significant. Ongoing operations would not result in any physical development or other changes to the CUP sites or site access, such that emergency access would be reduced or otherwise adversely affected. Existing emergency access points and adjacent public roadways would have sufficient capacity to continue to serve the existing number of vehicles traveling to and from and between each CUP Site. Project equipment and vehicles would continue to be parked off of public roads within designated onsite parking areas and would not block emergency access routes. Ongoing operations would not require road closures or increase daily vehicle trips. Therefore, impacts on emergency access in the Project vicinity would be less than significant.

New Project activities would not result in any physical development or other changes to the CUP sites or access to the sites, such that emergency access would be reduced or otherwise adversely affected. Existing emergency access points and adjacent public roadways would have sufficient capacity to serve the temporary increase in vehicle trips associated with construction traveling to and from each CUP Site. Project equipment and vehicles would be parked off of public roads within designated onsite parking areas and would not block emergency access routes. Additionally, no road closures are proposed as part of Project activities. Project construction for new wells, new well cellars, and gas system modifications would increase daily vehicle trips, but the increase would be temporary and would not impede emergency vehicle access. Therefore, impacts on emergency access in the Project vicinity would be less than significant.

3.18 Tribal Cultural Resources

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES.				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.18.1 Environmental Setting

A search of the Sacred Lands File by the NAHC was requested on June 8, 2022, to determine whether Sacred Lands have been recorded by California Native American tribes within the CUP sites (ECORP 2022b).

The Sacred Lands file database results were received from NAHC on July 8, 2022. The results indicate that the Project area is positive for tribal cultural resources and included a recommendation to contact the Gabrielino/Tongva San Gabriel Band of Mission Indians for information. The City mailed letters initiating the AB52 process concurrent with the Notice of Preparation on January 13, 2023 to the following tribes:

- Gabrieleno Tongva Indians of California Tribal Council
- Gabrieleno Tongva San Gabriel Band of Mission Indians
- Gabrieleno Tongva Nation of Greater Los Angeles Basin
- Gabrieleno Tongva Kizh Nation

The City will carry out tribal consultation under AB 52 to determine whether or not the Project would result in an adverse change to the significance of a tribal cultural resource.

3.18.2 Regulatory Setting

3.18.2.1 Assembly Bill 52

AB 52 requires lead agencies to consult with California Native American tribes that have requested formal consultation on a project. Accordingly, PRC sections 21080.3.1 and 21080.3.2 require that the lead agency provide for formal notification to the designated contact of, or a tribal representative of, traditionally affiliated California Native Tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. AB 52 was ratified to provide Tribes with an ancestral connection to a project area the opportunity to provide information on the presence of potential tribal cultural resources.

3.18.2.2 California Native American Heritage Commission

In 1976, the California State Government passed AB 4239, establishing the Native American Heritage Commission as the primary government agency responsible for identifying and cataloging Native American cultural resources. As such, one of the NAHC's primary duties is to prevent irreparable damage to designated sacred sites, as well as prevent interference with the expression of Native American religion in California. The bill authorized the NAHC to act in order to prevent damage to and insure Native American access to sacred sites. The NAHC can request that the court issue an injunction for the site, unless it found evidence that public interest and necessity required otherwise. The NAHC has authority to identify a Most Likely Descendant when Native American human remains are discovered any place other than a dedicated cemetery. Most Likely Descendants are granted the legal authority to make recommendations regarding the treatment and disposition of the discovered remains. These recommendations, although they cannot halt work on the project site, give Most Likely Descendants a means by which to ensure that the Native American human remains are treated in the appropriate manner (NAHC 2022).

3.18.3 Impact Assessment

TCR (a). Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or***

- ii. ***A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Less than Significant with Mitigation. The City is required to comply with AB 52, and as such, sent letters notifying Tribes of the Project and providing contact information should Tribes request formal consultation under AB 52 with the City on the Project's potential to impact tribal cultural resources. Ongoing operations would not require new excavation activities and therefore impacts on tribal cultural resources would be less than significant. Ground disturbing activities associated with excavation for new Project construction, including new well cellars and installation of upgrades to the natural gas processing plant could have a *potentially significant impact* on tribal cultural resources if present.

