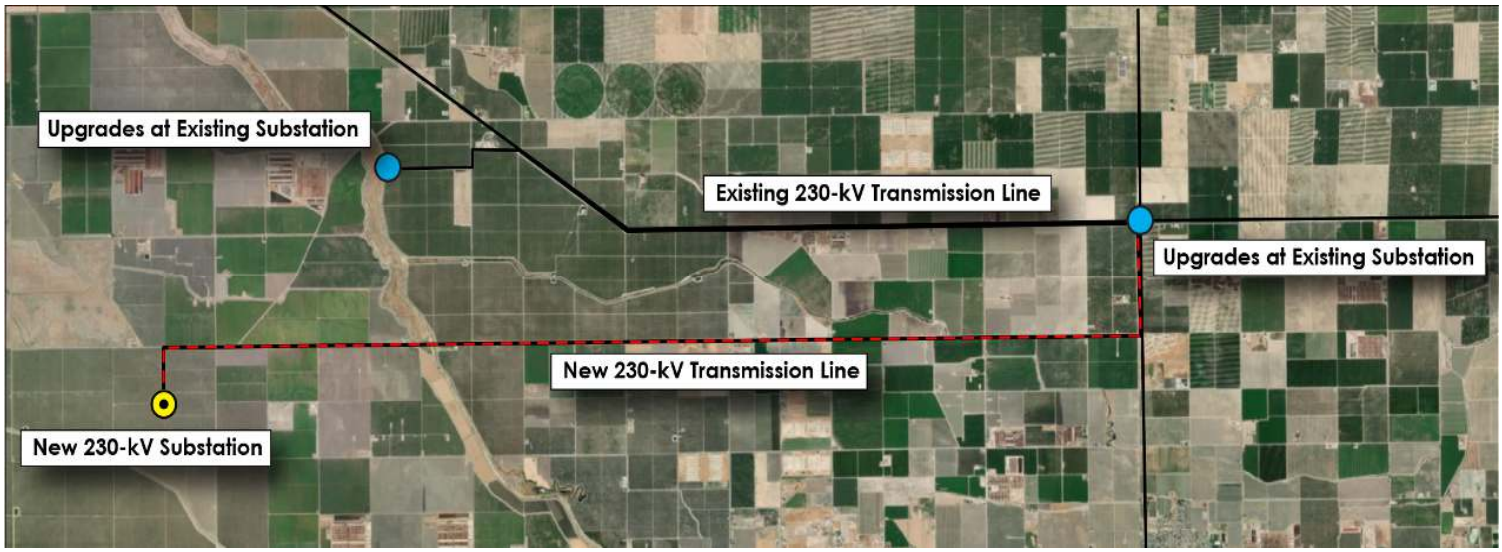

Guidelines for Energy Project Applications Requiring CEQA Compliance:

Pre-filing and Proponent's Environmental Assessments

November 2019

Version 1.0

Energy Division

Infrastructure Permitting and CEQA Unit

California Public Utilities Commission

Guidelines for Energy Project Applications Requiring CEQA Compliance:

Pre-filing and Proponent's Environmental Assessments

Contents

Foreword

November 12, 2019

To: Applicants Filing Proponent's Environmental Assessments for Energy Infrastructure Projects at the California Public Utilities Commission (CPUC or Commission)

From: Merideth Sterkel (Program Manager, Infrastructure Planning and Permitting) and Mary Jo Borak and Lonn Maier, Supervisors, Infrastructure Permitting and California Environmental Quality Act, Energy Division, CPUC

Subject: Introducing revisions to the Pre-filing Guidelines for Energy Infrastructure Projects and a Unified and Updated Electric and Gas PEA Checklist

We are pleased to release a 2019 revision to the California Environmental Quality Act (CEQA) Proponent's Environmental Assessments (PEA) Checklist. This substantially revised document is now entitled "Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments" (Guidelines). Future updates to this document will be made as determined necessary. The CPUC's Rules of Practice and Procedure Sections 2.4 provide that all applications to the CPUC for authority to undertake projects that are not statutorily or categorically exempt from CEQA requirements shall include an Applicant-prepared PEA.

Updates Overview

Prior versions of the Working Draft PEA Checklist were published in 2008 and 2012. For this 2019 update, extensive revisions were made to all sections based on our experience with the prior checklist versions. All electric and natural gas projects are now addressed in a single PEA Checklist, and the following updates were made:

- **CEQA Statute and Guidelines 2019 Updates:** The PEA Checklist is updated pursuant to the 2019 CEQA Statues and Guidelines, including new energy and wildfire resource areas.
- **Pre-filing Consultation Guidelines:** Pre-filing guidelines are now provided since the pre-filing and PEA development processes are intertwined.
- **Unified PEA Checklist for Energy Projects:** All electric and natural gas projects are now addressed in a single PEA Checklist.
- **Additional CEQA Impact Questions:** Questions are included for the following PEA Checklist sections: 5.4, Biological Resources; 5.6, Energy; 5.9, Hazards, Hazardous Materials, and Public Safety; 5.16, Recreation; 5.17, Transportation; and 5.19, Utilities and Service Systems.
- **CPUC Draft Environmental Measures:** Draft measures are provided in PEA Checklist Attachment 4 for Aesthetics, Air Quality, Cultural Resources, Greenhouse Gas Emissions, Utilities and Service Systems and Wildfire.

Purpose of the Guidelines Document

The purpose and objective of the PEA Checklist included within this Guidelines document has not changed, which is to provide project Proponents (Applicants) with detailed guidance about information our CEQA Unit Staff expect in sufficient PEAs. The document details the information Applicants must provide the CPUC to complete environmental reviews that satisfy CEQA requirements. Specifically, the Pre-filing Consultation Guidelines and PEA Checklist, together, are intended to achieve the following objectives:

1. Provide useful guidance to Applicants, CPUC staff, and outside consultants regarding the type and detail of information needed to quickly and efficiently deem an application complete;

2. Ensure PEAs provide reviewers with a detailed project description and associated information sufficient to deem an application complete, avoid lengthy review periods and numerous data requests for the purpose of augmenting a PEA, and avoid unnecessary PEA production costs;
3. Increase the level of consistency between PEAs submitted and provide for more consistent review by CPUC CEQA Unit Staff and outside consultants; and
4. Promote transparency and reduce the potential for conflicts between utility and CPUC Staff about the types, scope, and thoroughness of data expected for data adequacy purposes.

The Guidelines document provides detailed instructions to Applicants for use during the Pre-filing process and PEA development. The document is intended to fully inform Applicants and focus the role of outside consultants, thus, enabling Applicants to submit more complete, useful, and immediately data-adequate PEAs.

Benefits of High Quality and Complete PEAs

CPUC CEQA Unit Staff seek to complete the environmental review process required under CEQA as quickly and efficiently as possible. Table 1 shows the average duration in months of CPUC applications that require CEQA documents. While there are tensions between speed and quality in all project management, the achievement of expeditious environmental reviews can result in lower project costs to ratepayers. Our staff have reviewed the timelines for 108 past CPUC applications that required review pursuant to CEQA and determined that the average length of time from application filing to PEA deemed complete is four months, regardless of the type of CEQA document. The goal for our agency is to deem PEAs complete within 30 days. The faster PEAs are deemed complete, the sooner staff can prepare the CEQA document. With each delay to PEA completeness, the fundamental project purpose and need and baseline circumstances may shift, requiring refreshing of the data. The Guidelines document will improve the initial accuracy of PEAs and reduce the time required to deem PEAs complete. Once an application is formally filed, the Applicant will receive a notification letter from CPUC CEQA Unit Staff when the PEA is deemed complete.

Table 1. Average Duration in Months of CPUC Applications that Require CEQA Documents (1996–2019)

	I: Application Filed to PEA Deemed Complete	II: PEA Deemed Complete to Draft Environmental Document Circulated	III: Draft Environmental Document to Final Released	IV: Final Released to Proposed Decision	V: Proposed Decision to Final Decision (with Certification of CEQA Document)	I-V: Overall Duration (1)
Environmental Impact Report (EIR; n=49)	5	13	7	5	2	**29**
Initial Study/ Mitigated Negative Declaration (IS/MND; n=56)	4	8	3	4	1	**19**
All Document Types (n=108)	4	8	4	5	2	**23**
Range: All Document Types	*1-9*	*5-18*	*2-10*	*1-7*	*1-2*	***12-38***

Note:
(1) The overall duration is not a sum of the average durations for each step. The overall duration was calculated using "n," the number of applications with data available for the date of application filing and final decision date. Not all projects had data available for each step. The data include several instances where the CEQA document was developed in conjunction with a NEPA document, e.g., an EIR/Environmental Impact Statement or IS/MND/Environmental Assessment/Finding of No Significant Impact was prepared instead of an EIR or MND, respectively. The above data is not inclusive of projects that had averages and ranges that are statistically abnormal.

Lessons Learned about the PEA Process

In the past, Applicants have filed PEAs using the checklist to ensure the correct information was provided but have not followed the format and organization of the PEA checklist and sometimes chose not to engage in Pre-filing activities with our staff. To achieve the objectives and benefits listed above, Applicants will file all future PEAs in the same organizational format as the updated checklist and adhere to the Pre-filing Consultation Guidelines in coordination with CPUC CEQA Unit Staff.

The Guidelines document describes the level effort required for the assessments necessary to not only finalize a CEQA document but ensure its legal defensibility. While final design and survey information is preferred, the PEA may incorporate preliminary design and survey data as appropriate and in consultation with CEQA Unit Staff during Pre-filing. We recognize that projects are fact specific, and deviations from the Pre-filing Consultation Guidelines and PEA Checklist are inevitable but providing concise and accurate information as soon as possible is paramount. Any deviations from these Guidelines must include clear justification and should be discussed and submitted during the Pre-filing Consultation process to avoid subsequent delays.

The PEA Checklist is written with the assumption that an Environmental Impact Report will be prepared, however, a Mitigated Negative Declaration or other form of CEQA document (e.g., exemption) may be appropriate. This determination, however, must be made in consultation with CPUC CEQA Unit Staff during Pre-filing and prior to submittal of the Draft PEA.

Future Modifications and Improvements

Like the predecessor PEA checklists, this is a working document that will be modified over time based on experience and changes to the CEQA Statute and Guidelines. To meet the above stated objectives and maintain consistency with CEQA. We expect Applicants, their consultants, CPUC consultants, and the CPUC to engage in a regular and ongoing dialogue about specific improvements to the CEQA process overall, and these Guidelines in particular.

We look forward to working with Applicants during the Pre-filing Consultation process to ensure that the level of effort that goes into preparing PEAs can be effectively and efficiently transferred into the CEQA document prepared by CPUC Staff and consultants. Applicants are invited to debrief with our staff about the efficacy of these Guidelines.

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/s/
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California Public Utilities Commission

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/s/
Supervisor, Infrastructure Permitting and CEQA Unit
California Public Utilities Commission

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California Public Utilities Commission

Pre-Filing Consultation Guidelines

The following Pre-filing Consultation Guidelines apply to all PEAs filed with applications to the CPUC and outline a process for Applicants to engage with CPUC CEQA Unit Staff about upcoming projects that will require environmental review pursuant to CEQA. The CPUC is typically the Lead Agency for large projects by investor-owned gas and electric utilities. The CPUC's CEQA Unit Staff are experienced with developing robust CEQA documents for long, linear energy projects. The PEA Checklist, starting in the next section, is based upon that experience.

Pre-filing Consultation Process

During Pre-filing Consultation, Applicants and CPUC Staff meet to discuss the upcoming application. Successful projects will commence Pre-filing Consultation no less than six months prior to application filing at the CPUC. When the application is formally filed at the CPUC, the Application and the PEA are submitted to the CPUC Docket Office.

1. Meetings with CPUC Staff

To initiate Pre-filing Consultation, Applicants will request and attend a meeting with CPUC CEQA Unit Staff at least six months prior to application filing.

a. Applicants can request a Pre-Filing Consultation meeting via email or letter. Initial contact via telephone may occur, but staff request written documentation of Pre-filing Consultation commencement.

b. For the initial meeting, Applicants will provide staff with a summary of the proposed project including maps and basic GIS data at least one week prior to the meeting.

c. Applicants will receive initial feedback on the scope of the proposed project and PEA. Staff will work with Applicants to establish a schedule for subsequent Pre-filing meetings and milestones.

2. Consultant Resources

CPUC CEQA Unit Staff will initiate the consultant contract immediately following the initial Pre-filing Consultation meeting. CPUC's consultant contract resources will be executed prior to Applicant filing of the Draft PEA. The consultant contract is critical to the Pre-filing Consultation process. Applicants are encouraged to request updates about the status of the contract. The CPUC may use its on-call consulting resources contract for these purposes. If CEQA Unit Staff determine that their on-call consulting resources are not appropriate due to the anticipated project scope, staff may initiate a request for proposals process to engage consulting resources, and the resulting contracting process will be completed and consultant contract in place prior to Draft PEA filing.

3. Draft PEA Provided Prior to PEA Filing

A complete Draft PEA will be filed at least three months prior to application filing. CPUC CEQA Unit Staff and the CPUC consultant team will review and provide comments on the Draft PEA to the Applicant early in the three-month period to allow time for Applicant revisions to the PEA.

4. Project Site Visits

One or more site visits will be scheduled with CPUC CEQA Unit Staff and their consultant at the time of Draft PEA filing (or prior). Appropriate federal, state, and local agencies will also be engaged at this time.

5. Consultation with Public Agencies

The Applicant and CPUC CEQA Unit Staff will jointly reach out and conduct consultation meetings with public agencies and other interested parties in the project area. CPUC CEQA Unit Staff may also choose to conduct separate consultation meetings if needed.

If a federal agency will be a co-lead pursuant to the National Environmental Policy Act and coordinating with the CPUC during the environmental review process, the Applicant and CPUC CEQA Unit Staff will ensure that the agency has the opportunity to comment on the Draft PEA and participate jointly with the CPUC throughout the application review process. Applicant and Commission CEQA Unit Staff coordination with the federal agency (if applicable) will likely need to occur more than six months in advance of application filing.

6. Alternatives Development

PEAs will be drafted with the assumption that an Environmental Impact Report (EIR) will be prepared. Applicants will include a reasonable range of alternatives in the PEA (even though a Mitigated Negative Declaration [MND] may ultimately be prepared), including sufficient information about each alternative. In some situations, CPUC CEQA Unit Staff and project Applicants may agree during Pre-filing Consultation that an MND is likely and a reasonable range of alternatives is not required for the PEA. This determination, however, must be made in consultation with CEQA Unit Staff during Pre-filing and is not final. The type of document to be prepared may change based on public scoping results and other findings during the environmental review process.

CEQA Unit Staff will provide feedback on the range of alternatives prior to Draft PEA filing (if possible) based on their review of the Draft PEA. It is critical that Applicants receive feedback from CEQA Unit Staff about the range of alternatives prior to filing the PEA. Applicants will ensure that each alternative is described and evaluated in the PEA with an equal level of detail as the proposed project unless otherwise instructed in writing by CEQA Unit Staff.

7. Format of PEA Submittal

Each PEA submittal will include the completed PEA Checklist tables. Each PEA submittal will be formatted and organized as shown in the Example PEA Table of Contents provided in the PEA Checklist unless otherwise directed by CPUC CEQA Unit Staff in writing prior to application filing. The example PEA Table of Contents is modeled after typical CPUC EIRs.

8. Transmission and Distribution System Information

A key component of CEQA projects analyzed during CPUC environmental reviews is the context of the project within the larger transmission and distribution system. Detailed descriptions of the regional transmission system, including GIS data, to which the proposed project would interconnect are required. The required level of detail about interconnecting systems is project specific and will be specified by CEQA Unit Staff in writing during Pre-filing Consultation. Detailed distribution system information may also be required.

9. Data and Technical Adequacy

Applicants will focus PEA development efforts on providing thorough, up-to-date data and technical reports required for CPUC CEQA Unit Staff to complete the environmental document and alternatives analysis.

The Applicant-drafted PEA Executive Summary, Introduction, Project Description, Description of Alternatives, and other chapters typically found in past CPUC EIRs and Initial Study/MNDs will be *thorough*—emulate the level of detail provided in typical CPUC EIRs. The setting sections provided for

PEA Chapter 5, Environmental Analysis, will also be thorough. Applicants will ensure that the PEA text, graphics, and file formats can be efficiently converted into CPUC's CEQA document with minimal revision, reformatting, and redevelopment by CPUC Staff and consultants.

The impact analyses and determinations provided for Chapter 5, Environmental Analysis, and Chapter 6, Comparison of Alternatives, need not be as thorough as those to be prepared by the CPUC for its CEQA document. These two sections are expected to be revised and redeveloped by CPUC Staff and consultants. Other sections of the CEQA document will only be revised and redeveloped by CPUC Staff and consultants if determined to be necessary after PEA filing.

10. Applicant Proposed Measures

The Pre-filing Consultation process can support the development Applicant Proposed Measures (APMs); measures that Applicants incorporate into the PEA project description to avoid or reduce what otherwise may be considered significant impacts. APMs that use phrases, such as, "as practicable," "as needed," or other conditional language will be superseded by Mitigation Measures if required to avoid or reduce a potentially significant impact. CPUC CEQA Unit Staff and their consultant team may review and provide comments on the Draft PEA APMs during Pre-filing Consultation.

Applicants will carefully consider each CPUC Draft Environmental Measure identified in Chapter 5 of this PEA Checklist. The measures may be applied to the proposed project if appropriate and may be subject to modification by the CPUC during its environmental review.[1]

11. PEA Checklist Deviations

CPUC CEQA Unit Staff understand that the PEA Checklist requires Applicants to develop a significant quantity of information. There are times when it is appropriate to deviate from the PEA Checklist. Deviations to the Pre-Filing Consultation Guidelines or the PEA Checklist contents may be approved by the CPUC's CEQA Unit Staff. Staff approval will be in writing and will occur prior to Applicant filing of the Draft PEA. Note that any deviations approved in writing by staff during the Pre-filing period may be reversed or modified after application and PEA filing and at any time throughout the environmental review period at the discretion of CPUC CEQA Unit Staff.

12. Submittal of Confidential Information

CPUC Staff are available during Pre-filing Consultation to discuss concerns that Applicants may have about confidentiality. However, the CEQA process requires public disclosure about projects, and such disclosure can often appear to conflict with Applicant requests for confidentiality. CPUC CEQA Unit Staff will rely on CPUC adopted confidentiality procedures to resolve confidentiality concerns. Applicants that expect aspects of a PEA filing to be confidential must follow CPUC confidentiality procedures. Applicants may mark information as confidential if allowed pursuant to General Order 66 or latest applicable Commission rule (e.g., see Public Records Act Proceeding Rulemaking (R.14-11-001).

13. Additional CEQA Impact Questions

Additional CEQA Impact Questions that are specific to the types of projects evaluated by the Commission's CEQA Unit are identified in the PEA Checklist to be considered in addition to the checklist items in CEQA Guidelines Appendix G.

The next section of this Guidelines document provides the PEA Checklist for all energy project applications that require CEQA compliance.

[1] At this time, the CPUC environmental measures are in draft format, see PEA Checklist Attachment 4. They may be formally incorporated into Chapter 5 of future versions of the PEA Checklist.

Proponent's Environmental Assessment (PEA) Checklist

The PEA Checklist provides project Applicants (e.g., projects involving electric transmission lines, electric substations or switching stations, natural gas transmission pipelines, and underground natural gas storage facilities) with detailed guidance regarding the level of detail CPUC CEQA Unit Staff expect to deem PEAs complete. Applicants will prepare their PEAs using the same section headers and numbering as provided in the PEA Checklist. Applicants will also provide supporting data that is specific to each item within the PEA Checklist. As noted in the Pre-Filing Consultation Guidelines, the PEA Checklist is written with the assumption that an EIR will be prepared. PEA contents may not need to support the development of an EIR, but this determination can only be made in consultation with CPUC CEQA Unit Staff as described in the Pre-Filing Consultation Guidelines.

Formatting and Basic PEA Data Needs, Including GIS Data

1. Provide **editable and fully functional source files** in electronic format for all PDF files, hardcopies, maps, images, and diagrams. Files will be provided in their original file format as well as the output file format. All Excel and other spreadsheet files or modeling files will include all underlying formulas/modeling details. All modeling files must be fully functional.
2. Details about the types of **GIS data and maps** to be submitted are provided in Attachment 1. GIS data not specified in this checklist may also be requested depending on the Proposed Project and alternatives.
3. The Applicant is responsible for ensuring that all project features, including project components and temporary and permanent work areas, are included within all **survey boundaries** (e.g., biological and cultural resources).
4. Excel spreadsheets with **emissions calculations** will be provided that are complete with all project assumptions, values, and formulas used to prepare emissions calculations in the PEA. Accompanying PDF files with the same information will be provided as Appendix B to the PEA (see List of Appendices below).
5. Applicants will provide in an Excel spreadsheet a comprehensive **mailing list** that includes the names and addresses of all affected landowners and residents, including unit numbers for multi-unit properties for both the proposed project and alternatives.
    a. An affected resident or landowner is defined as one whose place of residence or property is:
        i. Crossed by or abuts any component of the proposed project or an alternative including any permanent or temporary disturbance area (either above or below ground) and any extra work area (e.g., staging or parking area); or
        ii. Located within approximately 1,000 feet[2] of the edge of any construction work area.
    b. Include in the following information for each resident in a spreadsheet, at minimum: parcel APN number, owner name and mailing address, and parcel physical address. If individual occupant names, facility names, or business names are available, also provide these names and addresses in the spreadsheet. A sample mailing list format is provided in Table 2.

[2] Notice to all property owners within 300 feet of a Proposed Project is required at the time of application filing under GO 131-D. Commission notices of CEQA document preparation may be mailed to residents and property owners greater than 300 feet from a Proposed Project to ensure adequate notification (e.g., 1,000 feet) and the extent of notification will be determined on a project specific basis. Appropriate notice expectations will be discussed during Pre-filing (e.g., with respect to visual impact areas and other types of impacts specific to the Proposed Project and its study area).

Table 2. Sample Project Mailing List

Category	Company/ Agency	Name	Mailing Address	Phone Number	Email	APN	Source
State Agency	California Resources Agency	John Doe	1234 California Street City, CA 98765	(333) 456-7899	johndoe@email.com	123-456-789	County Assessor
Individual	n/a	Jane Doe	222 Main Street City, CA 97531	(909) 876-5432	janedoe@email.com	101-202-303	Public meeting on Month, Day 2019

6. **PEA Organization:** This PEA Checklist is organized to include each of the chapters and sections found in typical CPUC EIRs. The following sections will serve as the outline for all Draft PEAs submitted during Pre-filing and all PEAs filed with the CPUC Docket Office. PEAs will include each chapter and section identified (in matching numerical order) unless otherwise directed by CPUC CEQA Unit Staff in writing prior to filing.

Cover

A single sheet with the following information:	Applicant Notes, Comments
Title "Proponent's Environmental Assessment" and filing date	
Proponent Name (the Applicant)	
Name of the proposed project[3]	
Technical subheading summarizing the type of project and its major components, in one sentence or about 40 words, for example: A new 1,120 MVA, 500/115kV substation, 10 miles of new singled-circuit 500kV transmission lines, 25 miles of new and replaced double-circuit 115kV power lines, and upgrades at three existing substations are proposed.	
Location of the proposed project (all counties and municipalities or map figure for the cover that shows the areas crossed)	
Proceeding for which the PEA was prepared and CPUC Docket number (if known) or simply leave a blank where the Docket number would go	
Primary Contact's name, address, telephone number, and email address for both the project Applicant(s) and entities that prepared the PEA	
See example PEA cover in Figure 1.	

[3] If approved by the California Independent System Operator (CAISO), the project name listed will match the name specified in the CAISO approval. If multiple names apply, list all versions.

Figure 1. Example PEA Cover

Proponent's Environmental Assessment for California Utility Company's Evergreen Electric Substation and Transmission Line Project

May 1, 2019 (PEA filing date)

A new 230 kV substation, 10 miles of new single-circuit 230kV transmission lines, and upgrades at two existing substations are proposed.

The Proposed Project would be located primarily in __ County but would also cross __ and __ counties and areas within the City of __.

Application A.19-05-01 to the California Public Utilities Commission

Prepared by California Environmental Consulting
1234 Avenue
City, CA Zip Code
Primary Contact's Name
Position
Phone Number
Email

Prepared for California Utility Company
1234 Avenue
City, CA Zip Code
Primary Contact's Name
Position
Phone Number
Email

Table of Contents

Sections

7	Cumulative Impacts and Other CEQA Considerations	
8	List of Preparers	
9	References[4]	
--	Appendices	

Required PEA Appendices and Supporting Materials

Order	Title	Applicant Notes, Comments
Appendix A	Detailed Maps and Design Drawings	
Appendix B	Emissions Calculations	
Appendix C	Biological Resources Technical Reports (see Attachment 2)	
Appendix D	Cultural Resources Studies (see Attachment 3)	
Appendix E	Detailed Tribal Consultation Report[5]	
Appendix F	Environmental Data Resources Report, Phase I Environmental Site Assessment, or similar hazardous materials report	
Appendix G	Agency Consultation and Public Outreach Report and Records of Correspondence	
Appendix H	Construction Fire Prevention Plan[6]	

Potentially Required[7] Appendices and Supporting Materials

Order	Title	Applicant Notes, Comments
Appendix I	Noise Technical Studies	
Appendix J	Traffic Studies	
Appendix K	Geotechnical Investigations (may preliminary at time of PEA filing)	
Appendix L	Hazardous Substance Control and Emergency Response Plan / Hazardous Waste and Spill Prevention Plan	

4 References will be organized by section but contained in a single chapter called, "References."

5 Include summary and timing of all correspondence to and from any Tribes and the State Historic Preservation Office/Native American Heritage Commission, including Sacred Lands File search results, and full description of any issues identified by Tribes in their interactions with the Applicant.

6 The Construction Fire Prevention Plan will be provided to federal, state, and local fire agencies for review and comment as applicable to where components of the proposed project would be located. CPUC will approve the final Construction Fire Prevention Plan. Record of the request for review and comment and any comments received from these agencies will be provided to CPUC CEQA Unit Staff.

7 Anticipated Appendix and study requirements should be discussed with CPUC CEQA Unit Staff during Pre-filing.

Appendix M	Erosion and Sedimentation Control Best Management Practice Plan / Draft Storm Water Pollution Prevention Plan (may be preliminary at time of PEA filing)	
Appendix N	FAA Notice and Criteria Tool Results	
Appendix O	Revegetation or Site Restoration Plan	
Appendix P	Health and Safety Plan	
Appendix Q	Existing Easements[8]	
Appendix R	Blasting Plan (may be preliminary at time of PEA filing)	
Appendix S	Traffic Control/Management Plan (may be preliminary at time of PEA filing)	
Appendix T	Worker Environmental Awareness Program (may preliminary at time of PEA filing)	
Appendix U	Helicopter Use and Safety Plan (may be preliminary at time of PEA filing)	
Appendix V	Electric and Magnetic Fields Management Plan (may be part of the Application rather than the PEA)	

8 Easements should be provided military lands, conservation easements, or other lands where the real estate agreement specifies the range of activities that can be conducted

1 Executive Summary

This section will include, but is not limited to, the following:	PEA Section and Page Number[9]	Applicant Notes, Comments
1.1: Proposed Project Summary. Provide a summary of the proposed project and its underlying purpose and basic objectives.		
1.2: Land Ownership and Right-of-Way Requirements. Provide a summary of the existing and proposed land ownership and rights-of-way for the proposed project.		
1.3: Areas of Controversy. Identify areas of anticipated controversy and public concern regarding the project.		
1.4: Summary of Impacts a) Identify all impacts expected by the Applicant to be potentially significant. Identify and discuss Applicant Proposed Measures here and provide a reference to the full listing of Applicant Proposed Measures provided in the table described in Section 3.11 of this PEA Checklist. b) Identify any significant and unavoidable impacts that may occur.		
1.5: Summary of Alternatives. Summarize alternatives that were considered by the Applicant and the process and criteria that were used to select the proposed project.		
1.6: Pre-filing Consultation and Public Outreach Summary. Briefly summarize Pre-filing consultation and public outreach efforts that occurred and identify any significant outcomes that were incorporated into the proposed project.		
1.7: Conclusions. Provide a summary of the major PEA conclusions.		
1.8: Remaining Issues. Describe any major issues that must still be resolved.		

[9] The *PEA Section and Page Number* column and *Applicant Notes, Comments* column are intended to be filled out and provided with PEA submittals. The PEA Checklist is provided in Word to all Applicants to allow column resizing as appropriate to reduce PEA checklist length when completed for submittal. Landscape formatting may also be appropriate for completed PEA Checklist tables.

2 Introduction

2.1 Project Background

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
2.1.1: Purpose and Need a) Explain why the proposed project is needed. b) Describe localities the proposed project would serve and how the project would fit into the local and regional utility system. c) If the proposed project was identified by the California Independent System Operator (CAISO), thoroughly describe the CAISO's consideration of the proposed project and provide the following information: i. Include references to all CAISO Transmission Planning Processes that considered the proposed project. ii. Explain if the proposed project is considered an economic, reliability, or policy-driven project or a combination thereof. iii. Identify whether and how the Participating Transmission Owner recommended the project in response to a CAISO identified need, if applicable. iv. Identify if the CAISO approved the original scope of the project or an alternative and the rationale for their approval either for the original scope or an alternative. v. Identify how and whether the proposed project would exceed, combine, or modify in any way the CAISO identified project need. vi. If the Applicant was selected as part of a competitive bid process, identify the factors that contributed to the selection and CAISO's requirements for in-service date. d) If the project was not considered by the CAISO, explain why.		
(Natural Gas Storage Only) e) Provide storage capacity or storage capacity increase in billion cubic feet. If the project does not increase capacity, make this statement. f) Describe how existing storage facilities will work in conjunction with the proposed project. Describe the purchasing process (injection, etc.) and transportation arrangements this facility will have with its customers.		
2.1.2: Project Objectives a) Identify and describe the basic project objectives.[10] The objectives will include reasons for constructing the project based on its		

[10] Tangential project goals should not be included as basic project objectives, such as, minimizing environmental impacts, using existing ROWs and disturbed land to the maximum extent feasible, ensuring safety during construction and operation, building on property already controlled by the Applicant/existing site control. Goals of this type do not describe the underlying purpose or basic objectives but, rather, are good general practices for all projects.

purpose and need (i.e., address a specific reliability issue). The description of the project objectives will be sufficiently detailed to permit CPUC to independently evaluate the project need and benefits to accurately consider them in light of the potential environmental impacts. The basic project objectives will be used to guide the alternatives screening process, when applicable. b) Explain how implementing the project will achieve the basic project objectives and underlying purpose and need. c) Discuss the reasons why attainment of each basic objective is necessary or desirable.		
2.1.3: Project Applicant(s). Identify the project Applicant(s) and ownership of each component of the proposed project. Describe each Applicant's utility services and their local and regional service territories.		

2.2 Pre-filing Consultation and Public Outreach[11]

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
2.2.1: Pre-filing Consultation and Public Outreach a) Describe all Pre-filing consultation and public outreach that occurred, such as, but not limited to: i. CAISO ii. Public agencies with jurisdiction over project areas or resources that may occur in the project area iii. Native American tribes affiliated with the project area iv. Private landowners and homeowner associations v. Developers for large housing or commercial projects near the project area vi. Other utility owners and operators vii. Federal, state, and local fire management agencies b) Provide meeting dates, attendees, and discussion summaries, including any preliminary concerns and how they were addressed and any project alternatives that were suggested. c) Clearly identify any significant outcomes of consultation that were incorporated into the proposed project. d) Clearly identify any developments that could coincide or conflict with project activities (i.e., developments within or adjacent to a proposed ROW).		
2.2.2: Records of Consultation and Public Outreach. Provide contact information, notification materials, meeting dates and materials, meeting notes, and records of communication organized by entity as an Appendix to the PEA (Appendix G).		

[11] CPUC CEQA Unit Staff request that consultation and public outreach that occurs during the Pre-filing period and throughout environmental review include the assigned CPUC Staff person and CPUC consultant.

2.3 Environmental Review Process

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
2.3.1: Environmental Review Process. Provide a summary of the anticipated environmental review process and schedule.		
2.3.2: CEQA Review a) Explain why CPUC is the appropriate CEQA Lead agency. b) Identify other state agencies and any federal agencies that may have discretionary permitting authority over any aspect of the proposed project. c) Identify all potential involvement by federal, state, and local agencies not expected to have discretionary permitting authority (i.e., ministerial actions). d) Summarize the results of any preliminary outreach with these agencies as well as future plans for outreach.		
2.3.3: NEPA Review (if applicable). If review according to the National Environmental Policy Act (NEPA) is expected, explain the portions of the project that will require the NEPA review process. Discuss which agency is anticipated to be the NEPA Lead agency if discretionary approval by more than one federal agency is required.		
2.3.4: Pre-filing CEQA and NEPA Coordination. Describe the results of Pre-filing coordination with CEQA and NEPA review agencies (refer to CPUC's Pre-Filing Consultation Guidelines). Identify major outcomes of the Pre-filing coordination process and how the information was incorporated into the PEA, including suggestions on the type of environmental documents and joint or separate processes based on discussions with agency staff.		

2.4 Document Organization

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
2.4: PEA Organization. Summarize the contents of the PEA and provide an annotated list of its sections.		

3 Proposed Project Description[12]

3.1 Project Overview

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.1: Project Overview a) Provide a concise summary of the proposed project and components in a few paragraphs. b) Described the geographical location of the proposed project (i.e., county, city, etc.). c) Provide an overview map of the proposed project location.		

3.2 Existing and Proposed System

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.2.1: Existing System a) Identify and describe the existing utility system that would be modified by the proposed project, including connected facilities to provide context. Include detailed information about substations, transmission lines, distribution lines, compressor stations, metering stations, valve stations, nearby renewable generation and energy storage facilities, telecommunications facilities, control systems, SCADA systems, etc. b) Provide information on users and the area served by the existing system features. c) Explain how the proposed project would fit into the existing local and regional systems. d) Provide a schematic diagram of the existing system features. e) Provide detailed maps and associated GIS data for existing facilities that would be modified by the proposed project.		
3.2.2: Proposed Project System a) Describe the whole of the proposed project by component, including all new facilities and any modifications, upgrades, or expansions to existing facilities and any interrelated activities that are part of the whole of the action. b) Clearly identify system features that would be added, modified, removed, disconnected and left in place, etc. c) Identify the expected capacities of the proposed facilities, highlighting any changes from the existing system. If the project would not change existing capacities, make this statement. For electrical projects, provide the anticipated capacity increase in amps or megawatts or in the typical units for the types of facilities proposed. For gas projects, provide the total volume of gas to be		

[12] Applicant review of the Administrative Draft Project Description or sections of the Administrative Draft Project Description prepared for the CEQA document may be requested by CPUC CEQA Unit Staff to ensure technical accuracy.

delivered by the proposed facilities, anticipated system capacity increase (typically in million cubic feet per day), expected customers, delivery points and corresponding volumes, and the anticipated maximum allowable operating pressure(s). d) Describe the initial buildout and eventual full buildout of the proposed project facilities. For example, if an electrical substation or gas compressor station would be installed to accommodate additional demand in the future, then include the designs for both the initial construction based on current demand and the design for all infrastructure that could ultimately be installed within the planned footprint of an electric substation or compressor station. e) Explain whether the electric line or gas pipeline will create a second system tie or loop for reliability. f) Provide information on users and the area served by the proposed system features, highlighting any differences from the existing system. g) Provide a schematic diagram of the proposed system features. h) Provide detailed maps and associated GIS data for proposed facilities that would be installed, modified, or relocated by the proposed project.		
3.2.3: System Reliability. Explain whether the electric line or gas pipeline will create a second system tie or loop for reliability. Clearly explain and show how the proposed project relates to and supports the existing utility systems.		
3.2.4: Planning Area. Describe the system planning area served or to be served by the project. Clearly define the Applicant's term for the planning area (e.g., Electrical Needs Area or Distribution Planning Area).		

3.3 Project Components

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
Required for all Project Types		
3.3.1: Preliminary Design and Engineering a) Provide preliminary design and engineering information for all above-ground and below-ground facilities for the proposed project. The approximately locations, maximum dimensions of facilities, and limits of areas that would be needed to construction and operate the facilities should be clearly defined.[13] b) Provide preliminary design drawings for project features and explain the level of completeness (i.e., percentage). c) Provide detailed project maps (approximately 1:3,000 scale) and associated GIS data of all facility locations and boundaries with attributes and spatial geometry that corresponds to information in the Project Description.		

[13] Refer to Attachment 1 for mapping and GIS data requirements for the project layout and design.

3.3.2: Segments, Components, and Phases a) Define all project segments, components, and phases for the proposed project. b) Provide the length/area of each segment or component, and the timing of each development phase. c) Provide an overview map showing each segment and provide associated GIS data (may be combined with other mapping efforts).		
3.3.3: Existing Facilities a) Identify the types of existing facilities that would be removed or modified by the proposed project (i.e., conductor/cable, poles/towers, substations, switching stations, gas storage facilities, gas pipelines, service buildings, communication systems, etc.). b) Describe the existing facilities by project segment and/or component, and provide information regarding existing dimensions, areas/footprints, quantities, locations, spans, etc. c) Distinguish between above-ground and below-ground facilities and provide both depth and height ranges for each type of facility. For poles/towers, provide the installation method (i.e., foundation type or direct bury), and maximum above-ground heights and below-ground depths. d) Explain what would happen to the existing facilities. Would they be replaced, completely removed, modified, or abandoned? Explain why. e) Identify the names, types, materials, and capacity/volumes ranges (i.e., minimum and maximum) of existing facilities that would be installed or modified by the proposed project. f) Provide diagrams with dimensions representing existing facilities to provide context on how the proposed facilities would be different. g) Briefly describe the surface colors, textures, light reflectivity, and any lighting of existing facilities.		
3.3.4: Proposed Facilities a) Identify the types of proposed facilities to be installed or modified by the proposed project (e.g., conductor/cable, poles/towers, substations, switching stations, gas storage facilities, gas pipelines, service buildings, communication systems). b) Describe the proposed facilities by project segment and/or component, and provide information regarding maximum dimensions, areas/footprints, quantities, locations, spans, etc. c) Distinguish between above-ground and below-ground facilities and provide both depth and height ranges for each type of facility. For poles/towers, provide the installation method (i.e., foundation type or direct bury), and maximum above-ground heights and below-ground depths.		

d) Identify where facilities would be different (e.g., where unique or larger poles would be located, large guy supports or snub poles). e) Provide details about civil engineering requirements (i.e., permanent roads, foundations, pads, drainage systems, detention basins, spill containment, etc.). f) Distinguish between permanent facilities and any temporary facilities (i.e., poles, shoo-fly lines, mobile substations, mobile compressors, transformers, capacitors, switch racks, compressors, valves, driveways, and lighting). g) Identify the names, types, materials, and capacity/volumes ranges (i.e., minimum and maximum) of proposed facilities that would be installed or modified by the proposed project. h) Provide diagrams with dimensions representing existing facilities. i) Briefly describe the surface colors, textures, light reflectivity, and any lighting of proposed facilities.		
3.3.5: Other Potentially Required Facilities a) Identify and describe in detail any other actions or facilities that may be required to complete the project. For example, consider the following questions: i. Could the project require the relocation (temporary or permanent), modification, or replacement of unconnected utilities or other types of infrastructure by the Applicant or any other entity? ii. Could the project require aviation lighting and/or marking? iii. Could the project require additional civil engineering requirements to address site conditions or slope stabilization issues, such as pads and retaining walls, etc.? b) Provide the location of each facility and a description of the facility.		
3.3.6: Future Expansions and Equipment Lifespans a) Provide detailed information about the current and reasonably foreseeable plans for expansion and future phases of development. b) Provide the expected usable life of all facilities. c) Describe all reasonably foreseeable consequences of the proposed project (e.g., future ability to upgrade gas compressor station to match added pipeline capacity).		
Required for Certain Project Types		
3.3.7: Below-ground Conductor/Cable Installations (as Applicable) a) Describe the type of line to be installed (e.g., single circuit cross-linked polyethylene-insulated solid-dielectric, copper-conductor cables). b) Describe the type of casing the cable would be installed in (e.g., concrete-encased duct bank system) and provide the dimensions of the casing.		

c) Describe the types of infrastructure would likely be installed within the duct bank (e.g., transmission, fiber optics, etc.).		
3.3.8: Electric Substations and Switching Stations (as Applicable) a) Provide the number of transformer banks that will be added at initial and full buildout of the substation. Identify the transformer voltage and number of each transformer type. b) Identify any gas insulated switchgear that will be installed within the substation. c) Describe any operation and maintenance facilities, telecommunications equipment, and SCADA equipment that would be installed within the substation.		
3.3.9: Gas Pipelines (as Applicable). For each segment: a) Identify pipe diameter, number and length of exposed sections, classes and types of pipe to be installed, pressure of pipe, and cathodic protection for each linear segment. b) Describe new and existing inspection facilities (e.g., pig launcher sites). c) Describe system cross ties and laterals/taps. d) Identify the spacing between each valve station. e) Describe the compressor station, if needed, for any new or existing pipeline. f) Describe all pipelines and interconnections with existing and proposed facilities: i. Number of interconnections and locations and sizes; ii. All below-ground and above-ground installations; and iii. All remote facility locations for metering, telemetry, control.		
3.3.10: Gas Storage Facilities – Background and Resource Information (as Applicable) a) Provide detailed background information on the natural gas formation contributing to the existing or proposed natural gas facility, including the following: i. Description of overlying stratigraphy, especially caps ii. Description of production, injection, and intervening strata iii. Types of rock iv. Description of types of rocks in formation, including permeability or fractures v. Thickness of strata b) Provide a graphic and/or table showing formation thicknesses. c) Identify and describe any potential gas migration pathways, such as faults, permeable contacts, abandoned wells, underground water or other pipelines. d) Provide a summary and detailed cross-section diagrams of the geologic formations and structures of the oil/gas field or area. e) Provide the first well drilling and production history, abandonment procedures, inspections, etc. f) Describe production zones, including depth, types of formations, and characteristics of field/area.		

g) Describe the existing and proposed storage capacity and limiting factors, such as injection or withdrawal capacities. h) Describe existing simulation studies that were used to predict the reservoir pressure response under gas injection and withdrawal operations, and simulation studies for how the system would change as proposed. Provide the studies as a PEA Appendix. i) Provide the history of the oil/gas field or area.		
3.3.11: Gas Storage Facilities – Well-Head Sites (as Applicable). Describe the location, depth, size and completion information for all existing, abandoned, proposed production and injection, monitoring, and test wells.		
3.3.12: Gas Storage Facilities – Production and Injection (as Applicable) a) Provide the proposed storage capacity of production and injection wells. b) Provide production and injection pressures, depths, and rates. c) Provide production and injection cycles by day, week, and year. d) Describe existing and proposed withdrawal/production wells (i.e., size, depth, formations, etc.). e) Describe existing and proposed cushion gas requirements. f) Describe any cushion gas injection—formation the well is completed in (cushion gas formation), and injection information.		
3.3.13: Gas Storage Facilities – Electrical Energy (as Applicable). Describe all existing and proposed electric lines, telecommunications facilities, and other utilities/facilities (e.g., administrative offices, service buildings, and non-hazardous storage), and chemical storage associated with the proposed project.		
3.3.14: Telecommunication Lines (as Applicable) a) Identify the type of cable that is proposed and length in linear miles by segment. b) Identify any antenna and node facilities that are part of the project. c) For below-ground telecommunication lines, provide the depth of cable and type of conduit. d) For above-ground telecommunication lines, provide: i. Types of poles that will be installed (if new poles are required) ii. Where existing poles will be used iii. Any additional infrastructure (e.g., guy wires) or pole changes required to support the additional cable on existing poles		

3.4 Land Ownership, Rights-of-Way, and Easements

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.4.1: Land Ownership. Describe existing land ownership where each project component would be located. State whether the proposed		

project would be located on property(ies) owned by the Applicant or if additional property would be required.		
3.4.2: Existing Rights-of-Way or Easements a) Identify and describe existing rights-of-way (ROWs) or easements where project components would be located. Provide the approximately lengths and widths in each project area. b) Clearly state if project facilities would be replaced, modified, or relocated within existing ROWs or easements.		
3.4.3: New or Modified Rights-of-Way or Easements a) Describe new permanent or modified ROWs or easements that would be required. Provide the approximately lengths and widths in each project area. b) Describe how any new permanent or modified ROWs or easements would be acquired. c) Provide site plans identifying all properties/parcels and partial properties/parcels that may require acquisition and the anticipated ROWs or easements. Provide associated GIS data. d) Describe any development restrictions within new ROWs or easements, e.g., building clearances and height restrictions, etc. e) Describe any relocation or demolition of commercial or residential property/structures that may be necessary.		
3.4.4: Temporary Rights-of-Way or Easements f) Describe temporary ROWs or easements that would be required to access project areas, including ROWs or easements for temporary construction areas (i.e., staging areas or landing zones). g) Explain where temporary construction areas would be located with existing ROWs or easements for the project or otherwise available to the Applicant without a temporary ROW or easement. h) Describe how any temporary ROWs or easements would be acquired.		

3.5 Construction

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
3.5.1 Construction Access (All Projects)		
3.5.1.1: Existing Access Roads a) Provide the lengths, widths, ownership details (both public and private roads), and surface characteristics (i.e., paved, graveled, bare soil) of existing access roads that would be used during construction. Provide the area of existing roads that would be used (see example in Table 3 below). b) Describe any road modifications or stabilization that would be required prior to construction, including on the adjacent road		

shoulders or slopes. Identify any roads that would be expanded and provide the proposed width increases. c) Describe any procedures to address incidental road damage cause by project activities following construction. d) Provide detailed maps and associated GIS data for all existing access roads.		

Table 3. Access Roads

Type of Road	Description	Area Proposed Project
Existing Dirt Road	Typically double track. May have been graded previously. No other preparation required, although a few sections may need to be re-graded and crushed rock applied in very limited areas for traction.	_____ acres
New Permanent	Would be xx feet wide, bladed. No other preparation required although crushed rock may need to be applied in very limited areas for traction.	_____ acres
Overland Access	No preparation required. Typically grassy areas that are relatively flat. No restoration would be necessary.	_____ acres

3.5.1.2: New Access Roads a) Identify any new access roads that would be developed for project construction purposes, such as where any blading, grading, or gravel placement could occur to provide equipment access outside of a designated workspace.[14] b) Provide lengths, widths, and development methods for new access roads. c) Identify any temporary or permanent gates that would be installed. d) Clearly identify any roads that would be temporary and fully restored following construction. Otherwise it will be assumed the new access road is a permanent feature. e) Provide detailed maps and associated GIS data for all new access roads.		
3.5.1.3: Overland Access Routes a) Identify any overland access routes that would be used during construction, such as where vehicles and equipment would travel over existing vegetation and where blading, grading, or gravel placement would occur. b) Provide lengths and widths for new access roads. c) Provide detailed maps and associated GIS data for all overland access routes.		
3.5.1.4: Watercourse Crossings a) Identify all temporary watercourse crossings that would be required during construction. Provide specific methods and procedures for temporary watercourse crossings.		

[14] Temporary roads that would not require these activities should be considered an overland route.

b) Describe any bridges or culverts that replacement or installation of would be required for construction access. c) Provide details about the location, design and construction methods.		
3.5.1.5: Helicopter Access. If helicopters would be used during construction: a) Describe the types and quantities of helicopters that would be used during construction (e.g., light, medium, heavy, or sky crane), and a description of the activities that each helicopter would be used for. b) Identify areas for helicopter takeoff and landing. c) Describe helicopter refueling procedures and locations. d) Describe flight paths, payloads, and expected hours and durations of helicopter operation. e) Describe any safety procedures or requirements unique to helicopter operations, such as but not limited to obtaining a Congested Area Plan from the Federal Aviation Administration (FAA).		
3.5.2 Staging Areas (All Projects)		
3.5.2.1: Staging Area Locations a) Identify the locations of all staging area(s). Provide a map and GIS data for each.[15] b) Provide the size (in acres) for each staging area and the total staging area requirements for the project.		
3.5.2.2: Staging Area Preparation a) Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.). b) Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.). c) Describe how the staging area would be secured. Would a fence be installed? If so, describe the type and extent of the fencing. d) Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.). e) Describe any temporary lightning facilities for the site. f) Describe any grading activities and/or slope stabilization issues.		

[15] While not all potential local site staging areas will be known prior to selection of a contractor, it is expected that approximate area and likely locations of staging areas be disclosed. The identification of extra or optional staging areas should be considered to reduce the risk of changes after project approval that could necessitate further CEQA review.

3.5.3 Construction Work Areas (All Projects)		
3.5.3.1: Construction Work Areas a) Describe known work areas that may be required for specific construction activities (e.g., pole assembly, hillside construction)[16] b) Describe the types of activities that would be performed at each work area. Work areas may include but are not necessarily limited to: i. Helicopter landing zones and touchdown areas ii. Vehicle and equipment parking, passing, or turnaround areas iii. Railroad, bridge, or watercourse crossings iv. Temporary work pads for facility installation, modification, or removal v. Excavations and associated equipment work areas vi. Temporary guard structures vii. Pull-and-tension/stringing sites viii. Jack and bore pits, drilling areas and pull-back areas for horizontal directional drills ix. Retaining walls		
3.5.3.2 Work Area Disturbance a) Provide the dimensions of each work area including the maximum area that would be disturbed during construction (e.g., 100 feet by 200 feet) (see example in Table 4 below). b) Provide a table with temporary and permanent disturbance at each work area (in square feet or acres), and the total area of temporary and permanent disturbance for the entire project (in acres).		
3.5.3.3: Temporary Power. Identify how power would be provided at work area (i.e., tap into existing distribution, use of diesel generators, etc.). Provide the disturbance area for any temporary power lines.		
3.5.4 Site Preparation (All Projects)		
3.5.4.1: Surveying and Staking. Describe initial surveying and staking procedures for site preparation and access.		
3.5.4.2: Utilities a) Describe the process for identifying any underground utilities prior to construction (i.e., underground service alerts, etc.). b) Describe the process for relocating any existing overhead or underground utilities that aren't directly connected to the project system. c) Describe the process for installing any temporary power or other utility lines for construction.		

[16] Understanding that each specific work area may not be determined until the final work plan is submitted by the construction contractor, estimate total area likely to be disturbed.

Table 4. Work Areas

	Proposed Project (approximate metrics)
Pole Diameter:	
• Wood	_____ inches
• Self-Supporting Steel	_____inches
Lattice Tower Base Dimension:	
• Self-Supporting Lattice Structure	_____feet
Auger Hole Depth:	
• Wood	_____ to _____ feet
• Self-Supporting Steel	_____ to _____ feet
Permanent Footprint per Pole/Tower:	
• Wood	_____ sq. feet
• Self-Supporting Steel	_____ sq. feet
• Self-Supporting Steel Tower	_____ sq. feet
Number of Poles/Towers:	
• Wood	_____
• Self-Supporting Steel	_____
• Self-Supporting Steel Tower	_____
Average Work Area around Pole/Towers (e.g., for old pole removal and new pole installation):	
• Tangent structure work areas	_____ sq. feet
• Dead End / Angle structure work areas	_____ sq. feet
Total Permanent Footprint for Poles/Towers	Approximately _____ acres

3.5.4.3: Vegetation Clearing a) Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.). b) Provide calculations of temporary and permanent disturbance of each vegetation community and include all areas of vegetation removal in the GIS database. Distinguish between disturbance that would occur in previously developed areas (i.e., paved, graveled, or otherwise urbanized), and naturally vegetated areas. c) Describe how each type of vegetation removal would be accomplished. d) Describe the types of equipment that would be used for vegetation removal.		
3.5.4.4: Tree Trimming Removal a) For electrical projects, distinguish between tree trimming as required under CPUC General Order 95-D and tree removal. b) Identify the types, locations, approximate numbers, and sizes of trees that may need to be removed or trimmed substantially. c) Identify potentially protected trees that may be removed or substantially trimmed, such as but not limited to riparian trees, oaks trees, Joshua trees, or palm trees.		

d) Describe the types of equipment that would typically be used for tree removal.		
3.5.4.5: Work Area Stabilization. Describe the processes to stabilize temporary work areas and access roads including the materials that would be used (e.g., gravel).		
3.5.4.6: Grading a) Describe any earth moving or substantial grading activities (i.e., grading below a 6-inch depth) that would be required and identify locations where it would occur. b) Provide estimated volumes of grading (in cubic yards) including total cut, total fill, cut that would be reused, cut that would be hauled away, and clean fill that would be hauled to the site.		
3.5.5 Transmission Line Construction (Above Ground)		
3.5.5.1: Poles/Towers a) Describe the process and equipment for removing poles, towers, and associated foundations for the proposed project (where applicable). Describe how they would be disconnected, demolished, and removed from the site. Describe backfilling procedures and where the material would be obtained. b) Describe the process and equipment for installing or otherwise modifying poles and towers for the proposed project. Describe how they would be put into place and connected to the system. Identify any special construction methods (e.g., helicopter installation) at specific locations or specific types of poles/towers. c) Describe how foundations, if any, would be installed. Provide a description of the construction method(s), approximate average depth and diameter of excavation, approximate volume of soil to be excavated, approximate volume of concrete or other backfill required, etc. for foundations. Describe what would be done with soil removed from a hole/foundation site. d) Describe how the poles/towers and associated hardware would be delivered to the site and assembled. e) Describe any pole topping procedures that would occur, identify specific locations and reasons, and describe how each facility would be modified. Describe any special methods that would be required to top poles that may be difficult to access.		
3.5.5.2: Aboveground and Underground Conductor/Cable a) Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. b) Identify where conductor/cable stringing/installation activities would occur. c) Provide a diagram of the general sequencing and equipment that would be used. d) Describe the conductor/cable splicing process.		

e) Provide the general or average distance between pull-and-tension sites. Describe the approximate dimensions and where pull-and-tension sites would generally be required (as indicated by the designated work areas), such as the approximate distance to pole/tower height ratio, at set distances, or at significant direction changes. Describe the equipment that would be required at these sites. f) For underground conductor/cable installations, describe all specialized construction methods that would be used for installing underground conductor or cable. If vaults are required, provide their dimensions and location/spacing along the alignment. Provide a detailed description for how the vaults would be delivered to the site and installed. g) Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).		
3.5.5.3: Telecommunications. Identify the procedures for installation of proposed telecommunication cables and associated infrastructure.		
3.5.5.4: Guard Structures. Identify the types of guard structures that would be used at crossings of utility lines, roads, railroads, highways, etc. Describe the different types of guard structures or methods that may be used (i.e., buried poles and netting, poles secured to a weighted object, bucket trucks, etc.). Describe any pole installation and removal procedures associated with guard structures. Describe guard structure installation and removal process and duration that guard structures would remain in place.		
3.5.5.5: Blasting a) Describe any blasting that may be required to construct the project. b) If blasting may be required, provide a Blasting Plan that identifies the blasting locations; types and amounts of blasting agent to be used at each location; estimated impact radii; and, noise estimates. The Blasting Plan should be provided as an Appendix to the PEA. c) Provide a map identifying the locations where blasting may be required with estimated impact radii. Provide associated GIS data.		
3.5.6 Transmission Line Construction (Below Ground)		
3.5.6.1: Trenching a) Describe the approximate dimensions of the trench (e.g., depth, width). b) Provide the total approximate volume of material to be removed from the trench, the amount to be used as backfill, and any amount to subsequently be removed/disposed of offsite in cubic yards. c) Describe the methods used for making the trench (e.g., saw cutter to cut the pavement, backhoe to remove, etc.). d) Provide off-site disposal location, if known, or describe possible option(s). e) Describe if dewatering would be anticipated and if so, how the trench would be dewatered, the anticipated flows of the water,		

whether there would be treatment, and how the water would be disposed of. f) Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed from trenching operations. g) If a pre-existing hazardous waste were encountered, describe the process of removal and disposal. h) Describe the state of the ground surface after backfilling the trench. i) Describe standard Best Management Practices to be implemented.		
3.5.6.2: Trenchless Techniques (Microtunnel, Jack and Bore, Horizontal Directional Drilling) a) Identify any locations/features for which the Applicant expects to use a trenchless (i.e., microtunneling, jack and bore, horizontal directional drilling) crossing method and which method is planned for each crossing. b) Describe the methodology of the trenchless technique. c) Provide the approximate location and dimensions of the sending and receiving pits. d) Describe the methodology of excavating and shoring the pits. e) Provide the total volume of material to be removed from the pits, the amount to be used as backfill, and the amount subsequently to be removed/disposed of offsite in cubic yards. f) Describe process for safe handling of drilling mud and bore lubricants. g) Describe the process for detecting and avoiding "fracturing-out" during horizontal directional drilling operations. h) Describe the process for avoiding contact between drilling mud/lubricants and stream beds. i) If engineered fill would be used as backfill, indicate the type of engineered backfill and the amount that would be typically used (e.g., the top 2 feet would be filled with thermal-select backfill). j) Describe if dewatering is anticipated and, if so, how the pits would be dewatered, the anticipated flows of the water, whether there would there be treatment, and how the water would be disposed of. k) Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants. Describe the process of disposing of any pre-existing hazardous waste that is encountered during excavation. l) Describe any standard BMPs that would be implemented for trenchless construction.		
3.5.7 Substation, Switching Stations, Gas Compressor Stations		
3.5.7.1: Installation or Facility Modification. Describe the process and equipment for removing, installing, or modifying any substations, switching stations, or compressor stations including: a) Transformers/ electric components b) Gas components c) Control and operation buildings d) Driveways		

e) Fences f) Gates g) Communication systems (SCADA) h) Grounding systems		
3.5.7.2: Civil Works. Describe the process and equipment required to construct any slope stabilization, drainage, retention basins, and spill containment required for the facility.		
3.5.8 Gas Pipelines		
3.5.8.1: Gas Pipeline Construction. Describe the process for proposed pipeline construction including site development, trenching and trenchless techniques, pipe installation, and backfilling.		
3.5.8.2: Water Crossings. Describe water feature crossings that will occur during trenching, the method of trenching through stream crossings, and the process for avoiding impacts to the water features required for pipeline construction. Identify all locations where the pipeline will cross water features. Cite to any associated geotechnical or hydrological investigations completed and provide a full copy of each report as an Appendix to the PEA.[17]		
3.5.8.3: Gas Pipeline Other Requirements a) Describe hydrostatic testing process including pressures, timing, source of flushing water, discharge of water. b) Describe energy dissipation basin, and the size and length of segments to be tested. c) Describe pig launching locations and any inline inspection techniques used during or immediately post construction.		
3.5.9 Gas Storage Facilities		
3.5.9.1: Gas Storage Construction a) Describe the process for constructing the gas storage facility including constructing well pads and drilling wells. b) Describe the specific construction equipment that would be used, such as the type of drill rig (i.e., size, diesel, electric, etc.), depth of drilling, well-drilling schedule and equipment.		
3.5.9.2: Drilling Muds and Fluids. Describe the use of any drilling muds, fluids, and other drilling materials. Provided estimated types and quantities.		
3.5.10 Public Safety and Traffic Control (All Projects)		
3.5.10.1: Public Safety a) Describe specific public safety considerations during construction and best management practices to appropriately manage public safety. Clearly state when and where they each safety measure would be applied.		

[17] If a geotechnical study is not available at the time of PEA filing, provide the best information available.

b) Identify procedures for managing work sites in urban areas, covering open excavations securely, installing barriers, installing guard structures, etc. c) Identify specific project areas where public access may be restricted for safety purposes and provide the approximate durations and timing of restricted access at each location.		
3.5.10.2: Traffic Control a) Describe traffic control procedures that would be implemented during construction. b) Identify the locations, process, and timing for closing any sidewalks, lanes, roads, trails, paths, or driveways to manage public access. c) Identify temporary detour routes and locations. d) Provide a preliminary Traffic Control Plan(s) for the project.		
3.5.10.3: Security. Describe any security measures, such as fencing, lighting, alarms, etc. that may be required. State if security personnel will be stationed at project areas and anticipated duration of security.		
3.5.10.4: Livestock. Describe any livestock fencing or guards that may be necessary to prevent livestock from entering project areas. State if the fencing would be electrified and if so, how it would be powered.		
3.5.11 Dust, Erosion, and Runoff Controls (All Projects)		
3.5.11.1: Dust. Describe specific best management practices that would be implemented to manage fugitive dust.		
3.5.11.2: Erosion. Describe specific best management practices that would be implemented to manage erosion.		
3.5.11.3: Runoff. Describe specific best management practices that would be implemented to manage stormwater runoff and sediment.		
3.5.12 Water Use and Dewatering (All Projects)		
3.5.12.1: Water Use. Describe the estimated volumes of water that would be used by construction activity (e.g., dust control, compaction, etc.). State if recycled or reclaimed water would be used and provide estimated volumes. Identify the anticipated sources where the water would be acquired or purchased. Identify if the source of water is groundwater and the quantity of groundwater that could be used.		
3.5.12.2: Dewatering a) Describe dewatering procedures during construction, including pumping, storing, testing, permitted discharging, and disposal requirements that would be followed. b) Describe the types of equipment and workspace considerations to be used to dewater, store, transport, or discharge extracted water.		
3.5.13 Hazardous Materials and Management (All Projects)		
3.5.13.1: Hazardous Materials a) Describe the types, uses, and volumes of all hazardous materials that would be used during construction. b) State if herbicides or pesticides may be used during construction.		

c) If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.		
3.5.13.2: Hazardous Materials Management a) Identify specific best management practices that would be followed for transporting, storing, and handling hazardous materials. b) Identify specific best management practices that would be followed in the event of an incidental leak or spill of hazardous materials. c) Provide a Hazardous Substance Control and Emergency Response Plan / Hazardous Waste and Spill Prevention Plan as an Appendix to the PEA, if appropriate.		
3.5.14 Waste Generation and Management (All Projects)		
3.5.14.1: Solid Waste a) Describe solid waste streams from existing and proposed facilities during construction. b) Identify procedures to be implemented to manage solid waste, including collection, containment, storage, treatment, and disposal. c) Provide estimated total volumes of solid waste by construction activity or project component. d) Describe the recycling potential of solid waste materials and provide estimated volumes of recyclable materials by construction activity or project component. e) Identify the locations of appropriate disposal and recycling facilities where solid wastes would be transported.		
3.5.14.2: Liquid Waste a) Describe liquid waste streams during construction (i.e., sanitary waste, drilling fluids, contaminated water, etc.) b) Describe procedures to be implemented to manage liquid waste, including collection, containment, storage, treatment, and disposal. c) Provide estimated volumes of liquid waste generated by construction activity or project component. d) Identify the locations of appropriate disposal facilities where liquid wastes would be transported.		
3.5.14.3: Hazardous Waste a) Describe potentially hazardous waste streams during construction and procedures to be implemented to manage hazardous wastes, including collection, containment, storage, treatment, and disposal. b) If large volumes of hazardous waste are anticipated, such as from a pre-existing contaminant in the soil that must be collected and disposed of, provide estimated volumes of hazardous waste that would be generated by construction activity or project component. c) Identify the locations of appropriate disposal facilities where hazardous wastes would be transported.		
3.5.15 Fire Prevention and Response (All Projects)		
3.5.15.1: Fire Prevention and Response Procedures. Describe fire prevention and response procedures that would be implemented during		

construction. Provide a Construction Fire Prevention Plan or specific procedures as an Appendix to the PEA.		
3.5.15.2: Fire Breaks. Identify any fire breaks (i.e., vegetation clearance) requirements around specific project activities (i.e., hot work). Ensure that such clearance buffers are included in the limits of the defined work areas, and the vegetation removal in that area is attributed to Fire Prevention and Response (refer to 3.5.4.3: Vegetation Clearing).		

3.6 Construction Workforce, Equipment, Traffic, and Schedule

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
3.6.1: Construction Workforce a) Provide the estimated number of construction crew members. In the absence of project-specific data, provide estimates based on past projects of a similar size and type. b) Describe the crew deployment. Would crews work concurrently (i.e., multiple crews at different sites); would they be phased? How many crews could be working at the same time and where? c) Describe the different types of activities to be undertaken during construction, the number of crew members for each activity (i.e. trenching, grading, etc.), and number and types of equipment expected to be used for the activity. Include a written description of the activity. See example in Table 5.		
3.6.2: Construction Equipment. Provide a tabular list of the types of equipment expected to be used during construction of the proposed project including the horsepower. Define the equipment that would be used by each phase as shown in the example table below (Table 5).		

Table 5. Construction Equipment and Workforce

Work Activity				Activity Production				
Equipment Description	Estimated Horse-power	Probable Fuel Type	Equipment Quantity	Estimated Workforce	Estimated Start Date	Estimated End Date	Duration of Use (Hrs./Day)	Estimated Production
Survey				**4**	**January 2020**	**December 2020**		**358 Miles**
1-Ton Truck, 4x4	300	Diesel	2		January 2020	December 2020	10	1 Mile/Day
Staging Yards				**5**	**DOP**			
1-Ton Truck, 4x4	300	Diesel	1				4	
R/T Forklift	350	Diesel	1				5	
Boom/Crane Truck	350	Diesel	1				5	
Water Truck	300	Diesel	2		Duration of Project		10	
Jet A Fuel Truck	300	Diesel	1				4	
Truck, Semi-Tractor	500	Diesel	1				6	
Road Work				**6**	**January 2020**	**March 2020**		**426 Miles**
1-Ton Truck, 4x4	300	Diesel	2		January 2020	March 2020	5	
Backhoe/Front Loader	350	Diesel	1		January 2020	March 2020	7	
Track Type Dozer	350	Diesel	1		January 2020	March 2020	7	
Motor Grader	350	Diesel	1		January 2020	March 2020	5	
Water Truck	300	Diesel	2		January 2020	March 2020	10	
Drum Type Compactor	250	Diesel	1		January 2020	March 2020	5	
Excavator	300	Diesel	1		January 2020	February 2020	7	
Lowboy Truck/Trailer	500	Diesel	1		January 2020	February 2020	4	

3.6.3: Construction Traffic a) Describe how the construction crews and their equipment would be transported to and from the proposed project site. b) Provide vehicle type, number of vehicles, and estimated hours of operation per day, week, and month for each construction activity and phase. c) Provide estimated vehicle trips and vehicles miles traveled (VMT) for each construction activity and phase. Provide separate values for construction crews commuting, haul trips, and other types of construction traffic.		
3.6.4: Construction Schedule a) Provide the proposed construction schedule (e.g., month and year) for each segment or project component, and for each construction activity and phase. b) Provide and explain the sequencing of construction activities, and if they would or would not occur concurrently. c) Provide the total duration of each construction activity and phase in days or weeks. d) Identify seasonal considerations that may affect the construction schedule, such as weather or anticipated wildlife restrictions, etc. The proposed construction should account for such factors.		
3.6.5: Work Schedule a) Describe the anticipated work schedule, including the days of the week and hours of the day when work would occur. Clearly state if work would occur at night or on weekends and identify when and where this could occur. b) Provide the estimated number of days or weeks that construction activities would occur at each type of work area. For example, construction at a stationary facility or staging area may occur for the entire duration of construction, but construction at individual work areas along a linear project would be limited to a few hours, days or weeks, and only a fraction of the total construction period.		

3.7 Post-Construction

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.7.1: Configuring and Testing. Describe the process and duration for post-construction configuring and testing of facilities. Describe the number of personnel and types of equipment that would be involved.		
3.7.2: Landscaping. Describe any landscaping that would be installed. Provide a conceptual landscape plan that identifies the locations and types of plantings that will be used. Identify whether plantings will include container plants or seeds. Include any water required for landscaping in the description of water use above.		

3.7.3 Demobilization and Site Restoration		
3.7.3.1: Demobilization. Describe the process for demobilization after construction activities, but prior to leaving the work site. For example, describe final processes for removing stationary equipment and materials, etc.		
3.7.3.2: Site Restoration. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods) on all project ROWs, sites, and extra work areas. Things to consider include, but are not limited to, restoration of the following: a) Restoring natural drainage patterns b) Recontouring disturbed soil c) Removing construction debris d) Vegetation e) Permanent and semi-permanent erosion control measures f) Restoration of all disturbed areas and access roads, including restoration of any public trails that are used as access, as well as any damaged sidewalks, agricultural infrastructure, or landscaping, etc. g) Road repaving and striping, including proposed timing of road restoration for underground construction within public roadways		

3.8 Operation and Maintenance

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.8.1: Regulations and Standards a) Identify and describe all regulations and standards applicable to operation and maintenance of project facilities. b) Provide a copy of any applicable Wildfire Management Plan and describe any special procedures for wildfire management.		
3.8.2: System Controls and Operation Staff a) Describe the systems and methods that the Applicant would use for monitoring and control of project facilities (e.g., on-site control rooms, remote facilities, standard monitoring and protection equipment, pressure sensors, automatic shut-off valves, and site and equipment specific for monitoring and control such as at natural gas well pads). b) If new full-time staff would be required for operation and/or maintenance, provide the number of positions and purpose.		
3.8.3: Inspection Programs a) Describe the existing and proposed inspection programs for each project component, including the type, frequency, and timing of scheduled inspections (i.e., aerial inspection, ground inspection, pipeline inline inspections). b) Describe any enhanced inspections, such as within any High Fire Threat Districts consistent with applicable Wildfire Management Plan requirements.		

c) Describe the inspection processes, such as the methods, number of crew members, and how access would occur (i.e., walk, vehicle, all-terrain vehicle, helicopter, drone, etc.). If new access would be required, describe any restoration that would be provided for the access roads.		
3.8.4: Maintenance Programs a) Describe the existing and proposed maintenance programs for each project component. b) Describe scheduled maintenance or facility replacement after the designated lifespan of the equipment. c) Identify typical parts and materials that require regular maintenance and describe the repair procedures. d) Describe any access road maintenance that would occur. e) Describe maintenance for surface or color treatment. f) Describe cathodic protection maintenance that would occur. g) Describe ongoing landscaping maintenance that would occur.		
3.8.5: Vegetation Management Programs a) Describe vegetation management programs within and surrounding project facilities. Distinguish between any different types of vegetation management. b) Describe any enhanced vegetation management, such as within any High Fire Threat Districts consistent with any applicable Wildfire Management Plan requirements. Identify the areas where enhanced vegetation management would be conducted.		

3.9 Decommissioning

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.9.1: Decommissioning. Provide detailed information about the current and reasonably foreseeable plans for the disposal, recycling, or future abandonment of all project facilities.		

3.10 Anticipated Permits and Approvals

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.10.1: Anticipated Permits and Approvals. Identify all necessary federal, state, regional, and local permits that may be required for the project. For each permit, list the responsible agency and district/office representative with contact information, type of permit or approval, and status of each permit with date filed or planned to file. For example: a) Federal Permits and Approvals i. U.S. Fish and Wildlife Service ii. U.S. Army Corps of Engineers iii. Federal Aviation Administration iv. U.S. Forest Service		

v. U.S. Department of Transportation – Office of Pipeline Safety vi. U.S. Environmental Protection Agency (Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act) b) State and Regional Permits i. California Department of Fish and Wildlife ii. California Department of Transportation iii. California State Lands Commission iv. California Coastal Commission v. State Historic Preservation Office, Native American Heritage Commission vi. State Water Resources Control Board vii. California Division of Oil, Gas and Geothermal Resources viii. Regional Air Quality Management District ix. Regional Water Quality Control Board (National Pollutant Discharge Elimination System General Industrial Storm Water Discharge Permit) x. Habitat Conservation Plan Authority (if applicable) See also Table 6 of example permitting requirements and processes.		
3.10.2: Rights-of-Way or Easement Applications. Demonstrate that applications for ROWs or other proposed land use have been or soon will be filed with federal, state, or other land-managing agencies that have jurisdiction over land that would be affected by the project (if any). Discuss permitting plans and timeframes and provide the contact information at the federal agency(ies) approached.		

3.11 Applicant Proposed Measures

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.11 Applicant Proposed Measures a) Provide a table with the full text of any Applicant Proposed Measure. Where applicable, provide a copy of Applicant procedures, plans, and standards referenced in the Applicant Proposed Measures. b) Within Chapter 5, describe the basis for selecting a particular Applicant Proposed Measure and how the Applicant Proposed Measure would reduce the impacts of the project.[18] c) Carefully consider each CPUC Draft Environmental Measure identified in Chapter 5 of this PEA Checklist. The CPUC Draft Environmental Measures will be applied to the proposed project where applicable.		

[18] Applicant Proposed Measures that use phrases, such as, "as practicable" or other conditional language are not acceptable and will be superseded by Mitigation Measures if required to avoid or reduce a potentially significant impact.

Table 6. Example Permitting Requirements and Processes

Note: In addition to the CPCN or PTC, the applicant may also be required to secure resource agency permits for the project.

Disclaimer: Below is a general list of permits required for transmission projects. Permit requirements for individual projects may vary slightly depending on project conditions.

Agency	Permit	Regulation	Protected Resource	Trigger	Application Process	Timing
				Federal		
Army Corps of Engineers	404 Permit	Clean Water Act	Waters of the United States (including wetlands)	Placement of dredge or fill material into waters of the U.S., including wetlands. If project impacts less than 0.5 acres a **nationwide permit (NWP)** is typically issued	**NWP:** prepare a preconstruction notification (PCN) along with the draft Corps's application (Engineer Form 4345). Information in the PCN includes, but is not limited to: results of wetland delineation including areas of waters of the U.S.; temporary and permanent impacts to waters of the U.S. and discussion of avoidance; construction techniques, timeline, and equipment that would be used; special status species that potentially occur in the project area, and discussion of mitigation (if applicable) to replace wetlands	**NWP:** takes approximately nine months from the date of application submittal (depending on level of impacts and level of consultation required by other agencies). Initial review is 30 days after which application is deemed complete or additional information is requested.
				If project would impact more than 0.5 acres a **regional or individual permit** may be required.	**Regional or Individual Permit:** Same requirements as NWP as well as preparation and submittal of 404(b)(1) Alternatives analysis which identifies the Least Environmentally Damaging Practicable Alternative (LEDPA). Public notice also required	**Regional or Individual Permit:** An additional three to six months may be required on top of the nine months expected for an NWP. A 30 day public notice is also required to inform the public about the project before the Corps issues the permit.
USFWS	Section 7 Consultation	Federal Endangered Species Act	Federally Listed Species	Potential impact to a federally listed threatened or endangered species	Biological Assessment (BA) prepared and submitted to Corps. BA contains information on each species and describes potential for "take" of species and/or habitat.	The timeline for processing and receiving a formal **Biological Opinion (BO)** from USFWS can be six months to a year from when the Corps has initiated consultation and depending on the level of impact to listed species. The typical timeline for issuance of a BO is no less than 135 days after acceptance of the BA as complete.
US Department of Agriculture, Forest Service	Special Use Authorization	National Forest Management Act/NEPA	National Forest lands	Use of federal lands managed by the USDA Forest Service for a transmission line. Typically constitutes a Major Federal Action which in turn triggers NEPA analysis.	**Special Use Authorization Application:** prepare a special use application for consideration by the Forest Service. Prior to submitting a proposal, applicant is required to arrange a preapplicaiton meeting at the local Forest Service office. Application typically includes project plan, operating plans, liability insurance, licenses/registrations and other documents. If it is determined that NEPA is required either an EA or EIS would be prepared. The NEPA document may be prepared jointly with the CEQA document.	Revies of Special Use Authorization applications is often dependent upon what level of NEPA analysis is required. An EA is typically 9-12 months, and EIS is generally 18 months. NEPA process may occur concurrently with CEQA process.
US Department of the Interior, Bureau of Land Management	Right-of-Way Grant	Federal Land Policy and Management Act/NEPA	Federal Lands	Use of federal lands managed by the BLM for a transmission line. Typically constitutes a Major Federal Action which in turn triggers NEPA analysis.	**Right-of-Way Application**: Contact the BLM office with management responsibility. Obtain an application form "Application for Transportation and Utility Systems and Facilities on Federal Lands". Arrange a pre-application meeting with a BLM Realty Specialist or appropriate staff member. Submit completed application to the appropriate BLM office. If it is determined that NEPA is required either an EA or EIS would be prepared. The NEPA document may be prepared jointly with the CEQA document.	BLM attempts to review completed applications within 60 days of submittal. Full timing is often dependent upon what level of NEPA analysis is required. An EA is typically 9-12 months, and EIS is generally 18 months. NEPA process may occur concurrently with CEQA process.

Agency	Permit	Regulation	Protected Resource	Trigger	Application Process	Timing
			State (continued)			
State Historic Preservation Officer (SHPO)	Section 106 National Historic Preservation Act (NHPA)	National Historic Preservation Act	Cultural and/or historical resources	Required if there are potential impacts to cultural and/or historical resources that are listed or eligible for listing on the National Register of Historic Places.	Information on cultural and historical resources gathered during the draft CEQA document preparation is included in a 106 Technical Report and submitted to the Corps along with the Area of Potential Effect (APE) map. The information is then evaluated by the Corps' cultural resources evaluator for potential adverse effects within the APE. Depending upon the level of potential adverse effect, the Corps then forwards its finding to SHPO for concurrence or begins the process for a Memorandum of Agreement (MOA). Native American consultation is also mandatory for the 106 process but can begin during preparation of the environmental document. All letters and correspondence for the Native American consultation must be provided to the Corps.Consultation with federally-recongized tribes may require a more extensive consultation.	Once SHPO has received the Corps' determination, it has approximately 60 days to agree or request additional information. However, SHPO has recently become more involved in projects and this timeframe is only an estimate and if a potential adverse effect to cultural or historical resources could occur, the SHPO process can take up to a year or more. Depending on the level of impacts to cultural resources, the Corps may determine no effect and issue the permit before receiving concurrence from SHPO.
California State Lands Commission (CSLC)	Right of Way Lease Agreement	Division 6 of the California Public Resources Code	California Sovereign Lands	May be triggered if the transmission line crosses state lands under the jurisdiction of the CSLC, which includes the beds of 1) more than 120 rivers, streams and sloughs; 2) nearly 40 non-tidal navigable lakes, such as Lake Tahoe and Clear Lake; 3) the tidal navigable bays and lagoons; and 4) the tide and submerged lands adjacent to the entire coast and offshore islands of the State from the mean high tide line to three nautical miles offshore.	Leases or permits may be issued to qualified applicants and the Commission shall have broad discretion in all aspects of leasing including category of lease or permit and which use, method or amount of rental is most appropriate, whether competitive bidding should be used in awarding a lease, what term should apply, how rental should be adjusted during the term, whether bonding and insurance should be required and in what amounts, whether an applicant is qualified based on what it deems to be in the best interest of the State.	Most coordination should be done concurrently with the CEQA process to ensure that any CSLC-required issues are addressed under CEQA. Once a final route/alternative is selected, the lease process may take two to three months for final Commission approval.
			Local / Other			
Air Quality Management District or Air Pollution Control District	Permit to Construct	Federal Clean Air Act	Air Quality	Depends on the air disctrict involved; may not be required for most transmission projects. Some air districts have a trigger level based on disturbed acreage.	Application forms need to be prepared and submiited to the local AQMD or APCD	Typically 30 to 90 days after submittal of a complete application.

19

[19] Permitting is project specific. This table is provided for discussion purposes.

3.12 Project Description Graphics, Mapbook, and GIS Requirements

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
3.12.1: Graphics. Provide diagrams of the following as applicable: a) All pole, tower, pipe, vault, conduit, and retaining wall types b) For poles, provide typical drawings with approximate diameter at the base and tip; for towers, estimate the width at base and top. c) A typical detail for any proposed underground duct banks and vaults d) All substation, switchyard, building, and facility layouts e) Trenching, drilling, pole installation, pipe installation, vault installation, roadway construction, facility removal, helicopter uses, conductor installation, traffic control, and other construction activities where a diagram would assist the reader in visualizing the work area and construction approach f) Typical profile views of proposed aboveground facilities and existing facilities to be modified within the existing and proposed ROW (e.g., typical cross-section of existing and proposed facilities by project segment). g) Photos of representative existing and proposed structures		
3.12.2: Mapbook. Provide a detailed mapbook on an aerial imagery basemap at a scale between 1:3000 and 1:6000 (or as appropriate and legible) that show mileposts, roadways, and all project components and work areas including: a) All proposed above-ground and underground structure/facility locations (e.g., poles, conductor, substations, compressor stations, telecommunication lines, vaults, duct bank, lighting, markers, etc.) b) All existing structures/facilities that would be modified or removed c) Identify by milepost where existing ROW will be used and where new ROW or land acquisition will be required. d) All permanent work areas including permanent facility access e) All access roads including, existing, temporary, and new permanent access f) All temporary work areas including staging, material storage, field offices, material laydown, temporary work areas for above ground (e.g., pole installation) and underground facility construction (e.g., trenching and duct banks), helicopter landing zones, pull and tension sites, guard structures, shoo flys etc. g) Areas where special construction methods (e.g., jack and bore, HDD, blasting, retaining walls etc.) may need to be employed		

h) Areas where vegetation removal may occur i) Areas to be heavily graded and where slope stabilization measures would be employed including any retaining walls		
3.12.3: GIS Data. Provide GIS data for all features and ROW shown on the detailed mapbook.		
3.12.4: GIS Requirements. Provide the following information for each pole/tower that would be installed and for each pole/tower that would be removed: a) Unique ID number and type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice) both in a table and in the attributes of the GIS data provided b) Identify pole/tower heights and conductor sizes in the attributes of the GIS data provided.		
3.12.5: Natural Gas Facilities GIS Data. For natural gas facilities, provide GIS data for system cross ties and all laterals/taps, valve stations, and new and existing inspection facilities (e.g., pig launcher sites).		

4 Description of Alternatives

All Applicants will assume that alternatives will be required for the environmental analysis and that an EIR will be prepared unless otherwise instructed by CPUC CEQA Unit Staff in writing prior to application filing. See PEA Requirements at the beginning of this checklist document. The consideration and discussion of alternatives will adhere to CEQA Guidelines Section 15126.6. The description of alternatives will be provided in this chapter of the PEA, and the comparison of each alternative to the proposed project is provided in PEA Chapter 6. The amount of detail required for the description of various alternatives to the proposed project and what may be considered a reasonable range of alternatives will be discussed with CPUC during Pre-filing.

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
4.1 Alternatives Considered. Identify alternatives to the proposed project.[20] Include the following: a) All alternatives to the proposed project that were suggested, considered, or studied by the CAISO or by CAISO stakeholders b) Alternatives suggested by the public or agencies during public outreach efforts conducted by the Applicant c) Reduced footprint alternatives, including, e.g., smaller diameter pipelines and space for fewer electric transformers d) Project phasing options (e.g., evaluate the full build out for environmental clearance but consider an initial, smaller buildout that would only be expanded [in phases] if needed) e) Alternative facility and construction activity sites (e.g., substation, compressor station, drilling sites, well-head sites, staging areas) f) Renewable, energy conservation, energy efficiency, demand response, distributed energy resources, and energy storage alternatives g) Alternatives that would avoid or limit the construction of new transmission-voltage facilities or new gas transmission pipelines h) Other technological alternatives (e.g., conductor type) i) Route alternatives and route variations j) Alternative engineering or technological approaches (e.g., alternative types of facilities, or materials, or configurations) k) Assign an identification label and brief, descriptive title to each alternative described in this PEA chapter (e.g., Alternative A: No Project; Alterative B: Reduced Footprint 500/115-kV Substation; Alternative C: Ringo Hills 16-inch Pipeline Alignment; Alternative D1: Lincoln Street Route Variation; etc.). Each alternative will be easily identifiable by reading the brief title. Provide a description of each alternative. The description of each alternative will discuss to what extent it would be potentially feasible,		

[20] Reduced footprint alternatives; siting alternatives; renewable, energy conservation, energy efficiency, demand response, distributed energy resources, and energy storage alternatives; and non-wires alternatives (electric projects only) are typically required. For linear projects, route alternatives and route variations are typically required as well.

meet the project's underlying purpose, meet most of the basic project objectives, and avoid or reduce one or more potentially significant impacts. If the Applicant believes that an alternative is infeasible or the implementation is remote and speculative (CEQA Guidelines Section 15126.6(f)(3), clearly explain why. If significant environmental effects are possible without mitigation, alternatives will be provided in the PEA that are capable of avoiding or reducing any potentially significant environmental effects, even if the alternative(s) substantially impede the attainment of some project objectives or are costlier.[21]		
4.2 No Project Alternative. Include a thorough description of the No Project Alternative. The No Project Alternative needs to describe the range of actions that are reasonably foreseeable if the proposed project is not approved. The No Project Alternative will be described to meet the requirements of CEQA Guidelines Section15126.6(e).		
4.3 Rejected Alternatives. Provide a detailed discussion of all alternatives considered by the Applicant that were not selected by the Applicant for a full description in the PEA and analysis in PEA Chapter 5. The detailed discussion will include the following: a) Description of the alternative and its components b) Map of any alternative sites or routes c) Discussion about the extent to which the alternative would meet the underlying purpose of the project and its basic objectives d) Discussion about the feasibility of implementing the alternative e) Discussion of whether the alternative would reduce or avoid any significant environmental impacts of the proposed project f) Discussion of any new significant impacts that could occur from implementation of the alternative g) Description of why the alternative was rejected h) Any comments from the public or agencies about the alternative during PEA preparation		
For Natural Gas Storage Projects:		
4.4 Natural Gas Storage Alternatives. In addition to the requirements included above, alternatives to be considered for proposed natural gas storage projects include the following, where applicable: a) Alternative reservoir locations considered for gas storage including other field locations and other potential storage areas b) Alternative pipelines, road, and utility siting c) Alternative suction gas requirements, and injection/withdrawal options		

[21] CPUC CEQA Unit Staff will determine whether an alternative could *substantially* reduce one or more potentially significant impacts of the proposed project (CEQA Guidelines Section 15125.5). Applicants are strongly advised to provide more rather than less alternatives for CPUC's consideration or as determined during Pre-filing.

5 Environmental Analysis

Include a description of the environmental setting, regulatory setting, and impact analysis for each resource area. The resource areas addressed will include each environmental factor (resource area) identified in the most recent adopted version of the CEQA Guidelines Appendix G checklist and any additional relevant resource areas and impact questions that are defined in this PEA checklist.

1. Environmental Setting
    a. For each resource area, the PEA will include a detailed description of the natural and built environment in the vicinity of the proposed project area (e.g., topography, land use patterns, biological environment, etc.) as applicable to the resource area. Both regional and local environmental setting information will be provided.
    b. All setting information provided will relate in some way to the impacts of the proposed project discussed in the PEA's impacts analysis, however CPUC's impacts analysis may be more thorough, which may necessitate additional setting information than the Applicant might otherwise provide.
2. Regulatory Setting
    a. Organized by federal, State, regional, and local sections
    b. Describe the policy or regulation and briefly explain why it is applicable to the proposed project.
        i. Identify in the setting all laws, regulations, and policies that would be applicable for CPUC's exclusive jurisdiction over the siting and design of electric and gas facilities. Public utilities under CPUC's jurisdiction are expected to consult with local agencies regarding land use matters. Local laws, regulations, and policies will be considered for the consideration of potential impacts during CPUC's CEQA review (e.g., encroachment, grading, erosion control, scenic corridors, overhead line undergrounding, tree removal, fire protection, permanent and temporary noise limits, zoning requirements, general plan polices, and all local and regional laws, regulations, and policies).
3. Impact Questions
    a. Includes all impact questions in the current version of CEQA Guidelines, Appendix G.
    b. Additional impact questions that are frequently relevant to utility projects are provided in Attachment 4, CPUC Draft Environmental Measures.
4. Impact Analyses
    a. Discussion organized by CEQA Guidelines, Appendix G impact items and any Additional CEQA Impact Questions in the PEA Checklist. Assess all potential environmental impacts and make determinations, such as, No Impact, Less than Significant, Less than Significant with Mitigation, Significant and Unavoidable, or Beneficial Impact with respect to construction, operations, and maintenance activities.
    b. The impact analyses provided in PEA Chapter 5, Environmental Analysis, need not be as thorough as those to be prepared by CPUC for the CEQA environmental document. A preliminary determination will be provided but with only brief justification unless otherwise directed by CPUC Staff in writing during Pre-filing.
5. CPUC Draft Environmental Measures
    a. CPUC Draft Environmental Measures are provided for some of the resource areas in Attachment 4, CPUC Draft Environmental Measures. The measures may be applied to the proposed project as written or modified by the CPUC during its environmental review if the measure would avoid or reduce a potentially significant impact.

b. The CPUC Draft Environmental Measures should be discussed with the CPUC's CEQA Unit Staff during Pre-filing, especially with respect to the development of Applicant Proposed Measures.
c. In general, impact avoidance is preferred to the reduction of potentially significant impacts.

Additional requirements specific to each resource area are identified in the following sections.

5.1 Aesthetics

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.1.1 Environmental Setting		
5.1.1.1: Landscape Setting. Briefly described the regional and local landscape setting.		
5.1.1.2: Scenic Resources. Identify and describe any vistas, scenic highways, national scenic areas, or other scenic resources within and surrounding the project area (approximately 5-mile buffer but may be greater if necessary). Scenic resources may also include but are not limited to historic structures, trees, or other resources that contribute to the scenic values where the project would be located.		
5.1.1.3: Viewshed Analysis a) Conduct a viewshed analysis for the project area (approximately 5-mile buffer but may be greater if necessary). b) Describe the project viewshed, including important visibility characteristics for the project site, such as viewing distance, viewing angle, and intervening topography, vegetation, or structures. c) Provide a supporting map (or maps) showing project area, landscape units, topography (i.e., hillshade), and the results of the viewshed analysis. Provide associated GIS data.		
5.1.1.4: Landscape Units. Identify and describe landscape units (geographic zones) within and surrounding the project area (approximately 5-mile buffer but may be greater if necessary) that categorizes different landscape types and visual characteristics, with consideration to topography, vegetation, and existing land uses. Landscape units should be developed based on the existing landscape characteristics rather than the project's features or segments.		
5.1.1.5: Viewers and Viewer Sensitivity. Identify and described the types of viewers expected within the viewshed and landscape units. Describe visual sensitivity to general visual change based on viewing conditions, use of the area, feedback from the public about the project, and landscape characteristics.		

5.1.1.6: Representative Viewpoints a) Identify representative viewpoints from publicly accessible locations (up to approximately 5-mile buffer but may be greater if appropriate). The number and location of the viewpoints must represent a range of views of the project site from major roads, highways, trails, parks, vistas, landmarks, and other scenic resources near the project site. Multiple viewpoints should be included where the project site would be visible from sensitive scenic resources to provide context on different viewing distances, perspectives, and directions. b) Provide the following information for each viewpoint: i. Number, title, and brief description of the location ii. Types of viewers iii. Viewing direction(s) and distance(s) to the nearest proposed project features iv. Description of the existing visual conditions and visibility of the project site as seen from the viewpoint and shown in the representative photographs c) Provide a supporting map (or maps) showing project features and representative viewpoints with arrows indicating the viewing direction(s). Provide associated GIS data (may be combined with GIS data request below for representative photographs).		
5.1.1.7: Representative Photographs a) Provide high resolution photographs taken from the representative viewpoints in the directions of all proposed project features.[22] Multiple photographs should be provided where project features may be visible in different viewing directions from the same location. b) Provide the following information for each photograph: i. Capture time and date ii. Camera body and lens model iii. Lens focal length and camera height when taken c) Provide GIS data associated with each photograph location that includes coordinates (<1 meter resolution), elevations, and viewing directions, as well as the associated viewpoint.		
5.1.1.8: Visual Resource Management Areas a) Identify any visual resource management areas within and surrounding the project area (approximately 5-mile buffer). b) Describe any project areas within visual resource management areas.		