Based on the Sacred Lands file database results provided by NAHC, the Project area is positive for tribal cultural resources and the NAHC recommended that the Gabrielino/Tongva San Gabriel Band of Mission Indians be contacted for information. All the CUP sites have experienced prior disturbance and the probability of a tribal cultural resource present in the subsurface is low. However, impacts are considered *potentially significant* until such time that AB 52 consultation is determined complete, and this will be carried forward for discussion in the EIR. While impacts to an archaeological resource are unlikely due to the prior disturbance activities, the City would ensure that SHP implements MM TCR-1, in addition to MM CUL-1, to avoid impacts to tribal cultural resources to the extent feasible.

Mitigation Measure TCR-1. SHP shall prepare and implement an Unanticipated Discoveries Plan prior to performing any ground disturbing work. Project personnel would monitor areas during surface disturbing activities and if any potential tribal cultural resources are encountered, all construction affecting the discovery site would be suspended immediately until a qualified archaeologist, or relevant tribal representative, has reviewed the findings.

Mitigation Measure TCR-2. If any known tribal cultural resources are identified during the AB 52 consultation process, the City will consult with the local tribal representative to avoid, where feasible, ground disturbances in areas which could have associated tribal cultural impacts. If not logistically feasible, the City will identify methods such as monitoring of ground disturbances by a qualified archaeologist and a local Native American tribal representative that implements significance assessment and data recovery, if necessary, in the event that potentially significant resources are encountered during ground disturbances associated with the Project.

Residual Impacts

Implementation of **MM TCR-1** and **TCR-2** as well as **MM CUL-1** would reduce potentially significant impacts resulting from inadvertent damage or destruction of known or unknown

tribal cultural resources during ground disturbing activities associated with excavation for new well cellar and installing upgrades to the gas processing plant to a less than significant level.

3.19 Utilities and Service Systems

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the waste water 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.19.1 Environmental Setting

The City of Signal Hill owns and operates the municipal water system that services all business and residents located within City limits, including the Project area (City 2014). Signal Hill's water supply consists primarily of groundwater produced from the Central Basin (approximately 90 percent) which is supplemented in times of high demand with treated surface water which is purchased from the Metropolitan Water District (City 2022b; City 2021a). The City's municipal water system consists of the following: approximately 50 miles of distribution and transmission pipeline, one groundwater treatment facility, one Metropolitan Water District imported water connection, over 2,900 water service connections, three booster pump stations, three storage reservoirs, and two groundwater production wells (City 2022b).

The City of Signal Hill exclusively contracts with EDCO Disposal for solid waste and recycling collection services. The City requires that all residents, businesses, and developers within the city limits use EDCO for the collection of regular trash, recyclables, and debris (City 2022e).

The Los Angeles County Sanitation Districts provides sewage treatment service to the City of Signal Hill (Los Angeles County Sanitation Districts 2022). Signal Hill sanitary sewers connect to the City of Long Beach sewer line (City 2022d). The Los Angeles County Sanitation Districts consist of 24 independent special districts that provide wastewater and solid waste management for approximately 5.6 million people in Los Angeles County. The sewer system

that serves the City of Signal Hill is owned and maintained by the Los Angeles County Sanitation Districts (District #29) (Los Angeles County Sanitation Districts 2022).

3.19.2 Regulatory Setting

No federal regulations are applicable to utilities and service systems associated with the Project. Applicable California regulations include the Solid Waste Reuse and Recycling Access Act (Public Resources Code Sections 42900-42911) and the Integrated Waste Management Act (Public Resources Code Sections 41000-41460).

3.19.2.1 Signal Hill General Plan

The Circulation Element (2009b) of the Signal Hill General Plan addresses utilities in goals and policies, as outlined in Table 3.19-1.

Table 3.19-1: Applicable City of Signal Hill General Plan Goals and Policies

Element	Goal	Policy	Applicability
Circulation	Goal 6: Provide safe, efficient, and environmentally-friendly utilities systems and pipelines.	Policy 6.a: Maintain essential access to petroleum resources by preserving pipeline facilities, where appropriate.	Project would support continued operation of drill sites and would maintain access to resources.
		Policy 6.b: Concurrent with development of vacant land or with substantial reconstruction of existing development, encourage the relocation of overhead utility systems to underground systems, where appropriate and feasible.	Project would not result in substantial reconstruction requiring relocation of utility systems.