[22] All representative photographs should be taken using a digital single-lens reflex camera with standard 50-millimeter lens equivalent, which represents an approximately 40-degree horizontal view angle. The precise photograph coordinates and elevations should be collected using a high accuracy GPS unit.

c) Provide a supporting map (or maps) showing project features and visual resource management areas. Provide associated GIS data.		
5.1.2 Regulatory Setting		
5.1.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding aesthetics and visual resource management.		
5.1.3 Impact Questions		
5.1.3.1: Impact Questions. The impact questions include all aesthetic impact questions in the current version of CEQA Guidelines, Appendix G. **5.1.3.2:** Additional CEQA Impact Questions: None.		
5.1.4 Impact Analysis		
5.1.4.1: Visual Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.		
The following information will be included in the PEA or a technical Appendix to support the aesthetic impact analysis:		
5.1.4.2: Analysis of Selected Viewpoints. Identify the methodology and assumptions that were applied in selecting key observation points for visual simulation. It is recommended that viewpoints are selected where viewers may be sensitive to visual change (public views) and in areas that are visually sensitive, or heavily trafficked or visited.[23]		
5.1.4.3: Visual Simulation a) Identify methodology and assumptions for completing the visual simulations. The simulations should include photorealistic 3-D models of project features and any land changes within the KOP view. The visual simulations should depict conditions: i. Immediately following construction, and ii. After vegetation establishment in all areas of temporary impact to illustrate the visual impact from vegetation removal. b) Provide high resolution images for the visual simulations.		
5.1.4.4: Analysis of Visual Change a) Identify the methodology and assumptions for completing the visual change analysis.[24] The methodology should be consistent with applicable visual resource management criteria. b) Provide a description of the visual change for each selected viewpoint. Describe any conditions that would change over time, such as vegetation growth.		

[23] The KOP selection process should be discussed with CPUC during Pre-filing
[24] The visual impact assessment methodology should be discussed with CPUC during Pre-filing

c) Describe the effects of visual change that would result in the entire project area, as indicated by the selected viewpoints that were simulated and analyzed.		
5.1.4.5: Lighting and Marking. Identify all new sources of permanent lighting. Identify any proposed structures or lines that could require FAA notification. Identify any structures or line segments that could require lighting and marking based on flight patterns and FAA or military requirements. Provide supporting documentation in an Appendix (e.g., FAA notice and criteria tool results).		
5.1.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.2 Agriculture and Forestry Resources

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.2.1 Environmental Setting		
5.2.1.1: Agricultural Resources and GIS a) Identify all agricultural resources that occur within the project area including: i. Areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance ii. Areas under Williamson Act contracts and provide information on the status of the Williamson Act contract iii. Any areas zoned for agricultural use in local plans iv. Areas subject to active agricultural use b) Provide GIS data for agricultural resources within the proposed project area.		
5.2.1.2: Forestry Resources and GIS a) Identify all forestry resources within the project area including: i. Forest land as defined in Public Resources Code 12220(g)25 ii. Timberland as defined in Public Resource Code section 4526 iii. Timberland zoned Timberland Production as defined in Government Code section 51104(g) b) Provide GIS data for all forestry resources within the proposed project area.		
5.2.2 Regulatory Setting		
5.2.2: Agriculture and Forestry Regulations. Identify all federal, state, and local policies for protection of agricultural and forestry resources that apply to the proposed project.		

[25] Forest land is defined in Public Resources Code as, "land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."

5.2.3 Impact Questions		
5.2.3.1: Agriculture and Forestry Impact Questions. The impact questions include all agriculture and forestry impact questions in the current version of CEQA Guidelines, Appendix G. **5.2.3.2:** Additional CEQA Impact Questions: None.		
5.2.4 Impact Analyses		
5.2.4.1: Agriculture and Forestry Impacts. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.		
Incorporate the following discussions into the analysis of impacts:		
5.2.4.2: Prime Farmland Soil Impacts. Calculate the acreage of Prime Farmland soils that would be affected by construction and operation and maintenance.		
5.2.4.3. Williamson Act Impacts. Describe the approach to resolve potential conflicts with Williamson Act contract (if applicable)		
5.2.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.3 Air Quality

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.3.1 Environmental Setting		
5.3.1.1: Air Quality Plans Identify and describe all applicable air quality plans and attainment areas. Identify the air basin(s) for the project area. If the project is located in more than one attainment area and/or air basin, provide the extent in each attainment area and air basin.		
5.3.1.2: Air Quality. Describe existing air quality in the project area. a) Identify existing air quality exceedance of National Ambient Air Quality Standards and California Ambient Air Quality Standards in the air basin. b) Provide the number of days that air quality in the area exceeds state and federal air standards for each criteria pollutant that where air quality standards are exceeded. c) Provide air quality data from the nearest representative air monitoring station(s).		
5.3.1.3: Sensitive Receptor Locations. Identify the location and types of each sensitive receptor locations[26] within 1,000 feet of the project area. Provide GIS data for sensitive receptor locations.		

[26] Sensitive Receptor locations may include hospitals, schools, and day care centers, and such other locations as the air district board or California Air Resources Board may determine (California Health and Safety Code § 42705.5(a)(5)).

5.3.2 Regulatory Setting		
5.3.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding aesthetics and visual resource management.		
5.3.2.2: Air Permits. Identify and list all necessary air permits.		
5.3.3 Impact Questions		
5.3.3.1: Impact Questions. The impact questions include all air quality impact questions in the current version of CEQA Guidelines, Appendix G. **5.3.3.2:** Additional CEQA Impact Questions: None.		
5.3.4 Impact Analysis		
5.3.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.		
The following information will be presented in the PEA or a technical Appendix to support the air quality impact analysis:		
5.3.4.2: Air Quality Emissions Modeling. Model project emissions using the most recent version of CalEEMod and/or a current version of other applicable modeling program. Provide all model input and output data sheets in Microsoft Excel format to allow CPUC to evaluate whether project data was entered into the modeling program accurately. The assumptions used in the air quality modeling must be consistent with all PEA information about the project's schedule, workforce, and equipment. The following information will be addressed in the emissions modeling, Air Quality Appendix, and PEA: a) Quantify the expected emissions of criteria pollutants from all project-related sources. Quantify emissions for both construction and operation (e.g., compressor equipment). b) Identify manufacturer's specifications for all proposed new emission sources. For proposed new, additional, or modified compressor units, include the horsepower, type, and energy source. c) Describe any emission control systems that are included in the air quality analysis (e.g., installation of filters, use of EPA Tier II, III, or IV equipment, use of electric engines, etc.). d) When multiple air basins may be affected by the project, model air emissions within each air basin and provide a narrative (supported by calculations) that clearly describes the assumptions around the project activities considered for each air basin. Provide modeled emissions by attainment area or air basin (supported by calculations).		

5.3.4.3: Air Quality Emissions Summary. Provide a table summarizing the air quality emissions for the project and applicable thresholds for each applicable attainment area. Include a summary of uncontrolled emissions (prior to application of any APMs) and controlled emissions (after application of APMs). Clearly identify the assumptions that were applied in the controlled emissions estimates.		
5.3.4.4: Health Risk Assessment. Complete a Health Risk Assessment when air quality emissions have the potential to lead to human health impacts[27]. If health impacts are not anticipated from project emissions, the analysis should clearly describe why emissions would not lead to health impacts.		
5.3.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.4 Biological Resources

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.4.1 Environmental Setting		
5.4.1.1: Biological Resources Technical Report. Provide a Biological Resources Technical Report as an Appendix to the PEA that includes all information specified in Attachment 2.		
The following biological resources information will be presented in the PEA:		
5.4.1.2: Survey Area (Local Setting). Identify and describe the biological resources survey area as documented in the Biological Resources Technical Report. All temporary and permanent project areas must be within the survey area.		
5.4.1.3: Vegetation Communities and Land Cover a) Identify, describe, and quantify vegetation communities and land cover types within the biological resources survey area. b) Clearly identify any sensitive natural vegetation communities that meet the definition of a biological resource under CEQA (i.e., rare, designated, or otherwise protected), such as, but not limited to, riparian habitat. c) Provide a supporting map (or maps) showing project features and vegetation communities and land cover type.		

[27] Refer to Office of Environmental Health Hazard Assessment (OEHHA) most recent guidance for preparation of Health Risk Assessments to determine whether a Health Risk Assessment is required for the project. The need for an HRA should also be discussed with CPUC during Pre-filing.

5.4.1.4: Aquatic Features a) Identify, describe, and quantify aquatic features within the biological resources survey area that may provide potentially suitable aquatic habitat for rare and special-status species. b) Identify and quantify potentially jurisdictional aquatic features and delineated wetlands, according to the Wetland Delineation Report and Biological Resources Technical Report. c) Provide a supporting map (or maps) showing project features and aquatic resources.		
5.4.1.5: Habitat Assessment. Identify rare and special-status species with potential to occur in the project region (approximately a 5-mile buffer but may be larger if necessary). For each species, provide the following information: a) Common and scientific name b) Status and/or rank c) Habitat characteristics (i.e., vegetation communities, elevations, seasonal changes, etc.) d) Blooming characteristics for plants e) Breeding and other dispersal (range) behavior for wildlife f) Potential to occur within the survey area (i.e., Present, High Potential, Moderate Potential, Low Potential, or Not Expected), with justification based on the results of the records search, survey findings, and presence of potentially suitable habitat g) Specific types and locations of potentially suitable habitat that correspond to the vegetation communities and land cover and aquatic features		
5.4.1.6: Critical Habitat a) Identify and describe any critical habitat for rare or special-status species within and surrounding the project area (approximately a 5-mile buffer). b) Provide a supporting map (or maps) showing project features and critical habitat.		
5.4.1.7: Native Wildlife Corridors and Nursery Sites a) Identify and describe regional and local wildlife corridors within and surrounding the project area (approximately a 5-mile buffer), including but not limited to, landscape and aquatic features that connect suitable habitat in regions otherwise fragmented by terrain, changes in vegetation, or human development. b) Identify and describe regional and local native wildlife nursery sites within and surrounding the project area (approximately a 5-mile buffer), as identified through the records search, surveys, and habitat assessment.		

c) Provide a supporting map (or maps) showing project features, native wildlife corridors, and native nursery sites.		
5.4.1.8: Biological Resource Management Areas a) Identify any biological resource management areas (i.e., conservation or mitigation areas, HCP or NCCP boundaries, etc.) within and surrounding the project area (approximately 5-mile buffer). b) Identify and quantify any project areas within biological resource management areas. c) Provide a supporting map (or maps) showing project features and biological resource management areas.		
5.4.2 Regulatory Setting		
5.4.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding biological resources.		
5.4.2.2: Habitat Conservation Plan. Provide a copy of any relevant Habitat Conservation Plan.		
5.4.3 Impact Questions		
5.4.3.1: Impact Questions. The impact questions include all biological resource impact questions in the current version of CEQA Guidelines, Appendix G. **5.4.3.2:** Additional CEQA Impact Question: Would the project create a substantial collision or electrocution risk for birds or bats?		
5.4.4 Impact Analysis		
5.4.4.1: Impact Analysis Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for Biological Resources and any additional impact questions listed above.		
The following information will be included in the impact analysis:		
5.4.4.2: Quantify Habitat Impacts. Provide the area of impact in acres by each habitat type. Quantify temporary and permanent impacts. For all temporary impacts provide the following: a) Description of the restoration and revegetation approach b) Vegetation species that would be planted within the area of temporary disturbance c) Procedures to reduce invasive weed encroachment within areas of temporary disturbance d) Expected timeframe for restoration of the site		
5.4.4.3: Special-Status Species Impacts. Identify anticipated impacts on special-status species. Identify any take permits that are anticipated for the project. If an existing habitat conservation plan (HCP) or natural communities conservation plan (NCCP) would be used for the project, provide current accounting of take coverage included in the HCP/NCCP		

to demonstrate that there is sufficient habitat coverage remaining under the existing permit.		
5.4.4.4: Wetland Impacts. Quantify the area (in acres) of temporary and permanent impacts on wetlands. Include the following details: a) Provide a table identifying all wetlands, by milepost and length, crossed by the project and the total acreage of each wetland type that would be affected by construction. b) Discuss construction and restoration methods proposed for crossing wetlands. c) If wetlands would be filled or permanently lost, describe proposed measures to compensate for permanent wetland losses. d) If forested wetlands would be affected, describe proposed measures to restore forested wetlands following construction.		
5.4.4.5: Avian Impacts. Describe avian obstructions and risk of electrocution from the project. Describe any standards that will be implemented as part of the project to reduce the risk of collision and electrocution.		
5.4.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.5 Cultural Resources[28]

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.5.1 Environmental Setting		
5.5.1.1: Cultural Resource Reports. Provide a cultural resource inventory and evaluation report that addresses the technical requirement provided in Attachment 3.		
5.5.1.2: Cultural Resources Summary. Summarize cultural resource survey and inventory results and survey methods. Do not provide any confidential cultural resource information within the PEA chapter.		
5.5.1.3: Cultural Resource Survey Boundaries. Provide a map with mileposts showing the boundaries of all survey areas in the report. Provide the GIS data for the survey area. Provide confidential GIS data for the resource locations and boundaries separately under confidential cover.		
5.5.2 Regulatory Setting		
5.5.2.1: Regulatory Setting. Identify applicable federal and state regulations for protection of cultural resources.		

[28] For a description and evaluation of cultural resources specific to Tribes, see Section 5.18, Tribal Cultural Resources.

5.5.3 Impact Questions		
5.5.3.1: Impact Questions. The impact questions include all cultural resource impact questions in the current version of CEQA Guidelines, Appendix G. **5.5.3.2:** Additional CEQA Impact Questions: None.		
5.5.4 Impact Analysis		
5.5.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis		
5.5.4.2: Human Remains. Describe the potential for encountering human remains or grave goods during the trenching or any other phase of construction. Describe the procedures that would be used if human remains are encountered.		
5.5.4.3: Resource Avoidance. Describe avoidance procedures that would be implemented to avoid known resources.		
5.5.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.6 Energy

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.6.1 Environmental Setting		
5.6.1.1: Existing Energy Use. Identify energy use of existing infrastructure if the proposed project would replace or upgrade an existing facility.		
5.6.2 Regulatory Setting		
5.6.2.1: Regulatory Setting. Identify applicable federal, state, or local regulations or policies applicable to energy use for the proposed project.		
5.6.3 Impact Questions		
5.6.3.1: Impact Questions: The impact questions include all energy impact questions in the current version of CEQA Guidelines, Appendix G. **5.6.3.2:** Additional CEQA Impact Question: Would the project add capacity for the purpose of serving a non-renewable energy resource?		

5.6.4 Impact Analysis		
5.6.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.6.4.2: Nonrenewable Energy. Identify renewable and non-renewable energy projects that may interconnected to or be supplied by the proposed project.		
5.6.4.3: Fuels and Energy Use a) Provide an estimation of the amount of fuels (gasoline, diesel, helicopter fuel, etc.) that would be used during construction and operation and maintenance of the project. Fuel estimates should be consistent with Air Quality calculations supporting the PEA. b) Provide the following information on energy use: i. Total energy requirements of the project by fuel type and end use ii. Energy conservation equipment and design features iii. Identification of energy supplies that would serve the project		
5.6.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.7 Geology, Soils, and Paleontological Resources

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.7.1 Environmental Setting		
5.7.1.1: Regional and Local Geologic Setting. Briefly describe the regional and local physiography, topography, and geologic setting in the project area.		
5.7.1.2: Seismic Hazards a) Provide the following information on potential seismic hazards in the project area: i. Identify and describe regional and local seismic risk including any active faults within and surrounding the project area (will be a 10-mile buffer unless otherwise instructed in writing by CEQA Unit Staff during Pre-filing) ii. Identify any areas that are prone to seismic-induced landslides iii. Provide the liquefaction potential for the project area b) Provide a supporting map (or maps) showing project features and major faults, areas of landslide risk, and areas at high risk of liquefaction. Provide GIS data for all faults, landslides, and areas of high liquefaction potential.		

5.7.1.3: Geologic Units. Identify and describe the types of geologic units in the project area. Include the following information for each geologic unit: a) Summarize the geologic units within the project area. b) Identify any previous landslides in the area and any areas that are at risk of landslide. c) Identify any unstable geologic units. d) Provide a supporting map (or maps) showing project features and geologic units. Clearly identify any areas with potentially hazardous geologic conditions. Provide associated GIS data.		
5.7.1.4: Soils. Identify and describe the types of soils in the project area. a) Summarize the soils within the project area. b) Clearly identify any soils types that could be unstable (e.g., at risk of lateral spreading, subsidence, liquefaction, or collapse). c) Provide information on erosion susceptibility for each soil type that occurs in the project area. d) Provide a supporting map (or maps) showing project features and soils. Provide associated GIS data.		
5.7.1.5: Paleontological Report. Provide a paleontological report that includes the following: a) Information on any documented fossil collection localities within the project area and a 500-foot buffer. b) A paleontological resource sensitivity analysis based on published geological mapping and the resource sensitivity of each rock type. c) Supporting maps and GIS data.		
5.7.2 Regulatory Setting		
5.7.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding geology, soils, and paleontological resources.		
5.7.3 Impact Questions		
5.7.3.1: Impact Questions. The impact questions include all geology, soils, and paleontological resource impact questions in the current version of CEQA Guidelines, Appendix G. **5.7.3.2:** Additional CEQA Impact Questions: None.		
5.7.4 Impact Analysis		
5.7.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		

5.7.4.2: Geotechnical Requirements. Identify any geotechnical requirements that would be implemented to address effects from unstable geologic units or soils. Describe how the recommendation would be applied (i.e., when and where).		
5.7.4.3: Paleontological Resources. Identify the potential to disturb paleontological resources based on the depth of proposed excavation and paleontological sensitivity of geologic units within the project area.		
5.7.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.8 Greenhouse Gas Emissions

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.8.1 Environmental Setting		
5.8.1.1: GHG Setting. Provide a description of the setting for greenhouse gases (GHGs). The setting should consider any GHG emissions from existing infrastructure that would be upgraded or replaced by the proposed project.		
5.8.2 Regulatory Setting		
5.8.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for greenhouse gases.		
5.8.3 Impact Questions		
5.8.3.1 Impact Questions. The impact questions include all greenhouse gas impact questions in the current version of CEQA Guidelines, Appendix G. **5.8.3.2:** Additional CEQA Impact Questions: None.		
5.8.4 Impact Analysis		
5.8.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.8.4.2: GHG Emissions. Provide a quantitative assessment of GHG emissions for construction and operation and maintenance of the proposed project. Provide model results and all model files. Modeling will be conducted using the latest version of the emissions model at the time of application filing (e.g., most recent version of CalEEMod). GHG emissions will be provided for the following conditions: a) Uncontrolled emissions (before APMs are applied) b) Controlled emissions considering application of APMs i. Based on the modeled GHG emissions, quantify the project's contribution to and analyze the project's effect on		

climate change. Identify and provide justification for the timeframe considered in the analysis. ii. Discuss any programs already in place to reduce GHG emissions on a system-wide level. This includes the Applicant's voluntary compliance with the EPA SF6 reduction program, reductions from energy efficiency, demand response, LTPP, etc. iii. For any significant impacts, identify potential strategies that could be employed by the project to reduce GHGs during construction or operation and maintenance consistent with OPR Advisory on CEQA and Climate Change.		
Natural Gas Storage		
5.8.4.3: Natural Gas Storage Accident Conditions. In addition to the requirements above, identify the potential GHG emissions that could result in the event of a gas leak.		
5.8.4.4: Monitoring and Contingency Plan. Provide a comprehensive monitoring plan that would be implemented during project operation to monitor for gas leaks. The plan should identify a monitoring schedule, description of monitoring activities, and actions to be implemented if gas leaks are observed.		
5.8.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.9 Hazards, Hazardous Materials, and Public Safety[29]

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.9.1 Environmental Setting		
5.9.1.1: Hazardous Materials Report. Provide a Phase I Environmental Site Assessment or similar hazards report for the proposed project area. Describe any known hazardous materials locations within the project area and the status of the site.		
5.9.1.2: Airport Land Use Plan. Identify any airport land use plan(s) within the project area.		
5.9.1.3: Fire Hazard. Identify if the project occurs within federal, state, or local fire responsibility areas and identify the fire hazard severity rating for all project areas, including temporary work areas and access roads.		
5.9.1.4: Metallic Objects. For electrical projects, identify any metallic pipelines or cables within 25 feet of the project.		

[29] For fire risk specific to state responsibility areas or lands classified as very high fire hazard severity zones, see Section 5.20, Wildfire.

5.9.1.5: Pipeline History (for Natural Gas Projects). Provide a narrative describing the history of the pipeline system(s) to which the project would connect, list of previous owner and operators, and detailed summary of the pipeline systems' safety and inspection history.		
5.9.2 Regulatory Setting		
5.9.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for hazards, hazardous materials, and public safety.		
5.9.2.2: Touch Thresholds. Identify applicable standards for protection of workers and the public from shock hazards.		
5.9.3 Impact Questions		
5.9.3.1: Impact Questions. The impact questions include all hazards and hazardous materials impact questions in the current version of CEQA Guidelines, Appendix G. **5.9.3.2:** Additional CEQA Impact Questions: a) Would the project create a significant hazard to air traffic from the installation of new power lines and structures? b) Would the project create a significant hazard to the public or environment through the transport of heavy materials using helicopters? c) Would the project expose people to a significant risk of injury or death involving unexploded ordnance? d) Would the project expose workers or the public to excessive shock hazards?		
5.9.4 Impact Analysis		
5.9.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.9.4.2: Hazardous Materials. Identify the hazardous materials (i.e., chemicals, solvents, lubricants, and fuels) that would be used during construction and operation of the project. Estimate the quantity of each hazardous material that would be stored on site during construction and operation.		
5.9.4.3: Air Traffic Hazards. If the project involves construction of above-ground structures (including structure replacement) within the airport land use plan area, provide a discussion of how the project would or would not conflict with height restrictions identified in the airport land use plan and how the project would comply with any FAA or military requirements for the above ground facilities.		
5.9.4.4: Accident or Upset Conditions. Describe how the project facilities would be designed, constructed, operated, and maintained to		

minimize potential hazard to the public from the failure of project components as a result of accidents or natural catastrophes.		
5.9.4.5: Shock Hazard. For electricity projects, identify infrastructure that may be susceptible to induced current from the proposed project. Describe strategies (e.g., cathodic protection) that the project would employ to reduce shock hazards and avoid electrocution of workers or the public.		
For Natural Gas and Gas Storage:		
5.9.4.6: Health and Safety Plan. Include in the Health and Safety Plan, plans for addressing gas leaks, fires, etc. Identify sensitive receptors, methods of evacuation, and protection measures. The Plan will be provided as an Appendix to the PEA.		
5.9.4.7: Health Risk Assessment. Provide a Health Risk Assessment including risk from potential gas leaks, fires, etc. Identify sensitive receptors that would be affected and potential impacts on them if there is a gas release.[30]		
5.9.4.8: Gas Migration. Describe potential for and effects of gas migration through natural and manmade pathways. a) Provide Applicant Proposed Measures for avoiding gas emissions at the surface from gas migration pathways. b) Provide Applicant Proposed Measures for avoiding emissions of mercaptan and/or other odorizing agents.		
5.9.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.10 Hydrology and Water Quality

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.10.1 Environmental Setting		
5.10.1.1: Waterbodies. Identify by milepost all ephemeral, intermittent, and perennial surface waterbodies crossed by the project. For each, list its water quality classification, if applicable.		
5.10.1.2: Water Quality. Identify any downstream waters that are on the state 303(d) list and identify whether a total maximum daily load (TMDL) has been adopted or the date for adoption of a TMDL. Identify existing sources of impairment for downstream waters. Describe any management plans that are in place for downstream waters.		
5.10.1.3: Groundwater Basin. Identify all known EPA and state groundwater basins and aquifers crossed by the project.		

[30] Refer to the requirements for Health Risk Assessments in Section 5.3.4.4.

5.10.1.4: Groundwater Wells and Springs. Identify the locations of all known public and private groundwater supply wells and springs within 150 feet of the project area.		
5.10.1.5: Groundwater Management. Identify the groundwater management status of any groundwater resources in the project area and any groundwater resources that may be used by the project. Describe if groundwater resources in the basin have been adjudicated. Identify any sustainable groundwater management plan that has been adopted for groundwater resources in the project area or describe the status of groundwater management planning in the area.		
5.10.2 Regulatory Setting		
5.10.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding hydrologic and water quality.		
5.10.3 Impact Questions		
5.10.3.1: Impact Questions. The impact questions include all hydrology and water quality impact questions in the current version of CEQA Guidelines, Appendix G. **5.10.3.2:** Additional CEQA Impact Questions: None.		
5.10.4 Impact Analysis		
5.10.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in the current version of CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.10.4.2: Hydrostatic Testing. Identify all potential sources of hydrostatic test water, quantity of water required, withdrawal methods, treatment of discharge, and any waste products generated.		
5.10.4.3: Water Quality Impacts. Describe impacts to surface water quality, including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.		
5.10.4.4: Impermeable Surfaces. Describe increased run-off and impacts on groundwater recharge due to construction of impermeable surfaces. Provide the acreage of new impermeable surfaces that will be created as a result of the project.		
5.10.4.5: Waterbody Crossings. Identify by milepost all waterbody crossings. Provide the following information for crossing: a) Identify whether the waterbody has contaminated waters or sediments. b) Describe the waterbody crossing method and any approaches to avoid the waterbody. c) Describe typical additional work area and staging area requirements at waterbody and wetland crossings.		

d) Describe any dewatering or water diversion that will be required during construction near the waterbody. Identify treatment methods for any dewatering. e) Describe any proposed restoration methods for work near or within the waterbody.		
5.10.4.6: Groundwater Impacts. If water would be obtained from groundwater supplies, evaluate the project's consistency with any applicable sustainable groundwater management plan.		
5.10.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.11 Land Use and Planning

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.11.1 Environmental Setting		
5.11.1.1: Land Use. Provide a description of land uses within the area traversed by the project route as designated in the local General Plan (e.g., residential, commercial, agricultural, open space, etc.).		
5.11.1.2: Special Land Uses. Identify by milepost and segment all special land uses within the project area including: a) All land administered by federal, state, or local agencies, or private conservation organizations b) Any designated coastal zone management areas c) Any designated or proposed candidate National or State Wild and Scenic Rivers crossed by the project d) Any national landmarks		
5.11.1.3: Habitat Conservation Plan. Provide a copy of any Habitat Conservation Plan applicable to the project area or proposed project. Also required for Section 5.4, Biological Resources.		
5.11.2 Regulatory Setting		
5.11.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for land use and planning.		
5.11.3 Impact Questions		
5.11.3.1: Impact Questions. The impact questions include all land use questions in the current version of CEQA Guidelines, Appendix G. **5.11.3.2:** Additional CEQA Impact Questions: None.		
5.11.4 Impact Analysis		
5.11.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		

5.11.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.12 Mineral Resources

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.12.1 Environmental Setting		
5.12.1.1: Mineral Resources. Provide information on the following mineral resources within 0.5 mile of the proposed project area: a) Known mineral resources b) Active mining claims c) Active mines d) Resource recovery sites		
5.12.2 Regulatory Setting		
5.12.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for minerals.		
5.12.3 Impact Questions		
5.12.3.1: Impact Questions. The impact questions include all mineral resource impact questions in the current version of CEQA Guidelines, Appendix G. **5.12.3.2:** Additional CEQA Impact Questions: None.		
5.12.4 Impact Analysis		
5.12.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
5.12.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.13 Noise

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.13.1 Environmental Setting		
5.13.1.1: Noise Sensitive Land Uses. Identify all noise sensitive land uses within 1,000 feet of the proposed project. Provide GIS data for sensitive receptors within 1,000 feet of the project.		
5.13.1.2: Noise Setting. Provide the existing noise levels (Lmax, Lmin, Leq, and Ldn sound level and other applicable noise parameters) at noise sensitive areas near the proposed project. All noise measurement data and the methodology for collecting the data will be provided in a noise study as an Appendix to the PEA.		

5.13.2 Regulatory Setting		
5.13.2.1: Regulatory Setting. Identify applicable state, and local laws, policies, and standards for noise.		
5.13.3 Impact Questions		
5.13.3.1 Impact Questions. The impact questions include all noise questions in the current version of CEQA Guidelines, Appendix G. **5.13.3.2:** Additional CEQA Impact Questions: None.		
5.13.4 Impact Analysis		
5.13.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.13.4.2: Noise Levels a) Identify noise levels for each piece of equipment that could be used during construction. b) Provide a table that identifies each phase of construction, the equipment used in each construction phase, and the length of each phase at any single location (see example in Table 7 below). c) Estimate cumulative equipment noise levels for each phase of construction. d) Include phases of operation if noise levels during operation have the potential to frequently exceed pre-project existing conditions. e) Identify manufacturer's specifications for equipment and describe approaches to reduce impacts from noise.		

Table 7. Construction Noise Levels

Equipment Required	Equipment Noise Levels (Leq; 50 feet)	Phase Noise Level (Leq; 50 feet)	Phase Duration at Each Location	Receptor Nearest to Construction Phase	Noise Level at Nearest Receptor (Leq)	Exceeds Noise Standard at Nearest Receptor?	Distance to Not Exceed Standard
Site Preparation/Grading							
Dozer	78 dBA	82 dBA	5 days	Residence on Main Street; 100 feet from Substation Site	76 dBA	Yes	112 feet
Gradall	79 dBA						
Dump Truck	73 dBA						
Construct Tower Foundation							
Auger Rig	77 dBA	82 dBA	11 days	School on Education Avenue; 130 feet from Tower A12	73 dBA	No	N/A
Dump Truck	73 dBA						
Excavator	77 dBA						
Concrete Truck	75 dBA						

For Natural Gas:		
5.13.4.3: Compressor Station Noise. Provide site plans of compressor stations or other noisy, permanent equipment, showing the location of the nearest noise sensitive areas within 1 mile of the proposed ROW. If new compressor station sites are proposed, measure or estimate the existing ambient sound environment based on current land uses and		

activities. For existing compressor stations (operated at full load), include the results of a sound level survey at the site property line and nearby noise-sensitive areas. Include a plot plan that identifies the locations and duration of noise measurements.		
5.13.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.14 Population and Housing

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.14.1 Environmental Setting		
5.14.1.1: Population Estimates. Identify population trends for the areas (county, city, town, census designated place) where the project would take place.		
5.14.1.2: Housing Estimates. Identify housing estimates and projections in areas where the project would take place.		
5.14.1.3: Approved Housing Developments a) Provide the following information for all housing development projects within 1 mile of the proposed project that have been recently approved or may be approved around the PEA and application filing date: i. Project name ii. Location iii. Number of units and estimated population increase iv. Approval date and construction status v. Contact information for developer (provided in the public outreach Appendix) b) Ensure that the project information provided above is consistent with the PEA analysis of cumulative project impacts.		
5.14.2 Regulatory Setting		
5.14.2.1: Regulatory Setting. Identify any applicable federal, state or local laws or regulations that apply to the project.		
5.14.3 Impact Questions		
5.14.3.1: Impact Questions. The impact questions include all population and housing impact questions in the current version of CEQA Guidelines, Appendix G. **5.14.3.2:** Additional CEQA Impact Questions: None.		
5.14.4 Impact Analysis		
5.14.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		

Include the following information in the impact analysis:		
5.14.4.2: Impacts to Housing. Identify if any existing or proposed homes occur within the footprint of any proposed project elements or right-of-way. Describe housing impacts (e.g., demolition and relocation of residents) that may occur as a result of the proposed project.		
5.14.4.3: Workforce Impacts. Describe on-site manpower requirements, including the number of construction personnel who currently reside within the impact area, who would commute daily to the site from outside the impact area or would relocate temporarily within the impact area. Chapter 4 of this document can be referenced as applicable. Identify any permanent employment opportunities that would be create by the project and the workforce conditions in the area that the jobs would be created.		
5.14.4.4: Population Growth Inducing. Provide information on the project's growth inducing impacts, if any. The information will include, but is not necessarily limited to, the following: a) Any economic or population growth in the surrounding environment that will directly or indirectly result from the project b) Any obstacles to population growth that the project would remove c) Any other activities directly or indirectly encouraged or facilitated by the project that would cause population growth leading to a significant effect on the environment, either individually or cumulatively		
5.14.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.15 Public Services

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.15.1 Environmental Setting		
5.15.1.1 Service Providers a) Identify the following service providers that serve the project area and provide a map showing the service facilities that could serve the project: i. Police ii. Fire (identify service providers within local and state responsibility areas) iii. Schools iv. Parks v. Hospitals		

b) Provide the documented performance objectives and data on existing emergency response times for service providers in the area (e.g., police or fire department response times).		
5.15.2 Regulatory Setting		
5.15.2.1 Regulatory Setting. Identify any applicable federal, state or local laws or regulations for public services that apply to the project.		
5.15.3 Impact Questions		
5.15.3.1: Impact Questions. The impact questions include all public services impact questions in the current version of CEQA Guidelines, Appendix G. **5.15.3.2:** Additional CEQA Impact Questions: None.		
5.15.4 Impact Analysis		
5.15.4.1 Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.15.4.2: Emergency Response Times a) Describe whether the project would impede ingress and egress of emergency vehicles during construction and operation. b) Include an analysis of impacts on emergency response times during project construction and operation, including impacts during any temporary road closures. Describe approaches to address impacts on emergency response times.		
5.15.4.3: Displaced Population. If the project would create permanent employment or displace people, evaluate the impact of the new employment or relocated people on governmental facilities and services and describe plans to reduce the impact on public services.		
5.15.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.16 Recreation

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.16.1 Environmental Setting		
5.16.1.1: Recreational Setting a) Describe the regional and local recreation setting in the project area including: i. Any recreational facilities or areas within and surrounding the project area (approximately 0.5-mile buffer) including the recreational uses of each facility or area		

ii. Any available data on use of the recreational facilities including volume of use b) Provide a map (or maps) showing project features and recreational facilities and provide associated GIS data.		
5.16.2 Regulatory Setting		
5.16.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding recreation.		
5.16.3 Impact Questions		
5.16.3.1: Impact Questions. The impact questions include all recreation impact questions in the current version of CEQA Guidelines, Appendix G. **5.16.3.2:** Additional CEQA Impact Questions: a) Would the project reduce or prevent access to a designated recreation facility or area? b) Would the project substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas? c) Would the project damage recreational trails or facilities?		
5.16.4 Impact Analysis		
5.16.4.1: Impact Analysis: Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
5.16.4.2: Impact Details. Clearly identify the maximum extent of each impact, and when and where the impacts would or would not occur. Organize the impact assessment by project phase, project component, and/or geographic area, as necessary.		
5.16.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.17 Transportation

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.17.1 Environmental Setting		
5.17.1.1: Circulation System. Briefly describe the regional and local circulation system in the project area, including modes of transportation, types of roadways, and other facilities that contribute to the circulation system.		
5.17.1.2: Existing Roadways and Circulation a) Identify and describe existing roadways that may be used to access the project site and transport materials during		

construction or are otherwise adjacent to or crossed by linear project features. Provide the following information for each road: i. Name of the road ii. Jurisdiction or ownership (i.e., State, County, City, private, etc.) iii. Number of lanes in both directions of travel iv. Existing traffic volume (if publicly available data is unavailable or significantly outdated, then it may be necessary to collect existing traffic counts for road segments where large volumes of construction traffic would be routed or where lane or road closures would occur) v. Closest project feature name and distance b) Provide a supporting map (or maps) showing project features and the existing roadway network identifying each road described above. Provide associated GIS data. The GIS data should include all connected road segments within at least 5 miles of the project.		
5.17.1.3: Transit and Rail Services a) Identify and describe transit and rail service providers in the region. b) Identify any rail or transit lines within 1,000 feet of the project area. c) Identify specific transit stops, and stations within 0.5 mile of the project. Provide the frequency of transit service. d) Provide a supporting map (or maps) showing project features and transit and rail services within 0.5 mile of the project area. Provide associated GIS data.		
5.17.1.4: Bicycle Facilities a) Identify and describe any bicycle plans for the region. b) Identify specific bicycle facilities within 1,000 feet of the project area. c) Provide a supporting map (or maps) showing project features and bicycle facilities. Provide associated GIS data.		
5.17.1.5: Pedestrian Facilities a) Identify and describe important pedestrian facilities near the project area that contribute to the circulation system, such as important walkways. b) Identify specific pedestrian facilities that would be near the project, including on the road segments identified per 5.17.1.2. c) Provide a supporting map (or maps) showing project features and important pedestrian facilities. Provide associated GIS data.		

5.17.1.6: Vehicle Miles Traveled (VMT). Provide the average VMT for the county(s) where the project is located.		
5.17.2 Regulatory Setting		
5.17.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards regarding transportation.		
5.17.3 Impact Questions		
5.17.3.1: Impact Questions. All impact questions for this resource area in the current version of CEQA Guidelines, Appendix G. **5.17.3.2:** Additional CEQA Impact Questions: a) Would the project create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations? b) Would the project interfere with walking or bicycling accessibility? c) Would the project substantially delay public transit?		
5.17.4 Impact Analysis		
5.17.4.1: Impact Analysis. Provide an impact analysis for each significance criteria identified in Appendix G of the CEQA Guidelines for transportation and any additional impact questions listed above[31].		
Include the following information in the impact analysis:		
5.17.4.2: Vehicle Miles Traveled (VMT) a) Identify whether the project is within 0.5 mile of a major transit stop or a high-quality transit corridor. b) Identify the number of vehicle daily trips that would be generated by the project during construction and operation by light duty (e.g., worker vehicles) and heavy-duty vehicles (e.g., trucks). Provide the frequency of trip generation during operation. c) Quantify VMT generation for both project construction and operation. d) Provide an excel file with the VMT assumptions and model calculations, including all formulas and values. e) Evaluate the project VMT relative to the average VMT for the area in which the project is located.		
5.17.4.3: Traffic Impact Analysis. Provide a traffic impact study. The traffic impact study should be prepared in accordance with guidance from the relevant local jurisdiction or Caltrans, where appropriate.		
5.17.4.4: Hazards. Identify any traffic hazards that could result from construction and operation of the project. Identify any lane closures and traffic management that would be required to construct the project.		

[31] Discuss with CPUC during Pre-filing whether a traffic study is needed.

5.17.4.5: Accessibility. Identify any closures of bicycle lanes, pedestrian walkways, or transit stops during construction or operation of the project.		
5.17.4.6: Transit Delay. Identify any transit lines that could be delayed by construction and operation of the project. Provide the maximum extent of the delay in minutes and the duration of the delay.		
5.17.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.18 Tribal Cultural Resources[32]

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.18.1 Environmental Setting		
5.18.1.1: Outreach to Tribes. Provide a list of all tribes that are on the Native American Heritage Commission (NAHC) list of tribes that are affiliated with the project area. Provide a discussion of outreach to Native American tribes, including tribes notified, responses received from tribes, and information of potential tribal cultural resources provided by tribes. Any information of potential locations of tribal cultural resources should be submitted in an Appendix under clearly marked confidential cover. Provide copies of all correspondence with tribes in an Appendix.		
5.18.1.2: Tribal Cultural Resources. Describe tribal cultural resources (TCRs) that are within the project area. a) Summarize the results of attempts to identify possible TCRs using publicly available documentary resources. The identification of TCRs using documentary sources should include review of archaeological site records and should begin during the preparation of the records search report (see Attachment 3). During the inventory phase, a formal site record would be prepared for any resource identified unless tribes object. b) Summarize attempts to identify TCRs by speaking directly with tribal representatives.		
5.18.1.3: Ethnographic Study. The ethnographic study should document the history of Native American use of the area and oral history of the area.		
5.18.2 Regulatory Setting		
5.18.2.1: Regulatory Setting. Identify any applicable federal, state or local laws or regulations for tribal cultural resources that apply to the project.		

[32] For a description of historical resources and requirements for cultural resources that are not tribal cultural resources, refer to Section 5.5 Cultural Resources.

5.18.3 Impact Questions		
5.18.3.1: Impact Questions. The impact questions include all tribal cultural resources impact questions in the current version of CEQA Guidelines, Appendix G. **5.18.3.2:** Additional CEQA Impact Questions: None.		
5.18.4 Impact Analysis		
5.18.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.18.4.2: Information Provided by Tribes. Include an analysis of any impacts that were identified by the tribes during the Applicant's outreach.		
5.18.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.19 Utilities and Service Systems

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.19.1 Environmental Setting		
5.19.1.1: Utility Providers. Identify existing utility providers and the associated infrastructure that serves the project area.		
5.19.1.2: Utility Lines. Describe existing utility infrastructure (e.g., water, gas, sewer, electrical, stormwater, telecommunications, etc.) that occurs in the project ROW. Provide GIS data and/or as-built engineering drawings to support the description of existing utilities and their locations.		
5.19.1.3: Approved Utility Projects. Identify utility projects that have been approved for construction within the project ROW but that have not yet been constructed.[33]		
5.19.1.4: Water Supplies. Identify water suppliers and the water source (e.g., aqueduct, well, recycled water, etc.). For each potential water supplier, provide data on the existing water capacity, supply, and demand.		
5.19.1.5: Landfills and Recycling. Identify local landfills that can accept construction waste and may service the project. Provide documentation of landfill capacity and estimated closure date. Identify any recycling centers in the area and opportunities for construction and demolition waste recycling.		

[33] Note that this project information should be consistent with the cumulative project description included in Chapter 7.

5.19.2 Regulatory Setting		
5.19.2.1: Regulatory Setting. Identify any applicable federal, state or local laws or regulations for utilities that apply to the project.		
5.19.3 Impact Questions		
5.19.3.1: Impact Questions. All impact questions for this resource area in the current version of CEQA Guidelines, Appendix G. **5.19.3.2:** Additional CEQA Impact Question: Would the project increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts?		
5.19.4 Impact Analysis		
5.19.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.19.4.2: Utility Relocation. Identify any project conflicts with existing utility lines. If the project may require relocation of existing utilities, identify potential relocation areas and analyze the impacts of relocating the utilities. Provide a map showing the relocated utility lines and GIS data for all relocations.		
5.19.4.3: Waste a) Identify the waste generated by construction, operation, and demolition of the project. b) Describe how treated wood poles would be disposed of after removal, if applicable. c) Provide estimates for the total amount of waste materials to be generated by waste type and how much of it would be disposed of, reused, or recycled.		
5.19.4.4: Water Supply a) Estimate the amount of water required for project construction and operation. Provide the potential water supply source(s). b) Evaluate the ability of the water supplier to meet the project demand under a multiple dry year scenario. c) Provide a discussion as to whether the proposed project meets the criteria for consideration as a project subject to Water Supply Assessment Requirements under Water Code Section 10912. d) If determined to be necessary under Water Code Section 10912, submit a Water Supply Assessment to support conclusions that the proposed water source can meet the project's anticipated water demand, even in multiple dry year scenarios. Water Supply Assessments should be approved by		

the water supplier and consider normal, single-dry, and multiple-dry year conditions.		
5.19.4.5: Cathodic Protection. Analyze the potential for existing utilities to experience corrosion due to proximity to the proposed project. Identify cathodic protection measures that could be implemented to reduce corrosion issues and where the measures may be applied.		
5.19.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.20 Wildfire

This section will include, but is not limited to, the following:	**PEA Section and Page Number**	**Applicant Notes, Comments**
5.20.1 Environmental Setting		
5.20.1.1: High Fire Risk Areas and State Responsibility Areas a) Identify areas of high fire risk or State Responsibility Areas (SRAs) within the project area. Provide GIS data for the Wildland Urban Interface (WUI) and Fire Hazard Severity Zones (FHSZ) mapping along the project alignment. Include areas mapped by CPUC as moderate and high fire threat districts as well as areas mapped by CalFire. b) Identify any areas the utility has independently identified as High FHSZ known to occur within the proposed project vicinity.		
5.20.1.2: Fire Occurrence. Identify all recent (within the last 10 years) large fires that have occurred within the project vicinity. For each fire, identify the following: a) Name of the fire b) Location of fire c) Ignition source and location of ignition d) Amount of land burned e) Boundary of fire area in GIS		
5.20.1.3: Fire Risk. Provide the following information for assessment of baseline fire risk in the area: a) Provide fuel modeling using Scott Burgan fuel models, or other model of similar quality. b) Provide values of wind direction and speed, relative humidity, and temperature for representative weather stations along the alignment for the previous 10 years, gathered hourly. c) Digital elevation models for the topography in the project region showing the relationship between terrain and wind patterns, as well as localized topography to show the effects of terrain on wind flow, and on a more local area to show effect of slope on fire spread.		

d) Describe vegetation fuels within the project vicinity and provide data in map format for the project vicinity. USDA Fire Effects Information System or similar data source should be consulted to determine high-risk vegetation types. Provide the mapped vegetation fuels data in GIS format.		
5.20.1.4: Values at Risk. Identify values at risk along the proposed alignment. Values at risk may include: Structures, improvements, rare habitat, other values at risk, (including utility-owned infrastructure) within 1000 feet of the project. Provide some indication as to its vulnerability (wood structures vs. all steel features). Communities and/or populations near the project should be identified with their proximity to the project defined.		
5.20.1.5: Evacuation Routes. Identify all evacuation routes that are adjacent to or within the project area. Identify any roads that lack a secondary point of access or exit (e.g., cul-de-sacs).		
5.20.2 Regulatory Setting		
5.20.2.1: Regulatory Setting. Identify applicable federal, state, and local laws, policies, and standards for wildfire.		
5.20.2.2: CPUC Standards. Identify any CPUC standards that apply to wildfire management of the new facilities.		
5.20.3 Impact Questions		
5.20.3.1: Impact Questions. All impact questions for this resource area in the current version of CEQA Guidelines, Appendix G. **5.20.3.2:** Additional CEQA Impact Questions: None.		
5.20.4 Impact Analysis		
5.20.4.1: Impact Analysis. Provide an impact analysis for each checklist item identified in CEQA Guidelines, Appendix G for this resource area and any additional impact questions listed above.		
Include the following information in the impact analysis:		
5.20.4.2: Fire Behavior Modeling. For any new electrical lines, provide modeling to support the analysis of wildfire risk.		
5.20.4.3: Wildfire Management. Describe approaches that would be implemented during operation and maintenance to manage wildfire risk in the area. Provide a copy of any Wildfire Management Plan.		
5.20.5 CPUC Draft Environmental Measures		
Refer to Attachment 4, CPUC Draft Environmental Measures.		

5.21 Mandatory Findings of Significance[34]

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
5.21.1: Impact Assessment for Mandatory Findings of Significance. Provide an impact analysis for each of the mandatory findings of significance provided in Appendix G of the CEQA Guidelines. The impact analysis can reference relevant information and conclusion from the biological resources, cultural resources, air quality, hazards, and cumulative sections of the PEA, where applicable.		

6 Comparison of Alternatives

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
6.1: Alternatives Comparison a) Compare the ability of each alternative described in Chapter 4 against the proposed project in terms of its ability to avoid or reduce a potentially significant impact. The alternatives addressed in this section will each be: i. Potentially feasible ii. Meet the underlying purpose of the proposed project iii. Meet most of the basic project objectives, and iv. Avoid or reduce one or more potentially significant impacts. b) The relative effect of the various potentially significant impacts may be compared using the following or similar descriptors and an accompanying analysis: i. Short-term versus long-term impacts ii. Localized versus widespread impacts iii. Ability to fully mitigate impacts c) Impacts that the Applicant believes would be less than significant with mitigation may also be included in the analysis, but only if the steps listed above fail to distinguish among the remaining few alternatives.		
6.2: Alternatives Ranking. Provide a detailed table that summarizes the Applicant's comparison results and ranks the alternatives in order of environmental superiority.[35]		

[34] PEAs need only include a Mandatory Findings of Significance section if CPUC CEQA Unit Staff determine that a Mitigated Negative Declaration may be the appropriate type of document to prepare for the project, as determined through Pre-filing consultation. If no such determination has been made, then a Mandatory Findings of Significance section and the requirements below are not required.

[35] If the proposed project does not rank #1 on the list, the Applicant should provide the rationale for selecting the proposed project.

7 Cumulative and Other CEQA Considerations

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
7.1 Cumulative Impacts		
7.1.1: List of Cumulative Projects a) Provide a detailed table listing past, present, and reasonably foreseeable future projects within and surrounding the project area (approximately 2-mile buffer)[36]. The following information should be provided for each project in the table: i. Project name and type ii. Brief description of the project location(s) and associated actions iii. Distance to and name of the nearest project component iv. Project status and anticipated construction schedule v. Source of the project information and date last checked (for each individual project), including links to any public websites where the information was obtained so it can be reviewed and updated (the project information should be current when the PEA is filed) b) Provide a supporting map (or maps) showing project features and cumulative project locations and/or linear features. Provide associated GIS data.		
7.1.2: Geographic Scope. Define the geographic scope of analysis for each resource topic. The geographic scope of analysis for each resource topic should consider the extent to which impacts can be cumulative. For example, the geographic scope for cumulative noise impacts would be more limited in scale than the geographic scope for biological resource impacts because noise attenuates rapidly with distance. Explain why the geographic scope is appropriate for each resource.		
7.1.3: Cumulative Impact Analysis. Provide an analysis of cumulative impacts for each resource topic included in Chapter 5. Evaluate whether the proposed project impacts are cumulatively considerable[37] for any significant cumulative impacts.		
7.2 Growth-Inducing Impacts		
7.2.1: Growth-Inducing Impacts. Provide an evaluation of the following potential growth-inducing impacts:		

[36] Information on cumulative projects may be obtained from federal, state, and local agencies with jurisdiction over planning, transportation, and/or resource management in the area. Other projects the Applicant is involved in or aware of in the area should be included.

[37] "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

a) Would the proposed project foster any economic or population growth, either directly or indirectly, in the surrounding environment? b) Would the proposed project cause any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.)? c) Would the proposed project remove any obstacles to population growth? d) Would the proposed project encourage and facilitate other activities that would cause population growth that could significantly affect the environment, either individually or cumulatively?		

8 List of Preparers

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
8.1: List of Preparers. Provide a list of persons, their organizations, and their qualifications for all authors and reviewers of each section of the PEA.		

9 References

This section will include, but is not limited to, the following:	PEA Section and Page Number	Applicant Notes, Comments
9.1: Reference List a) Organize all references cited in the PEA by section within a single chapter called "References." b) Within the References chapter, organize all of the Chapter 5 references under subheadings for each resource area section.		
9.2: Electronic References a) Provide complete electronic copies of all references cited in the PEA that cannot be readily obtained for free on the Internet. This includes any company-specific documentation (e.g., standards, policies, and other documents). b) If the reference can be obtained on the Internet, the Internet address will be provided.		

PEA Checklist Attachments

Attachment 1: GIS Data Requirements

This Attachment includes specific requirements and format of GIS data that is intended to be applicable to all PEAs. The specific GIS data requirements may be updated on a project-specific basis during Pre-filing coordination with CPUC's CEQA Unit Staff.

1. GIS data will be provided in an appropriate format (i.e., point, line, polygon, raster) and scale to adequately verify assumptions in the PEA and supporting materials and determine the level of environmental impacts. At a minimum, all GIS data layers will include the following metadata properties:
    a. The source (e.g., report reference), date, title, and preparer (name or company)
    b. Description of the contents and any limitations of the data
    c. Reference scale and accuracy of the data
    d. Complete attributes that correspond to the detailed mapbook, project description, and figures presented in the PEA and/or supporting application materials, including unique IDs, labels, geometry, and other appropriate project details
2. Where precise boundaries of project features may change (e.g., staging areas and temporary construction work areas), the Applicant will provide GIS data layers with representative boundaries to evaluate potential environmental impacts as a worst-case scenario.
3. Provide GIS data for:
    a. All proposed and alternative project facilities including but not limited to existing and proposed/alternative ROWs; substations and switching stations; pole/tower locations; conduit; vaults, pipelines; valves; compressor stations; metering stations; valve stations, gas wellheads; other project buildings, facilities, and components (both temporary and permanent); telecommunication and distribution lines modifications or upgrades related to the project; marker ball and lighting locations; and mileposts, facility perimeters, and other demarcations or segments as applicable
    b. All proposed areas required for construction and construction planning, including all proposed and alternative disturbance areas (both permanent and temporary); access roads; geotechnical work areas; extra work areas (e.g., staging areas, parking areas, lay-down areas, work areas at and around specific pole/tower sites, pull and tension sites, helicopter landing areas); airport landing areas; underground installation areas (e.g. trenches, vaults, underground work areas); horizontal directional drilling, jack and bore, or tunnel areas; blasting areas; and any areas where special construction methods may need to be employed
    c. Within the PEA checklist there are also specific requirements for environmental resources within Chapter 5. All environmental resource GIS data must meet the minimum mapping standards specified in this Attachment.

Attachment 2: Biological Resource Technical Report Standards

Definitions

The following biological resources will be considered within the scope of the PEA and the Biological Resources Technical Report:

Sensitive Vegetation Communities and Habitats

a) Sensitive vegetation communities/habitats identified in local or regional plans, policies, or regulations, or designated by CDFW38 or USFWS
b) Areas that provide habitat for locally unique biotic species/communities (e.g., oak woodlands, grasslands, and forests)
c) Habitat that contains or supports rare, endangered, or threatened wildlife or plant species as defined by CDFW and USFWS
d) Habitat that supports CDFW Species of Special Concern
e) Areas that provide habitat for rare or endangered species and that meet the definition in CEQA Guidelines Section 15380
f) Existing game and wildlife refuges and reserves
g) Lakes, wetlands, estuaries, lagoons, streams, and rivers
h) Riparian corridors

Special-Status Species

a) Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (50 CFR § 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [proposed species])
b) Species that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR § 40, February 28, 1996)
c) Species listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 CCR § 670.5)
d) Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.)
e) Species that meet the definitions of rare and endangered under CEQA. CEQA Guidelines Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists.
f) Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (California Rare Plant Rank 1A, 1B, 2A, and 2B) as well as California Rare Plant Rank 3 and 4 plant species
g) Species designated by CDFW as Fully Protected or as a Species of Special Concern
h) Species protected under the Federal Bald and Golden Eagle Protection Act
i) Birds of Conservation Concern or Watch List species
j) Bats considered by the Western Bat Working Group to be "high" or "medium" priority (Western Bat Working Group 2015)

[38] CDFW's Rarity Ranking follows NatureServe's Heritage Methodology (Faber-Langendoen, et al. 2016) in which communities are given a G (global) and S (state) rank based on their degree of imperilment (as measured by rarity, trends, and threats). Communities with a Rarity Ranking of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable) are considered sensitive by CDFW.

Biological Resource Technical Report Minimum Requirements

Report Contents

The Biological Resource Technical Report will include the following information at a minimum.

a) **Preliminary Agency Consultation.** Describe any pre-survey contact with agencies. Describe any agency approvals that were required for biologists or agency protocols that were applied to the survey effort. Provide copies of correspondence and meeting notes with the names and contact information for agency staff and the dates of consultation as an appendix to the Biological Resources Technical Report.
b) **Records Search.** Provide the results of all database and literature searches for biological resources within and surrounding the project area. Identify all sources reviewed (e.g., CNDDB, CNPS, USFWS, etc.).
c) **Biological Resource Survey Method.** Identify agency survey requirements and protocols applicable to each biological survey that was conducted. Identify the areas where each survey occurred. Identify any limitations for the surveys (e.g., survey timing or climatic conditions) that could affect the survey results.
d) **Vegetation Communities and Land Cover.** Identify all vegetation communities or land cover types (e.g., disturbed or developed) within the biological survey area. The biological survey area should include a 1,000-foot buffer from project facilities to support CPUC's evaluation of indirect effects.
e) **Aquatic Resources.** Identify any wetlands, streams, lakes, reservoirs, estuarine, or other aquatic resources within the biological survey area. Provide a wetland delineation and all data sheets including National Wetlands Inventory maps (or the appropriate state wetland maps, if National Wetlands Inventory maps are not available) that show all proposed facilities and include milepost locations for proposed pipeline routes. Provide a copy of agency verification of the wetland delineation if the delineation has been verified by the U.S. Army Corps of Engineers or CDFW. If the delineation has not been verified, describe the process and timing for obtaining agency verification.
f) **Habitat Assessments.** Evaluate the potential for suitable habitat in the biological survey area for each species identified in the database and literature search.
g) **Native Wildlife Corridors and Nursery Sites.** Identify any wildlife corridors or nursery sites that occur within the biological survey area.
h) **Survey Results.** Describe all survey results and include a copy of any focused (e.g., rare plant, protocol special-status wildlife) biological resources survey reports.

Mapping and GIS Data

Provide detailed maps (at approximately 1:3,000 scale or similar), and all associated GIS data for the Biological Resources Technical Report and any supporting biological survey reports, including:

a) Biological survey area for each survey that was conducted
b) Vegetation communities and land cover types
c) Aquatic resource delineation
d) Special-status plant locations
e) Special-status wildlife locations
f) Avian point count locations
g) Critical habitat
h) California Coastal Commission or Bay Conservation and Development Commission jurisdictional areas

Attachment 3: Cultural Resource Technical Report Standards

Cultural Resource Inventory Report

Provide a cultural resource inventory report that includes archaeological, unique archaeological, and built-environment resources within all areas that could be affected by the proposed project including areas of indirect effect. The inventory report will include the results of both a literature search and pedestrian survey. The contents will address the requirements in *Archaeological Resource Management Reports: Recommended Contents and Guidelines*. The methodology and results of the inventory should be sufficient to provide the reader with an understanding of the nature, character, and composition of newly discovered and previously identified cultural resources so that the required recommendations about the resource(s) CRHR eligibility are clearly understood. No information regarding the location of the cultural resources will be included in these descriptions. The required Department of Parks and Recreation (DPR) 523 forms, including location information and photographs of the resources, are to be included in a removable confidential appendix to the report.[39]

The inventory report will meet the following requirements:

a) The report should clearly discuss the methods used to identify unique archaeological resources (e.g., how the determination was made about the resources' eligibility).
b) The report should identify large resources such as districts and landscapes where resources indicate their presence, even if federal agencies disagree. It is understood that often only a few contributing elements may be in the project area, and that the boundaries of the large resource may need to be revisited as part of future projects. It is acknowledged that boundaries of districts and landscapes can be difficult to define and there is not always good recorded data on these resources.
c) In the case of archaeological resources, the report should discuss whether each one is also a unique archaeological resource and explain why or why not.
d) Descriptions of resources should include spatial relationships to other nearby resources, raw materials sources, and natural features such as water sources and mountains.
e) The evidence that indicates a particular function or age for a resource should be explicitly described with a clear explanation, not simply asserted.

Cultural Resource Evaluation Report

Provide a cultural resource evaluation report. The report contents required by the state of California are outlined in the *Archaeological Resource Management Reports: Recommended Contents and Guidelines*. The evaluation report should also include:

a) Resource descriptions and evaluations together, and not in separate volumes or report sections. This will facilitate understanding of each resource.
b) An evaluation of each potential or eligible California Register of Historical Resources (CRHR) resource within the public archaeology laboratory (PAL) for all seven aspects of integrity[40] using specific examples for each resource. This evaluation needs to be included in the evaluation

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39 Any aspect of the PEA and associated data that Applicants believe to be confidential will be provided in full but may be marked confidential if allowed pursuant to General Order 66 or latest applicable Commission rule (e.g., see Public Records Act Proceeding R.14-11-001).

40 The seven aspects of integrity are location, design, setting, materials, workmanship, feeling, and association, as defined in "***Types of Historical Resources and Criteria for Listing in the California Register of Historical Resources***" [14 CCR 4852(c)]).

report for all resources that could be affected by the project even if the resources were not previously evaluated. Previous evaluations should be reviewed to address change over time.

c) An evaluation of each potential or eligible CRHR resource within the PAL under all four criteria using specific examples for each resource. This evaluation needs to be included in the evaluation report for all resources that could be affected by the project even if the resources were not previously evaluated. The cultural resources professional should make their own recommendation regarding eligibility, which does not need to agree with previous recommendations for CRHR or NRHP, as long as it is clearly explained.
d) For **prehistoric archaeological resources**, Criteria 1, 2 and 3[41] should be explicitly considered. Research efforts to search for important events and persons related to the resource must be described. This evaluation needs to be included in the evaluation report for all resources that could be affected by the project even if the resources were not previously evaluated. The cultural resources professional should make their own recommendation, which does not need to agree with previous recommendations for CRHR or NRHP eligibility, as long as it is clearly explained.
e) While **potential unique archaeological resources** could be identified in the records search report or inventory report, the justification for each individual resource to be considered a resource under CEQA should be presented in this report.
f) If surface information collected during survey is sufficient to make an eligibility recommendation, this reasoning should be outlined explicitly for each resource. This is particularly the case for resources that are believed to have buried subsurface components.
g) If archaeological testing or additional historical research was required in order to evaluate a resource, the evaluation report will be explicit about why the work was required, the results for each resource, and the subsequent eligibility recommendation.
h) For large projects with multiple similar resources where the eligibility justifications for similar resources are essentially identical, it is acceptable to discuss these resources as a group. However, eligibility justifications for each individual resource is preferred, so if the grouping strategy is used, the criteria used to group resources must be clearly justified.
i) Large resources such as districts and landscapes may be challenging to fully evaluate in the context of a single project. CPUC encourages the identification and evaluation of these resources with the understanding that often only a few contributing elements may be located within the project area, and that the boundaries of the large resource may need to be revisited as part of future projects. It is understood that a full evaluation of the resource may be beyond the scope of one project. Regardless, the potential for the project to affect any resources within a district or landscape must be defined.

[41] Criteria for Designation on the California Register are as follows (defined in http://ohp.parks.ca.gov/?page_id=21238):
- Criterion 1: Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- Criterion 2: Associated with the lives of persons important to local, California or national history.
- Criterion 3: Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.
- Criterion 4: Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Attachment 4: CPUC Draft Environmental Measures

About this Attachment: The following CPUC Draft Environmental Measures are provided for consideration during PEA development. They should be discussed with the CPUC's CEQA Unit Staff during Pre-filing, especially with respect to the development of Applicant Proposed Measures. The CPUC Draft Environmental Measures may form the basis for mitigation measures in the CEQA document if appropriate to the analysis of potentially significant impacts. These and other CPUC Draft Environmental Measures may be formally incorporated into Chapter 5 of future versions of the PEA Checklist.

5.1 Aesthetics

Aesthetics Impact Reduction During Construction

All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including re-grading of the site and re-vegetation or re-paving of disturbed areas to match pre-existing contours and conditions.

5.3 Air Quality

Dust Control During Construction

The Applicant shall implement measures to control fugitive dust in compliance with all local air district(s) standards. Dust control measures shall include the following at a minimum:

- All exposed surfaces with the potential of dust-generating shall be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, shall be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds shall be limited to fifteen (15) miles per hour or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

5.5 Cultural Resources

Human Remains (Construction and Maintenance)

Avoidance and protection of inadvertent discoveries that contain human remains shall be the preferred protection strategy with complete avoidance of such resources ensured by redesigning the project. If human remains are discovered during construction or maintenance activities, all work shall be diverted from the area of the discovery, and the CPUC shall be informed immediately. The Applicant shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any associated funerary objects.

If the remains are on federal land, the remains shall be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). If the remains are not on federal land, the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98.

5.8 Greenhouse Gas Emissions

Greenhouse Gas Emissions Reduction During Construction

The following measures shall be implemented to minimize greenhouse gas emissions from all construction sites:

- If suitable park-and-ride facilities are available in the project vicinity, construction workers shall be encouraged to carpool to the job site.
- The Applicant shall develop a carpool program to the job site.
- On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.

5.19 Utilities and Service Systems

Notify Utilities with Facilities Above and Below Ground

The Applicant shall notify all utility companies with utilities located within or crossing the project ROW to locate and mark existing underground utilities along the entire length of the project at least 14 days prior to construction. No subsurface work shall be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation shall be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations is less than 5 feet, the Applicant shall submit the intended construction methodology to the owner of the third-party utility for review and approval at least 30 days prior to construction. Construction methods shall be adjusted as necessary to assure that the integrity of existing utility lines is not compromised.

5.20 Wildfire

Construction Fire Prevention Plan

A project-specific Construction Fire Prevention Plan for both construction and operation of the project shall be submitted for review prior to initiation of construction. A draft copy of the Plan shall be provided to the CPUC and state and local fire agencies at least 90 days before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Plan reviewers shall also include

federal, state, or local agencies with jurisdiction over areas where the project is located. The final Plan shall be approved by the CPUC at least 30 days prior to the initiation of construction activities. The Plan shall be fully implemented throughout the construction period and include the following at a minimum:

- The purpose and applicability of the Plan
- Responsibilities and duties
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
    - Identification of daily site-specific risk conditions
    - The tools and equipment needed on vehicles and to be on hand at sites
    - Reiteration of fire prevention and safety considerations during tailboard meetings
    - Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible activity
- Coordination procedures with federal and local fire officials
- Crew training, including fire safety practices and restrictions
- Method(s) for verifying that all Plan protocols and requirements are being followed

A project Fire Marshal or similar qualified position shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan.

Fire Prevention Practices (Construction and Maintenance)

The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state.

All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.

CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF EXEMPTION

To: Office of Planning and Research
State Clearinghouse
https://ceqasubmit.opr.ca.gov/

Site Mitigation and Restoration Program
9211 Oakdale Ave.
Chatsworth, CA 91311

From: Department of Toxic Substances Control

Project Title: Removal Action Workplan, Property South of Parcel A, Former Ventura Manufactured Gas Plant

Project Location: 1555 N. Olive Street, Ventura California

County: Ventura

Project Applicant: Southern California Gas Company (SoCalGas)

Approval Action Under Consideration by DTSC: Removal Action Workplan

Statutory Authority: California Health and Safety Code, Chapter 6.8

Project Description: The proposed scope of work outlined in the Removal Action Workplan (RAW) includes excavation of soils impacted with the chemicals of concern (COCs) in the southern portion of the Site, including polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), arsenic and lead. The excavated areas will be backfilled with clean soil and a Land Use Covenant (LUC) will restrict use of the property and prohibit residential use.

The Site is approximately 8.5-acres and is owned and operated by SoCalGas as a natural gas compressor station. The subject of this RAW is the southern 4.3-acre portion of the Site that is hereinafter referred to as the "Subject Property." The Subject Property is currently in use as a storage and maintenance yard and is occupied by two small buildings used as an office and a warehouse. The northern portion of the Site is currently occupied by a natural gas compressor building, gas metering equipment, aboveground gas piping, and associated features.

To the north, south, and west of the Site are primarily industrial and commercial facilities. The Ventura River and vacant hillsides lie further west of the property. Residential/commercial properties and the E.P. Foster Elementary School are located to the east of the Site.

SoCalGas will modernize the compressor station at the Site and these modernization activities will include: a new compressor building, a new office building, a new warehouse, a new communications shelter, a new motor control center room, and associated appurtenances. The existing office building and warehouse are scheduled for demolition prior to soil remediation on the Subject Property.

Background: The former Ventura Manufactured Gas Plant (MGP) was located, in part, on the northern portion of the Site (as noted in the RAW as "Parcel A"). The Ventura MGP operated between 1905 and 1919 and used crude oil in the gas production process. Most of the MGP operations occurred on Parcel A. The MGP was taken out of service in 1920 and much of the equipment and structures were removed. Since 1923, Parcel A has been occupied by a natural gas compressor station. During the 1940s, various buildings and structures were added to the Site, and thereafter the compressor station and the Site were expanded to the south to also include the Subject Property.

Previous Site Investigations: Various environmental investigations and removal actions have been conducted within the Site. Environmental investigations and subsequent removal actions related to Parcel A were mainly related to prior MGP operations. Environmental investigations and subsequent removal actions particular to the Subject Property were associated with prior use of underground storage tanks (USTs) that stored fuel for fleet vehicles.

Between October 2003 and November 2004, a comprehensive soil, soil vapor, and groundwater investigation was conducted on land occupied by the former MGP (including Parcel A) to assess potential residual impacts from former MGP operations. Based the results of the investigation, there were two primary sources of contamination beneath the former MGP.

1) Shallow impacted soil within the upper 10 feet as a result of past MGP operations on Parcel A as well as former oil refinery operations on other properties west of Parcel A; and

2) Deeper impacted soil, below 10 feet below ground surface (bgs) and extending downward to groundwater at a depth of about 35 to 40 feet, under properties west of Parcel A resulting mainly from former oil refinery and petroleum bulk storage tank farm operations on those properties.

Parcel A was remediated, along with other properties to the west, between October 2009 and April 2011 in accordance with DTSC-approved RAWs. Parcel A was generally excavated to depths ranging from 5 to 12 feet bgs, and to as much as 32 feet bgs in the western portion of the parcel. The majority of the contaminated soil that was excavated (83,075 cubic yards) was classified as non-hazardous waste and transported to the Soil Safe of California facility in Adelanto, California, for treatment by thermal desorption. A smaller volume of lead-contaminated soil (6,067 cubic yards) was removed and disposed offsite as California-hazardous waste (non-RCRA) at Clean Harbors' Buttonwillow Landfill.

As part of groundwater investigations at and around the former MGP, 28 groundwater monitoring wells were installed, including two (DMW-2 and MW-3) within the Subject Property. Eight other groundwater monitoring wells (UST MW-1 through UST MW-8) were also installed within the Subject Property as part of UST-related groundwater investigations. Based on improved water quality following removal actions, all groundwater monitoring wells were destroyed in 2017 under a DTSC-approved workplan.

In February and March 2020, a Supplemental Remedial Investigation (SRI) was completed within the Subject Property in accordance with a DTSC-approved workplan. The investigation revealed the presence of residual MGP wastes that extend southward into the Subject Property. In addition, concentrations of some volatile organic compounds (VOCs) in soil vapor samples exceeded screening levels. The VOCs in soil vapor were mainly attributed to residual groundwater impact, primarily originating from upgradient sources.

Project Activities: The scope of work addressed in the RAW on the Subject Property includes:

- Excavation of approximately 1,700 cubic yards (2,500 tons) of shallow soil impacted with carcinogenic PAHs, TPH, arsenic, and lead;
- Offsite transport of excavated soil for treatment and/or disposal (approximately 106 truck trips);
- Backfill of the excavated areas using clean fill material (approximately 106 truck trips);
- Implementation of the Operations and Maintenance Plan to address vapor intrusion risks within the proposed compressor building; and;
- Implementation of a LUC to preclude residential development or other sensitive uses.

Soil will be excavated from an area located along the north-northwestern boundary of the Subject Property. This will require demolition of the existing office and warehouse buildings. The depth of the excavation is estimated at 3.5 feet bgs, but the actual depth will be determined during the removal action based on field observation and the results of confirmation sample analyses. If needed, the excavated soil may be stockpiled temporarily within the construction area for profiling purposes, in accordance with the requirements of Ventura County Air Pollution Control District (VCAPCD). Stockpiled soils will generally be disposed of off-site by the end of each day. In cases when this is not possible, temporary stockpiles will be managed with appropriate Best Management Practices (BMPs).

The excavated area would be backfilled using clean fill material to three (3) inches below the surrounding grade. Imported clean fill material would be sampled and approved according to DTSC and SoCalGas requirements. Following completion of placement and compaction of the fill material, the uppermost three inches of excavated area would be backfilled with ¾" gravel that would serve as an erosion control measure.

All necessary permits for soil removal activities, transportation, and related activities will be obtained. Copies of the permits will be kept onsite during working hours and will be made available for inspection. The anticipated permits to be secured and regulations to be adhered to during soil removal may include, but are not limited to the following:

- Excavation and grading permit,
- Cal//OSHA construction safety permits,
- Waste transportation route permit (if necessary),
- VCAPCD permits (if necessary).

The procedures proposed for removal activities will comply with federal, State, and local rules and regulations. During all field activities, compliance with VCAPCD Rules related to fugitive dust control, nuisance, and emission of volatile organic compounds (if any) will be required.

Traffic controls will be used for the safe and efficient implementation of the remedial action, while minimizing impacts to normal traffic. Traffic controls will be required during waste transportation activities.

The excavated soil impacted with PAHs, TPH, and arsenic will be transported to Soil Safe of California, a thermal recycling facility located in Adelanto, California. The soil impacted with lead will be transported to an approved facility determined by SoCalGas. Water generated as a result of decontaminating the sampling tools or equipment will be placed inside 55-gallon, Department of Transportation (DOT)-approved drums.

Following shallow soil remediation, residual soil vapor concentrations are expected to remain in soil, requiring a LUC to prevent the potential use of the Subject Property for future residential uses as well as other sensitive uses. In addition, the LUC will require SoCalGas to evaluate any proposed building locations for potential risks associated with vapor intrusion and take appropriate precautions for the protection of human health and safety of any future building occupants.

Specific enforceable environmental safeguards and monitoring procedures will be complied with. In the event biological, cultural or historical resources are discovered in the course of project activities, work will be suspended while a qualified biologist, cultural or historical specialist makes an assessment of the area and arrangements are made to protect or preserve any resources that are discovered. If human remains are discovered, no further disturbance will occur in the location where the remains are found, and the County Coroner will be notified pursuant to the Health and Safety Code, Chapter 2, Section 7050.5.

Name of Public Agency Approving Project: Department of Toxic Substances Control

Name of Person or Agency Carrying Out Project: Southern California Gas Company

Exempt Status: Common Sense Exemption [14 CCR, Sec. 15061(b)(3)]

Reasons Why Project is Exempt: DTSC has determined with certainty that there is no possibility that the activities in question may have a significant effect on the environment because the project would not result in "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

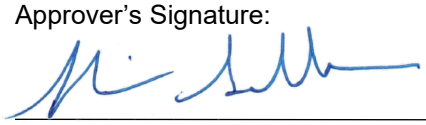
The administrative record for this project is available to the public by appointment at the following location:

Department of Toxic Substances Control
Site Mitigation and Restoration Program
9211 Oakdale Ave,
Chatsworth, CA 91311

Additional project information is available on EnviroStor: www.envirostor.dtsc.ca.gov/public/

Contact Person	Contact Title	Phone Number
Chand Sultana	Environmental Scientist	(818) 717-6552

Approver's Signature:



Date:
03/02/2021
~~Click or tap to enter a date.~~

Approver's Name	Approver's Title	Approver's Phone Number
Haissam Salloum	Branch Chief	(818) 717-6538

TO BE COMPLETED BY OPR ONLY

Date Received for Filing and Posting at OPR:

Removal Action Workplan
Property South of Parcel A
Former Ventura Manufactured Gas Plant

1555 North Olive Street,
Ventura California

Submitted to:

Department of Toxic Substances Control

9211 Oakdale Avenue
Chatsworth, California 91311-6505

Prepared for:

Southern California Gas Company

Prepared by:

NOREAS
Environmental Engineering and Science

16361 Scientific Way
Irvine, California 92618

August 2020
Revised November 2020
Revised December 2020

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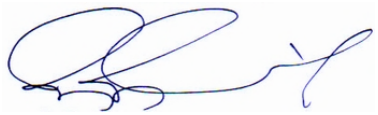

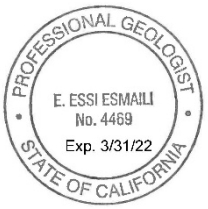

Date: December 18, 2020

Essi Esmaili, Ph.D., P.G.
Project Manager

TABLE OF CONTENTS

Tables

Figures

Attachments

ACRONYMS AND ABBREVIATIONS

API	American Petroleum Institute
ARARs	Applicable, Relevant, and Appropriate Requirements
B(a)P	Benzo(a)pyrene
bgs	below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CCR	Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
COPCs	Chemicals of potential concern
CPAHs	Carcinogenic PAHs
DCE	Dichloroethene
DOT	Department of Transportation
DTSC	California Department of Toxic Substances Control
EAs	Exposure areas
Eco	Eco & Associates, Inc.
EHD	Environmental Health Division
EMI	Electromagnetic instrument
EPA	U.S. Environmental Protection Agency
GPR	Ground-penetrating radar
HASP	Health and Safety Plan
HBGs	Health Based Goals
HHRA	Human health risk assessment
ISCOX	In situ chemical oxidation
LDR	Land Disposal Restriction
LNPAL	Light non-aqueous phase liquid
LUC	Land Use Covenant
NOREAS	NOREAS, Inc.
mg/kg	Milligrams per kilogram
MGP	Manufactured Gas Plant
MTBE	Methyl tertiary butyl ether
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOE	Notice of Exemption
N.O.S.	Not Otherwise Specified
PAHs	Polycyclic aromatic hydrocarbons
RACR	Removal Action Completion Report
RAOs	Remedial action objectives
RAW	Removal Action Workplan
SoCalGas	Southern California Gas Company

SRI	Supplemental Remedial Investigation
SRIR	Supplemental Remedial Investigation Report
TBA	Tertiary butyl alcohol
TBC	To be considered
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbons
TPH-g	TPH in the gasoline range
TPH-d	TPH in the diesel range
TPH-hh	TPH with heavy hydrocarbons
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VC	Vinyl Chloride
VCAPCD	Ventura County Air Pollution Control District
VMP	Vapor monitoring probes
VOCs	Volatile organic compounds
Water Board	California Regional Water Quality Control Board
µg/L	Micrograms per liter

1.0 INTRODUCTION

On behalf of the Southern California Gas Company (SoCalGas), NOREAS, Inc. (NOREAS) has prepared this Removal Action Workplan (RAW) to describe proposed remedial activities at the southern portion of the Site located at 1555 N. Olive Street in Ventura, California (Site). Figure 1 depicts the Site location and Figure 2 shows the Site plan. The northern portion of the Site (Parcel A) was a part of the former Ventura Manufactured Gas Plant (MGP) that was divided into seven parcels (A through G) (Figure 2) based on modern ownership. Parcel A is the only one of the seven parcels that is still owned by SoCalGas. Parcels A, B, and C have been characterized and remediated as described in more detail in Section 2.0.

The Site is currently used as a compressor station and is scheduled for sitewide modernization. The modernization plan will include construction of a new compressor building, a new office building, a new warehouse, and a new Motor Control Center Room (Figures 2 and 3). The current existing office building and warehouse in the southern portion of the Site are scheduled for demolition. This RAW is primarily focused on the southern portion of the Site, where remediation has not occurred.

A RAW was prepared by Tetra Tech (2009) for the remediation of Parcel A. The RAW was approved by the DTSC and the approval letter is attached as Attachment A. The RAW was implemented in 2011. Details regarding the Site description, previous activities, and the nature and extent of contamination are provided in the RAW. The remedial excavation activities, including post-remediation sampling, are documented in the Soil Removal Action Completion Report (RACR) (Tetra Tech, 2011). As part of Parcel A remediation, impacted soil was excavated and transported offsite for treatment and disposal. However, potentially impacted soil was left in place in four inaccessible areas (Figure 2). Those inaccessible areas will be subject to evaluation, and potential remediation, if they become accessible at a later date. Otherwise, a Land Use Covenant (LUC) will be used to restrict for Parcel A.

In February and March 2020, NOREAS performed a Supplemental Remedial Investigation (SRI) at the southern portion of the Site. The results of investigation were submitted to the Department of Toxic Substance Control (DTSC) in a SRI Report (SRIR), dated May 2020 (NOREAS, 2020a). The investigation revealed presence of limited soil impact at the southern portion of the Site that may require remediation. In addition, concentrations of some volatile organic compounds (VOCs) in soil vapor samples exceeded screening levels. These VOCs were mainly attributed to residual groundwater impact, primarily originating from upgradient sources.

1.1 Purpose of the RAW

The overall purpose of the RAW is to identify and evaluate the most effective remedial alternatives for addressing environmental impacts at the southern portion of the Site. This RAW also summarizes the results of a human health risk assessment (HHRA) (NOREAS, 2020b) for determining the need for remediation and establishing cleanup levels, as necessary, for soil and

soil vapor at the southern portion of the Site. In addition, this RAW presents the methodologies for implementation of the selected remedial actions in the southern portion of the Site.

Specifically, this RAW presents a detailed approach for removing impacted soils at the southern portion of Site, including polycyclic aromatic hydrocarbons (PAHs), arsenic and lead. The basis for the approach described in this RAW is the information presented in the SRIR (NOREAS, 2020a) and HHRA (NOREAS, 2020b).

2.0 BACKGROUND INFORMATION

2.1 Site Description

The Site is located at 1555 N. Olive Street and covers an area of approximately 8.5 acres. The southern portion of the parcel, which is the subject of this RAW, is approximately 4.3 acres. Other pertinent Site information is listed below.

- Envirostor ID number: 56490101
- USEPA Facility Registry Number: 110033615791
- Assessor Parcel Number: 068-0-142-030 (Parcel map is included as Attachment B)
- Ownership: SoCalGas
- Owner Contact: Leticia Hernandez
  Environmental Programs Manager
  Environmental Services
  Southern California Gas Company
  8101 S. Rosemead Boulevard
  Pico Rivera, CA 90660
  Office: 562-806-4216

As mentioned previously, the northern portion of the Site (Parcel A) was a part of the former Ventura MGP. Parcel A is currently occupied by a natural gas compressor building, gas metering equipment, aboveground gas piping and associated features. The southern portion of the Site is currently in use as a storage and maintenance yard and is occupied by two small buildings used as an office and a warehouse (Figure 2). The southern portion of the Site was formerly used to service fleet vehicles.

To the north, south, and west of the Site are primarily industrial and commercial facilities. The Ventura River and vacant hillsides lie further west of the property. Residential/commercial properties and the E.P. Foster Elementary School are located to the east of the Site. The former Ventura MGP is in Township 3 North, Range 23 West, Section 33 of the San Bernardino baseline and meridian.

As mentioned previously, SoCalGas is developing plans for a compressor station modernization project that will include a new compressor building, a new office building, a new warehouse, and a new Motor Control Center Room (Figure 2). An architectural rendering of these buildings is shown in Figure 3. The existing office building, and warehouse at the southern portion of the Site are scheduled for demolition prior to soil remediation.

2.2 Historical MGP Operation

The Ventura MGP operated between 1905 and 1919. The MGP used crude oil in the gas production process. Most of the MGP operations occurred on Parcel A and on a small portion of Parcel B. The MGP was taken out of service in 1920 and much of the equipment and structures were removed.

Since 1923, Parcel A has been used as a natural gas compressor station. During the 1940s, various buildings and structures were added and during the 1950s and 1960s the compressor station was renovated and upgraded. In the late 1980s SoCalGas modernized and upgraded the compressor station as part of an overall transmission system upgrade.

2.3 Previous Investigations and Removal Actions at the Former Ventura MGP

Various investigation and removal actions were conducted in the northern and southern portions of the Site. The actions in the northern part of the Site were mainly related to the MGP operations. The actions in the southern part of the Site were associated with fleet vehicles services. The previous actions are discussed in the following sections.

2.3.1 Previous Investigations and Removal Actions in Northern Portion of the Site

Between October 2003 and November 2004, SoCalGas conducted a comprehensive soil, soil vapor, and groundwater investigation of the former MGP Parcels (A through G) (Tetra Tech, 2006). Based on a review of the results of the investigation, Tetra Tech concluded that there were two sources of contamination beneath the MGP Parcels, as follows:

1) A shallow impacted soil (approximately from 0-10 feet below ground surface [bgs]) under Parcels A, B, C, and G resulting from combined past MGP operations and former oil refinery operations; and,
2) A deep impacted soil (approximately between >10 feet bgs and groundwater) under Parcels B, C, and G resulting solely from former oil refinery and petroleum bulk storage tank farm operations.

Parcels A, B, and C were remediated between October 2009 and April 2011. Parcel A was excavated to depths ranging from 5 to 12 feet bgs, and in the southwestern portion to as much as 32 feet bgs. Parcel B was excavated to depths ranging from 10 to 19 feet bgs. Parcel C was excavated to depths ranging from 5 to 16 feet bgs. An estimated 83,075 cubic yards of impacted soil was removed from all three parcels and transported to the Soil Safe of California facility in Adelanto, California, for treatment by thermal desorption. An estimated 6,067 cubic yards of California-hazardous waste (soil contaminated with lead) was also removed from Parcel A and transported to the Clean Harbors Class 1 Landfill in Buttonwillow, California for disposal.

Parcels D and E were not impacted by past MGP operations and therefore did not require any remediation. Parcel G could not be remediated without seriously disrupting business operations at C.D. Lyon and T&T, and therefore was not remediated. Parcel F was found to be non-impacted during the remedial investigation

The final Removal Action Completion Reports for Parcels A, B, and C were approved by DTSC on October 17, 2012, October 26, 2012, and June 24, 2014, respectively.

As part of groundwater investigations at and around the former MGP, 28 groundwater monitoring wells had been installed at Parcels A through C and G, including two monitoring wells (DMW-2 and MW-3) on the southern portion of the Site (Figure 2). As discussed in the following Section

2.3, eight groundwater monitoring wells (UST MW-1 through UST MW-8) were also installed in the southern portion of the Site during an Underground Storage Tank (UST)-related groundwater investigation.

Based on the information collected during the groundwater investigations, groundwater beneath the Site occurs in fine- to coarse-grained sand, gravel, cobbles, and boulders. Groundwater is unconfined and has a flow direction generally to the east and southeast. The depth to groundwater has reportedly ranged from approximately 34 to 46 feet bgs.

The analytical testing program for groundwater sampling at the former Ventura MGP included volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B, polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8310, total petroleum hydrocarbons (TPH) in the gasoline range (TPH-g) and the diesel range (TPH-d) by EPA Method 8015 Modified, and four water quality indicator field parameters (i.e., specific conductivity, pH, temperature, and turbidity). Chemicals detected during the groundwater monitoring program at the former Ventura MGP included:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX);
- Naphthalene, benzo(a)pyrene [B(a)P], and other PAHs;
- TPH-d and TPH-g;
- Methyl-tert-butyl ether (MTBE);
- Common motor fuel indicator chemicals, such as trimethylbenzene isomers, butylbenzene isomers, isopropylbenzene, and isopropyltoluene; and
- Trichloroethene (TCE) and several degradation daughter products (e.g., cis-1,2-dichloroethene [DCE], trans-1,2-DCE, and vinyl chloride [VC]).

Tetra Tech (2015) stated that some of the above contaminants (i.e., MTBE, TCE, DCE, VC) are not related to MGP operations, and some (i.e., BTEX, TPH, and naphthalene) may be related to multiple sources, including MGP operations.

Tetra Tech (2015) reported that water quality improved in all wells located at the former Ventura MGP and downgradient of Parcels A, B, and C, where extensive soil remediation occurred. Naphthalene, B(a)P, and benzene plumes decreased markedly in concentration and size over the period of 2004 through 2015, resulting in greater than 90 to 95 percent mass removal and 80 to 90 percent reduction in plume size. TPH-d concentrations (and to a lesser extent TPH-g concentrations) decreased but remained in the groundwater under Parcel C, because there is residual TPH-impacted soil existing in deep soil beneath the remedial excavation floor under Parcel C, not attributable to MGP operations (i.e., not associated with B(a)P-impacted soil). The deeper TPH-impacted soil was believed to have resulted from historical releases from the former bulk storage tank farm.

Accordingly, Tetra Tech (2015) proposed closure of the groundwater case, based on the following information:

- Soil remediation in Parcels A, B & C had been completed and sources removed to the

extent possible[1]

- The results of groundwater sampling and analysis showed significant reduction of MGP residuals in groundwater
- There are non-MGP related analytes (e.g., MTBE, TCE, DCE, VC) from unrelated, upgradient offsite sources

In a letter dated March 18, 2016, DTSC concurred with groundwater closure request. In the letter, DTSC stated that *"All of the accessible manufactured gas plant (MGP) related contaminants have been removed from the Site and the remaining groundwater contaminants are from petroleum fuel releases unrelated to former MGP operations."*

Following submittal of a closure request, the wells at the former MGP parcels (including wells DMW-2 and MW-3 at the Site) were destroyed in 2017 following issuance of written closure by the DTSC (DTSC Letters, dated March 18, 2016 and May 17, 2017).

Summaries of the previous site investigations, the nature and extent of soil impact delineated during investigations, and remedial action at Parcel A of the former MGP were presented in RACR (Tetra Tech, 2011). A review of the RACR showed that impacted soil likely extended past the southern boundary of Parcel A and onto the Site. The RACR also showed the locations of a former seepage pit that reportedly existed just south of the southwestern corner of Parcel A and an area of former USTs just south of the southeastern portion of Parcel A (Figure 2).

2.3.2 Previous Investigations and Removal Actions in southern Portion of the Site

Potions of the southern portion of the Site were investigated and remediated in 2004 through 2007. The southern portion was further investigated in 2020 in advance of the modernization project. These investigations are discussed in the following sections.

2.3.2.1 Past Investigations (2004 through 2013)

Review of a report by Eco & Associates, Inc. (Eco) revealed that two USTs and associated piping/dispenser existed in the western portion of the southern portion of the Site near the seepage pit (Eco, 2007). These included a 6,000-gallon gasoline UST and a 500-gallon diesel UST (Figure 2). The two USTs and associated piping/dispenser were removed from the southern portion of the Site in December 2004 (Eco, 2007). The soil beneath the dispenser was found to have been impacted with gasoline. Accordingly, approximately 55 tons of gasoline-impacted soil were excavated from beneath the dispenser and transported offsite for disposal. The USTs, however, were found to be in good condition with no evidence of release (Eco, 2013a).

Due to the presence of impacted soil encountered under the dispenser, a groundwater investigation was performed, which resulted in the installation of eight monitoring wells (UST MW-1 through UST MW-8, Figure 2). Two additional wells (DMW-2 and MW-3) were previously installed in

[1] The sources of the remaining groundwater contaminants in Parcels C and G (and the southwestern portion of Parcel B) are deep-seated petroleum fuel releases from former bulk storage tank farm operations not associated with former MGP operations.

the southern portion of the Site as part of the MGP investigations (Figure 2). Groundwater was found to contain mainly TPH-g, TPH-d, MTBE, and tertiary butyl alcohol (TBA). Subsequently, a groundwater remediation program was undertaken, using in situ chemical oxidation (ISCOX), under the oversight of the County of Ventura, Resource Management Agency, Environmental Health Division (EHD) (Eco, 2013a).

The UST cleanup project at the southern portion of the Site was granted closure by the County of Ventura in August 2013 (County of Ventura, Environmental Health Division, 2013). The final closure report (Eco 2013a) showed that concentrations of TPH-g (1,100 µg/L maximum), TPH-d (2,490 µg/L maximum), MTBE (773 µg/L maximum), and TBA (2,200 µg/L maximum) remaining in groundwater. Subsequently, all eight of the wells were destroyed (Eco 2013b).

A geotechnical investigation was conducted at the Site in 2019 in which 7 borings (VCU 3 through VCU 9) were drilled by Wood Environmental & Infrastructure, Inc. (Wood, 2019) (Figure 2). The boring logs noted petroleum odors in four of the borings (VCU 3, VCU 4, VCU 6, VCU 7).

2.3.2.2 SUPPLEMENTAL REMEDIAL INVESTIGATION (2020)

As part of SRI, the southern portion of the Site was investigated by NOREAS in February and March 2020. This work was performed in accordance with the Revised Work Plan (NOREAS, 2020c), following its approval by the California Department of Toxic Substances Control (DTSC). The results of the investigation were presented in the SRIR (NOREAS, 2020a) and submitted to the DTSC. In addition, the results of the SRI were used to conduct the HHRA (NOREAS, 2020b) and submitted to the DTSC.

As mentioned previously, SoCalGas is planning for modernization of the Site that will initially include construction of new buildings and other structures in the southern portion of the Site (Figures 2 and 3). The 2020 SRI was performed to assess potential environmental impacts that need to be addresses before the modernization project is initiated.