Source: City 2009b

3.19.3 Impact Assessment

UT (a). Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant. Electricity, water, and natural gas are both generated and consumed as part of ongoing operations under CUP 97-03. Production levels would remain at the same level as part of ongoing Project operations. Ongoing operations would not require the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. Therefore, there would be no impacts.

Project construction for drilling new wells would require electricity and water. Once completed, operations of the new wells and the upgraded natural gas processing facility, would continue to generate and consume electricity, water, and natural gas. The modifications to the existing natural gas processing system at CUP Site #2 would result in increased plant efficiency. Implementation of these new Project activities would not require the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. Therefore, there would be no impacts.

UT (b). Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant. Potable water for operations conducted under CUP 97-03 is provided by the City of Signal Hill. SHP's current operations consume an average of 9,500 gallons per day on normal operating days. Redrilling activities, which are part of operations, do not consume additional water resources. Ongoing Project operations would not result in an increased demand for potable water, and impacts would be less than significant.

Additional potable water for new Project activities, including drilling new wells, would be provided by the City of Signal Hill. An additional 2,100 gallons of water per day is consumed when new wells are being drilled. SHP estimates that over the 20-year CUP period, it would drill up to 46 new wells (total of all new wells at the seven sites). The maximum number of new wells that would be drilled in any given year is five, and the average number of new wells to be drilled in a given year is two. In 2020, the City's potable water demand was 1,918 acre-feet (AF) and the City's groundwater right in the Central Basin is 2,022 acre-feet per year (AFY) (City 2021a). In 2020, the City's potable water supply was 97 percent groundwater and 3 percent imported water in 2020 (City 2021a). If the maximum number of new wells were drilled in a given year, this would result in approximately 0.64 AF of additional water, which is a small portion of the overall water supplied by the City annually. The Urban Water Management Plan prepared by the City of Signal Hill (City 2021a), determined based on analysis of historical rainfall data and associated demands, that there will be a surplus of supply during all average, single dry years, and multiple dry years (up to 5 years in succession) that may occur in the future. The proposed gas system modifications at CUP Site #2 would not increase water use for the Project. Following completion of drilling, the Project would not require additional potable water use and all water used in the waterflood operations would be produced water that is recycled and reinjected. Water produced by the production wells is 100 percent recycled for secondary recovery/waterflood operations in accordance with SHP's active Class II UIC permit. New Project activities would not substantially increase water demand and impacts on sufficient water supplies during normal, dry, and multiple dry years would be less than significant. This potential issue will be addressed in greater detail in the EIR.

UT (c). Result in a determination by the waste water 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?

Less than Significant. During ongoing operations, SHP employees and other onsite personnel would continue to utilize existing sewer-connected restrooms at CUP Sites #2, #5, and #6, or other portable bathroom facilities located onsite at the remaining CUP sites. No increase in use would occur under continued operations and impacts would be less than significant.

New Project activities would result in a temporary increase in restroom use during construction, when additional workers are present onsite. Project employees and other onsite personnel would continue to utilize existing sewer-connected restrooms at CUP Sites #2, #5, and #6, or other portable bathroom facilities located onsite at the remaining CUP sites. This would be a temporary increase, which would have a minimal increase in demand for wastewater treatment. No long-term increase in demand would occur as part of operations following completion of Project construction, and impacts would be less than significant.

UT (d). Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant. Minimal quantities of solid waste (non-hazardous) would continue to be generated as a result of ongoing operations at the CUP sites (e.g., ongoing maintenance, equipment repairs, employee activities, etc.). Solid waste generated on-site as a result of routine activities in support of oil and gas operations would continue to be properly handled and sent off-site for proper disposal by the local waste management company and would not exceed local landfill capacity. Ongoing operations would not generate additional significant demands for solid waste disposal, and no impact would occur in this regard.

New Project activities would not result in an increase in the quantity of non-hazardous solid waste generated at the CUP sites during operations. Drilling new wells and well cellars and the upgrades to the natural gas processing facility at CUP Site #2 would generate minimal amounts of solid waste in addition to routine operations. Solid waste generated on-site as a result of construction activities would be properly handled and sent off-site for proper disposal by the local waste management company and would not exceed local landfill capacity.

Implementation of Project activities would not generate additional significant demands for solid waste disposal, and impacts would be less than significant. This issue will be addressed in greater detail in the EIR.