During the investigation, 18 soil borings were installed at the southern portion of the Site (Figure 4). Soil samples were collected at 2 feet bgs, 5 feet bgs, and at 5-foot intervals thereafter to depths ranging from 15 to 35 feet bgs. Upon completion of drilling and soil sampling, vapor monitoring probes (VMPs) were installed at depths of 5 feet, 15 feet, and 25 feet in several borings. Soil samples were analyzed for VOCs using EPA Method 8260B, TPH-g, TPH-d, and TPH heavy hydrocarbons (TPH-hh) using EPA Method 8015, PAHs using EPA Method 8310, and metals using EPA Method 6010B/7000. The soil vapor samples were analyzed for VOCs by EPA Method TO-15 and TPH-g by EPA Method TO-3. The results of the 2020 investigations are discussed in Section 3.0

2.4 Geologic Setting

Based on the previous investigations at the former Ventura MGP, the general sequence of lithologic units is fill material underlain by alluvium. The alluvial deposits consist of unconsolidated mixtures of sand, silt, and clay, with locally abundant pebble- to boulder-sized rocks. Based on previous investigations, alluvial materials are approximately 110 feet thick in the

vicinity the former MGP [Dames & Moore, 1989]. In many of the Parcel A well borings and in the borings south of Parcel A, one to two-foot thick, discontinuous silt and clay lenses were observed in the alluvium at depths ranging between 15 feet bgs and 42 feet bgs.

Fill material within the Site appears to vary from as shallow as approximately one foot to as much as approximately 32 feet bgs. The fill consisted of gravels, sand, silty sand, and silt.

2.5 Local Hydrology

As noted previously, groundwater investigations at the former MGP included the installation of 28 groundwater monitoring wells at Parcels A through C and G, including two monitoring wells (DMW-2 and MW-3) in the southern portion of the Site (Figure 2). Also, eight groundwater wells (UST MW-1 through UST MW-8) were installed at the southern portion of the Site during the UST-related groundwater investigation.

Based on the information collected during the groundwater investigations, groundwater beneath the Site occurs in fine- to coarse-grained sand, gravel, cobbles, and boulders. Groundwater is unconfined and has a flow direction generally to the east and southeast, depending on the Ventura River water level. The Ventura River is located approximately 1,100 feet west of the Site. As noted in Groundwater Evaluation (Tetra Tech, 2015), the gradual change in groundwater flow direction across the former MGP may be attributed to the change in distance from the Ventura River. Separate-phase hydrocarbon fluids (i.e., light non-aqueous phase liquid [LNAPL]) were not observed in wells at the Site. However, LNAPL sheens had been reported in some wells located on Parcels B, C, and G of the former MGP.

3.0 NATURE, SOURCE, AND EXTENT OF SOIL AND SOIL VAPOR IMPACTS

As mentioned in Section 2.3.2, the SRI was performed in 2020 to assess potential environmental impacts that need to be addressed before the redevelopment project in the southern portion of the Site is initiated. The results of VOCs and TPH for the soil samples collected in 2020 are summarized in Table 1. The results of PAHs and metals for the soil samples are summarized in Table 2. In Table 2, benzo(a)pyrene Equivalent [B(a)P Equivalent] concentrations were calculated for carcinogenic PAHs (CPAH), in accordance with California Cancer Potency Factors (Cal/EPA, 1994). The results of the soil vapor samples are summarized in Table 3. The nature, source, and extent of soil and soil vapor impacts are discussed in the following sections. These results are also used as the basis for conducting a HHRA, as presented in Section 4.0. The results of the HHRA are used to determine the cleanup levels for the southern portion of the Site.

3.1 Soil Impact

Some of the soil samples contained mainly petroleum and MGP-related constituents, as summarized in Tables 1 and 2 and shown on Figure 4. Significant TPH-d concentrations were noted in the soil at a depth of 5 feet bgs at the location of I11-S1. Please note that I11-S1 represents the results of the conformation samples collected during the remediation of Parcel A (Tetra Tech, 2011). However, significant TPH-d concentrations were mainly detected in 30-foot and 35-foot samples in the western part of the southern portion of the Site. The presence of TPH at depths of 30 and 35 feet (near the water table) in a few soil borings correlates with impacted groundwater from upgradient sources in Parcels B and C (see discussion in Section 2.2).

VOC concentrations in soil samples (Table 1) were generally less than laboratory reporting limits. When detected above reporting limits, VOC concentrations were commonly low (J-flagged) and all were well below their respective commercial/industrial screening levels.

The only significant constituents detected in shallow soil (0 to 5 feet bgs) were TPH, PAHs, arsenic, and total lead in I15-S3, I11-S1 I7-S1, B1, B2, and/or B15 (Table 2). Please note that I15-S3, I11-S1 and I7-S1 represent the results of the confirmation samples collected during the remediation of Parcel A (Tetra Tech, 2011). Borings B1, B2, and/or B15 are closest to Parcel A and indicate that MGP-impacted soil likely extended beyond the southern limits of Parcel A. This is also consistent with the reported observations in the southern excavation sidewalls during remediation of Parcel A (I15-S3, I11-S1 I7-S1). Therefore, this shallow impacted soil should be addressed before the initiation of the planned modernization of the southern portion of the Site. The cleanup levels for these compounds are developed as part of the HHRA (Section 4.0).

3.2 Soil Vapor Impact

The results of the soil vapor samples are summarized in Table 3 and Figure 5. Mainly, the following compounds were detected in Soil Vapor samples: benzene, chloroform, 1,4-dichlorobenzene, cis-1,2-dichloroethene, ethylbenzene, methyl-tert-butyl ether, naphthalene, tetrachloroethene, trichloroethene, vinyl chloride, xylenes, and TPH-g (Table 3 and Figure 5).

Most of the constituents detected in soil vapor were not detected in soil samples. Therefore, it is reasonable to conclude that the soil vapor results most likely reflect the existing residual groundwater impacts from upgradient sources. As noted in Section 2.3.1, Tetra Tech (2015) determined that several of the groundwater contaminants (i.e., MTBE, TCE, DCE, VC) are not related to MGP operations, and some (i.e., BTEX, TPH, and naphthalene) may be related to multiple sources, including but not limited to MGP operations. It should be noted that TPH-g, TPH-d, MTBE were also apparently associated with the former UST at the southern portion of the Site (Section 2.3). As mentioned above, the residual groundwater impact is believed to be mainly originating from upgradient sources in Parcels B and C, where deep impacted soil is present, resulting from former oil refinery and petroleum bulk storage tank farm operations (see discussion in Section 2.3).

4.0 HUMAN HEALTH RISK ASSESSMENT

As discussed in Section 2.3.2.2, the results of the SRI (NOREAS, 2020a) were used to conduct the HHRA (NOREAS, 2020b). Human health impacts were estimated for various exposure zones at the southern portion of the Site (i.e., south of Parcel A).

Chemicals of potential concern (COPCs) were selected by the following criteria: they are detected in sufficient concentration, above background concentrations, and are of sufficient toxicity to warrant further evaluation. Table 4 includes a list of COPCs for the Site. The background levels of CPAHs in southern California ranged from 0.0054 mg/kg to 4.0520 mg/kg[2]. As such, only CPAHs at B15s (2 feet bgs) exceed the background range. However, a remedial action target level of 0.9 mg/kg[3] in B(a)P equivalent was set to reduce the concentrations of CPAHs in soils at the southern portion of the Site to levels that are equivalent to background concentrations. Likewise, arsenic was screened against southern California regional concentrations. Similarly, a target level of 12 mg/kg was set to reduce the concentrations of arsenic in soils to levels that are equivalent to background concentrations. To assess lead, concentrations were compared to the DTSC residential screening level. Accordingly, a target level of 80 mg/kg was set for removal action.

Potential health impacts were assessed for the potential future use of the southern portion of the Site, which was assumed to be industrial. A construction scenario was also considered, to assess potential health impacts that workers could incur while working at the southern portion of the Site during the planned construction activities. In addition, a residential scenario was evaluated to represent health impacts under the maximum beneficial use of the southern portion of the Site. Health impacts were assessed at four exposure areas (EAs) that are descriptive of where the future buildings (i.e., new compressor building, new office building, new warehouse, and new Motor Control Center Room shown on Figures 2 and 3) are proposed, utilizing representative data for soil and soil vapor. The detection of COPCs indicate that contamination is limited to the western part of the southern portion of the Site, immediately south of Parcel A. This location is where the new Compressor Building is proposed to be built.

In addition to the calculation of health risks and hazards, the HHRA utilized the exposure assumptions to calculate Health Based Goals (HBGs) that can be used to assess potential health impacts on a point by point basis throughout the southern portion of the Site. The HBGs provide media specific concentrations that are protective of human health and can be used to decide the areas of the Site that require remediation and/or mitigation. Tables 5 and 6 present the HBGs for soil and soil vapor at the Site. Table 7 presents a summary of the locations where soil vapor concentrations exceed the HBGs. In addition to the above-mentioned EAs (i.e., new compressor building, new office building, new warehouse, and new Motor Control Center Room), the HBGs

[2] DTSC PAH Studies in the Manufactured Gas Plant Site Cleanup Process (July 1, 2009) (https://dtsc.ca.gov/AssessingRis k/upload/MGP PAH Advisory 070109.pdf)

[3] A 0.9 mg/kg in B(a)P equivalent corresponds to the 95% Upper Tolerance Limit (UTL) of the background distribution

were used to assess potential health impacts at B7, B14, and B16, as these locations were not evaluated as part of an EA. COPC concentrations were below HBGs at the locations of B7, B14, and B16.

Potential health impacts resulting from direct exposure to soil were consistently below the carcinogenic risk level of $1x10^{-6}$. This is a result of the exclusion of CPAHs and arsenic from evaluation in the HHRA, which are assumed to be removed to background concentrations. The EA with the highest risks and hazards associated with direct soil contact was the Compressor Building location, with risks ranging from $3.4x10^{-7}$ to $1.6x10^{-7}$, and hazards of 2 (residential scenario), 0.8 (industrial scenario), and 1.6 (construction scenario). These hazards are mostly attributed to the concentrations of TPH detected at the Compressor Building location. In the HHRA, HBGs of 1,700 mg/kg, 250 mg/kg, and 2,700 mg/kg are established for TPH-g, TPH-d, and TPH-hh (NOREAS, 2020b). These HBGs are also presented in Table 5.

Under the assessment of indoor air, the health risks were $8.5x10^{-5}$ under the residential scenario and $1.4x10^{-5}$ under the industrial scenario at the new Compressor Building. The largest contributor to risk was naphthalene, which was assumed to volatilize to indoor air spaces. Other contributors greater than $1x10^{-6}$ were vinyl chloride ($3.5x10^{-5}$ residential and $2x10^{-6}$ industrial), and ethylbenzene ($2.1x10^{-6}$ industrial and $9.5x10^{-6}$ residential). For noncarcinogens, the total hazard exceeded unit, or 1, under each of the evaluated scenarios (5 residential and 1.2 for the industrial scenario) at the new Compressor Building location. The primary contributor was the maximum detected concentration of TPH gasoline/light hydrocarbon, resulting in a residential hazard of 3, and an industrial hazard of 0.7. At the Warehouse, the residential indoor air risk was $1.6x10^{-6}$ with naphthalene contributing a risk of $1.1x10^{-6}$. Under the industrial scenario, indoor air risks were less than $1x10^{-6}$. The indoor air assessment is uncertain, as the building design and use may not be conducive to indoor air accumulation (see Sections 8.1.2 and 10.2). Also, the occupancy of the building may differ from the assumed depiction in the HHRA.

HHRA may not account for every exposure scenario possible. However, by using health-protective assumptions, most, if not all potential exposures can be accounted for. For example, the HHRA evaluated health impacts resulting from VOCs in outdoor air under residential, industrial, and construction activities. The results from these evaluations at the impacted areas such as the new Compressor Building with residential risk of $4.8x10^{-8}$ and hazard of less than 1, can be used to infer potential health impacts to the visitors of the southern portion of the Site, which will be less than the residential risk of outdoor air ($4.8x10^{-8}$ and a hazard less than 1).

The result of this HHRA is used to support the remedial actions at the southern portion of the Site to achieve protection of human health. The primary contaminants at the southern portion of the Site soil are CPAHs. The removal of CPAHs to background levels will ensure that health risks associated with the southern portion of the Site CPAHs do not pose a greater risk than that posed by ambient concentrations. Also, lead and arsenic were detected at concentrations above their screening levels (i.e., 12 mg/kg for arsenic and 80 mg/kg for lead) at only two locations. The background level for arsenic of 12 mg/kg was exceeded only twice: 29.5 mg/kg at B15S (2 feet-

bgs), and 13.3 mg/kg at B2 (2-feet bgs). For lead, the DTSC 80 mg/kg screening level is only exceeded at B1 (2 feet bgs), at a concentration of 560 mg/kg. All other concentrations are below the residential lead screening level.

Based on the results of the HHRA, the shallow impacted soil in the area of B1, B2, and B15s will be removed to clean up the shallow soil to unrestricted (residential) levels. This will require demolition of the existing office and warehouse buildings. Following the removal of the impacted soil, confirmation samples will be collected and analyzed for PAHs, VOCs, TPH, and metals.

As discussed in the HHRA (NOREAS, 2020b), soil vapor samples concentrations exceeded the residential HBGs screening levels for the following compounds: TPH-g, benzene, 1,4-dichlorobenzene, ethylbenzene, MTBE, naphthalene, and vinyl chloride in the area of the proposed new Compressor Building. The residential HBG for naphthalene of 83 $\mu g/m^3$ was marginally exceeded at the Warehouse area, where B8-14 had a concentration of 85.7 $\mu g/m^3$, and B8-25 had a concentration of 89.6 $\mu g/m^3$. The presence of these compounds in soil vapor is consistent with previous assessment data that indicate that VOCs in deep soil are likely related to residual groundwater impact, mainly originating from upgradient sources in Parcels B and C. Therefore, remediation of groundwater or soil vapor from upgradient sources is not feasible. As such, soil vapor mitigation measures should be considered, as discussed in the following sections of this RAW.

5.0 REMOVAL ACTION GOALS AND OBJECTIVES

The remedial action objectives (RAOs) are developed to restore the southern portion of the Site to conditions that would entail minimum usage restrictions. The following are the RAOs for the southern portion of the Site:

- Protect human receptors (onsite hypothetical residents, commercial workers, and intrusive workers) from exposure to COPCs in shallow soil (0 to 15 feet) at concentrations presenting unacceptable risk; and
- Protect human receptors (onsite commercial workers) from intrusion of COPCs into indoor air of the proposed onsite buildings.

The RAOs have been formulated based on reasonably anticipated future uses at the southern portion of the Site for industrial/commercial purposes. It should be noted that following attainment of these RAOs, LUCs will be needed because of the potential vapor intrusion.

The RAOs for shallow soil and vapor intrusion are discussed separately in the following sections.

5.1 RAOs for Shallow Soil

The RAOs for the shallow soil (top 15 feet) at the southern portion of the Site are to minimize potential future exposure of humans (onsite hypothetical residents, commercial workers, visitors, and intrusive workers) to the COPCs through inhalation, dermal absorption and/or ingestion, and thereby eliminate future land use restrictions with respect to shallow soil. As such, the shallow soil where PAHs, lead, arsenic, and TPHs exceeded residential levels are targeted for removal (Figure 6). However, presence of elevated TPH concentrations in deeper soils (e.g., B1, B3, B5, and B6 at 30 feet or 35 feet bgs) exceed either residential or industrial HBG screening levels. As such, a LUC will be required for the Site, as discussed in Section 10.4. Specifically, the remedial action goal for the shallow soil is to remediate to the point that minimizes the need for any future land use restrictions. The goal for the shallow soil, following remediation, will be to be able to support that residual levels of TPHs are below residential HBGs, PAHs and arsenic are within background, lead below the cleanup level of 80 mg/kg, and that the cumulative cancer risks and noncancer hazards posed by all residual chemicals in shallow soil are considered safe and acceptable for future unrestricted residential land use[4]. If onsite physical constraints limit the ability to achieve these overall objectives, then the post-remediation completion report will clearly document the areas where impacted material remains in shallow soil and will identify the types of institutional controls that may be necessary to ensure long-term protection.

Based on the HHRA (Section 4.0), initial remediation targets of 0.9 mg/kg of CPAHs in B(a)P equivalent concentrations and 12 mg/kg of arsenic were identified to restore the southern portion

[4] The goal of unrestricted land use applies only to the shallow soil (top 15 feet). However, presence of elevated TPH concentrations in deeper soils (e.g., B1, B3, B5, and B6 at 30 feet or 35 feet bgs) exceed both residential or industrial HBGs. As such, a LUC will be required for the Site, as discussed in Section 10.4.

of the Site to the background conditions. In addition, a lead cleanup level of 80 mg/kg was established for remediation of lead-impacted soil in the B1 area to residential level. The HBGs for TPH-g, TPH-d, and TPH-hh are 1,700 mg/kg, 250 mg/kg, and 2,700 mg/kg, respectively. However, Environmental Screening Levels (ESLs) have also been issued by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB, 2019) for TPH-g, TPH-d, and TPH-hh at 430 mg/kg, 260 mg/kg, and 12,000 mg/kg, respectively, based on a residential scenario. Therefore, at the request of the DTSC, the above ESLs have been selected as initial removal target levels for TPH-g, TPH-d, and TPH-hh in this RAW for consistency with other DTSC projects. .

As such, the soils with B(a)P equivalent concentrations in excess of 0.9 mg/kg, and/or with arsenic in excess of 12 mg/kg, lead in excess of 80 mg/kg, TPHs exceeding ESLs will be remediated from the areas delineated in Figure 6 so that no future land use restrictions with respect to shallow soil would be required at the southern portion of the Site.

5.2 RAOs for Vapor Intrusion

As discussed in Section 4.0, soil vapor samples concentrations exceeded the residential HBGs for the following compounds: TPH-g, benzene, 1,4-dichlorobenzene, ethylbenzene, MTBE, naphthalene, and vinyl chloride in the area of the proposed Compressor Building (NOREAS, 2020b). The residential HBG for naphthalene of 83 $\mu g/m^3$ was marginally exceeded at the Warehouse area, where B8-14 had a concentration of 85.7 $\mu g/m^3$, and B8-25 had a concentration of 89.6 $\mu g/m^3$. The industrial soil vapor HBGs were exceeded for ethylbenzene, naphthalene, and vinyl chloride, all located at the Compressor Building. No industrial soil gas HBGs were exceeded outside of the Compression Building location. Therefore, the RAOs for vapor intrusion pathway include designing mitigation measures to protect human receptors (onsite workers) from intrusion of COPCs into indoor air of the planned Compressor Building at the southern portion of the Site.

5.3 Potential Applicable, Relevant, and Appropriate Requirements (ARARs)

This section provides a summary of the ARARs identified, with additional detail provided in Attachment C. ARARs include standards, requirements, criteria, or limitations under federal, or more stringent State environmental law (CERCLA Section 121 (d)(2)(A)). To be adopted as an ARAR at a site, it must be determined that the requirement is either "applicable" to conditions at the Site or, if not applicable, that it is both "relevant" and "appropriate" based on Site conditions. A requirement is applicable if compliance with it is legally required. A requirement is relevant and appropriate if it is determined, based on discretion, that the requirement is well suited to addressing Site conditions. In addition, State requirements are ARARs only if they are identified by the State in a timely manner.

Other factors to be considered (TBC) are non-promulgated criteria, advisories, guidance, and proposed standards issued by federal or state governments. TBCs are not enforceable, and a response action is not required to attain TBCs. However, TBCs may be appropriate in shaping or guiding the development or implementation of a response action in certain circumstances, for example, where ARARs do not provide sufficient direction.

There are four basic criteria that define ARARs (USEPA 1988). ARARs are (1) substantive rather than administrative, (2) applicable or relevant and appropriate, (3) promulgated, and (4) categorized as one of the following.

- Chemical-specific ARARs that address specific hazardous substances and are typically health- or risk-based numerical values that cleanups must achieve.

- Location-specific ARARs that must be achieved because of the specific location of the release and the related response action (e.g., requirements that address the conduct of activities in sensitive areas such as floodplains, wetlands, and locations where endangered species or significant cultural resources are present). Location-specific ARARs often focus on protecting resources in a specific area.

- Action-specific ARARs that are typically technology- or activity-based requirements or limitations on actions conducted to respond to the release of specific hazardous substances. Action-specific ARARs generally prescribe *how* a selected alternative must be implemented rather than *what* alternative may be selected.

The results of the ARARs analysis, including state ARARs, are summarized in the Tables 1 through 6 in Attachment C.

6.0 PUBLIC PARTICIPATION AND CEQA

During the previous remedial action, the Site related documents such the previous RAW, RACR, fact sheets, and California Environmental Quality Act initial study (CEQA) Notice of Exemption (NOE) have been placed at the information repositories (Ventura County Library - Avenue Library) and DTSC - Chatsworth Office for public review.

SoCalGas' Public Affairs team has developed and executed a multi-pronged community outreach strategy for recent assessment work that included:

- Bilingual (English/Spanish) Pre-Construction Notification Letter and Construction Advisory to residents via mail and neighborhood canvassing.
- Bilingual pre-construction notification letter and in-person visit to nearby Boys & Girls Club of Greater Ventura and local elementary school.
- Informed City of Ventura and childcare facilities.
- To Date: 0 inquiries and 0 complaints

As part of the proposed additional remediation, SoCalGas will collaborate with DTSC, including distribution of Project Information Fact Sheet, pre-construction notifications and neighborhood canvasing consistent with previous outreach effort on an as needed basis.

As previously discussed in this RAW, SoCalGas plans to modernize the compressor station at the Site following the completion of the soil remediation. The location of the new proposed compressor building is where the current warehouse and administrative buildings are located. The scope of the soil remediation will entail demolishing the existing warehouse and administrative buildings to gain access to the contaminated soil. The soil remediation will then take place. Once it is backfilled with clean fill, the modernization construction will begin. Modernization of the compressor station will require a permit to construct from the Ventura County Air Pollution Control District (VCAPCD) and other ministerial permits from the City of Ventura; no additional discretionary permits are anticipated.

A CEQA NOE was issued for remediation of the northern portion of the Site (Parcel A) in August, 2009. The additional proposed soil remediation work on the southern portion of the Site is substantially similar to the previous soil remediation work conducted at Parcel A. As such, DTSC has already issued a CEQA NOE for the proposed removal project. .

7.0 FEASIBILITY STUDY, IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

This section presents the screening and evaluation process for identifying appropriate remedial alternatives for the southern portion of the Site. Remedial alternatives screened and evaluated in this RAW are directed at soil and soil vapor. As discussed in SRIR (NOREAS, 2020a), groundwater closure for the Site was issued by DTSC in a letter, dated March 18, 2016. In the letter, DTSC stated that *"All of the accessible manufactured gas plant (MGP) related contaminants have been removed from the Site and the remaining groundwater contaminants are from petroleum fuel releases unrelated to former MGP operations."* Therefore, alternatives for groundwater is not addressed in this RAW. A range of remedial technologies are identified and screened for soil and soil vapor in this section to select technologies that are expected to be effective, implementable, and cost-effective, as discussed in the following sections.

7.1 Remedial Technology Screening

To identify the most appropriate potential technologies, a variety of remedial options were initially screened. A summary of the screening process is included in Tables 8 and 9 for soil and soil vapor, respectively. The purpose of this screening was to identify and eliminate from further consideration remedial technologies that, because of Site-specific conditions or costs, are not the most feasible and/or practicable. Based on the screening (Tables 4 and 5), the remedial action technologies determined to be the most practical for the southern portion of the Site are as follows:

- Alternative 1 for Soil and Soil Vapor: No Further Action (as required for consideration by the National Oil and Hazardous Substances Pollution Contingency Plan [NCP]).
- Alternative 2 for soil and soil vapor: Land Use Covenant (LUC).
- Alternative 3 for soil: Excavation of impacted soil and offsite treatment/disposal.
- Alternative 4 for soil vapor: Soil vapor mitigation for the proposed Compressor Building.

The following subsections describe each of the above identified alternatives and include evaluations of effectiveness, implementability, and cost. The evaluation of effectiveness includes consideration of overall protection of human health and the environment and both the long-term and short-term effectiveness of each alternative. Evaluation of implementability of each alternative includes consideration of the technical and administrative feasibility. The cost evaluation of each alternative is based upon estimates for capital costs and, if applicable, long-term monitoring costs.

7.2 Alternative 1 for Soil and Soil Vapor: No Further Action for Soil

Under the no further action alternative, no additional soil or soil vapor remediation or mitigation are proposed for the southern portion of the Site. The no further action alternative would, therefore, assume site closure under existing conditions, requiring no additional remediation or monitoring.

7.2.1 EFFECTIVENESS

The no further action alternative would be effective only if the current use of the Site is continued[5], land use remains unchanged, and the impacted soil is not disturbed[6]. Additionally, this alternative requires no remediation or monitoring, which would likely make closure of the southern portion of the Site difficult. Because of these issues, the long-term effectiveness of the no further action alternative is low.

7.2.2 IMPLEMENTABILITY

The no further action alternative is easy to implement as no additional remedial activities would be conducted.

7.2.3 COST

There is no significant cost associated with this alternative.

7.2.4 CONCLUSION ON ALTERNATIVE 1

Alternative 1 is not selected for the southern portion of the Site.

7.3 Alternative 2 for Soil and Soil Vapor: Land Use Covenant

Alternative 2 does not involve removal or remediation of impacted soil or soil vapor. Therefore, institutional controls by way of an LUC would be necessary. LUC would include land-use restrictions to limit exposure of Site users to impacted soil or soil vapor.

Alternative 2 is expected to provide for permanent, long-term Site restrictions to prevent disturbance of the impacted soil at the southern portion of the Site and construction of new buildings to ensure the protection of human health and the environment. Alternative 2 assumes that Site closure can be obtained under existing conditions, requiring no additional remediation or monitoring in the future. However, receiving unrestricted Site closure under current Site conditions would likely be unachievable.

It should be noted that even with the implementation of soil excavation and soil vapor mitigation measures as part of Alternatives 3 and 4, residual soil and soil vapor concentrations are expected to remain in soil at the southern portion of the Site. Therefore, LUC would be required in conjunction with implementation of Alternatives 3 and 4 to prevent the use of the southern portion of the Site for potential future residential uses. In addition, in case other buildings are planned at the southern portion of the Site, the LUC will require the SoCalGas to evaluate proposed location for potential risks associated with vapor intrusion and take adequate precautions for protection of human health and safety of the planned building occupants (if any).

[5] This assumes the currently existing office building and warehouse will be demolished and removed in the near future, as called for in the modernization plans.

[6] Impacted soil is currently capped.

7.3.1 EFFECTIVENESS

The LUC alternative would be effective only if impacted soil is not disturbed. LUC will provide a relative assurance that the impacted soil is not disturbed. As such, the long-term effectiveness of the LUCs only alternative is relatively high. In addition, LUC in conjunction of soil vapor mitigation measures (Alternative 4) ensures that future buildings at the Site will be evaluated for vapor intrusion and mitigation measure will be put in place, if needed.

7.3.2 IMPLEMENTABILITY

An LUC is moderately easy to implement and enforce. LUC implementation may consist of annual Site inspections and reporting.

7.3.3 COST

The following assumptions were made to develop a cost estimate for Alternative 2:

- The cost estimate assumes 30 years of annual site inspection and reporting (30 annual LUC inspection reports).

The total costs for Alternative 2 are estimated at approximately $126,424 (Table 10). The details of the estimated costs associated with annual LUC inspections and five-year reviews are summarized in Table 11.

7.3.4 CONCLUSION ON ALTERNATIVE 2

Alternative 2 is not selected for the shallow soil at the southern portion of the Site. However, an LUC is selected in conjunction with implementation of Alternative 4 (mitigation measure for vapor intrusion).

7.4 Alternative 3 for Soil: Soil Excavation and Offsite Treatment/Disposal

Alternative 3 relies on the excavation and removal of shallow soil impacted by PAHs, arsenic, and/or lead in the area shown on Figure 6. The excavated soil will be profiled and transported to offsite facilities for treatment and recycling or disposal.

7.4.1 EFFECTIVENESS

The excavation alternative for shallow soil is considered an effective alternative that is protective of both human health and the environment by reducing the volume of impacted soil at the southern portion of the Site. Excavation for soil would likely bring about unrestricted closure with respect to shallow soil (0 to 15 feet) at the southern portion of the Site.

7.4.2 IMPLEMENTABILITY

Under current conditions at the southern portion of the Site, the excavation alternative for soil is feasible as the impacted soil is primarily located in an area with open access, after demolishing the existing office building and warehouse. Alternative 3 uses standard equipment and labor skills and is readily implementable. The primary limitation to this alternative is short-term exposure

during the excavation, which will be minimized with engineered controls and protective equipment, as discussed in Section 9.0.

7.4.3 COST

The following assumptions were made to develop a cost estimate for Alternative 3:

- Soil excavations will be limited in horizontal extent to areas shown in Figure 6. The average depth of excavation is expected to be approximately 3.5 feet bgs, with some areas up to 7 feet bgs. However, the ultimate extent and depth of excavations will be determined based on field observation and the results of the confirmation sampling. Accordingly, the total volume of impacted soil requiring remediation is estimated to be approximately 1,700 cubic yards (2,500 tons).

- All excavated soil will be removed from the southern portion of the Site (Figure 6) and replaced with clean fill.

- The excavated soil will be transported to appropriate offsite facilities for treatment and recycling or disposal (see Section 9.5 for details).

The total costs for Alternative 3 are estimated at approximately $664,424 (Table 10). These costs include the excavation and removal of approximately 1,700 cubic yards (approximately 2,500 tons) of impacted soil, and a final closure report for the southern portion of the Site.

As mentioned in Section 7.3, LUC would be required in conjunction with implementation of Alternative 3 to prevent the use of the southern portion of the Site for potential future residential uses. Therefore, the estimated costs for preparation and implementation of LUC, annual inspections and five-year reviews are included for Alternative 3. The details of the estimated costs associated with annual LUC inspections and five-year reviews are summarized in Table 11.

7.4.4 CONCLUSION ON ALTERNATIVE 3

Alternative 3 is selected for implementation at the southern portion of the Site.

7.5 Alternative 4 for Soil Vapor: Soil Vapor Mitigation at New Compressor Building

As discussed in Section 4.0, under the assessment of indoor air, the health risk was calculated at $1.4x10^{-5}$ under the industrial scenario at the new Compressor Building. Alternative 4 is selected to mitigate this risk. This alternative relies on mitigation of potential vapor intrusion via the designed operation of the Compressor Building (see Section 8.1.2 for further details).

It should be noted that soil vapor mitigation measures may also be required for other potential future buildings at the Site that have not been discussed in this document, depending on the locations of such potential buildings.

7.5.1 EFFECTIVENESS

As discussed in Sections 4.0 and 8.1.2, the new Compressor Building is designed as a large utility-type building (162.5 feet long, 60 feet wide and 41.8 feet high). It will be equipped with an approximately 153-foot long roof-ridge ventilator to allow indoor air to be evacuated into the atmosphere. The Building will also be equipped with a minimum of three (3) wall-mounted air supply fans, to supply air into the building. Accordingly, the building will be ventilated at a minimum rate of 6 air changes per hour during normal operation, per the requirements in API RP 500[7]. Therefore, the planned operation of the building is considered an effective alternative that is protective of both human health and the environment by removing any potential vapor intrusion.

7.5.2 IMPLEMENTABILITY

Alternative 4 is readily implementable due to the built-in design of the building.

7.5.3 COST

The following assumptions were made to develop a cost estimate for Alternative 4:

- Ventilation of the Compressor Building is part of the design, construction, and operation of the building. Therefore, no cost is included for the design, construction, or operation of the ventilation system.

- The cost in Table 10 includes one round of indoor air sampling and analysis for VOCs and TPH-g, after the construction and within one month of the operation of the building. The cost also include preparation of a workplan to be reviewed and approved by DTSC.

The total costs for Alternative 4 are estimated at approximately $42,000 (Table 10).

As mentioned in Section 7.3, LUC would be required in conjunction with implementation of Alternative 4 to prevent the use of the southern portion of the Site for potential future residential uses. However, the estimated costs for preparation and implementation of LUC, annual inspections and five-year reviews are included for Alternative 3. Therefore, these costs are not repeated as part of the Alternative 4 estimated costs. As mentioned above, the details of the estimated costs associated with annual LUC inspections and five-year reviews are summarized in Table 11.

7.5.4 CONCLUSION ON ALTERNATIVE 4

Alternative 4 is selected for implementation at the new proposed Compressor Building to be built in the southern portion of the Site.

[7] American Petroleum Institute (API) RP 500 – Recommended Practice for Classification of Locations for Electrical Installation at Petroleum Facilities Classified as Class I, Division 1 and Division 2.

7.6 Summary and Recommendation

This section compares the alternatives evaluated above and specifies the basis for recommendation of the recommended alternatives. The following alternatives for soil were evaluated for the Site:

- Alternative 1 for Soil and Soil Vapor: No Further Action (as required NCP).
- Alternative 2 for soil and soil vapor: LUC.
- Alternative 3 for soil: Excavation of impacted soil and offsite treatment/disposal.
- Alternative 4 for soil vapor: Soil vapor mitigation for the proposed Compressor Building.

Based on the evaluations of the above alternatives, Alternatives 3 and 4 are proposed for the Site, for the following reasons.

Alternative 1 is rated low for long-term effectiveness and permanence because no measures or controls are associated with this alternative to minimize risk. Alternatives 2, 3, and 4 are considered effective to minimize risk. However, Alternative 2 will require restricted land use with respect to shallow or deep impacted soil. Under Alternative 3,the shallow impacted soil will be removed and transported offsite for treatment, recycling, and/or disposal. As such, Alternative 3 allows for the future land use with minimal restrictions related to shallow soil. However, a LUC will be required because impacted deep soil will still remain in place. In addition, if impacted shallow soil has to remain in place in an area due to physical constraints, LUC will also cover that area. Alternative 4 allows for effective mitigation of potential indoor air issues. However, a LUC will be required to prevent the use of the Site for residential purposes. In addition, following the construction of the compressor building, and the completion of the indoor air sampling, a report will be prepared based on the review of the operation manual for the building, and the results of the indoor air sampling. The report will include an evaluation of building operation and whether an Operation and Maintenance (O&M) plan should be required. The report will be submitted to DTSC for review and comment. Then a decision will be made in concurrence with DTSC regarding the necessity for an O&M for the Compressor Building.

Alternatives 1, 2, 3, and 4 are readily implementable. Alternative 1 is the easiest to implement. Alternatives 2 is easier than Alternatives 3 and 4 to implement because activities are largely administrative.

Alternative 1 has no estimated cost. Alternative 2 is less expensive than Alternative 3, with estimated costs of $126,424 versus $664,424, respectively (Table 10). The cost for Alternative 4 is estimated at $42,000 for one round of indoor air sampling. The estimated costs for preparation and implementation of LUC, annual inspections and five-year reviews are included for Alternative 3. Therefore, these costs are not repeated as part of the Alternative 4 estimated costs. As mentioned above, the details of the estimated costs associated with annual LUC inspections and five-year

reviews are summarized in Table 11. A cost for ventilation of the Compressor Building is not included based on the understanding that ventilation of the Compressor Building is part of the normal operation of the Buildings. Therefore, no cost is included for the design, construction, or operation of the ventilation system. However, a review of the operation and maintenance of the ventilation system will be included in each of the annual site inspection reports.

Implementation of the soil removal portion of Alternative 3 is discussed in detail in Section 8.0.

8.0 REMOVAL ACTION PLAN

This section presents the plan for the removal actions proposed for the southern portion of the Site. The RAOs developed for the southern portion of the Site are discussed in Section 5.0. The RAOs for the shallow soil (top 15 feet) at the southern portion of the Site is to eliminate potential future exposure of humans (hypothetical future residents, onsite workers, intrusive construction workers, and visitors) to the COPCs in shallow soil through inhalation, dermal absorption and/or ingestion, and thereby eliminate future land use restrictions. For vapor intrusion pathway, the RAOs include designing mitigation measures to protect human receptors (onsite workers) from potential intrusion of COPCs into indoor air of the planned Compressor Building at the southern portion of the Site.

The proposed remedial plans to address shallow impacted soil and vapor intrusion are discussed below.

8.1 Proposed Removal Activities

Proposed removal activities in the southern portion of the Site include removal of the impacted shallow soil and mitigation measures for vapor intrusion into the proposed new Compressor Building. These plans are discussed in the following sections.

8.1.1 AREA AND VOLUME OF SHALLOW SOIL REMOVAL

Areas and volumes of impacted soil were estimated based on data obtained during the SRI (NOREAS, 2020a) and the results of the confirmation samples collected during the remediation of Parcel A, as presented in RACR (Tetra Tech, 2009). Consistent with the results of the HHRA (Section 4.0), the initial excavation targets for CPAHs, expressed in B(a)P equivalent concentrations, arsenic, and lead are established at 0.9 mg/kg, 12 mg/kg, and 80 mg/kg, respectively. In addition, areas with TPHs exceeding residential HBGs are slated for excavation. The initial areas targeted for soil removal are depicted in Figure 6. The average depth of the removal is estimated at 3.5 bgs. However, some areas are expected to be excavated to 5 feet or deeper. The actual depth will be determined during the removal action based on field observation and the results of confirmation sampling. Based on the extent of impact shown in Figure 6, the total volume of impacted soil requiring remediation is estimated to be approximately 1,700 cubic yards (2,500 tons).

As shown on Figure 6, the area targeted for soil removal is located adjacent and south of the area of excavation in Parcel A, mainly along the western boundary of the southern portion of the Site. This will require demolition of the existing office and warehouse buildings. A post-remediation health risk assessment for the southern portion of the Site will be conducted (as discussed in Section 10.0) to ensure that the overall health risks associated with shallow soil to future hypothetical residents at the southern portion of the Site will be within the acceptable risk range.

Details of the removal of the shallow soil are presented in Section 9.0.

8.1.2 MITIGATION MEASURES FOR VAPOR INTRUSION

As discussed in Section 4.0, soil vapor sample concentrations exceeded the residential HBGs screening levels for the following compounds: TPH-g, benzene, 1,4-dichlorobenzene, ethylbenzene, MTBE, naphthalene, and vinyl chloride in the area of the proposed Compressor Building. As noted in the SRIR (NOREAS, 2020a) several of these compounds (i.e., MTBE, 1,4-dichlorobenzene, VC) are not related to MGP operations, and some (i.e., benzene, TPH, and naphthalene) may be related to multiple sources, including but not limited to MGP operations. It should be noted that TPH-g, TPH-d, and MTBE were also associated with the former UST at the southern portion of the Site. As such, a good portion of these compounds, if not all, are most likely related to residual groundwater impact, mainly originating from upgradient offsite sources such as Parcels B and C. Consequently, potential remediation of groundwater or soil vapor at the Site will not be practical because of presence of offsite sources. Therefore, it is prudent to consider mitigation measures for the planned future Compressor Building at the southern portion of the Site.

Based on the current design, the proposed new Compressor Building will be 162.5 feet long, 60 feet wide, and 41.8 feet high. The Compressor Building will house four large gas compressors. The building floor slab will be built five (5) feet above the grade. The foundation for each gas compressor is 30.5 feet long, 18 feet wide and 12.5 feet thick. In addition, concrete lined grate-covered trenches (pipe galleries) will surround the compressor foundations. The trenches will be covered with steel grates and house gas lines to and from the compressors. The proposed Compressor Building will be equipped with an approximately 153-foot long roof-ridge ventilator to allow indoor air to be evacuated into the atmosphere. The Building will also be equipped with at least three (3) wall mounted air supply fans, installed approximately 9 feet above the floor of the building to supply air into the building. Accordingly, the building will be ventilated at a minimum rate of 6 air changes per hour during normal operation, per the requirements in API RP 500[8].

The design of the proposed new Compressor building (12-foot thick foundation for Compressor Engines and trenches throughout the building for gas pipes) will make a potential design and installation of a vapor barrier very difficult, if not impossible. Therefore, ventilation of the building is considered as the most practical mitigation method. However, the design and operation of this building, which requires the building to be ventilated at a minimum rate of 6 air changes per hour during normal operation, will negate the need for any additional measures.

[8] American Petroleum Institute (API) RP 500 – Recommended Practice for Classification of Locations for Electrical Installation at Petroleum Facilities Classified as Class I, Division 1 and Division 2.

9.0 SHALLOW SOIL REMOVAL ACTION IMPLEMENTATION

This section presents detailed procedures for implementation of the removal action, related to the impacted shallow soil at the southern portion of the Site. As discussed in Section 8.1.1, soil impacted with CPAHs, arsenic and lead will be excavated from the area of the southern portion of the Site shown in Figure 6. The excavated soil will be transported offsite for treatment and/or disposal. The depth of the removal is estimated at 3.5 bgs. However, the actual depth will be determined during the removal action based on field observation and the results of the confirmation sampling. Based on the depth and extent shown in Figure 6, the total volume of impacted soil requiring removal is estimated to be approximately 1,700 cubic yards (2,500 tons).

9.1 Permitting/Notifications

The necessary permits for soil removal activities, transportation, and air quality will be obtained prior to Site mobilization. Copies of the permits will be kept onsite during working hours and will be made available for inspection. The anticipated permits to be secured and rules to be adhered to during soil removal may include, but are not limited to the following:

- Excavation and grading permit.
- Cal-OSHA permits.
- Waste transportation route permit and encroachment permit (if necessary).
- VCAPCD applicable permits.

Other permits are not anticipated. However, the procedures proposed for removal activities will comply with federal, State, and local rules and regulations, regardless of whether permits will be required.

9.2 Preparatory Activities

Preparatory activities and meetings will follow SoCalGas guidelines and procedures, as described in the following sections.

9.2.1 KICK-OFF MEETING

At least 2 weeks prior to the start of field activities, a kickoff meeting will be held between SoCalGas, oversight engineer, remedial contractor, and any pertinent subcontractors. The purpose of this meeting will be to develop a mutual understanding of the remedial activities.

9.2.2 HEALTH AND SAFETY PLAN

The Health and Safety Plan (HASP) prepared for the southern portion of the Site and submitted as a stand-alone document. The HASP has been prepared by NOREAS in accordance with California Code of Regulations (CCR) Title 8. The HASP includes hazard evaluation, key personnel, training requirements and certifications, personal protective equipment requirements, and site control measures at a minimum. The HASP will be implemented during all field activities related to this Removal Plan.

9.2.3 SURFACE GEOPHYSICAL SURVEYING

Prior to any excavation activities, the Site will be marked and Underground Service Alert (Dig Alert) of Southern California will be notified to identify potential underground service lines within and near the area of excavation. In addition, a surface geophysical survey will be conducted over the proposed excavation area using ground-penetrating radar (GPR) and/or an electromagnetic instrument (EMI) or equivalent technologies. Standard utility marking colors (paints, stakes, or flags) will be used to mark the identified utilities within the vicinity of the excavation areas. If utilities are identified, the intent will be to excavate around them and provide structural support as needed. Excavation around the piping will be performed in such a manner to avoid any damage to the existing piping. Hand excavation (to uncover utilities) may be required in some cases when the excavation is within 5 feet of the utility.

9.2.4 ADDITIONAL INVESTIGATION

To further define the excavation limits and procedures, additional investigation will be performed. The additional investigation will include collecting shallow soil samples (2 to 5 feet) in the vicinity of B1, B2, and B15 to further define the extent of soil impacted with lead, arsenic, and PAHs. Due to presence of large cobbles and boulders, which makes drilling and soil sampling very difficult, samples will be collected from small potholes, using a small backhoe. Select samples will be submitted to an analytical laboratory and analyzed for PAHs by US EPA Method 8310, TPH-g, TPH-d, and TPH-h using EPA Method 8015, and lead and arsenic by EPA Method 6010B.

As mentioned above, the additional investigation is primarily meant to more accurately define the area of excavation prior to the start of the excavation. The results should also help to segregate the excavated soil for profiling purposes. Some of the results that represent the soil that ultimately will remain in place will be used in post-remediation risk assessment. The most important point to be emphasized is that all the soil that exceed the cleanup levels will be removed based on field observations and/or confirmation sampling. If impacted soil has to remain in place in an area due to physical constraints, samples will be collected from that area and analyzed to document the remaining impacted soil.

9.3 Mobilization

Mobilization activities will include movement of equipment and materials to the Site, and orientation and training of field personnel. Additionally, project-specific personnel and all permit required notifications (e.g. Haul Route Permit), will be notified regarding the planned schedule for mobilization and soil excavation activities.

9.3.1 PREPARATION OF WORK AREAS

Upon receipt of the approved records and authorizations, field personnel, temporary facilities, and required construction materials will be mobilized to the Site. The temporary facilities will include, but are not limited to, restrooms, security fencing (if needed), runoff controls, small equipment, and material storage area, as needed.

The majority of equipment and materials will be mobilized to the Site on an as-needed basis to minimize storage requirements and to prevent the spread of contamination by the project equipment. Dedicated laydown areas, to be established in the field during mobilization, will be used for short-term storage of equipment and materials.

9.3.2 VCAPCD Rules Implementation

As discussed in Section 9.6.4, during all field activities, VCAPCD Rules related to opacity, fugitive dust control, nuisance, and emission of volatile organic compounds (if any) will be implemented. Accordingly, real-time air/dust monitoring along the eastern, western, and southern property boundary will be conducted to ensure protection of adjacent offsite receptors during soil excavation. Additional information regarding air monitoring is provided in Section 9.6.4

9.3.3 Temporary Fencing and Barricade Installation

The Site is already fenced at the perimeters and secured. In addition, per the request of onsite SoCalGas personnel (if any), the designated construction area may need to be fenced off and secured to provide additional protection and safety for onsite personnel and equipment, and to prevent unauthorized access. The existing perimeter fences and construction area fences (if any) will be covered with a visual barrier (tarpaulins), as needed. During nonworking hours, the fencing will be fully closed and locked. During all removal activities, Site access will be restricted to authorized personnel only.

9.3.4 Soil Stockpile Area Construction

Efforts will be made to direct-loaded excavated soil will to trucks for offsite treatment and disposal. As discussed in the following sections, the soil impacted with PAHs, arsenic, and/or lead may have to be disposed at different disposal facilities. Therefore, based on the results of the additional investigations (Section 9.2.4), the soil in certain areas may have to be excavated and loaded separately for transportation and disposal purpose. If needed, the excavated soil may be stockpiled temporarily within the construction area for profiling purposes, in accordance with the requirements of VCAPCD. A plastic membrane will be placed on at the bottom and top of the soil if any temporary stockpile must be located outside the area scheduled for excavation. Soil excavated from areas impacted with PAHs, arsenic, and lead will be stockpiled separately, as needed.

The temporary stockpile height may not be greater than the top of perimeter Site fence at any time and stockpiled soils will be disposed of off-site by the end of each day. In cases that this is not possible, the temporary stockpile will be covered with plastic that is weighed down to avoid being displaced from covering the stockpile.

9.4 Soil Excavation

The impacted soils will be generally excavated in an open excavation, using an excavator or backhoe. The excavation is anticipated to be shallow (approximately 3.5 feet) and sidewall failure is not expected. Nevertheless, daily inspections will be performed by a competent person to assess the stability of sidewalls and excavated areas. Excavations will be conducted in accordance with CCR Title 8, Section 1539 through 1543, and 29 Code of Federal Regulations (CFR), Parts 1910 and 1926. Excavation activities will be under the supervision of a field engineer or geologist experienced in the safe practices associated with excavation, handling, and transportation of hazardous materials.

9.4.1 Confirmation Sampling and Analysis

Confirmation soil samples will be collected from the floor and sidewalls of the excavations, in accordance with the Sampling and Analysis Plan (Attachment D). Excavation floor confirmation samples will be collected at a spacing of 30 feet. Sidewall samples will be collected at 30-foot intervals, in the midpoint (vertically) of the sidewall. Preliminary locations of the confirmation samples are shown on Figure 6. If the soil excavation extends beyond four feet bgs, additional sidewall samples will be collected from deeper intervals (e.g., every two feet) to ensure the excavation boundary is properly defined vertically.

The confirmation samples will be analyzed for VOCs using EPA Method 8260B, TPH-g, TPH-d, and TPH-h using EPA Method 8015, PAHs using EPA Method 8310, and Metals using EPA Method 6010B/7000.

If confirmation samples indicate concentrations above the target remediation goal in the base of the excavation, a 1-foot lift will be excavated below the base in the location containing the exceedance, and an additional confirmation sample will be collected. If confirmation samples results are below the remediation goals, excavations at those locations will cease and the excavation will be backfilled.

A Quality Assurance/Quality Control (QA/QC) plan has been prepared for confirmation sampling and analysis and is included as Attachment E. The Plan describes the protocol and specifications for sample collection, processing, detection limits, holding times, and documentation (i.e., chain of custody).

9.4.2 Backfill Placement and Compaction

The excavation area will be backfilled using clean fill material to three (3) inches below the surrounding grade. Imported clean fill material will be sampled and approved according to the DTSC and SoCalGas requirements.

Imported fill material[9] will be obtained from a SoCalGas approved source that has been determined to contain no hazardous chemicals above screening level concentrations. The fill will be non-expansive and inorganic. Imported fill will have sufficient binder to prevent caving during placement and compaction. The fill material will be classified as SP (poorly graded sand or poorly graded sand with gravel), SW (well graded sand or well graded sand with gravel), or SM (silty sand or silty sand with gravel) in accordance with the Unified Soil Classification System (ASTM 1998). The fill material will be placed in the excavation in no thicker than 8-inch loose lifts, water added, or the soil dried back, until the moisture content is within 2% of optimum and then compacted in lifts. The fill material will be compacted to a minimum relative compaction of 90 percent with respect to the maximum dry density as determined in accordance with the ASTM D 1557 testing method. A minimum of one in-place density test will be performed for each 2,500 square feet per lift of fill placed.

For those areas ready for receiving new fill, the exposed subgrade will be scarified to a depth of 4-inches, moisture-conditioned to approximately 2 percent above optimum, and compacted in accordance with the recommendations for fill presented in this subsection. The finished compacted subgrade will be firm and non-yielding under the weight of compaction equipment.

9.4.3 SITE RESTORATION

Following completion of placement and compaction of the fill material, the remaining area of the excavation will be backfilled with a minimum of three inches of ¾" gravel that will serve as an erosion control measure.

9.5 Transportation and Offsite Disposal

The waste generated during the remedial actions (see Section 9.5.1) will be transported to appropriate offsite facilities for treatment and/or disposal. These facilities are discussed in Section 9.5.5.

9.5.1 WASTE STREAMS

Waste streams generated during the remedial action will likely include:

- PAH impacted soil
- Arsenic impacted soil
- Lead impacted soil
- Uncontaminated debris such as daily trash

[9] Prior to importing the fill material to the Site, it will be tested following the DTSC Clean Fill Advisory (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP_FS_Cleanfill-Schools.pdf) for sampling and analysis of candidate borrow sources. The test results will be provided to DTSC for review prior to importing.

- Personal protective equipment, used sampling equipment, and liners
- Decontamination water

Prior to offsite transport, treatment, recycling or disposal, the wastes will be profiled in accordance with Title 22, Division 4.5 of the California Code of Regulations and/or the requirements of the offsite facilities.

9.5.2 Loading and Sealing of Trucks

Trucks will be used for the offsite transportation of impacted soil and debris. Trucks will be backed in toward the excavation area from N. Olive Street and will remain on clean areas at all times in order to minimize the need to decontaminate the truck tires. Excavated soil will be direct-loaded in to trucks where practical to avoid double handling. Loading of trucks will be performed in accordance with the requirements of VCAPCD. Alternatively, the excavated soil may temporarily be stockpiled before loading onto trucks, as discussed in Section 9.4. Stockpiling activities will be performed in accordance with the requirements of VCAPCD. Great care will be exercised to prevent spillage of soil during loading, and to prevent the dispersion of dust. If decontamination becomes necessary, it will be conducted in accordance with the Health and Safety Plan for the Site. Trucks will be equipped with covers to prevent release of potential dust and emissions during staging and transport.

9.5.3 Documentation and Records Retention

Prior to offsite disposal of any waste, manifests will be provided and reviewed by a SoCalGas representative for accuracy. Only SoCalGas designated personnel have the authority to sign disposal documents including the profile, waste manifest, Land Disposal Restriction (LDR), and certain other documents as required by the disposal facility.

Every load of waste material will be manifested with either a nonhazardous or hazardous waste manifest, as appropriate, prior to leaving the Site. At a minimum, the manifest form will include the following information:

- Generator information including name, address, contact, phone number.
- Transporter information including name, address, contact, phone number.
- Designated facility information including name, address, phone number.
- Site name including street/mailing address.
- DOT proper shipping name (e.g., hazardous waste solid, Not Otherwise Specified (N.O.S.), 9, UN 3077, PG III [D008]).
- Type and number of containers.
- Quantity of waste (volumetric estimate).
- Waste codes.

- Profile number.
- 24-hour emergency phone number.

The SoCalGas representative and the transporter must sign the manifest prior to the load of waste leaving the Site. If waste is hazardous, an LDR certification also will be required to accompany the manifest during transportation to the disposal facility. A copy of the "generator's initial copy" signed by the generator and transporter will be sent to the State of California Department of Toxic Substance Control (DTSC) within 30 days of waste pickup.

If any signed hazardous waste manifest from the designated facility is not received within 35 days, the generator must contact the transporter or the designated facility to determine the status of the waste. If the signed hazardous waste manifest has not been received within 45 days, the generator must submit an "Exception Report" to DTSC, as required under 22 CCR 66262.42.

9.5.4 TRAFFIC CONTROL

Traffic controls will be used for the safe and efficient implementation of the remedial action, while minimizing impacts to normal traffic. Traffic controls will be required during waste transportation activities. Traffic controls may include, but will not be limited to, the following:

- Loading and hauling of impacted soil and debris as well as delivery of imported clean materials, and equipment during off-peak hours to minimize disruption to local traffic; and,
- Flaggers used during the hauling of impacted soil and debris and delivery of imported borrow fill.

In order to prevent congestion of Site access roads during loading and hauling operations, no trucks will be allowed to queue along neighboring streets.

Other project-specific measures will be used to minimize the impacts of the construction activities. These measures include the following:

- Provide sufficient area to park all vehicles during construction, including parking for haul trucks.
- Traffic control activities shall conform to the applicable specifications of the State of California Manual of Traffic Controls for Construction and Maintenance Work Zones (Caltrans, 1996) and will be approved by SCE.

9.5.5 TREATMENT AND DISPOSAL FACILITIES

The excavated soil impacted with PAHs and arsenic will be transported to Soil Safe, located in Adelanto, California. The Soil Safe facility is approved by SoCalGas as a thermal desorption treatment/recycling facility. In the event profiling is indicative of elevated arsenic concentrations that exceed Soil Safe permit requirements, arsenic-impacted soil will be transported to an

appropriate disposal facility approved by SoCalGas. The soil impacted with lead will be transported to an approved facility approved by SoCalGas.

The excavated soil will be chemically profiled prior to shipment to Soil Safe or other appropriate facilities to ensure that it meets the standards under their permit requirements.

Water generated as a result of decontaminating the sampling tools or equipment will be placed inside 55-gallon, Department of Transportation (DOT)-approved drums. The drums will be labeled, and the contents will be profiled. Upon completing the waste profile, the drums will be transported to an appropriate recycling facility approved by SoCalGas.

9.5.6 TRANSPORTATION ROUTES

Trucks will use the transportation route shown on Figure 7 for transportation to Soil Safe in Adelanto, California. In the event profiling is indicative of elevated arsenic concentrations that exceed Soil Safe permit requirements, the arsenic-impacted soil will be transported to an appropriate waste facility approved by SoCalGas. The soil impacted with lead will be transported to an appropriate waste facility approved by SoCalGas.

9.6 Mitigation Measures

The following sections address mitigation measures during the soil removal activities. These measures include noise control, stormwater management, dust and odor control, and air monitoring.

9.6.1 NOISE CONTROL

To effectively manage noise levels during the Site remediation, equipment operation will be limited to Monday through Friday. Occasional servicing of equipment and other non-equipment-based activities may be conducted during weekends. If any noise complaint is received during the removal activities, appropriate measures will be taken to implement additional engineering controls to reduce the noise levels. These measures may include the following:

- Mufflers may be used on equipment;
- Sound barriers may be installed to deflect sound from sensitive areas;
- Alternate equipment may be considered; and,
- Operation times may be modified.

9.6.2 STORMWATER MANAGEMENT

The targeted area of the excavation is approximately 20,000 square feet, which is significantly below the one-acre threshold for preparation of a formal Stormwater Pollution Prevention Plan (SWPPP) under the Construction General Permit. However, the selected remediation contractor will be required to develop a project-specific Erosion and Sediment Control Plan (ESCP) that will be in part based on the contractor's remedial approach. That is, the ESCP will be based in part on how and where the selected contractor stages equipment and materials.

The purpose of the ESCP is to control run-on runoff and such that excess sediment is contained and does not enter the local storm drain system and reach creeks that eventually reach the Pacific Ocean. Prior to removal action activities, the storm drains onsite and near the Site (offsite), if any, will be located and temporarily protected by placing a waterproof cover over the drains or placing berms (e.g., sand bags) around them to prevent an unauthorized discharge into storm drain. These temporary controls will be inspected daily to ensure proper placement and integrity.

During excavation activities, and in case of heavy rainfall, the excavation areas will be covered with heavy plastic sheets or will be protected by placing berms around the excavation area to prevent water run-on or run-off. In addition, sump pumps or a vacuum truck may be used to keep all excavations free of water. Any exposed soil will remain covered if rain continues for several days. All soil stockpiles will be covered with plastic and surrounded by berms.

In addition, the stormwater management activities will include the identification and implementation of best management practices (BMPs) to reduce sources of sediment and other pollutants that may affect stormwater discharges, in accordance with the California Stormwater Quality Association (CASQA) BMP Handbook. Prior to beginning excavation of impacted soil, the contractor will implement BMPs for field activities. On an as needed basis, the BMPs for erosion and sediment control may include:

- Silt fence or straw wattles to be used along the perimeter of the area to be excavated to redirect and filter stormwater flow.
- Sand or gravel bags to be used as a drainage diversion, sediment trapping, and stormwater velocity/erosion control.
- Street sweeping and vacuuming will be used as necessary to ensure that sediments are not tracked offsite. This will be implemented on the paved areas adjacent to the excavation.

9.6.3 DUST AND ODOR CONTROL

Dust control measures will be implemented at the Site during the removal activities to reduce the potential for fugitive dust and migration of contamination, including, but not limited to, the following measures:

- The Site perimeter fencing will be fitted with low permeability windscreen, which reduces the potential for fugitive dust.
- Work will not be conducted when 15-minute average wind speeds exceed 15 mph, or when instantaneous wind speeds exceed 25 mph.
- Dust suppression will be performed by lightly spraying or misting the active work areas (i.e., the working face and other points of dust generation) with water.
- Work will stop when visible dust is noticed, and additional misting of the area will be performed prior to continuing work.
- Efforts will be made to minimize the soil drop height from the excavator or loader bucket into the transport trucks and misting will be used to minimize dust.
- After the soil is loaded into the transport trucks, the soil will be covered (tarped) to prevent soil from spilling out of the truck during transport to the treatment/recycling facility.
- While on the Site, vehicles will maintain slow speeds (i.e., less than 5 mph) for safety purposes and for dust control measures.
- Track-out of particulates onto public paved roadways will be controlled by implementing a series of rumble plates and dry decontamination to remove bulk material from tires and trucks undercarriage before they exit the Site. In addition, the remedial contractor will clean the truck tires prior to exit from the site so that no soil track is left on offsite roads. Trucks will be loaded one truck at a time, to reduce any traffic congestion. Trucks will not enter the active excavation area, rather will be temporarily staged outside and radioed in one at a time.
- Street sweeping procedures will be implemented, as necessary, to reduce the potential for fugitive dust and migration of contamination.

9.6.4 AIR MONITORING

Prior to the start of the project, the contractor will contact VCAPCD to verify that the project will be exempt from VCAPCD permits as was the case during previous removal actions in Parcel A. However, compliance with VCAPCD Rule 50 (Opacity), Rule 51 (Nuisance), and Rule 55 (Fugitive Dust), and 74.29 (Soil Decontamination Operations) will be required. The Contractor will comply with all the applicable rules, in accordance with the requirements of the VCAPCD.

Airborne dust monitoring will be conducted using portable hand-held dust monitors to verify and document daily dust suppression efforts as well as using upwind and downwind sampling stations. As mentioned previously, fugitive dust control measures will be implemented at the Site to mitigate offsite dust migration onto neighboring properties through light watering of the active excavation area throughout the removal action activities. Factors considered in providing fugitive dust control measures include wind direction and speed monitoring, dust control, and dust suppression.

During excavation activities, dust monitoring through visible observations and continuous real time monitoring equipment equipped with data loggers will be conducted to ensure that dust suppression is sufficient to prevent visible dust from crossing the property boundary and creating a nuisance in violation of VCAPCD rules.

The National Ambient Air Quality Standard (NAAQS) for dust is 50 micrograms per cubic meter ($\mu g/m^3$), based on dust particles measuring 10 micrometers or less (PM10). The NAAQS dust standard (50 $\mu g/m^3$), steady for five minutes, has been selected as the action level for dust monitoring activities at the perimeter of the property (difference between upwind and downwind readings).

The action level for dust for the equipment operators and workers will initially be set at 2 milligrams per cubic meter (mg/m^3) steady for five minutes. This action level will trigger increased dust suppression activities to mitigate dust levels below 2 mg/m^3. Respiratory protection will be worn by the craft field labor if dust levels exceed 2 mg/m^3 for greater than five minutes. Additional dust suppression activities will be applied to reduce dust levels below 2 mg/m^3.

Dust monitoring and visible observations will be conducted to ensure compliance with VCAPCD regulations which require that dust suppression be adequate to prevent visible dust from crossing the property boundary. Track-out of particulates onto public paved roadways will be controlled by cleaning truck tires before the trucks leave the Site and by providing street sweeping as necessary on adjacent streets.

Vapor monitoring will be conducted during excavation activities and transport and disposal activities, in accordance with VCAPCD Rule 74.29. Monitoring will be conducted using a photo-ionization detector (PID) in the work area and in the operator's breathing zone to document the absence of any VOCs within the work area.

9.7 Demobilization and Decontamination

Demobilization will consist of decontamination of all equipment, cleaning the project Site, inspection, and certification of completion. The activities will include decontamination and removal of all construction equipment and materials as well as collection and disposal of all contaminated material, including decontamination water.

Temporary storage and sanitary facilities, fencing and barricades, and other temporary structures added during the removal action will be removed following the completion of work.

9.7.1 Equipment and Tool Decontamination

Prior to removal from the Site, decontaminated equipment and material will be inspected and accepted by the Site Superintendent. The Site Superintendent will certify that decontamination was performed for all equipment and materials. Heavy equipment and other moving vehicles will be subject to the requirements of VCAPCD. Heavy equipment will be decontaminated using dry methods, a pressure washer and/or steam cleaner, or equivalent. Special attention will be paid to removal of material on and within the bucket, undercarriage and tires of the excavators and other equipment. Decontamination of temporary facilities will be limited to exterior cleaning.

9.7.2 Pre-Final Inspection

Site cleaning work will include cleaning of all areas used for construction; removal of all materials such as excess construction material, wood, debris, and other foreign material; and removal of all construction equipment. All office and storage trailers will be disconnected from utilities, removed, and returned to the rental company. A pre-final inspection will be conducted by a SoCalGas representative during demobilization activities. Outstanding items will be noted in the punch list and will be corrected prior to the final inspection.

10.0 POST REMEDIATION ACTIVITIES

The post-remediation activities are focused on shallow soil (0 to 15 feet) and vapor intrusion. These activities are discussed separately in the following sections.

10.1 Shallow Soil Post-Remediation

As discussed in Section 5.0, the fundamental remedial action objective for the shallow soil is to minimize potential future exposure of humans (hypothetical residents, site workers, construction workers, and visitors) to the COPCs in soil, thereby reducing or eliminating future land use restrictions.

To meet this objective, the remedial action goal is set to restore the shallow soils (0 to 15 feet) at the southern portion of the Site to background conditions such that hypothetical future residents (in a hypothetical residential scenario) will have no more exposure to PAHs and arsenic than they would have in the absence of the former MGP. In addition, the lead-impacted soil will be removed at or above concentrations exceeding the risk-based level. The goal, following remediation, is to be able to support the finding that residual levels of PAHs and arsenic are within the range of background concentrations, and that the cumulative cancer risks and noncancer hazards posed by all other residual chemicals are considered safe and acceptable for future unrestricted residential land use.

Following excavation, confirmation soil samples will be collected and analyzed for VOCs, PAHs, metals, and TPH. A post-remediation risk assessment will be conducted to document that the cumulative cancer risks and noncancer hazard posed by post-remedial conditions are acceptable and protective of a hypothetical future residential land use scenario. As part of the post-remediation risk assessment, statistical analyses will be conducted to compare post-remediation concentrations of CPAHs and arsenic against background concentrations and to confirm that concentrations of CPAHs and arsenic have been restored to background conditions. In addition, soil with concentrations of other chemicals (for example lead) exceeding the acceptable residential level has been removed and transported offsite for treatment/disposal.

If these criteria are met, SoCalGas will apply for a Certificate of Completion for shallow soil for the southern portion of the Site, following the DTSC's review of a comprehensive Completion Report that evaluates the results of the post- remediation conditions.

10.2 Vapor Intrusion Mitigation Measure

As discussed in Section 4.0, soil vapor concentrations exceeded the risk-based levels for industrial/commercial scenario beneath the proposed new Compressor Building. As discussed in Sections 3.2 and 4.0, the presence of VOCs in soil vapor is consistent with previous assessment data that indicate that VOCs in deep soil are likely related to residual groundwater impact, mainly

originating from upgradient sources in Parcels B and C. Therefore, remediation of groundwater or soil vapor from upgradient sources is not practical. As such, soil vapor mitigation measures should be considered for the proposed new Compressor Building. As discussed previously, operation of a ventilation system at Compressor Building is deemed to be the most effective mitigation measures for the proposed new Compressor Building. In addition, one round of post mitigation indoor-air sampling and analysis is proposed to make sure that the mitigation measures work as intended.

Once design drawings for the compressor building are complete, an Operations and Maintenance (O&M) plan will be developed for review by DTSC. The intent of the O&M Plan will be to outline the specific criteria that will be used to ensure that the building is adequately ventilated

10.3 Remedial Action Completion Report (RACR)

The goal, following remediation, is to be able to support the finding that residual levels of PAHs and arsenic are within the range of background concentrations, lead concentration is below the residential cleanup level, and that the cumulative cancer risks and noncancer hazards posed by all residual chemicals in shallow soil (0 to 15 feet) are considered safe and acceptable for future unrestricted residential land use. To achieve this goal, confirmation soil samples will be collected and analyzed for PAHs, metals, TPH, and VOCs. The analytical results will be used in a post-remediation health risk assessment, the result of which will be presented to the DTSC in a RACR. The RACR will evaluate post-remediation conditions at the southern portion of the Site. SoCalGas will apply for a Certificate of Completion following the DTSC's review of the RACR.

10.4 Land Use Covenant (LUC)

As discussed in Section 5.0, the fundamental remedial action objective for the shallow soil is to minimize potential future exposure of humans (site workers, hypothetical residents, construction workers, and visitors) to the COPCs in soil, thereby reducing or eliminating future land use restrictions. Following soil removal discussed in Section 7.4, 8.0, and 9.0 it is anticipated that no restriction will be necessary for the shallow soil at the Site. However, a LUC will be required for shallow soil if the unrestricted land use criteria cannot be met due to physical constraints. In addition, as discussed in Sections 5.1 and 7.5, following shallow soil remediation, residual soil contamination in deeper soil (e.g., B1, B3, B5, and B6 at 30 feet or 35 feet bgs), as well as vapor concentrations are expected to remain in soil, requiring a LUC to prevent the potential use of the southern portion of the Site for future residential uses. The LUC will stipulate that a soil management plan will be required if the impacted soils are to be disturbed in the future. In addition, in case other buildings are planned at the Site, the LUC will require SoCalGas to evaluate proposed locations for potential risks associated with vapor intrusion and take adequate precautions for protection of human health and safety of the building occupants.

11.0 PROJECT SCHEDULE

The tentative schedule for remedial action at the southern portion of the Site work is listed below.

Site Remediation:	Within 90 Days of RAW approval
Draft Completion Report to the DTSC:	Within 90 Days of Remediation Completion

The above tentative schedule was projected based on information available at the time of preparation of this document. The schedule may be modified based on potential circumstances outside the control of SoCalGas.

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TABLES

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B1								B2							
Sample ID:	Units	B1-2	B1-5	B1-10	B1-15	B1-20	B1-25	B1-30	B1-35	B2-2	B2S-4.5	B2S-10	B2S-15	B2S-20	B2S-25	B2S-30	B2S-35
Sample Date:		2/12/2020	2/13/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/12/2020	2/12/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020
Laboratory Job Number:		103529	103581	103599	103599	103599	103599	103599	103599	103529	103529	103617	103617	103617	103617	103617	103617
TPH Using GC/FID Method (M8015D)																	
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	**2.77**	**5.86**	**0.541J**	**0.184J**	**0.233J**	ND<0.100	**2.45**	**3.42**	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.168J**	**0.417J**
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	**353**	**102**	**8.50**	ND<1.0	**5.50**	**4.00J**	**384**	**880**	**4.90J**	ND<1.0	ND<1.0	ND<1.0	**13.5**	ND<1.0	ND<1.0	**5.87**
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	**1,550**	**465**	**27.2**	ND<1.0	ND<1.0	**2.70J**	**74.9**	**67.9**	**105**	**40.7**	ND<1.0	ND<1.0	**15.5**	ND<1.0	ND<1.0	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	**1,900**	**567**	**35.7**	ND<1.0	**5.50**	**6.70**	**459**	**948**	**110**	**28.7**	ND<1.0	ND<1.0	**29.0**	ND<1.0	ND<1.0	**5.87**
VOCs by GC/MS (SW846) Method (8260B)																	
Benzene	ug/Kg	ND<39	ND<5	**1.66J**	**3.69J**	**3.45J**	**3.50J**	ND<1.0	ND<55	**1.30J**	**2.37J**	**1.21J**	**1.73J**	**2.81J**	**2.31J**	**1.85J**	**1.34J**
n-Butylbenzene	ug/Kg	ND<195	ND<25	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<195	ND<25	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	**331J**	**65.5**	**23.2**	**5.27J**	ND<5.0	ND<5.0	**8.88J**	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<195	**98.0**	**11.9**	**4.13J**	ND<5.0	ND<5.0	ND<5.0	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<39	ND<5	**1.02J**	**1.35J**	**1.34J**	ND<1.0	ND<1.0	ND<55	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**2.01J**	**1.30J**	**1.95J**	**3.30J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<78	ND<10	**3.52J**	**2.01J**	ND<2.0	ND<2.0	ND<2.0	ND<110	**3.07J**	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<195	ND<25	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<195	ND<25	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	ND<39	ND<5	**2.45J**	**7.52J**	**4.52J**	**6.95J**	ND<1.0	ND<55	**1.22J**	**2.57J**	**1.36J**	**2.88J**	**8.40J**	**4.84J**	**2.36J**	**4.01J**
1,2,4-Trimethylbenzene	ug/Kg	ND<195	ND<25	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<275	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<39	ND<5	ND<1.0	**1.22J**	ND<1.0	ND<1.0	ND<1.0	ND<55	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.77J**	ND<1.0	ND<1.0	ND<1.0
m,p-Xylenes	ug/Kg	ND<39	ND<5	**1.24J**	**3.61J**	**2.56J**	**3.70J**	ND<1.0	ND<55	ND<1.0	**1.16J**	ND<1.0	**1.39J**	**5.72J**	**3.20J**	ND<1.0	**1.83J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - not detected at or above indicated method detection limit
ND - indicates constituents not detected (refer to original laboratory reports for detection limits)

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B3								B4							
Sample ID:	Units	B3-2.5	B3-5	B3-10	B3-15	B3-20	B3-25	B3-30	B3-35	B4-1.5	B4-4.5	B4-10	B4-15	B4-20	B4-25	B4-30	B4-35
Sample Date:		2/11/2020	2/11/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/11/2020	2/11/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020
Laboratory Job Number:		103503	103503	103599	103599	103599	103599	103599	103599	103503	103503	103641	103641	103641	103641	103641	103641
TPH Using GC/FID Method (M8015D)																	
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	**0.197J**	**0.190J**	**0.284J**	**0.250J**	**0.193J**	**4.12J**	**546**	**75.4**	ND<0.100	ND<0.100	**0.223J**	**0.253J**	**0.144J**	**0.263J**	**0.768J**	**0.782J**
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	**7.20**	**7.60**	**5.50**	ND<1.0	**4.20J**	**38.3**	**373**	**148**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**5.90**	**9.60**
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	**142**	**138**	**5.80**	ND<1.0	**6.10**	**5.20**	**47.7**	**17.0**	ND<1.0	**26.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**3.80J**
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	**149**	**146**	**11.3**	ND<1.0	**10.3**	**43.5**	**421**	**165**	ND<1.0	**26.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**5.90**	**13.4**
VOCs by GC/MS (SW846) Method (8260B)																	
Benzene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	**2.59J**	**1.43J**	ND<1.0	ND<41	ND<43	ND<1.0	ND<1.0	**2.01J**	ND<1.0	**1.66J**	**1.84J**	**2.06J**	**3.07J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**15.4**	**2,140**	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**391J**	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	**9.72J**	**7.29J**	**13.6**	**5.92J**	ND<5.0	ND<5.0	**932**	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<205	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	**1.90J**	**1.34J**	ND<1.0	**162J**	ND<43	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**2.47J**	**1.41J**	**3.71J**	**3.08J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<82	ND<86	ND<2.0	ND<2.0	**2.59J**	ND<2.0	**2.59J**	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**92.9**	**1,180**	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**2,540**	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**1.00J**	ND<1.0	**1.45J**	**6.21J**	**4.16J**	ND<1.0	ND<41	ND<43	ND<1.0	ND<1.0	**2.21J**	ND<1.0	**4.45J**	**4.85J**	**4.23J**	**9.40**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	**7.35J**	ND<5.0	ND<5.0	ND<205	ND<215	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	**2.24J**	**1.60J**	ND<1.0	ND<41	ND<43	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.41J**	ND<1.0	**1.85J**
m,p-Xylenes	ug/Kg	ND<1.0	ND<1.0	ND<1.0	**6.72J**	**4.56J**	ND<1.0	ND<41	ND<43	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**3.13J**	**4.40J**	**1.95J**	**6.92J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B5								B6							
Sample ID:	Units	B5S-2.5	B5S-5	B5S-10	B5S-15	B5S-20	B5S-25	B5S-30	B5S-35	B6-2	B6-4	B6-10	B6-15	B6-20	B6-25	B6-30	B6-35
Sample Date:		2/13/2020	2/13/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/13/2020	2/13/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020
Laboratory Job Number:		103559	103559	103641	103641	103641	103641	103641	103641	103559	103559	103665	103665	103665	103665	103665	103665
TPH Using GC/FID Method (M8015D)																	
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	**0.110J**	**0.182J**	**0.379J**	**0.676J**	**1.31**	ND<0.100	**0.222J**	**261**	ND<0.100	**0.102J**	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.168J**	**0.799J**
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	**3.20J**	**6.10**	**4.00J**	**5.00**	**16.4**	**11.8**	**11.7**	**3,290**	**8.50**	**2.60J**	ND<1.0	ND<1.0	ND<1.0	**4.10J**	**24.7**	**410**
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	**21.6**	**91.4**	ND<1.0	ND<1.0	ND<1.0	**6.90**	ND<1.0	**468**	**134**	**31.1**	ND<1.0	ND<1.0	ND<1.0	**16.6**	**9.20**	**68.5**
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	**24.8**	**97.5**	**4.00J**	**5.00**	**16.4**	**18.7**	**11.7**	**3,760**	**143**	**33.7**	ND<1.0	ND<1.0	ND<1.0	**20.7**	**33.9**	**479**
VOCs by GC/MS (SW846) Method (8260B)																	
Benzene	ug/Kg	**2.75J**	**2.06J**	**3.30J**	**4.11J**	ND<1.0	ND<1.0	**2.30J**	ND<47	**1.30J**	**2.15J**	**1.78J**	**3.67J**	ND<1.0	**2.55J**	**2.64J**	**2.56J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<235	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<235	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	**32.0**	**16.5**	**7.60J**	**15.7**	ND<5.0	ND<5.0	ND<5.0	**348J**	ND<5.0	**7.91J**	**7.97J**	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<235	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	ND<1.0	**1.35J**	**1.59J**	ND<1.0	ND<1.0	**1.50J**	ND<47	ND<1.0	**1.03J**	ND<1.0	**1.36J**	ND<1.0	**1.89J**	**1.35J**	**1.87J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	**45.6**	**27.7**	**5.56J**	**9.23**	ND<2.0	ND<2.0	**3.40J**	ND<94	**9.17J**	**16.9**	**9.21**	**6.89J**	ND<2.0	**1.93J**	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<235	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<235	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**3.13J**	**3.02J**	**7.53J**	**6.46J**	ND<1.0	ND<1.0	**3.72J**	ND<47	**1.23J**	**2.79J**	**3.04J**	**4.33J**	**1.19J**	**5.27J**	**4.77J**	**6.89J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<235	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	ND<1.0	**1.71J**	**1.34J**	ND<1.0	ND<1.0	ND<1.0	ND<47	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.25J**
m,p-Xylenes	ug/Kg	**1.28J**	**1.24J**	**6.08J**	**4.22J**	ND<1.0	ND<1.0	**2.06J**	ND<47	ND<1.0	**1.22J**	**1.50J**	**2.03J**	ND<1.0	**2.73J**	**2.65J**	**5.03J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B7							B8						
Sample ID:	Units	B7-5	B7-10	B7-15	B7-20	B7-25	B7-30	B7-35	B8-5	B8-10	B8-15	B8-20	B8-25	B8-30	B8-35
Sample Date:		2/13/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/13/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020
Laboratory Job Number:		103581	103641	103641	103641	103641	103641	103641	103581	103686	103686	103686	103686	103686	103686
TPH Using GC/FID Method (M8015D)															
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	ND<0.100	**0.215J**	ND<0.100	**0.100J**	ND<0.100	**0.177J**	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.169J**
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**9.90**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**6.74**	ND<1.0
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	ND<1.0	**6.20**	ND<1.0	ND<1.0	ND<1.0	**9.00**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**5.56**	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	ND<1.0	**6.20**	ND<1.0	ND<1.0	ND<1.0	**18.9**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**12.3**	ND<1.0
VOCs by GC/MS (SW846) Method (8260B)															
Benzene	ug/Kg	**2.88J**	**5.04J**	**4.50J**	**1.77J**	**2.72J**	**1.35J**	ND<1.0	ND<1.0	**1.23J**	**2.49J**	**1.26J**	**1.89J**	**2.39J**	**2.73J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	**1.81J**	**2.42J**	**1.23J**	**1.97J**	**1.70J**	ND<1.0	ND<1.0	ND<1.0	**2.39J**	ND<1.0	**1.18J**	**2.06J**	**2.14J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**1.68J**	**9.50J**	**14.5**	**4.43J**	**4.42J**	**2.69J**	ND<1.0	ND<1.0	**1.44J**	**5.78J**	**1.30J**	**3.20J**	**5.80J**	**7.47J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	**5.36J**	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	**1.79J**	**4.35J**	**1.02J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.84J**
m,p-Xylenes	ug/Kg	ND<1.0	**5.50J**	**14.9J**	**3.23J**	**2.03J**	**1.60J**	ND<1.0	ND<1.0	ND<1.0	**2.26J**	ND<1.0	**1.55J**	**2.88J**	**5.46J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B9								B10							
Sample ID:	Units	B9-2	B9-5	B9-10	B9-15	B9-20	B9-25	B9-30	B9-35	B10-2	B10-5	B10-10	B10-15	B10-20	B10-25	B10-30	B10-35
Sample Date:		2/19/2020	2/19/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/21/2020	2/21/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020
Laboratory Job Number:		103617	103617	103707	103707	103707	103707	103707	103707	103665	103665	103737	103737	103737	103737	103737	103737
TPH Using GC/FID Method (M8015D)																	
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.139J**	**0.192J**	ND<0.100	**0.117J**	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.189J**	ND<0.100	**0.117J**	ND<0.100
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
VOCs by GC/MS (SW846) Method (8260B)																	
Benzene	ug/Kg	ND<1.0	**3.11J**	**1.29J**	**2.91J**	**1.93J**	**6.50J**	**1.27J**	**2.85J**	**1.12J**	**1.27J**	**1.17J**	**2.26J**	ND<1.0	ND<1.0	**2.43J**	**1.21J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	**1.40J**	**1.40J**	**1.16J**	**3.96J**	**2.52J**	**1.20J**	**2.14J**	ND<1.0	ND<1.0	ND<1.0	**1.92J**	ND<1.0	**1.12J**	**1.11J**	**1.15J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	ND<1.0	**2.78J**	**1.43J**	**5.05J**	**6.14J**	**10.7**	**2.65J**	**6.00J**	**1.05J**	**1.22J**	**1.58J**	**5.60J**	**1.49J**	**2.07J**	**4.14J**	**2.50J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.02J**	**1.89J**	ND<1.0	**1.32J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
m,p-Xylenes	ug/Kg	ND<1.0	ND<1.0	ND<1.0	**3.29J**	**3.43J**	**5.23J**	**1.95J**	**4.37J**	ND<1.0	ND<1.0	ND<1.0	**2.32J**	ND<1.0	**1.47J**	**2.04J**	**1.26J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B11								B12						
Sample ID:	Units	B11-2	B11-5	B11-10	B11-15	B11-20	B11-25	B11-30	B11-35	B12-4.5	B12-10	B12-15	B12-20	B12-25	B12-30	B12-35
Sample Date:		2/13/2020	2/13/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/13/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/26/2020
Laboratory Job Number:		103559	103581	103736	103736	103736	103736	103736	103736	103581	103736	103736	103736	103736	103736	103736
TPH Using GC/FID Method (M8015D)																
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.170J**	ND<0.100	ND<0.100	**0.111J**	ND<0.100	ND<0.100	ND<0.100	**0.194J**	ND<0.100	**0.175J**	**0.198J**
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	**2.90J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.80J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	**80.0**	**22.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**78.9**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**20.9**	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	**82.9**	**22.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**80.7**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**20.9**	ND<1.0
VOCs by GC/MS (SW846) Method (8260B)																
Benzene	ug/Kg	**3.05J**	ND<1.0	**4.31J**	**1.44J**	**3.55J**	**2.01J**	**1.60J**	**2.20J**	ND<1.0	**2.16J**	**1.94J**	**3.80J**	**5.18J**	**1.98J**	**1.96J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.71J**	**2.73J**	**1.25J**	**1.21J**	**1.03J**	**1.63J**	**2.12J**	**1.78J**	**1.24J**	**3.97J**	**1.34J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**1.36J**	ND<1.0	**4.77J**	**1.21J**	**5.89J**	**5.15J**	**3.61J**	**4.62J**	**1.49J**	**5.47J**	**4.98J**	**10.1**	**5.94J**	**5.56J**	**3.81J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**1.37J**	**1.26J**	ND<1.0	ND<1.0	ND<1.0	**1.29J**	**1.11J**	**2.40J**	**1.41J**	ND<1.0	ND<1.0
m,p-Xylenes	ug/Kg	ND<1.0	ND<1.0	**2.33J**	ND<1.0	**5.23J**	**4.78J**	**3.09J**	**2.42J**	ND<1.0	**4.12J**	**3.27J**	**7.47J**	**4.83J**	**2.61J**	**2.10J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B13							B14							
Sample ID:	Units	B13-5	B13-10	B13-15	B13-20	B13-25	B13-30	B13-35	B14-2	B14-5	B14-10	B14-15	B14-20	B14-25	B14-30	B14-35
Sample Date:		2/13/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/20/2020	2/20/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020
Laboratory Job Number:		103581	103686	103686	103686	103686	103686	103686	103641	103641	103736	103736	103736	103737	103737	103737
TPH Using GC/FID Method (M8015D)																
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	ND<0.100	**0.136J**	ND<0.100	ND<0.100	**0.220J**	**0.142J**	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.119J**	**0.101J**	**0.101J**	ND<0.100
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**20.7**	**39.3**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	ND<1.0	**6.04**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**56.5**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	ND<1.0	**6.04**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**77.2**	**39.3**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
VOCs by GC/MS (SW846) Method (8260B)																
Benzene	ug/Kg	**1.04J**	**3.04J**	**1.55J**	**1.68J**	**3.13J**	**1.09J**	**2.09J**	ND<1.0	**1.02J**	ND<1.0	**1.90J**	**3.54J**	**3.19J**	**1.42J**	**1.32J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	**1.48J**	**1.06J**	ND<1.0	**1.49J**	ND<1.0	**1.18J**	ND<1.0	ND<1.0	ND<1.0	**1.07J**	**1.50J**	**1.69J**	ND<1.0	**1.20J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**1.26J**	**7.03J**	**3.04J**	**3.15J**	**6.10J**	**1.10J**	**3.35J**	ND<1.0	ND<1.0	**1.32J**	**2.94J**	**5.72J**	**4.75J**	**2.35J**	**1.82J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	**1.42J**	ND<1.0	ND<1.0	**1.08J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**0.930J**	ND<1.0	ND<1.0	ND<1.0
m,p-Xylenes	ug/Kg	ND<1.0	**4.51J**	**1.55J**	**1.60J**	**3.89J**	ND<1.0	**1.83J**	ND<1.0	ND<1.0	ND<1.0	**1.37J**	**3.27J**	**2.62J**	**1.44J**	ND<1.0
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B15								B16							
Sample ID:	Units	B15S-2	B15S-5	B15S-10	B15S-15	B15S-20	B15S-25	B15S-30	B15S-35	B16-2	B16-5	B16-10	B16-15	B16-20	B16-25	B16-30	B16-35
Sample Date:		2/13/2020	2/13/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/20/2020	2/20/2020	2/21/2020	2/21/2020	2/21/2020	2/21/2020	2/21/2020	2/21/2020
Laboratory Job Number:		103559	103559	103617	103617	103617	103617	103617	103617	103641	103641	103665	103665	103665	103665	103665	103665
TPH Using GC/FID Method (M8015D)																	
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	ND<0.100	ND<0.100	ND<0.100	ND<0.100	**0.149J**	ND<0.100	**0.129J**	**0.123J**	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100	ND<0.100
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	**94.3**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	**612**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**13.7**	**5.80**	ND<1.0	ND<1.0	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	**706**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**13.7**	**5.80**	ND<1.0	ND<1.0	ND<1.0
VOCs by GC/MS (SW846) Method (8260B)																	
Benzene	ug/Kg	**4.81J**	**3.71J**	**1.50J**	**1.75J**	**1.74J**	**1.56J**	**1.55J**	**1.73J**	**1.65J**	**1.37J**	**4.42J**	**2.69J**	**2.65J**	ND<1.0	**3.27J**	**2.23J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	**1.76J**	**1.17J**	**1.42J**	ND<1.0	**1.25J**	ND<1.0	**1.15J**	ND<1.0	ND<1.0	**3.09J**	**1.23J**	**1.44J**	ND<1.0	**1.73J**	**1.69J**
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**3.27J**	**3.32J**	**1.90J**	**3.31J**	**3.16J**	**1.93J**	**1.86J**	**2.74J**	ND<1.0	**1.40J**	**10.2**	**4.31J**	**3.79J**	**1.29J**	**5.32J**	**4.45J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**2.19J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
m,p-Xylenes	ug/Kg	**1.05J**	**1.19J**	ND<1.0	**1.85J**	**1.65J**	ND<1.0	ND<1.0	**1.25J**	ND<1.0	ND<1.0	**5.88J**	**1.80J**	**1.67J**	ND<1.0	**2.60J**	**2.27J**
Other VOCs	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 1
Summary of Soil Analytical Results for TPH as Gasoline/ Diesel Fuel/Heavy Hydrocarbons and VOCs
Former Ventura Manufactured Gas Plan
1555 North Olive Street Ventura, California

Boring ID:		B17		
Sample ID:	Units	B17-5	B17-10	B17-15
Sample Date:		2/19/2020	2/26/2020	2/26/2020
Laboratory Job Number:		103617	103737	103737
TPH Using GC/FID Method (M8015D)				
TPH as Gasoline and Light HC (C4-C12)	mg/Kg	ND<0.100	ND<0.100	ND<0.100
TPH as Diesel (C13-C22)[ESL=260]	mg/Kg	ND<1.0	ND<1.0	ND<1.0
TPH as Heavy Hydrocarbons (C23-C40)[1600]	mg/Kg	**14.9**	ND<1.0	ND<1.0
TPH Total as Diesel and Heavy HC (C13-C40)	mg/Kg	**14.9**	ND<1.0	ND<1.0
VOCs by GC/MS (SW846) Method (8260B)				
Benzene	ug/Kg	ND<1.0	**1.44J**	**1.90J**
n-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
sec-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
tert-Butylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
1,4-Dichlorobenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
Ethylbenzene	ug/Kg	ND<1.0	ND<1.0	ND<1.0
Methyl-tert-butyl ether (MTBE)	ug/Kg	ND<2.0	ND<2.0	ND<2.0
Naphthalene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
n-Propylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
Toluene (Methyl benzene)	ug/Kg	**1.18J**	**2.56J**	**1.31J**
1,2,4-Trimethylbenzene	ug/Kg	ND<5.0	ND<5.0	ND<5.0
o-Xylene	ug/Kg	ND<1.0	ND<1.0	ND<1.0
m,p-Xylenes	ug/Kg	ND<1.0	**1.12J**	ND<1.0
Other VOCs	ug/Kg	ND	ND	ND

NOTES:
mg/Kg - milligrams per kilogram or parts per million
TPH - Total Petroleum Hydrocarbons quantified as either Gasoline, Diesel Fuel, or Heavy Hydrocarbons based on carbon range (ie. C4-C12) by GC/FID Method: (M8015D)
3,290 - positive detections shown in bold
ug/Kg - micrograms per kilogram or parts per billion
ND<0.100 - indicates constituent(s) not detected at or above method detection limit