UT (e). Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. Minimal quantities of solid waste (non-hazardous) would continue to be generated as a result of ongoing operations at the CUP sites (e.g., ongoing maintenance, equipment repairs, employee activities, etc.). The Project would not result in an increase in the quantity of

solid waste generated at the CUP sites. Solid waste generated on-site as a result of routine activities in support of oil and gas operations would continue to be properly handled and sent off-site for proper disposal by the local waste management company. As noted in (d) above, the Project activities would generate minimal solid waste in addition to ongoing operations, and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Therefore, no impacts would occur.

3.20 Wildfire

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.20.1 Environmental Setting

The California Department of Forestry and Fire Protection's (CAL FIRE) Fire Resource and Assessment Program provides Fire Hazard Severity Zone (FHSZ) maps showing the severity of the threat of wildfires and the designation of responsibility for fire protection. CAL FIRE considers many factors to develop these maps, including fire history, existing and potential fuel sources (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for an area. There are three hazard levels (moderate, high, and very high) within state responsibility areas and very high in local responsibility areas (CAL FIRE 2022a; Los Angeles County Department of Regional Planning 2015).

Based on the FHSZ map for Los Angeles County, the CUP sites are located within urbanized/developed areas and are outside of designated FHSZs (CAL FIRE 2007, 2011). The Project area is entirely within the local responsibility area, and the Los Angeles County Fire Department provides all fire protection services and emergency medical/paramedic services within the City of Signal Hill. The closest fire station to the Project area is Signal Hill Station #60 which is located at 2300 E. 27th Street (City 2022c).

According to the City's General Plan Safety Element (2016), Signal Hill has a low potential for wildland fire. The Safety Element outlines the following three sources of fire hazards which may arise in Signal Hill: open spaces with dry vegetation; urban development; and industry, particularly facilities associated with oil production, storage, and transportation (City 2016).

3.20.2 Regulatory Setting

3.20.2.1 United States Department of Interior: Office of Wildland Fire

The Department of the Interior is organized into ten bureaus and dozens of smaller offices, including the Office of Wildland Fire. On behalf of the Secretary of the Interior, the Office of Wildland Fire oversees a Wildland Fire Management Program spanning multiple bureaus that manage over 535 million acres of public and Tribal lands: including the Bureau of Indian Affairs, the Bureau of Land Management, the National Park Service, and the USFWS. The Department of Interior is appropriated funds from Congress for the implementation of a suite of activities that make up the Wildland Fire Management Program, including preparedness, suppression, fuels management, facilities, burned area rehabilitation, and science. Each program spans a range of tasks and receives specific funding through an annual budget justification. The Interior Fire Executive Council, the Wildland Fire Leadership Council, and many other groups collaborate to establish program goals and priorities (DOI 2022).

3.20.2.2 California Department of Forestry and Fire Protection

Preventing wildfires in the State Responsibility Area is a vital part of CAL FIRE's mission. While these efforts have occurred since the early days of the Department, CAL FIRE has adapted to the evolving destructive wildfires and succeeded in significantly increasing its efforts in fire prevention. The Department's Fire Prevention Program consists of multiple activities including wildland pre-fire engineering, vegetation management, fire planning, education and law enforcement. Typical fire prevention projects include brush clearance, prescribed fire, defensible space inspections, emergency evacuation planning, fire prevention education, fire hazard severity mapping, and fire-related law enforcement activities (CAL FIRE 2022a). The fire hazard severity maps prepared by CAL FIRE designate Signal Hill as a local responsibility area, and none of the Project area is within the state responsibility area.

3.20.2.3 Public Resources Code 4291

California PRC 4291 states that property owners within State Responsibility Areas are responsible for ensuring that their property is in compliance with California's building and fire codes that call for homeowners to take proactive steps to protect their property from a wildfire. The law requires that homeowners in State Responsibility Areas clear out flammable materials such as brush or vegetation around their buildings to 100 feet (or the property line) to create a defensible space buffer. This helps halt the progress of an approaching wildfire and keeps firefighters safe while they defend the property (CAL FIRE 2022b).

3.20.2.4 California Code of Regulations Title 14

CCR Title 14 states that future design and construction of structures and developments in State Responsibility Area shall provide for basic emergency access and perimeter wildfire protection

measures, including private water supply reserves for emergency fire use and vegetation modification (CAL FIRE 2022b).

3.20.2.5 Brush Clearance Inspection Program

The Brush Clearance Program is a joint effort between the County of Los Angeles Fire Department and the County of Los Angeles Department of Agricultural Commissioner/Weights and Measures, Weed Hazard and Pest Abatement Bureau (Weed Abatement Division). This unified enforcement legally declares both improved and unimproved properties a public nuisance, and where necessary, requires the clearance of hazardous vegetation.

These measures create “Defensible Space” for effective fire protection of property, life and the environment. The Department’s Brush Clearance Unit enforces the Fire Codes as it relates to brush clearance on improved parcels, coordinates inspections and compliance efforts with fire station personnel, and provides annual brush clearance training to fire station personnel (LACFD 2022b).

3.20.3 Impact Assessment

WFR (a). Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The existing CUP sites are located within urbanized/developed areas and are outside of designated fire hazard severity zones. In addition, SHP maintains an Emergency Action Plan, which addresses spill, fire, and explosion hazards and relative risk to adjacent land uses as well as implements site-specific training to ensure a safe work environment is maintained and that proper emergency response procedures are followed.

Ongoing Project operations would not result in an increase in truck traffic to local roadways and therefore would not impede emergency response or evacuation plans. SHP would continue to implement an Emergency Action Plan and site-specific training. Ongoing operations would have no impact on an emergency response or evacuation plan.

New Project activities, including construction and operation of new wells and upgrades to the gas processing facility, would not result in substantial increases in truck traffic to local roadways which would impede emergency response or evacuation plans. SHP would continue to implement an Emergency Action Plan and site-specific training. The Project would not impair emergency response or evacuations plans, and no impact would occur.

WFR (b). Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant. The Project would occur entirely within existing CUP sites, which are located on previously disturbed, developed land. Ongoing oil production operations at the CUP

sites would continue to be monitored 24 hours per day, 365 days per year. Ongoing Project operations would not exacerbate wildfire risks, and thereby expose occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impacts would occur.

New Project activities, including drilling/operating new wells and the upgrades to the natural gas processing facility, completed at the CUP sites would continue to be monitored 24 hours per day, 365 days per year. Project construction would result in a temporary and minimal increase in the number of vehicles and equipment at the various CUP sites, which carry the unlikely potential to release a spark which could ignite vegetation. Due to the developed and urban setting, new Project construction and operations would not substantially exacerbate wildfire risks, and impacts would be less than significant.

WFR (c). Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less than Significant. Ongoing Project operations would occur entirely within existing CUP sites, which are located on previously disturbed, developed land within the City of Signal Hill. Ongoing oil production operations would continue at the same level and therefore would not exacerbate the long-term existing fire risk associated with ongoing oil production operations. No impacts would occur.

New Project activities, which include drilling new wells and installing upgrades to the natural gas processing facility, would occur entirely within existing CUP sites, located on previously disturbed, developed land. New Project activities would not exacerbate the long-term existing fire risk associated with ongoing oil production operations. However, outside of normal operations, there would be a minimal amount of additional vehicles and equipment onsite as needed during construction which carry the unlikely potential to release a spark which could ignite nearby vegetation. Thus, the potential impacts of new Project activities are considered less than significant.

WFR (d). Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. Ongoing Project operations would occur within the existing developed drill sites. Since the drill sites are already developed, continued operations would not increase any of the existing flooding or landslide risks at the CUP sites as a result of wildfire. Ongoing operations would not result in increased potential for flooding, landslides, or drainage changes, and no impacts would occur.

All new Project activities would occur within the existing developed CU sites, most of which are surrounded by developed land that is predominantly flat. However, CUP Sites #4 and #5 are located adjacent to sloping hillsides, on the downslope edge of Signal Hill. Since the drill sites

are already developed and the site boundary would not change, Project construction implementation and continued operation of those new wells and natural gas processing facility would not increase any of the existing flooding or landslide risks at the CUP sites as a result of wildfire. Additionally, drainage onsite would not change as a result of Project construction. New Project activities would not result in increased potential for flooding, landslides, or drainage changes, and no impacts would occur.

SECTION 4 Mandatory Findings of Significance

Issue	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially 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, substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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, the effects of other current projects, and the effects of probable future projects.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MFS (a). Does the project have the potential to substantially 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, substantially 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?