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B1								B2								B3			
Sample ID:	Units	B1-2	B1-5	B1-10	B1-15	B1-20	B1-25	B1-30	B1-35	B2-2	B2S-4.5	B2S-10	B2S-15	B2S-20	B2S-25	B2S-30	B2S-35	B3-2.5	B3-5	B3-10	B3-15
Sample Date:		2/12/2020	2/13/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/12/2020	2/12/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/11/2020	2/11/2020	2/18/2020	2/18/2020
Laboratory Job Number:		103529	103581	103599	103599	103599	103599	103599	103599	103529	103529	103617	103617	103617	103617	103617	103617	103503	103503	103599	103599
PAHs By Method 8310																					
Acenaphthene	mg/Kg	**0.322**	**0.195**	**0.237**	**0.0329**	ND<0.010	ND<0.010	ND<0.010	**0.101**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Anthracene	mg/Kg	**0.472**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(g,h,i)perylene	mg/Kg	**1.44**	**0.0978**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0229**	**0.0637**	**0.0347**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluoranthene	mg/Kg	**1.97**	**0.103**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.172**	**0.0647**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluorene	mg/Kg	**0.365**	**0.0170J**	**0.0442**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Naphthalene	mg/Kg	ND<0.020	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	**1.82**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0245**	ND<0.010	**0.253**	**0.0412**	ND<0.010	ND<0.010	ND<0.010	**0.0108J**	ND<0.010	ND<0.010	**0.0126J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Pyrene	mg/Kg	**2.27**	**0.120**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0686**	**0.372**	**0.0525**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0124J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010
2-Methylnaphthalene	mg/Kg	**0.661**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	**0.328**	**0.285**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0463**	**0.502**	**0.0245**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)pyrene	mg/Kg	**0.885**	**0.0424**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0135J**	**0.0509**	**0.0536**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(b)fluoranthene	mg/Kg	**0.722**	**0.0381**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0121J**	**0.0353**	**0.033**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(k)fluoranthene	mg/Kg	**0.263**	**0.0210**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0135J**	**0.0172J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Chrysene	mg/Kg	**0.768**	**0.125**	ND<0.010	ND<0.010	ND<0.010	**0.0193J**	**0.0119J**	**0.109**	**0.0478**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Indeno(1,2,3-cd)pyrene	mg/Kg	**0.998**	**0.0793**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0276**	**0.0473**	**0.0413**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
B(a)P Equivalent	mg/Kg	**1.1**	**0.091**	**0.012**	**0.012**	**0.012**	**0.012**	**0.028**	**0.12**	**0.071**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**
CAM Metals By Method 6010B/7000																					
Arsenic	mg/Kg	**5.70**	**6.91**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**13.3**	**7.00**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
Barium	mg/Kg	**655**	**142**	**72.5**	**92.6**	**107**	**111**	**135**	**138**	**127**	**112**	**82.3**	**75.8**	**194**	**155**	**111**	**143**	**33.8**	**26.6**	**35.4**	**82.3**
Chromium	mg/Kg	**35.1**	**14.8**	**21.6**	**13.8**	**14.1**	**17.0**	**14.0**	**26.1**	**11.8**	**10.9**	**11.1**	**14.9**	**17.2**	**22.6**	**25.8**	**18.1**	**4.37J**	**4.38J**	**4.94J**	**11.8**
Cobalt	mg/Kg	**6.11**	**6.68**	**4.08J**	**4.65J**	**4.06J**	**5.14**	**4.24J**	**3.61J**	**6.51**	**5.35**	**3.42J**	**4.53J**	**4.98J**	**4.89J**	**6.49**	**5.50**	ND<2.5	ND<2.5	ND<2.5	**4.23J**
Copper	mg/Kg	**44.6**	**18.8**	**10.3**	**8.91**	**10.5**	**11.9**	**9.09**	**9.43**	**15.6**	**11.9**	**8.07**	**9.40**	**9.78**	**9.79**	**15.0**	**8.80**	**4.11J**	**4.42J**	**4.81J**	**10.4**
Lead	mg/Kg	**560**	**45.1**	**3.78J**	**3.90J**	**3.65J**	**4.35J**	**3.63J**	**6.54**	**8.69**	**5.98**	**3.26J**	**3.14J**	**3.29J**	**3.45J**	**4.67J**	**4.46J**	ND<2.5	ND<2.5	ND<2.5	**2.93J**
Mercury (By EPA 7471)	mg/Kg	**0.249**	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	**0.156J**
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	**3.32J**	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**25.0**	**29.7**	**17.0**	**12.1**	**13.2**	**12.2**	**12.4**	**13.7**	**22.8**	**18.3**	**13.0**	**17.0**	**15.3**	**12.5**	**27.9**	**10.8**	**4.22J**	**3.80J**	**5.20**	**12.0**
Vanadium	mg/Kg	**36.0**	**35.3**	**23.8**	**24.0**	**23.8**	**28.2**	**21.7**	**25.6**	**33.6**	**27.5**	**14.5**	**22.2**	**23.8**	**24.5**	**30.6**	**27.9**	**9.06**	**8.84**	**9.65**	**23.0**
Zinc	mg/Kg	**302**	**69.0**	**40.5**	**36.3**	**38.0**	**41.2**	**35.5**	**33.1**	**48.8**	**37.6**	**28.7**	**34.9**	**38.8**	**37.7**	**50.3**	**37.5**	**18.1**	**20.1**	**17.2**	**38.5**

NOTES:
PAHs - Polycyclic Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg - milligrams per kilogram or parts per million
ND<0.010 - indicates constituent(s) not detected at or above method detection limit
331 J - indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134 - positive detections shown in bold
CAM Metals - Title 22 Metals (SW-846) analyzed using Method 6010B/7000

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B3				B4								B5							
Sample ID:	Units	B3-20	B3-25	B3-30	B3-35	B4-1.5	B4-4.5	B4-10	B4-15	B4-20	B4-25	B4-30	B4-35	B5S-2.5	B5S-5	B5S-10	B5S-15	B5S-20	B5S-25	B5S-30	B5S-35
Sample Date:		2/18/2020	2/18/2020	2/18/2020	2/18/2020	2/11/2020	2/11/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/13/2020	2/13/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020
Laboratory Job Number:		103599	103599	103599	103599	103503	103503	103641	103641	103641	103641	103641	103641	103559	103559	103641	103641	103641	103641	103641	103641
PAHs By Method 8310																					
Acenaphthene	mg/Kg	ND<0.010	**0.0460**	**0.232**	**0.0171J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.549**
Anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0480**
Benzo(g,h,i)perylene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0302**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.256**
Fluoranthene	mg/Kg	ND<0.010	ND<0.010	**0.0265**	**0.0208**	ND<0.010	**0.0209**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0153J**	ND<0.010	ND<0.010	**0.0592**	ND<0.010	ND<0.010	**0.0513**	**0.0145J**	ND<0.010	**0.743**
Fluorene	mg/Kg	ND<0.010	**0.0290**	**0.148**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0566**
Naphthalene	mg/Kg	**0.0317**	**0.405**	**0.671**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	**0.0369**	**0.389**	**1.21**	**0.0252**	ND<0.010	**0.0129J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0102J**	**0.0158J**	ND<0.010	**0.038**	**0.0172J**	ND<0.010	ND<0.010	**0.0416**	ND<0.010	**1.04**
Pyrene	mg/Kg	ND<0.010	**0.0230**	**0.0806**	**0.0494**	ND<0.010	**0.0134J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0211**	**0.0154J**	ND<0.010	**0.0539**	ND<0.010	ND<0.010	**0.0697**	**0.0250**	ND<0.010	**1.15**
2-Methylnaphthalene	mg/Kg	**0.0610**	**0.596**	**2.05**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	ND<0.010	**0.0197J**	**0.0720**	**0.0295**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.600**	ND<0.010	ND<0.010	ND<0.010	**0.0178J**	ND<0.010	ND<0.010	**0.0240**	ND<0.010	ND<0.010	**0.557**
Benzo(a)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0299**	ND<0.010	ND<0.010	**0.0101J**	ND<0.010	ND<0.010	**0.239**
Benzo(b)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0196J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.162**
Benzo(k)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0142J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0661**
Chrysene	mg/Kg	ND<0.010	**0.0113J**	**0.0320**	**0.0123J**	ND<0.010	**0.0138J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0284**	ND<0.010	ND<0.010	**0.0135J**	**0.0137J**	ND<0.010	**0.409**
Indeno(1,2,3-cd)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0550**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.213**
B(a)P Equivalent	mg/Kg	**0.012**	**0.014**	**0.019**	**0.015**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.072**	**0.012**	**0.012**	**0.012**	**0.046**	**0.012**	**0.012**	**0.019**	**0.012**	**0.012**	**0.35**
CAM Metals By Method 6010B/7000																					
Arsenic	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**3.19J**	**3.79J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
Barium	mg/Kg	**146**	**108**	**121**	**160**	**131**	**73.0**	**81.5**	**139**	**117**	**85.2**	**101**	**97.8**	**123**	**119**	**119**	**6.89**	**368**	**118**	**115**	**133**
Chromium	mg/Kg	**14.2**	**15.0**	**21.9**	**16.6**	**14.4**	**18.3**	**12.7**	**12.7**	**11.9**	**11.6**	**18.6**	**9.48**	**10.1**	**11.8**	**12.3**	**13.0**	**10.8**	**16.6**	**17.3**	**16.0**
Cobalt	mg/Kg	**3.91J**	**4.21J**	**5.45**	**3.91J**	**4.61J**	**4.20J**	**4.12J**	**3.12J**	**2.80J**	**3.66J**	**4.26J**	**3.03J**	**5.11**	**6.01**	**3.03J**	**3.59J**	**2.99J**	**3.95J**	**4.02J**	**4.08J**
Copper	mg/Kg	**8.11**	**12.2**	**12.2**	**13.2**	**12.6**	**10.1**	**9.92**	**8.94**	**7.52**	**8.68**	**12.6**	**6.60**	**12.6**	**14.0**	**6.60**	**7.69**	**8.28**	**9.79**	**11.0**	**10.5**
Lead	mg/Kg	**4.89J**	**5.66**	**3.94J**	**5.57**	**5.17**	**4.40J**	**3.43J**	**2.94J**	ND<2.5	**3.15J**	**3.37J**	**2.91J**	**6.10**	**7.42**	**2.91J**	**4.79J**	**2.64J**	**4.31J**	**4.12J**	**5.97**
Mercury (By EPA 7471)	mg/Kg	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**11.0**	**14.9**	**22.0**	**13.4**	**14.9**	**13.5**	**15.9**	**9.69**	**8.62**	**10.2**	**12.9**	**10.8**	**19.2**	**28.1**	**10.8**	**8.20**	**12.1**	**11.0**	**14.3**	**12.5**
Vanadium	mg/Kg	**21.8**	**25.7**	**25.4**	**21.9**	**22.6**	**22.3**	**20.6**	**25.7**	**18.2**	**21.5**	**26.2**	**17.7**	**27.7**	**27.1**	**17.7**	**19.2**	**21.5**	**24.1**	**20.5**	**21.7**
Zinc	mg/Kg	**31.3**	**42.5**	**43.8**	**36.1**	**38.7**	**37.1**	**36.1**	**30.5**	**28.6**	**31.9**	**40.2**	**26.9**	**39.9**	**52.3**	**26.9**	**29.5**	**29.9**	**36.1**	**34.0**	**37.9**

NOTES:
PAHs - Polynuclear Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg - milligrams per kilogram or parts per million
ND<0.010 - indicates constituent(s) not detected at or above method detection limit
331 J - indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134 - positive detections shown in bold
CAM Metals - Title 22 Metals (SW-846) analyzed using Method 6010B/7000

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B6								B7							B8				
Sample ID:	Units	B6-2	B6-4	B6-10	B6-15	B6-20	B6-25	B6-30	B6-35	B7-5	B7-10	B7-15	B7-20	B7-25	B7-30	B7-35	B8-5	B8-10	B8-15	B8-20	B8-25
Sample Date:		2/13/2020	2/13/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/20/2020	2/13/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/13/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020
Laboratory Job Number:		103559	103559	103665	103665	103665	103665	103665	103665	103581	103641	103641	103641	103641	103641	103641	103581	103686	103686	103686	103686
PAHs By Method 8310																					
Acenaphthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0420**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(g,h,i)perylene	mg/Kg	**0.0505**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0510**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluoranthene	mg/Kg	**0.0298**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0740**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0187J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluorene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Naphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	**0.0192J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0154J**	**0.148**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0128J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Pyrene	mg/Kg	**0.0256**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0187J**	**0.222**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0149J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010
2-Methylnaphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	**0.0147J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.194**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)pyrene	mg/Kg	**0.0197J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0350**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(b)fluoranthene	mg/Kg	**0.0107J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0290**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(k)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0100J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Chrysene	mg/Kg	**0.0349**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0690**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Indeno(1,2,3-cd)pyrene	mg/Kg	**0.0591**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0300**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
B(a)P Equivalent	mg/Kg	**0.034**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.067**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**
CAM Metals By Method 6010B/7000																					
Arsenic	mg/Kg	**2.75J**	**3.85J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**3.40J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**4.00J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0
Barium	mg/Kg	**118**	**83.2**	**98.2**	**131**	**53.8**	**131**	**106**	**185**	**116**	**108**	**98.6**	**146**	**112**	**114**	**94.2**	**152**	**52.6**	**181**	**79.2**	**83.1**
Chromium	mg/Kg	**11.1**	**30.8**	**18.5**	**12.2**	**14.2**	**18.0**	**17.5**	**22.4**	**11.9**	**14.9**	**16.6**	**14.2**	**15.0**	**15.3**	**18.2**	**12.9**	**15.9**	**12.1**	**9.13**	**11.5**
Cobalt	mg/Kg	**8.63**	**6.77**	**4.16J**	**3.84J**	**3.05J**	**5.20**	**4.03J**	**3.70J**	**5.28**	**3.38J**	**2.82J**	**3.36J**	**3.88J**	**3.03J**	**3.56J**	**6.82**	**4.01J**	**4.00J**	**3.07J**	**2.77J**
Copper	mg/Kg	**12.2**	**13.1**	**12.6**	**8.37**	**7.66**	**11.9**	**12.2**	**8.84**	**13.1**	**13.7**	**7.95**	**9.06**	**9.25**	**10.9**	**13.0**	**13.8**	**10.4**	**10.0**	**5.65**	**8.42**
Lead	mg/Kg	**6.33**	**6.90**	**4.55J**	**3.80J**	ND<2.5	**3.84J**	**4.52J**	**5.41**	**6.59**	**3.85J**	**3.16J**	**3.46J**	**3.63J**	**3.59J**	**3.53J**	**6.97**	ND<2.5	**3.28J**	**2.57J**	ND<2.5
Mercury (By EPA 7471)	mg/Kg	ND<0.1	ND<0.1	**0.181J**	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**20.1**	**41.1**	**16.7**	**10.9**	**13.5**	**18.2**	**15.3**	**13.5**	**21.7**	**10.8**	**8.81**	**12.1**	**10.0**	**13.1**	**14.7**	**26.1**	**19.6**	**11.3**	**5.91**	**11.3**
Vanadium	mg/Kg	**27.7**	**28.4**	**20.2**	**22.9**	**16.5**	**27.7**	**20.3**	**22.9**	**24.7**	**20.7**	**16.7**	**20.2**	**20.9**	**21.3**	**20.6**	**26.5**	**22.1**	**24.1**	**20.5**	**18.2**
Zinc	mg/Kg	**40.5**	**40.1**	**37.0**	**29.0**	**19.2**	**42.0**	**34.7**	**38.4**	**37.3**	**34.6**	**25.8**	**29.2**	**30.4**	**31.9**	**33.8**	**39.3**	**33.6**	**35.2**	**21.7**	**27.1**

NOTES:
PAHs - Polynuclear Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg - milligrams per kilogram or parts per million
ND<0.010 - indicates constituent(s) not detected at or above method detection limit
331 J - indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134 - positive detections shown in bold
CAM Metals - Title 22 Metals (SW-846) analyzed using Method 6010B/7000

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B8		B9								B10								B11	
Sample ID:	Units	B8-30	B8-35	B9-2	B9-5	B9-10	B9-15	B9-20	B9-25	B9-30	B9-35	B10-2	B10-5	B10-10	B10-15	B10-20	B10-25	B10-30	B10-35	B11-2	B11-5
Sample Date:		2/24/2020	2/24/2020	2/19/2020	2/19/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/21/2020	2/21/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/13/2020	2/13/2020
Laboratory Job Number:		103686	103686	103617	103617	103707	103707	103707	103707	103707	103707	103665	103665	103737	103737	103737	103737	103737	103737	103559	103581
PAHs By Method 8310																					
Acenaphthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(g,h,i)perylene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0191J**
Fluorene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Naphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0123J**
2-Methylnaphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(b)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(k)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Chrysene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Indeno(1,2,3-cd)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
B(a)P Equivalent	mg/Kg	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**
CAM Metals By Method 6010B/7000																					
Arsenic	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**3.67J**	**3.45J**
Barium	mg/Kg	**114**	**180**	**103**	**234**	**139**	**95.9**	**156**	**125**	**69.1**	**138**	**137**	**134**	**46.0**	**71.1**	**51.9**	**92.1**	**98.3**	**126**	**114**	**105**
Chromium	mg/Kg	**14.2**	**15.7**	**17.9**	**15.9**	**14.8**	**13.7**	**13.9**	**14.8**	**18.6**	**17.6**	**13.3**	**23.5**	**10.9**	**14.5**	**13.3**	**14.1**	**13.0**	**15.1**	**13.2**	**11.7**
Cobalt	mg/Kg	**3.14J**	**3.20J**	**6.02**	**3.42J**	**4.26J**	**3.39J**	**3.88J**	**4.02J**	**3.25J**	**4.22J**	**4.84J**	**7.46**	**3.07J**	**3.93J**	**3.58J**	ND<2.5	**4.26J**	**3.38J**	**5.3**	**4.95J**
Copper	mg/Kg	**9.13**	**7.42**	**13.8**	**9.57**	**11.8**	**8.18**	**9.21**	**9.14**	**7.57**	**9.89**	**12.1**	**15.5**	**6.65**	**9.82**	**10.3**	**4.82J**	**11.1**	**8.96**	**11.7**	**10.9**
Lead	mg/Kg	ND<2.5	ND<2.5	**6.17**	**2.96J**	**3.34J**	**3.06J**	**3.01J**	**3.14J**	**4.12J**	**3.93J**	**5.43**	**5.16**	ND<2.5	**3.06J**	**3.13J**	ND<2.5	**4.73J**	**2.67J**	**5.39**	**6.07**
Mercury (By EPA 7471)	mg/Kg	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	**1.76**	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	**3.76J**	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**11.8**	**12.8**	**21.3**	**16.0**	**20.6**	**11.4**	**12.3**	**15.2**	**9.33**	**11.8**	**15.0**	**27.7**	**11.3**	**18.5**	**12.9**	**11.4**	**14.9**	**12.5**	**22.6**	**21.2**
Vanadium	mg/Kg	**27.2**	**19.6**	**26.1**	**22.2**	**20.8**	**19.6**	**23.5**	**20.9**	**20.9**	**25.8**	**21.0**	**28.7**	**17.8**	**21.7**	**20.2**	**12.5**	**25.7**	**20.4**	**32.1**	**28.9**
Zinc	mg/Kg	**32.9**	**30.2**	**48.9**	**33.8**	**34.9**	**31.4**	**36.4**	**30.8**	**30.4**	**32.9**	**39.0**	**50.4**	**23.3**	**33.2**	**33.5**	**19.7**	**37.4**	**31.5**	**37.7**	**36.0**

NOTES:
PAHs - Polynuclear Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg - milligrams per kilogram or parts per million
ND<0.010 - indicates constituent(s) not detected at or above method detection limit
331 J - indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134 - positive detections shown in bold
CAM Metals - Title 22 Metals (SW-846) analyzed using Method 6010B/7000

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B11						B12							B13						
Sample ID:	Units	B11-10	B11-15	B11-20	B11-25	B11-30	B11-35	B12-4.5	B12-10	B12-15	B12-20	B12-25	B12-30	B12-35	B13-5	B13-10	B13-15	B13-20	B13-25	B13-30	B13-35
Sample Date:		2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/13/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/25/2020	2/26/2020	2/13/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020	2/24/2020
Laboratory Job Number:		103736	103736	103736	103736	103736	103736	103581	103736	103736	103736	103736	103736	103736	103581	103686	103686	103686	103686	103686	103686
PAHs By Method 8310																					
Acenaphthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(g,h,i)perylene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0604**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluorene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Naphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0396**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0592**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
2-Methylnaphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0173J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0250**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(b)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0167J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(k)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0124J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Chrysene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0279**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Indeno(1,2,3-cd)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
B(a)P Equivalent	mg/Kg	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.035**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**
CAM Metals By Method 6010B/7000																					
Arsenic	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**3.07J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**5.88**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
Barium	mg/Kg	**96.0**	**122**	**165**	**139**	**410**	**154**	**91.8**	**122**	**123**	**152**	**106**	**161**	**69.5**	**91.8**	**447**	**116**	**74.1**	**124**	**104**	**88.3**
Chromium	mg/Kg	**13.4**	**18.7**	**12.5**	**11.9**	**16.6**	**12.4**	**10.6**	**14.4**	**12.5**	**12.5**	**12.6**	**16.7**	**16.9**	**9.52**	**15.7**	**10.3**	**9.62**	**13.6**	**16.4**	**15.1**
Cobalt	mg/Kg	**4.23J**	**6.19**	**5.18**	**3.34J**	**3.00J**	**3.56J**	**5.28**	**3.86J**	**3.53J**	**3.62J**	**4.56J**	**3.82J**	**3.22J**	**4.06J**	**3.64J**	**3.75J**	**3.43J**	**3.48J**	**2.94J**	**3.82J**
Copper	mg/Kg	**11.4**	**17.0**	**10.3**	**7.64**	**7.65**	**8.52**	**12.9**	**10.3**	**10.2**	**7.43**	**10.3**	**10.6**	**5.05**	**11.2**	**9.23**	**7.10**	**8.97**	**8.30**	**8.77**	**9.53**
Lead	mg/Kg	**4.16J**	**5.54**	**4.29J**	**3.36J**	ND<2.5	**3.01J**	**5.72**	**4.53J**	**3.74J**	**2.99J**	**3.35J**	**4.34J**	ND<2.5	**5.12**	**2.74J**	**2.73J**	**2.90J**	ND<2.5	ND<2.5	ND<2.5
Mercury (By EPA 7471)	mg/Kg	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	**0.152J**	ND<0.1
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	**2.74J**	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**12.6**	**21.8**	**16.0**	**11.0**	**10.1**	**11.1**	**20.1**	**11.8**	**12.2**	**11.9**	**10.3**	**13.8**	**6.05**	**20.2**	**10.2**	**10.4**	**10.6**	**11.8**	**10.1**	**11.6**
Vanadium	mg/Kg	**22.6**	**29.7**	**21.8**	**21.7**	**19.7**	**22.7**	**27.6**	**24.7**	**24.3**	**18.9**	**24.4**	**26.3**	**16.0**	**22.4**	**22.1**	**21.0**	**19.1**	**20.1**	**21.3**	**24.9**
Zinc	mg/Kg	**39.2**	**49.4**	**37.3**	**29.7**	**27.9**	**33.0**	**37.7**	**40.7**	**37.0**	**29.8**	**40.3**	**36.2**	**19.0**	**31.8**	**36.6**	**28.9**	**31.5**	**34.3**	**45.3**	**35.3**

NOTES:
PAHs - Polynuclear Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg - milligrams per kilogram or parts per million
ND<0.010 - indicates constituent(s) not detected at or above method detection limit
331 J - indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134 - positive detections shown in bold
CAM Metals - Title 22 Metals (SW-846) analyzed using Method 6010B/7000

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B14								B15								B16			
Sample ID:	Units	B14-2	B14-5	B14-10	B14-15	B14-20	B14-25	B14-30	B14-35	B15S-2	B15S-5	B15S-10	B15S-15	B15S-20	B15S-25	B15S-30	B15S-35	B16-2	B16-5	B16-10	B16-15
Sample Date:		2/20/2020	2/20/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/26/2020	2/13/2020	2/13/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/19/2020	2/20/2020	2/20/2020	2/21/2020	2/21/2020
Laboratory Job Number:		103641	103641	103736	103736	103736	103737	103737	103737	103559	103559	103617	103617	103617	103617	103617	103617	103641	103641	103665	103665
PAHs By Method 8310																					
Acenaphthene	mg/Kg	**0.0161J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.638**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Anthracene	mg/Kg	**0.0596**	**0.0155J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**1.81**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(g,h,i)perylene	mg/Kg	**0.592**	**0.0919**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**2.32**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0299**	ND<0.010	ND<0.010	ND<0.010
Fluoranthene	mg/Kg	**0.609**	**0.137**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**13.80**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0881**	ND<0.010	ND<0.010	ND<0.010
Fluorene	mg/Kg	**0.0153J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.640**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Naphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.020	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	**0.279**	**0.0722**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**9.11**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0548**	ND<0.010	ND<0.010	ND<0.010
Pyrene	mg/Kg	**0.849**	**0.114**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**10.10**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0308**	ND<0.010	ND<0.010	ND<0.010
2-Methylnaphthalene	mg/Kg	**0.0120J**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**1.05**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	**0.238**	**0.0392**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**3.15**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0198J**	ND<0.010	ND<0.010	ND<0.010
Benzo(a)pyrene	mg/Kg	**0.633**	**0.111**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**5.27**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0499**	ND<0.010	ND<0.010	ND<0.010
Benzo(b)fluoranthene	mg/Kg	**0.372**	**0.0906**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**4.67**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0337**	ND<0.010	ND<0.010	ND<0.010
Benzo(k)fluoranthene	mg/Kg	**0.250**	**0.0424**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**2.37**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0228**	ND<0.010	ND<0.010	ND<0.010
Chrysene	mg/Kg	**0.489**	**0.113**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**8.99**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0444**	ND<0.010	ND<0.010	ND<0.010
Indeno(1,2,3-cd)pyrene	mg/Kg	**0.511**	**0.0735**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**2.59**	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.0298**	ND<0.010	ND<0.010	ND<0.010
B(a)P Equivalent	mg/Kg	**0.78**	**0.14**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**6.6**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.066**	**0.012**	**0.012**	**0.012**
CAM Metals By Method 6010B/7000																					
Arsenic	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**29.5**	**3.78J**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
Barium	mg/Kg	**90.3**	**76.9**	**50.2**	**110**	**111**	**113**	**60.6**	**95.5**	**181**	**173**	**160**	**181**	**177**	**114**	**94.1**	**109**	**117**	**93.8**	**113**	**95.9**
Chromium	mg/Kg	**19.6**	**14.9**	**9.83**	**13.2**	**11.7**	**15.2**	**8.76**	**13.6**	**15.6**	**12.2**	**18.5**	**17.9**	**13.7**	**21.2**	**11.1**	**17.1**	**17.9**	**14.8**	**17.7**	**18.2**
Cobalt	mg/Kg	**4.37J**	**4.12J**	**3.88J**	**3.57J**	**3.83J**	**3.76J**	ND<2.5	**3.20J**	**7.34**	**5.76**	**4.44J**	**4.73J**	**3.86J**	**4.58J**	**3.95J**	**4.50J**	**5.78**	**4.70J**	**4.16J**	**4.88J**
Copper	mg/Kg	**15.8**	**11.5**	**7.58**	**8.72**	**10.1**	**10.0**	**4.41J**	**8.29**	**16.7**	**11.4**	**12.1**	**12.9**	**9.94**	**11.2**	**12.2**	**11.6**	**13.4**	**10.8**	**9.66**	**14.6**
Lead	mg/Kg	**33.9**	**12.1**	**3.57J**	**3.27J**	**3.68J**	**3.29J**	ND<2.5	**2.67J**	**16.6**	**5.50**	**4.54J**	**3.61J**	**3.93J**	**3.53J**	**5.29**	**4.23J**	**5.33**	**5.13**	**3.57J**	**4.13J**
Mercury (By EPA 7471)	mg/Kg	**0.439**	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	**0.299**	ND<0.1
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**15.5**	**15.3**	**10.5**	**14.5**	**11.1**	**14.9**	**5.19**	**14.5**	**24.6**	**23.6**	**22.0**	**16.8**	**13.3**	**17.3**	**12.6**	**14.1**	**19.4**	**15.2**	**17.2**	**18.2**
Vanadium	mg/Kg	**19.8**	**21.5**	**16.2**	**20.1**	**20.6**	**23.9**	**11.5**	**17.1**	**29.6**	**28.7**	**26.8**	**37.6**	**24.8**	**28.5**	**18.2**	**25.9**	**24.6**	**19.6**	**22.3**	**30.2**
Zinc	mg/Kg	**66.3**	**39.2**	**25.3**	**31.3**	**35.4**	**33.8**	**16.0**	**26.4**	**57.6**	**36.4**	**42.8**	**42.1**	**36.1**	**38.3**	**37.4**	**39.5**	**43.3**	**36.0**	**33.8**	**42.5**

NOTES:
PAHs - Polynuclear Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg - milligrams per kilogram or parts per million
ND<0.010 - indicates constituent(s) not detected at or above method detection limit
331 J - indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134 - positive detections shown in bold
CAM Metals - Title 22 Metals (SW-846) analyzed using Method 6010B/7000

TABLE 2
Summary of Soil Analytical Results for PAHs and CAM Metals
Former Ventura Manufactured Gas Plant
1555 North Olive Street Ventura, California

Boring ID:		B16				B17		
Sample ID:	Units	B16-20	B16-25	B16-30	B16-35	B17-5	B17-10	B17-15
Sample Date:		2/21/2020	2/21/2020	2/21/2020	2/21/2020	2/19/2020	2/26/2020	2/26/2020
Laboratory Job Number:		103665	103665	103665	103665	103617	103737	103737
PAHs By Method 8310								
Acenaphthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(g,h,i)perylene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Fluorene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Naphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Phenanthrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
2-Methylnaphthalene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)anthracene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(a)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(b)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Benzo(k)fluoranthene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Chrysene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
Indeno(1,2,3-cd)pyrene	mg/Kg	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010
B(a)P Equivalent	mg/Kg	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**
CAM Metals By Method 6010B/7000								
Arsenic	mg/Kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
Barium	mg/Kg	**107**	**126**	**147**	**98.1**	**85.2**	**117**	**76.1**
Chromium	mg/Kg	**25.3**	**17.2**	**17.8**	**12.4**	**15.1**	**14.2**	**28.1**
Cobalt	mg/Kg	**4.31J**	**4.65J**	**4.52J**	**3.46J**	**5.84**	**3.90J**	**7.99**
Copper	mg/Kg	**11.4**	**9.54**	**11.0**	**9.76**	**11.1**	**11.0**	**17.6**
Lead	mg/Kg	**3.79J**	**3.62J**	**3.69J**	**3.33J**	**10.2**	**4.24J**	**5.62**
Mercury (By EPA 7471)	mg/Kg	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1	ND<0.1
Molybdenum	mg/Kg	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Nickel	mg/Kg	**17.5**	**15.4**	**16.1**	**13.5**	**17.3**	**14.5**	**30.7**
Vanadium	mg/Kg	**23.6**	**23.0**	**26.7**	**18.9**	**27.3**	**25.3**	**38.6**
Zinc	mg/Kg	**35.9**	**35.2**	**40.4**	**32.4**	**38.8**	**39.1**	**61.9**

NOTES:

PAHs	- Polynuclear Aromatic Hydrocarbons (SW-846) analyzed using Method 8310
mg/Kg	- milligrams per kilogram or parts per million
ND<0.010	- indicates constituent(s) not detected at or above method detection limit
331 J	- indicates analyte was detected. however, analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL).
1.134	- positive detections shown in bold
CAM Metals	- Title 22 Metals (SW-846) analyzed using Method 6010B/7000

Table 3
Summary of Soil Vapor Analytical Results Using Methods TO-3 and TO-15
Southern California California Gas Company - 1555 N Olive St. Ventura, CA 93001

Vapor Monitoring Probe ID:		B1			B2			B3			B4			B5			B6	
Sample ID	Units	B1-5	B1-15	B1-25	B2-5	B2-15	B2-25	B3-5	B3-15	B3-25	B4-5	B4-15	B4-24	B5-5	B5-15	B5-25	B6-5	B6-15
Sample Date		3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/5/2020	3/5/2020	3/5/2020	3/3/2020	3/3/2020	3/3/2020	3/5/2020	3/5/2020
Laboratory Job Number		103830	103830	103830	103830	103830	103830	103830	103830	103830	103882	103882	103882	103830	103830	103830	103882	103882
TPH-g by Method TO-3																		
TPH as Gasoline and Light HC. (C4-C12)	µg/m^3	**1,790,000**	**1,940,000**	**1,970,000**	**595,000**	**423,000**	**1,100,000**	**1,450,000**	**1,460,000**	**1,800,000**	**687,000**	**695,000**	**1,120,000**	**1,720,000**	**1,910,000**	**1,660,000**	**717,000**	**758,000**
VOCs by Method TO-15																		
4-Ethyltoluene	µg/m^3	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<50	ND<50	ND<50	ND<100	ND<100	ND<100	ND<50	ND<50
Benzene	µg/m^3	**199**	**309**	**99.8**	ND<8	ND<8	**41.6**	**82.3**	**133**	**172**	ND<4.200	ND<4.200	**258**	**195**	**192**	**248**	**41.8**	**41.8**
Bromodichloromethane	µg/m^3	ND<6	ND<6	ND<6	ND<6	ND<6	ND<6	ND<6	ND<6	ND<6	ND<3.300	ND<3.300	ND<3.300	ND<6	ND<6	ND<6	ND<3.300	ND<3.300
Carbon disulfide	µg/m^3	**1,730**	**93.6**	**75.6**	ND<30	ND<30	**63.4**	ND<30	ND<30	ND<30	ND<15	ND<15	**17.0**	**71.9**	ND<30	ND<30	ND<15	ND<15
Chlorobenzene	µg/m^3	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<10	ND<10	ND<10	ND<20	ND<20	ND<20	ND<10	ND<10
Chloroform (Trichloromethane)	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<15	ND<15	ND<15	ND<30	ND<30	ND<30	ND<15	ND<15
Cyclohexane	µg/m^3	**25,500**	**21,700**	**9,950**	**4,060**	**2,270**	**533**	**7,440**	**2,820**	**2,480**	**1,970**	**1,180**	**1,180**	**9,420**	**13,600**	**5,810**	**1,120**	**612**
1,2-Dichlorobenzene	µg/m^3	**49.2**	**55.5**	**96.3**	ND<40	ND<40	ND<40	ND<40	ND<40	**72.4**	ND<20	ND<20	ND<20	ND<40	ND<40	ND<40	ND<20	ND<20
1,4-Dichlorobenzene	µg/m^3	**396**	**739**	**1,030**	ND<40	ND<40	**80.9**	ND<40	ND<40	**95.6**	ND<20	ND<20	**100**	**72**	**68.2**	**172**	ND<20	ND<20
cis-1,2-Dichloroethene	µg/m^3	ND<30	**126**	**53.8**	**217**	**523**	**131**	ND<30	ND<30	**44.3**	**21.1**	**60.2**	**28.8**	ND<30	ND<30	ND<30	ND<15	**22.4**
trans-1,2-Dichloroethene	µg/m^3	ND<30	**94.6**	**60.4**	**126**	**137**	ND<30	ND<30	ND<30	ND<30	ND<15	ND<15	ND<15	ND<30	ND<30	ND<30	ND<15	ND<15
Ethylbenzene	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	**70.3**	**40.4**	**10,500**	ND<15	ND<15	ND<15	ND<30	ND<30	ND<30	ND<15	ND<15
n-Hexane	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	**188**	**183**	**213**	ND<30	ND<30	ND<30	**105**	**69.0**
Methyl-tert-butyl ether (MTBE)	µg/m^3	**1,730**	**6,870**	**3,840**	**364**	**659**	**194**	**714**	**628**	**722**	**744**	**4,570**	**1,940**	**20,500**	**18,500**	**5,710**	**4,910**	**11,400**
Naphthalene	µg/m^3	**283**	**475**	**600**	ND<30	**223**	**165**	ND<30	ND<30	**2,970**	**116**	**103**	**120**	ND<30	ND<30	ND<30	ND<15	**48.7**
Propene	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	**1,440**	**1,010**	**459**	ND<30	ND<30	ND<30	**746**	**733**
Tetrachloroethene	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<15	ND<15	ND<15	ND<30	ND<30	ND<30	ND<15	ND<15
Toluene (Methyl benzene)	µg/m^3	**82.2**	**103**	**147**	ND<20	**89.3**	**126**	ND<20	**40.9**	**535**	ND<10	**37.3**	**411**	**110**	**79.2**	**259**	**40.3**	**200**
Trichloroethene	µg/m^3	ND<30	ND<30	ND<30	ND<30	**75.6**	ND<30	ND<30	ND<30	ND<30	ND<15	ND<15	ND<15	ND<30	ND<30	ND<30	ND<15	ND<15
1,2,4-Trimethylbenzene	µg/m^3	**65.1**	**72.8**	**344**	ND<30	ND<30	**188**	**374**	**683**	**42,400**	ND<15	**26.3**	**266**	**73.6**	**63.9**	**285**	**30.2**	ND<15
1,3,5-Trimethylbenzene	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	**836**	ND<15	ND<15	ND<15	ND<30	ND<30	ND<30	ND<15	ND<15
Vinyl chloride (Chloroethene)	µg/m^3	**771**	**1,460**	**1,640**	**299**	**330**	**64.7**	**124**	**100**	**95.7**	**66.0**	**22.7**	**16.0**	**58.1**	**52.7**	ND<3.200	ND<1.600	ND<1.600
o-Xylene	µg/m^3	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	ND<20	**1,630**	ND<10	ND<10	ND<10	ND<20	ND<20	ND<20	ND<10	ND<10
m,p-Xylenes	µg/m^3	ND<40	ND<40	ND<40	ND<40	ND<40	ND<40	ND<40	ND<40	**4,770**	ND<20	ND<20	ND<20	ND<40	ND<40	ND<40	ND<20	ND<20
n-Heptane	µg/m^3	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<30	ND<15	ND<15	**166**	ND<30	ND<30	ND<30	**22.7**	**20.7**
Ethyl alcohol (Ethanol)	µg/m^3	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<100	ND<50	ND<50	ND<50	ND<100	ND<100	ND<100	ND<50	ND<50
Other VOCs (see lab reports for analytes)	µg/m^3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES

199	- positive detections shown in bold.
ND<50	- Indicates Constituent(s) Not Detected At Or Above Method Detection Limit (MDL)
J	- Indicates Analyte Was Detected. However, Analyte Concentration Is An Estimated Value Which Is Between The MDL And The Practical Quantitation Limit (PQL)
µg/m^3	- micrograms per cubic meter

Table 3
Summary of Soil Vapor Analytical Results Using Methods TO-3 and TO-15
Southern California California Gas Company - 1555 N Olive St. Ventura, CA 93001

Vapor Monitoring Probe ID:		B8			B9			B11			B12			B15		VMP1		
Sample ID	Units	B8-5	B8-14	B8-25	B9-5	B9-15	B9-15DUP	B11-5	B11-16	B11-16DUP	B12-6	B12-15	B12-25	B15-5	B15-15	VMP1-5	VMP1-15	VMP1-25
Sample Date		3/5/2020	3/5/2020	3/5/2020	3/5/2020	3/5/2020	3/5/2020	3/5/2020	3/5/2020	3/5/2020	3/6/2020	3/6/2020	3/6/2020	3/3/2020	3/3/2020	3/6/2020	3/6/2020	3/6/2020
Laboratory Job Number		103882	103882	103882	103882	103882	103882	103882	103882	103882	103898	103898	103898	103830	103830	103898	103898	103898
TPH-g by Method TO-3																		
TPH as Gasoline and Light HC. (C4-C12)	µg/m^3	**2,550**	**4,520**	**5,100**	**8,290**	**18,500**	**17,800**	**2,250**	**2,970**	**3,670**	**2,030**	**1,560**	**3,140**	**13,900**	**10,100**	**970**	**1,280**	**1,590**
VOCs by Method TO-15																		
4-Ethyltoluene	µg/m^3	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**20.4**	**21.2**	ND<5.0	**6.08**	**6.70**	ND<5.0	ND<5.0	**14.6**	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Benzene	µg/m^3	**11.5**	**24.8**	**14.9**	ND<0.420	**77.8**	**76.9**	ND<0.420	**8.71**	**9.51**	ND<0.420	**2.97**	**26.6**	**1.97**	**2.68**	ND<0.420	**6.90**	**16.4**
Bromodichloromethane	µg/m^3	ND<6	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	ND<0.330	**7.17**	ND<0.330	ND<0.330	ND<0.330	ND<0.330
Carbon disulfide	µg/m^3	**15.3**	**41.1**	**24.6**	**3.20**	**15.5**	**15.4**	ND<1.5	**8.55**	**7.12**	**3.71**	**2.10**	**17.0**	**42.0**	**35.8**	ND<1.5	**5.00**	**9.95**
Chlorobenzene	µg/m^3	**4.39**	**9.20**	**19.0**	ND<1.0	**270**	**265**	ND<1.0	**2.99**	**3.38**	ND<1.0	ND<1.0	**42.3**	ND<1.0	ND<1.0	ND<1.0	**4.55**	**22.7**
Chloroform (Trichloromethane)	µg/m^3	ND<1.5	**3.05**	ND<1.5	**42.5**	**29.3**	**29.0**	**85.4**	**25.0**	**27.2**	**32.3**	**3.19**	ND<1.5	**16.8**	**18.3**	**2.69**	**3.92**	ND<1.5
Cyclohexane	µg/m^3	**5.37**	**11.7**	**16.7**	ND<1.0	**48.2**	**47.1**	ND<1.0	**4.06**	**3.54**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**19.7**	ND<1.0	ND<1.0	ND<1.0
1,2-Dichlorobenzene	µg/m^3	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	**3.22**	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
1,4-Dichlorobenzene	µg/m^3	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	**5.32**	**3.66**	ND<2.0	ND<2.0	ND<2.0
cis-1,2-Dichloroethene	µg/m^3	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5
trans-1,2-Dichloroethene	µg/m^3	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5
Ethylbenzene	µg/m^3	**8.81**	**19.1**	**19.4**	**2.86**	**38.9**	**38.7**	ND<1.5	**19.5**	**21.7**	**2.33**	**3.35**	**33.0**	**6.34**	**3.37**	ND<1.5	**10.3**	**9.94**
n-Hexane	µg/m^3	**5.49**	**6.72**	**15.4**	ND<1.5	**173**	**171**	ND<1.5	**20.8**	**15.6**	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5
Methyl-tert-butyl ether (MTBE)	µg/m^3	**3.07**	ND<1.0	ND<1.0	**1.96**	**3.56**	**2.35**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**75.4**	ND<1.0	ND<1.0	ND<1.0
Naphthalene	µg/m^3	**27.4**	**85.7**	**89.6**	**106**	**20.0**	**19.9**	**10.6**	**24.6**	**41.9**	**53.7**	**52.0**	**79.2**	**419**	**308**	**11.7**	**9.28**	**13.6**
Propene	µg/m^3	**9.39**	**16.0**	**43.00**	**8.58**	**346**	**525**	**2.73**	**4.99**	**5.06**	**2.36**	**1.50**	**18.9**	ND<1.5	ND<1.5	ND<1.5	**3.15**	**6.88**
Tetrachloroethene	µg/m^3	**35.4**	**76.6**	**85.4**	**5.03**	**13.9**	**13.6**	**120**	**198**	**219**	**26.3**	**33.3**	**21.4**	**68.4**	**24.6**	**395**	**111**	**57.6**
Toluene (Methyl benzene)	µg/m^3	**68.2**	**155**	**107**	**41.1**	**167**	**165**	**2.38**	**66.0**	**72.0**	**43.7**	**15.5**	**154**	**48.6**	**17.4**	**94.3**	**117**	**39.6**
Trichloroethene	µg/m^3	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5
1,2,4-Trimethylbenzene	µg/m^3	**21.7**	**21.9**	**27.1**	**4.75**	**55.5**	**54.0**	**5.91**	**20.8**	**22.9**	**2.83**	**6.800**	**45.0**	**15.7**	**7.79**	**5.7**	**12.8**	**17.1**
1,3,5-Trimethylbenzene	µg/m^3	**3.39**	**7.76**	**8.05**	ND<1.5	**15.3**	**15.1**	ND<1.5	**4.74**	**4.74**	ND<1.5	ND<1.5	**8.98**	ND<1.5	ND<1.5	ND<1.5	**2.63**	**2.54**
Vinyl chloride (Chloroethene)	µg/m^3	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160	ND<0.160
o-Xylene	µg/m^3	**10.9**	**23.9**	**28.0**	**3.75**	**62.9**	**62.5**	ND<1.0	**22.2**	**24.6**	**2.42**	**5.16**	**37.5**	**8.50**	**3.01**	**2.74**	**12.2**	**14.5**
m,p-Xylenes	µg/m^3	**39.1**	**88.9**	**80.7**	**8.67**	**189**	**187**	ND<2.0	**59.0**	**65.0**	**3.71**	**15.1**	**129**	**16.9**	**7.75**	**6.73**	**35.9**	**38.8**
n-Heptane	µg/m^3	**2.08**	**5.46**	**6.31**	ND<1.5	**17.0**	**16.9**	ND<1.5	**2.15**	**2.67**	ND<1.5	ND<1.5	**6.31**	ND<1.5	ND<1.5	ND<1.5	**2.20**	**3.26**
Ethyl alcohol (Ethanol)	µg/m^3	**129**	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**53.0**	**33.0**	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
Other VOCs (see lab reports for analytes)	µg/m^3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES

199	- positive detections shown in bold.
ND<50	- Indicates Constituent(s) Not Detected At Or Above Method Detection Limit (MDL)
J	- Indicates Analyte Was Detected. However, Analyte Concentration Is An Estimated Value Which Is Between The MDL And The Practical Quantitation Limit (PQL)
µg/m^3	- micrograms per cubic meter

Table 4
Summary of Chemicals of Potential Concern

Soil	Soil Gas
Polycyclic Aromatice Hydrocarbons	TPH as Gasoline and Light HC. (C4-C12)
Acenaphthene	4-Ethyltoluene
Acenaphthylene	Benzene
Anthracene	Bromodichloromethane
Benzo(g,h,i)perylene	Carbon disulfide
Fluoranthene	Chlorobenzene
Fluorene	Chloroform (Trichloromethane)
Naphthalene(PAH)	Cyclohexane
Phenanthrene	1,2-Dichlorobenzene
Pyrene	1,4-Dichlorobenzene
2-Methylnaphthalene	cis-1,2-Dichloroethene
Benzo(a)anthracene	trans-1,2-Dichloroethene
Benzo(a)pyrene	Ethylbenzene
Benzo(b)fluoranthene	n-Hexane
Benzo(k)fluoranthene	Methyl-tert-butyl ether (MTBE)
Chrysene	Naphthalene
Dibenzo(a,h)anthracene	Tetrachloroethene
Indeno(1,2,3-cd)pyrene	1,3,5-Trimethylbenzene
	m,p-Xylenes
Metals	
Arsenic	
Lead	
Cobalt	
Mercury	
Vanadium	
Total Petroleum Hydrocarbons	
TPH as Gasoline and Light HC (C4-C12)	
TPH as Diesel (C13-C22)	
TPH as Heavy Hydrocarbons (C23-C40)	
Volatile Organic Compounds	
Benzene	
n-Butylbenzene	
sec-Butylbenzene	
tert-Butylbenzene	
1,4-Dichlorobenzene	
Ethylbenzene	
Methyl-tert-butyl ether (MTBE)	
Naphthalene	
n-Propylbenzene	
Toluene (Methyl benzene)	
1,2,4-Trimethylbenzene	
o-Xylene	
m,p-Xylenes	