Less than Significant with Mitigation Incorporated. The Project does not threaten any species and would not substantially reduce available habitat for any species, including listed species. All the CUP sites are in urban areas which have experienced prior development and are not identified as high-quality habitat for any species. Although the Project would not significantly threaten any species, potential impacts to biological resources would be ensured to be less than significant with the application of **MM BIO-1** (pre-construction survey for bats) and **MM BIO-2** (pre-construction survey for nesting birds) (Section 3.4.3).

MFS (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, the effects of other current projects, and the effects of probable future projects.)

Potentially Significant. Section 15355 of the State CEQA Guidelines defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A cumulative impact consists of an impact which is created because of the combination of the project evaluated in this IS together with other projects causing related impacts (Section 15130[a][1]). The cumulative impacts analysis “would examine reasonable, feasible options for mitigating or avoiding the project’s contribution to any significant cumulative effects” (Section 15130[b][(3)]).

Cumulative impacts are assessed for related projects within a similar geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example, the geographic area associated with construction noise impacts is limited to areas directly adjacent to construction sites, whereas the geographic area that is affected by construction-related air emissions may include the larger air basin. Construction impacts associated with increased noise, dust, erosion, and access limitations tend to be localized but could be exacerbated if other development or improvement projects are occurring within the same or adjacent locations as the proposed Project.

In addition to the geographic scope, cumulative impacts also take into consideration the timing of related projects relative to the proposed Project. The implementation schedule is particularly important for construction-related impacts; for a group of projects to generate cumulative construction impacts, they must be temporally, as well as spatially proximate.

The Project includes the ongoing oil and gas operations at each CUP site in addition to drilling new wells, constructing new well cellars, and installing upgrades to the gas processing facility. No additional projects would be sited within the Project area which are not covered under CUP 97-03. Therefore, potential cumulative impacts would be limited to potential off-site effects, including for example air quality, transportation, and noise. A detailed analysis of potential cumulative effects, considering other past, present, and reasonably foreseeable future projects, will be conducted for the EIR.

As discussed in Sections 3.3 and 3.8, In order to determine whether the Project would lead to an exceedance of any applicable air quality standards, a detailed analysis of Project emissions will be conducted and this issue will be addressed in detail in the EIR prepared for the Project. Additional analysis will be included in the EIR which discusses whether Project emission impacts are cumulatively considerable.

The Project would result in additional noise related to construction and operations. Incorporation of **MM NOISE-1** would ensure that appropriate protocols and measures are in-place to reduce potential impacts from the operation of the gas modification system at CUP Site #2 to a less than significant level. Additionally, through continued adherence to the existing conditions of approval described in Section 2.1, and implementation of **MM NOISE-1, NOISE-2,** and **NOISE-3**, Project impacts to nearby receptors would be less than significant. However, the

potential noise impacts of the Project will be addressed in greater detail in the EIR, as will the resulting potential cumulative impacts.

Project construction would generate vehicle trips in addition to the existing trips required for operations, but with incorporation of **MM TRA-1** additional impacts on already congested roadways in the City would be less than significant; however, the EIR will evaluate the potential for cumulative effects when the Project is considered in conjunction with other reasonably foreseeable future projects in the City.

MFS (c). Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation Incorporated. As discussed in Section 3.9, SHP maintains SPCC and spill contingency plans that cover their seven CUP 97-03 sites as well as HMBPs for sites where hazardous materials are stored (CUP Sites #1 through #5). Preparation and implementation of an HMBP for CUP Site #7 is included as **MM HAZ-1**. These plans would continue to be updated as needed throughout the proposed 20-year life of the Project. In addition to site-specific safety and spill containment plans and procedures, SHP also maintains a supplemental Emergency Action Plan and Process Safety Manual (which includes an Injury and Illness Prevention Plan). SHP would continue to implement additional measures beyond regulatory requirements as-needed, and ensure that every onsite employee (and contractor as applicable) receives site-specific training to ensure a safe work environment is maintained, and that proper emergency response procedures are followed.

As stated in Section 3.10.3, subsurface operations within the Signal Hill-Long Beach area to date have little impact on water quality within drinking water aquifers (Flow Science 2014). The City's annual water quality report, which analyzes over 50 regulated and unregulated organic chemicals, stated that none of these chemicals were detected at or above the reporting limit in groundwater or surface water sources in 2021 (City 2021b). Since Project operations would be similar to current operations, it is anticipated that Project impacts on groundwater quality would be less than significant and would not cause adverse effects on humans indirectly through drinking water.

SECTION 5 References

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