Table 5
Soil Health Based Goals

COPC in Soil	Compressor Room Soil Concentrations (EPCs)	Calculated Risks and Hazards							Calculation of Health Based Goals (HBG)*					
									Residential		Industrial		Construction	
		Residential		Industrial		Construction			Risk Target:	Hazard Target:	Risk Target:	Hazard Target:	Risk Target:	Hazard Target:
		Risk	Hazard	Risk	Hazard	Risk	Hazard		1.00E-06	1.00E+00	1.00E-06	1.00E+00	1.00E-06	1.00E+00
Polycyclic Aromatice Hydrocarbons (mg/kg)														
Acenaphthene	9.3E-02	--	2.3E-05	--	2.6E-06	--	1.3E-05			4.1E+03		3.6E+04		7.3E+03
Acenaphthylene	2.3E-01	--	--	--	--	--	--							
Anthracene	2.0E-01	--	9.7E-06	--	1.1E-06	--	5.4E-06			2.0E+04		1.8E+05		3.7E+04
Benzo(g,h,i)perylene	7.9E-01	--	--	--	--	--	--							
Fluoranthene	2.9E+00	--	1.1E-03	--	1.2E-04	--	5.8E-04			2.7E+03		2.4E+04		4.9E+03
Fluorene	8.3E-02	--	3.0E-05	--	3.4E-06	--	1.7E-05			2.7E+03		2.4E+04		4.8E+03
Naphthalene(PAH)	7.7E-02	--	4.9E-05	--	6.4E-06	--	3.7E-05							
Phenanthrene	2.3E+00	--	--	--	--	--	--							
Pyrene	2.3E+00	--	1.1E-03	--	1.3E-04	--	6.3E-04			2.0E+03		1.8E+04		3.6E+03
2-Methylnaphthalene	2.2E+00	--	8.0E-03	--	9.0E-04	--	4.5E-03			2.7E+02		2.4E+03		4.8E+02
Benzo(a)anthracene	6.2E-01	--	--	--	--	--	--							
Benzo(a)pyrene	1.2E+00	--	5.8E-02	--	6.7E-03	--	1.7E-01			2.0E+01		1.8E+02		7.1E+00
Benzo(b)fluoranthene	9.8E-01	--	--	--	--	--	--							
Benzo(k)fluoranthene	9.1E-01	--	--	--	--	--	--							
Chrysene	1.9E+00	--	--	--	--	--	--							
Dibenzo(a,h)anthracene	1.9E+00	--	--	--	--	--	--							
Indeno(1,2,3-cd)pyrene	5.1E-01	--	--	--	--	--	--							
Metals (mg/kg)														
Cobalt	5.1E+00	3.7E-09	2.2E-01	2.8E-09	1.5E-02	1.5E-07	2.4E-01		1.4E+03	2.3E+01	1.9E+03	3.5E+02	3.4E+01	2.1E+01
Lead**	9.7E+01	--	--	--	--	--	--			8.0E+01		3.2E+02		3.2E+02
Mercury(ByEPA7471)	1.2E-01	--	4.3E-02	--	2.7E-02	--	2.9E-02			2.8E+00		4.5E+00		4.1E+00
Vanadium	2.6E+01	--	6.6E-02	--	4.4E-03	--	7.3E-02			3.9E+02		5.8E+03		3.5E+02
Total Petroleum Hydrocarbons (mg/kg)														
TPH as Gasoline and Light HC (C4-C12)	4.9E+02	--	2.9E-01	--	2.2E-01	--	2.3E-01			1.7E+03		2.2E+03		2.2E+03
TPH as Diesel (C13-C22)	1.8E+02	--	7.5E-01	--	4.2E-01	--	4.6E-01			2.5E+02		4.4E+02		4.0E+02
TPH as Heavy Hydrocarbons (C23-C40)	1.6E+03	--	6.1E-01	--	6.8E-02	--	3.4E-01			2.7E+03		2.4E+04		4.9E+03
Volatile Organic Compounds (µg/kg)														
Benzene	1.2E-01	1.2E-07	3.6E-03	8.2E-08	2.6E-03	3.6E-09	2.6E-03		9.7E-01	3.2E+01	1.4E+00	4.6E+01	3.2E+01	4.4E+01
tert-Butylbenzene	1.8E-02	--	4.0E-06	--	1.5E-06	--	1.9E-06			4.4E+03		1.2E+04		9.4E+03
1,4-Dichlorobenzene	1.3E-02	1.7E-09	2.9E-06	1.2E-09	5.4E-07	5.1E-11	9.2E-07		7.9E+00	4.6E+03	1.1E+01	2.5E+04	2.6E+02	1.4E+04
Ethylbenzene	3.4E+00	2.1E-07	6.1E-04	1.3E-07	1.7E-04	6.4E-09	2.3E-04		1.6E+01	5.6E+03	2.6E+01	2.1E+04	5.3E+02	1.5E+04
Methyl-tert-butyl ether (MTBE)	9.9E-03	8.2E-11	2.0E-07	4.8E-11	1.5E-07	2.4E-12	1.6E-07		1.2E+02	5.1E+04	2.1E+02	6.4E+04	4.1E+03	6.4E+04
Toluene (Methyl benzene)	3.5E-03	--	1.3E-06	--	6.6E-07	--	7.5E-07			2.6E+03		5.3E+03		4.7E+03
o-Xylene	2.6E-01	--	1.3E-04	--	9.4E-05	--	9.7E-05			2.0E+03		2.8E+03		2.7E+03
m,p-Xylenes	7.0E-01	--	4.1E-04	--	2.9E-04	--	3.0E-04			1.7E+03		2.4E+03		2.3E+03

*HBG_i = (Target Risk/$Risk_i$) x EPC_i

** HBG for lead are based on DTSC risk based concentrations predictive of blood lead levels (DTSC, 2020).

HBG Health Based Goal for $COPC_i$

Target Risk $1x10^{-6}$ for carcinogenic risk, and unity (1) for noncarcinogenic hazard

$Risk_i$ Calculated risk or hazard of $COPC_i$

EPC_i Exposure Point Concentration of $COPC_i$

Table 6
Soil Vapor Health Based Goals

COPC In Soil Gas	Compressor Room Soil Gas Concentrations (µg/m3)	Calculated Risks and Hazards				Calculation of Health Based Goals (HBG)*			
		Residential		Industrial		Residential		Industrial	
		Risk	Hazard	Risk	Hazard	Risk Target:	Hazard Target:	Risk Target:	Hazard Target:
						1.00E-06	1.00E+00	1.00E-06	1.00E+00
TPH as Gasoline and Light HC. (C4-C12)	1.9E+06	--	3.0E+00	--	7.3E-01		6.3E+05		2.6E+06
4-Ethyltoluene	N/A	--	--	--	--				
Benzene	2.6E+02	2.7E-06	8.3E-02	6.1E-07	2.0E-02	9.7E+01	3.1E+03	4.2E+02	1.3E+04
Bromodichloromethane	N/A	--	0.0E+00	--	--				
Carbon disulfide	7.2E+01	--	9.8E-05	--	2.3E-05		7.3E+05		3.1E+06
Chlorobenzene	2.3E+01	--	4.4E-04	--	1.0E-04		5.2E+04		2.2E+05
Chloroform (Trichloromethane)	3.9E+00	3.3E-08	3.9E-05	7.4E-09	9.1E-06	1.2E+02	1.0E+05	5.3E+02	4.3E+05
Cyclohexane	1.4E+04	--	2.2E-03	--	3.1E-03		6.3E+06		4.4E+06
1,2-Dichlorobenzene	7.2E+01	--	3.4E-04	--	8.2E-05		2.1E+05		8.8E+05
1,4-Dichlorobenzene	1.7E+02	6.6E-07	2.1E-04	1.6E-07	4.9E-05	2.6E+02	8.3E+05	1.1E+03	3.5E+06
cis-1,2-Dichloroethene	5.2E+02	--	6.3E-02	--	1.5E-02		8.3E+03		3.5E+04
trans-1,2-Dichloroethene	1.4E+02	--	1.7E-03	--	3.9E-04		8.3E+04		3.5E+05
Ethylbenzene	1.1E+04	9.5E-06	1.1E-02	2.1E-06	2.4E-03	1.1E+03	1.0E+06	4.9E+03	4.4E+06
n-Hexane	2.1E+02	--	2.9E-04	--	6.9E-05		7.3E+05		3.1E+06
Methyl-tert-butyl ether (MTBE)	2.1E+04	1.9E-06	6.6E-04	4.4E-07	1.6E-03	1.1E+04	3.1E+07	4.7E+04	1.3E+07
Naphthalene	3.0E+03	3.6E-05	9.6E-01	8.3E-06	2.3E-01	8.3E+01	3.1E+03	3.6E+02	1.3E+04
Propene	1.4E+03	--	4.6E-04	--	1.1E-04		3.1E+06		1.3E+07
Tetrachloroethene	4.0E+02	8.6E-07	9.4E-03	2.0E-07	2.2E-03	4.6E+02	4.2E+04	2.0E+03	1.8E+05
Toluene (Methyl benzene)	5.4E+02	--	1.7E-03	--	4.1E-04		3.1E+05		1.3E+06
Trichloroethene	7.6E+01	1.6E-07	3.6E-02	2.5E-08	8.6E-03	4.8E+02	2.1E+03	3.0E+03	8.8E+03
1,2,4-Trimethylbenzene	4.2E+04	--	6.7E-01	--	1.6E-01		6.3E+04		2.6E+05
1,3,5-Trimethylbenzene	8.4E+02	--	1.3E-02	--	3.2E-03		6.3E+04		2.6E+05
Vinyl chloride (Chloroethene)	3.3E+02	3.5E-05	3.3E-03	2.1E-06	7.5E-04	9.5E+00	1.0E+05	1.6E+02	4.4E+05
o-Xylene	1.6E+03	--	1.6E-02	--	3.7E-03		1.0E+05		4.4E+05
m,p-Xylenes	4.8E+03	--	4.8E-02	--	1.1E-02		1.0E+05		4.4E+05
n-Heptane	1.7E+02	--	4.0E-04	--	9.2E-05		4.2E+05		1.8E+06
Ethyl alcohol (Ethanol)	N/A			--	--				

Red type indicates data from Control Room dataset.

Totals

*HBG_i = (Target Risk/$Risk_i$) x EPC_i

HBG	Health Based Goal for $COPC_i$
Target Risk	$1x10^{-6}$ for carcinogenic risk, and unity (1) for noncarcinogenic hazard
$Risk_i$	Calculated risk or hazard of $COPC_i$
EPC_i	Exposure Point Concentration of $COPC_i$

Table 7

Locations Where Soil Vapor Concentrations Exceed Health Based Goals

Concentrations in µ/m^3

Total Petroleum Hydrocarbons - Gasoline		Benzene		1,4-Dichlorobenzene		Ethylbenzene		MTBE		Naphthalene		Vinyl Chloride	
Residential Soil Gas Health based Goal													
630000		97		260		1100		11000		83		9.5	
Industrial Soil Gas Health Based Goal													
2600000		420		1100		4900		47000		360		160	
B1-25	**1,970,000**	B1-15	**309**	B1-25	**1030.00**	B3-25*	**10500.00**	B5-5	**20500.00**	B3-25*	**2970.00**	B1-25*	**1640.00**
B1-15	**1,940,000**	B4-24	**258**	B1-15	**739.00**			B5-15	**18500.00**	B1-25*	**600.00**	B1-15*	**1460.00**
B5-15	**1,910,000**	B5-25	**248**	B1-5	**396.00**			B6-15	**11400.00**	B1-15*	**475.00**	B1-5*	**771.00**
B3-25	**1,800,000**	B1-5	**199**							B15-5*	**419.00**	B2-15*	**330.00**
B1-5	**1,790,000**	B5-5	**195**							B15-15	**308.00**	B2-5*	**299.00**
B5-5	**1,720,000**	B5-15	**192**							B1-5	**283.00**	B3-5	**124.00**
B5-25	**1,660,000**	B3-25	**172**							B2-15	**223.00**	B3-15	**100.00**
B3-15	**1,460,000**	B3-15	**133**							B2-25	**165.00**	B3-25	**95.70**
B3-5	**1,450,000**	B1-25	**99.8**							B4-24	**120.00**	B4-5	**66.00**
B4-24	**1,120,000**									B4-5	**116.00**	B2-25	**64.70**
B2-25	**1,100,000**									B9-5	**106.00**	B5-5	**58.10**
B6-15	**758,000**									B4-15	**103.00**	B5-15	**52.70**
B6-5	**717,000**									B8-25	**89.60**	B4-15	**22.70**
B4-15	**695,000**									B8-14	**85.70**	B4-24	**16.00**
B4-5	**687,000**												

*Concentration above residential and industrial HBG

TABLE 8
Summary of Technology Type and Process Options Screening for Soil
Former Ventura Manufactured Gas Plant
1555 North Olive Street
Ventura, California

General Response Actions	Technology Type	Process Options	Technology / Process Option Description	Effectiveness	Implementability	Cost	Remarks
No Further Action	Not applicable.	Not applicable.	No Action	Low: Shallow impacted soil is present near the surface and to depths of approximately 3.5 feet.	Easily implemented: No additional remedial activities would be conducted.	Minimal: There would be no additional soil remediation costs	Retained: As required under NCP
Land Use Covenant (LUC)	(Use Restrictions/ Notifications)	(Use Restrictions/ Notifications)	LUC includes administrative and legal controls that restrict use of the site in a manner that may result in unacceptable risk to human health. The site use restrictions would be to prevent potential exposure to impacted soil. Access restrictions are primarily incorporated through the implementation of LUC.	LUC does not directly reduce volume, toxicity, or mobility of contaminants in soil. However, LUC would minimize the potential for exposure to contaminants by restricting land use. No adverse impacts occur during the implementation of LUC since no construction activities are associated with this option.	LUC is relatively easy to implement. However, it may be difficult to obtain regulatory approval as a stand-alone strategy for remediation. A cap may be required at part of LUC.	Low	Retained: LUC may be used as an interim action to prevent disturbance of impacted soil at the Site.
Containment	Capping	Capping	This technology involves construction of a impermeable cap over source areas and soil contamination to prevent exposure. This technology often includes use of concrete pavement, inspections and monitoring.	This technology minimizes exposure to contaminated soils but it does not directly reduce volume or toxicity of COCs in soil. A cap or cover system is normally maintained to ensure effectiveness of LUCs. Construction and maintenance of a cap will interfere with teh planned construction a the Site. Therefore, this technology may not be effective in achieving the RAOs.	A major portion of the source areas where this technology would be applied is planned for upcoming construction. Therefore, construction of an effective cap in impacted soil area would be impractical.	High	Eliminated due to implementability and cost considerations.

TABLE 8
Summary of Technology Type and Process Options Screening for Soil
Former Ventura Manufactured Gas Plant
1555 North Olive Street
Ventura, California

General Response Actions	Technology Type	Process Options	Technology / Process Option Description	Effectiveness	Implementability	Cost	Remarks
Active remediation	Soil Excavation and onsite treatment	Excavation and onsite treatment	This technology involves excavation of contaminated soil and onsite treatment using technologies such as bio-remediation or thermal desorption.	Low: This technology is not effective for PAHs and metals such as arsenic and lead.	Difficult: Although removal of impact soil is relatively easy, application of above-ground treatment technologies such as bio-remediation or thermal desorption will be difficult to implement.	High: Above-ground soil treatment technologies such as bio-remediation or thermal desorption will take time.	Eliminated: High costs of excavation and onsite treatment in addition to the uncertainty of achieving cleanup levels do not support retaining this option.
Active remediation	In situ chemical treatment.	Chemical oxidation: Introduce a chemical oxidant into the vadose zone to either destroy or degrade contaminants.	This technology involves injection of oxidizing agents into the contaminated soil zone for destruction of organic contaminants. This technology is not effective for metal contaminants such as arsenic or lead.	Low: Where implementable, this technology has been shown to remediate some hydrocarbons in soils. The oxidants used are readily available. However, contact between contaminated soil and oxidants cannot be effectively controlled in vadose zone, resulting in significant remnants of untreated contaminated soil. within the vadose zone. This technology is not effective for metals such as arsenic and lead.	Difficult: May not achieve treatment of the entire contaminated soil in vadose zone.	High: Potentially extensive drilling for injection of chemicals into the vadose zone and monitoring activities would increase costs.	Eliminated: Due to high cost and leaving significant untreated soil in vadose zone.
Active remediation	Soil Excavation and offsite treatment/ disposal	Excavation and offsite transportation/treatment/ disposal.	This technology involves excavation of contaminated soil and transportation to offsite facilities for treatment and/or disposal.	High: Provides long-term effectiveness and permanence. Provides protection of human health and the environment by reducing the amount of contamination in soil.	Moderate: Removal of the impacted soil will require a relatively large footprint. However, excavation technology and transportation to offsite facilities are common and routinely implemented. Treatment and/or disposal facilities are readily available in Southern California.	High: To excavate the impacted soil requires removal of a significant amount of impacted soil. In addition, transportation, treatment, and disposal are costly.	Retained: Excavation is expected to be limited to the top 3.5 feet in impacted areas to eliminate direct exposure pathways.

TABLE 9
Summary of Technology Type and Process Options Screening for Soil Vapor
Former Ventura Manufactured Gas Plant
1555 North Olive Street
Ventura, California

General Response Actions	Technology Type	Process Options	Technology / Process Option Description	Effectiveness	Implementability	Cost	Screening/Evaluation Comments
No-Action	None	None Available	No Action	No remedial action would be implemented to reduce volume, toxicity or mobility of VOCs in soil vapor. Any reduction in VOC concentrations, toxicity, or mobility would occur only through natural attenuation mechanisms such as dilution, dispersion, and biodegradation.	Easily implementable since no action needs to be taken.	There are no costs associated with this technology.	Selected as a stand-alone alternative in compliance with the NCP.
Land Use Covenant	Use Restrictions/ Notifications	Use Restrictions/ Notifications	LUC includes administrative and legal controls that restrict use of the site in a manner that may result in unacceptable risk to human health. The site use restrictions would be to prevent potential vapor intrusion exposure risk. Access restrictions are primarily incorporated through the implementation of LUC.	LUC does not directly reduce volume, toxicity, or mobility of VOCs in soil and soil vapor. No adverse impacts occur during the implementation of LUC since no construction activities are associated with this process option.	LUC is relatively easy to implement. However, it may be difficult to get regulatory approval for LUC as a stand-alone strategy for remediation.	Low	Selected. To be used in conjunction with other active remediation technologies for alternative development.
Soil Vapor Mitigation	Engineered Controls	Building design considerations	The engineered controls include vapor mitigation through the specific design of the Compressor Building, which will included ventilation of the building at a minimum rate of 6 air changes per hour during normal operation.	Engineered controls mitigate exposure to COCs in indoor air and subslab vapor. However, they do not reduce volume, toxicity or mobility of COCs in the subsurface.	Engineered controls are relatively easy to implement. However, it may be difficult to get regulatory approval for institutional controls (ICs) as a stand-alone strategy for remediation.	Low	Selected. To be used in conjunction with other active remediation technologies for alternative development.
In-Situ Treatment	Soil vapor extraction (SVE)	SVE	This technology reduces concentrations of volatile compounds in vadose zone soil by applying a vacuum to a network of vertical or horizontal wells. Compounds volatilized from the soil are collected in the extraction system and are often treated with carbon adsorption before being released. The increased air flow through the subsurface can stimulate biodegradation of some contaminants. SVE can be applied with heat (e.g., by injecting heated air) to enhance the removal of compounds that are less volatile.	SVE is a proven technology for removing volatile and semi-volatile contaminants in vadose soils but concentration reductions greater than about 90% are difficult to achieve. However, this technology is not deemed useful for the site because the source of VOCs in soil vapor is believed to be volatilization from groundwater, which is impacted at upgradient sites. Therefore, SVE will not be able to achieve soil vapor clean up at the Site.	SVE systems are constructed from readily available equipment but installation of SVE wells in the at the Site may lead to significant disruption of operations. An air emission permit may be required.	High	Eliminated. Due to presence of offsite sources, SVE will be impractical

TABLE 10
Preliminary Cost Estimates
Former Ventura Manufactured Gas Plant
1555 North Olive Street
Ventura, California

Alternative	Quantity	Unit	Rate ($)	Subtotal ($)	Total ($)
1. No Action	1	1	0	0	**0**
2. Land Use Covenant					
Land Use Covenant Preparation and Implementation	1	Est.	10,000	10,000	
DTSC Oversight Cost (assumed at 20% of cost)	1	Est.		2,000	
Annual Inspections (see table 11 for details)				114,424	**126,424**
3. Excavation and Offsite Treatment/Disposal					
Mob/Demob/Permitting/Demolition	1	Est.	50,000	50,000	
Removal & Loading of Soil	2,500	ton	30	75,000	
Transportation and Offsite Treatment	2,500	ton	70	175,000	
Backfilling with Clean Soil	3,000	ton	25	75,000	
Design/Oversight/Management	1	Est.	60,000	60,000	
Geotech/Testing/Closure Report	1	Est.	55,000	55,000	
Land Use Covenant Preparation and Implementation	1	Est.	10,000	10,000	
DTSC Oversight Cost (assumed at 10% of cost)	1	Est.		50,000	
Annual Inspections (see table 11 for details)				114,424	**664,424**
4. Indoor Air Sampling and Analysis at Compressor Building					
Workplan and O&M Plan Preparation	1	Est.	10,000	10,000	
Sampling and Analysis	1	Est.	15,000	15,000	
Report	1	Est.	10,000	10,000	
DTSC Oversight Cost (assumed at 20% of cost)	1	Est.		7,000	**42,000**
Annual Inspections (included as part of Alternative 3)					

TABLE 11
30-Year Operation and Maintenance Cost
(Present Value)
Former Ventura Manufactures Gas Plant Site
1555 North Olive Street
Ventura, CA

Fiscal Year[1]	Actual Year[1]	Activity 1	Activity 2	Estimated DTSC Oversight[2]	Total Estimated Cost by Year	Discount Factor	Cumulative Present Value[3]
		Annual Site Inspection	5-year Review Reporting				
1	2022	$3,000		$600	$3,600	0.98522	$3,547
2	2023	$3,000		$600	$3,600	0.97066	$3,494
3	2024	$3,000		$600	$3,600	0.95632	$3,443
4	2025	$3,000		$600	$3,600	0.94218	$3,392
5	2026	$3,000	$5,000	$1,600	$9,600	0.92826	$8,911
6	2027	$3,000		$600	$3,600	0.91454	$3,292
7	2028	$3,000		$600	$3,600	0.90103	$3,244
8	2029	$3,000		$600	$3,600	0.88771	$3,196
9	2030	$3,000		$600	$3,600	0.87459	$3,149
10	2031	$3,000	$5,000	$1,600	$9,600	0.86167	$8,272
11	2032	$3,000		$600	$3,600	0.84893	$3,056
12	2033	$3,000		$600	$3,600	0.83639	$3,011
13	2034	$3,000		$600	$3,600	0.82403	$2,966
14	2035	$3,000		$600	$3,600	0.81185	$2,923
15	2036	$3,000	$5,000	$1,600	$9,600	0.79985	$7,679
16	2037	$3,000		$600	$3,600	0.78803	$2,837
17	2038	$3,000		$600	$3,600	0.77639	$2,795
18	2039	$3,000		$600	$3,600	0.76491	$2,754
19	2040	$3,000		$600	$3,600	0.75361	$2,713
20	2041	$3,000	$5,000	$1,600	$9,600	0.74247	$7,128
21	2042	$3,000		$600	$3,600	0.73150	$2,633
22	2043	$3,000		$600	$3,600	0.72069	$2,594
23	2044	$3,000		$600	$3,600	0.71004	$2,556
24	2045	$3,000		$600	$3,600	0.69954	$2,518
25	2046	$3,000	$5,000	$1,600	$9,600	0.68921	$6,616
26	2047	$3,000		$600	$3,600	0.67902	$2,444
27	2048	$3,000		$600	$3,600	0.66899	$2,408
28	2049	$3,000		$600	$3,600	0.65910	$2,373
29	2050	$3,000		$600	$3,600	0.64936	$2,338
30	2051	$3,000	$5,000	$1,600	$9,600	0.63976	$6,142
TOTALS:		**$90,000**	**$30,000**	**$24,000**	**$144,000**		**$114,424**

Present Value = $114,424

Notes/Assumptions:
1) Assumes remediation will be completed in 2021 and annual inspection will start in 2022
2) DTSC oversight cost is estimated at 20% of the total cost
3) Present Value is based on 1.5% Rate. No escalation cost is assumed

FIGURES

X:\GIS_CAD_GIN\Figures\SCG\Ventura\Updated RAW\Figure 1 Site Location Map.mxd

LEGEND

Site Boundary

N

0 0.25 0.5 1 Miles

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FIGURE 1
SITE LOCATION MAP

1555 N. Olive Street
Ventura, California

PROJECT: SCG 024

DATE: JUNE 2020

X:\GIS_CAD_GINT\Figures\SCG\Ventura\Updated RAW\Figure 2 Site Plan.mxd

PARCEL E
VENTURA COUNTY
FLOOD CONTROL DISTRICT

PARCEL G
CITY OF
SAN BUENAVENTURA

PARCEL D
CALIFORNIA DEPT. OF
TRANSPORTATION (HWY 33)

PARCEL C
VENTURA SEASIDE PROPERTIES
C.D. LYON CONSTRUCTION INC.

PARCEL B
T&T TRUCK &
CRANE SERVICE
(OFFSHORE CRANE)

PARCEL A
SOUTHERN CALIFORNIA
GAS COMPANY

1555 N. OLIVE STREET
MAINTENANCE YARD
"SITE"

W McFARLANE D

OLIVE STREET

AMW-08
DBMW-1
VCU1
DMW-4
AMW-11
AMW-05
AMW-9
VCU2
AMW-6
Existing Office Building
(to be demolished)
Former Dispenser
Proposed Motor Control
Center Room
AMW-10
AMW-7
Former
Reported USTs Area
VCU3
VCU7
Former Septic
Leach Area
(Seepage Pit)
Existing Warehouse
(to be demolished)
UST MW-4
UST MW-1
Former 500-gallon
Diesel UST
MW-3
VCU9
UST MW-2
DMW-2
VCU6
Former 6,000-gallon
Gasoline UST
UST MW-3
VCU4
UST MW-6
UST MW-8
Proposed Office
Building
UST MW-5
Proposed Compressor
Building
Proposed Warehouse
VCU5
VCU8
UST MW-7

LEGEND

- FormerMGPBoundary
- Parcel A
- Parcel B
- Parcel C
- Parcel D
- Parcel E
- Parcel F
- Parcel G
- SoCalGas Compressor Station (Site)
- Proposed Buildings
- Proposed Storm Water Infiltration Area
- Buildings
- Former Underground Storage Tanks (USTs)
- Inaccessible Areas During Remediation of Parcel A (2011)*
- Former Monitoring Wells
- Borings (Wood 2019)

Note:
*Areas inaccessible during remedial action, as reported in Removal Action Completion Report (Tetra Tech, 2011)

N

0 50 100 200
Feet

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FIGURE 2
SITE PLAN

1555 N. Olive Street
Ventura, California

PROJECT: SCG 024 DATE: JUNE 2020

X:\GIS_CAD_GIN\Figures\SCG\Ventura\Updated RAW\Figure 3 Architural Rendering New Buildings.mxd

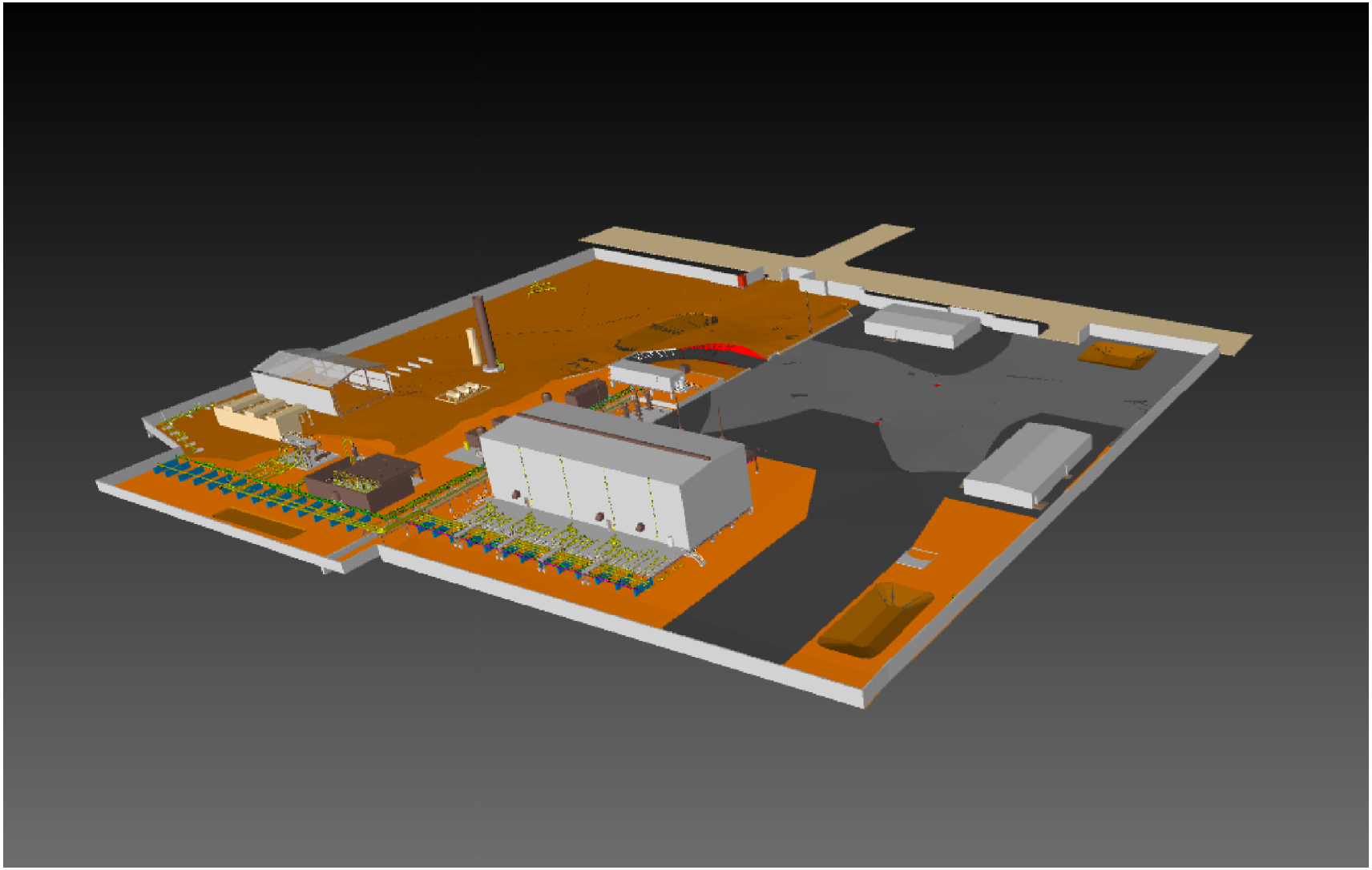

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FIGURE 3
ARCHITURAL RENDERING OF
THE NEW COMPRESSOR STATION
1555 N. Olive Street
Ventura, California

PROJECT: SCG 024 DATE: JUNE 2020

X:\GIS_CAD_GINT\Figures\SCG\Ventura\Updated RAW\Figure 4 Soil Results.mxd

I11-S1 (mg/kg)	Depth (ft)	B(a)P
	4	***4.60***

I7-S1 (mg/kg)	Depth (ft)	B(a)P
	6	***2.80***

I15-S3 (mg/kg)	Depth (ft)	TPH-g	TPH-d	TPH-hh
	5	***2,200***	***963***	***9,300***

B2 (mg/kg)	Depth (ft)	Arsenic
	2	***13.3***

B15s (mg/kg)	Depth (ft)	B(a)P	Arsenic
	2	***6.6***	***29.5***

B1 (mg/kg)	Depth (ft)	B(a)P	Lead	TPH-d
	2	***1.1***	***560***	***353***
	30	bsl	bsl	***384***
	35	bsl	bsl	***880***

B3 (mg/kg)	Depth (ft)	TPH-d
	30	***373***

B5s (mg/kg)	Depth (ft)	TPH-g	TPH-d
	35	bsl	***3,290***

B6 (mg/kg)	Depth (ft)	TPH-d
	35	***410***

W McFARLANE DR

OLIVE STREET

Proposed Motor Control Center Room

Former Reported USTs Area

Former Septic Leach Area (Seepage Pit)

Former Dispenser

Former 500-gallon Diesel UST

Former 6,000-gallon Gasoline UST

Existing Office Building (to be demolished)

Existing Warehouse (to be demolished)

1555 N. OLIVE STREET MAINTENANCE YARD "SITE"

Proposed Compressor Building

Proposed Office Building

Proposed Warehouse

VMP1

B4 B7 B8 B9 B10 B11 B12 B13 B14 B16 B17

LEGEND

- Proposed Buildings
- Proposed Storm Water Infiltration Area
- Parcel F
- Parcel A
- Existing Buildings
- SoCalGas Compressor Station
- FormerMGPBoundary
- Inaccessible Areas During Remediation of Parcel A (2011)[1]
- Former Underground Storage Tanks (USTs)
- Soil Boring[2]
- Soil Gas Probe
- Side Wall Confirmation Sample[3]

Notes:

1. Areas inaccessible during remedial action, as reported in Removal Action Completion Report (Tetra Tech, 2011).
2. Concentrations shown exceeded residential Health Based Goals (HBGs), or background, or DTSC residential exposure level for lead (80 mg/kg).
3. Confirmation sample data from Removal Action Completion Report (TetraTech, 2011)

Soil concentration reported in milligrams per kilogram (mg/kg).

bsl - below screening levels
DTSC - Department of Toxic Substances and Control
ft - feet
B(a)P - benzo(a)pyrene
TPH - total petroleum hydrocarbons
TPH-d - TPH-diesel
TPH-g - TPH-gasoline

N

0 45 90 180 Feet

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FIGURE 4
SOIL SAMPLING RESULTS
1555 N. Olive Street
Ventura, California

PROJECT: SCG 024 DATE: OCTOBER 2020

X:\GIS_CAD_GINT\Figures\SCG\Ventura\Updated RAW\Figure 5 Soil Gas Results.mxd

B2 (µg/m³)	Depth (ft)	VC
	5	***299***
	15	***330***

B15 (µg/m³)	Depth (ft)	Napth.
	5	***419***

B1 (µg/m³)	Depth (ft)	Napth.	VC
	5	bHBG	***771***
	15	***475***	***1,460***
	25	***600***	***1,640***

B3 (µg/m³)	Depth (ft)	Ethyl-benzene	Napth.
	25	***10,500***	***2,970***

Existing Office Building (to be demolished)

Former Septic Leach Area (Seepage Pit)

Former Dispenser

Former 500-gallon Diesel UST

Former 6,000-gallon Gasoline UST

Proposed Motor Control Center Room

Former Reported USTs Area

Existing Warehouse (to be demolished)

Proposed Office Building

1555 N. OLIVE STREET MAINTENANCE YARD "SITE"

Proposed Compressor Building

Proposed Warehouse

W McFARLANE DR

OLIVE STREET

VMP1

B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 B15 B16 B17

LEGEND

- SoCalGas Compressor Station (Site)
- FormerMGPBoundary
- Proposed Buildings
- Proposed Storm Water Infiltration
- Parcel F
- Parcel A
- Existing Buildings
- Inaccessible Areas During Remediation of Parcel A (2011)[1]
- ▲ Two Soil Vapor Probes Installed[2]
- ▲ Three Soil Vapor Probes Installed[2]
- ⊗ Soil Boring
- ▪ Former Underground Storage Tanks (USTs)

Notes:
1. Areas inaccessible during remedial action, as reported in Removal Action Completion Report (Tetra Tech, 2011).
2. Concentrations shown exceeded the industrial Health Based Goals (HBG).
3. Soil vapor probe concentrations reported in micrograms per cubic meter (µg/m³).

bsl - below screening levels
ft - feet
Napth. - naphthalene
VC - Vinyl Chloride

N

0 45 90 180 Feet

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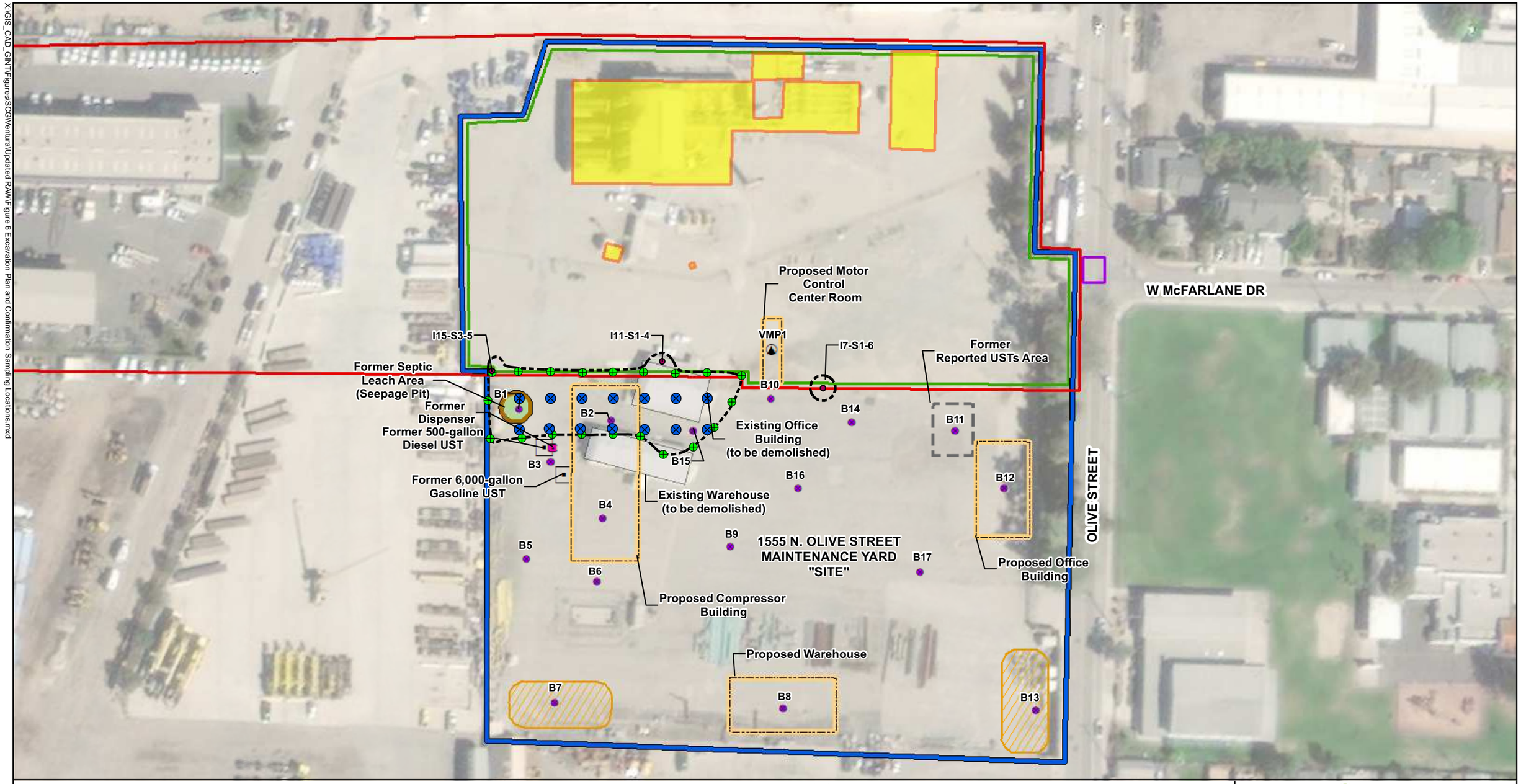
Environmental Engineering and Science

FIGURE 5
SOIL GAS SAMPLING RESULTS
1555 N. Olive Street
Ventura, California

PROJECT: SCG 024 DATE: JUNE 2020

X:\GIS_CAD_GINT\Figures\SCG\Ventura\Updated RAW\Figure 6 Excavation Plan and Confirmation Sampling Locations.mxd



LEGEND

- FormerMGPBoundary
- SoCalGas Compressor Station
- Parcel F
- Parcel A
- Existing Buildings
- Proposed Buildings
- Proposed Storm Water Infiltration Area
- Proposed Excavation Area South of Parcel A
- Inaccessible Areas During Remediation of Parcel A (2011)[1]
- Former Underground Storage Tanks (USTs)
- Soil Boring
- Soil Gas Probe
- Confirmation Samples (2011)[3]

Confirmation Samples[2]

- Floor
- Sidewall

Notes:

1. Areas inaccessible during remedial action, as reported in Removal Action Completion Report (Tetra Tech, 2011).
2. Side Wall confirmation sample data from Removal Action Completion Report (TetraTech, 2011).
3. Excavation floor confirmation samples will be collected at a spacing of 30 feet. Sidewall samples will be collected at 30-foot intervals, in the midpoint (vertically) of the sidewall.

0 45 90 180 Feet

N

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FIGURE 6
EXCAVATION PLAN AND CONFIRMATION SAMPLING LOCATIONS
1555 N. Olive Street
Ventura, California

PROJECT: SCG 024 DATE: OCTOBER 2020

X:\GIS_CAD_GIN\Figures\SCG\Ventura\Updated RAW\Figure 7 Transportation Route Map.mxd

Directions:

1. Head toward W McFarlane Dr on N Olive St
2. Turn left onto Stanley Ave
3. Take ramp onto CA-33 S (Ojai Fwy) toward Ventura
4. Take the left exit toward Los Angeles onto US-101 S (Ventura Fwy)
5. Continue on CA-134 E, and I-210 E
6. Take I-15 North.
7. From I-15 North, exit to US-395 North.
8. From US-395 North, keep right onto Adelanto Rd.
9. From Adelanto Rd, turn right onto Hibiscus Rd.

N

0 3 6 12 Miles

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FIGURE 7
TRANSPORTATION ROUTE MAP

1555 N. Olive Street
Ventura, California

PROJECT: SCG 024 DATE: JUNE 2020

ATTACHMENT A

DTSC APPROVAL LETTER FOR REMOVAL ACTION WORKPLAN (TETRA TECH, MAY 2009)

Department of Toxic Substances Control

Linda S. Adams
Secretary for
Environmental Protection

Maziar Movassaghi
Acting Director
1515 Tollhouse Road
Clovis, California 93611

Arnold Schwarzenegger
Governor

October 7, 2009

Masood Hosseini, Ph.D.
Senior Project Manager
Site Assessment & Mitigation
Southern California Gas Company
555 West Fifth Street, GT16G2
Los Angeles, California 90013-1036

Dear Dr. Hosseini:

APPROVAL OF REMOVAL ACTION WORKPLAN FOR THE FORMER VENTURA MANUFACTURED GAS PLANT (PARCELS A AND F)

A Public Comment Period on the draft Removal Action Workplan (RAW) for the Former Ventura Manufactured Gas Plant (Parcels A and F) Site was conducted between May 22, 2009 and June 22, 2009. Comments received during the public comment period and Department of Toxic Substances Control (DTSC) responses to those comments are provided in the enclosed Responsiveness Summary dated August 18, 2009. Based upon review of the comments received, DTSC has determined that revisions to the content of the draft RAW are not required. On that basis, DTSC is hereby approving the draft RAW as final subject to the actions described below:

1. The enclosed Responsiveness Summary and CEQA - Notice of Exemption shall be added to the final RAW as appendices. Within five days of the date of this letter, two copies of the Final RAW shall be sent to DTSC (Kevin Shaddy), and one copy shall be placed in the project repository at the Ventura County Library. A portable document format (pdf) version of the Final RAW shall also be provided to DTSC.

2. In the event that excavation activities conducted during the project encroach on the LUFT project area or the associated monitoring wells, Southern California Gas Company (SCG) shall notify and coordinate with the Ventura County Environmental Health Division, LUFT Program to minimize any impact on the LUFT project.

3. All project construction activities shall comply with applicable rules and requirements of the Ventura County Air Pollution Control District (VCAPCD). Subsequent to the public comment period and prior to commencement of soil

KS:cm
KS02.109

excavation or grading activities, the applicable rules and requirements shall be confirmed with the VCAPCD.

4. An appropriate sign shall be posted at the Site prior to the initiation of significance soil disturbances at the Site which lists contact numbers for DTSC and the VCAPCD. This will allow community members an avenue to express concerns regarding unreasonable odors or dust originating from the Site. DTSC will coordinate with Tetra Tech on the content of this sign.

If you should have any questions or concerns, please contact me at (559) 297-3929 or by email at kshaddy@dtsc.ca.gov.

Sincerely,

Kevin L. Shaddy, P.E.
Supervising Hazardous Substances Engineer I
Brownfields and Environmental Restoration Program

Enclosures

cc: Mr. Eric Hodder, PG., CHg
Corporate Environment, Health and Safety Division
Southern California Edison
P.O. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Mr. Salar D. Niku, Ph.D.
Project Manager
Tetra Tech, Inc.
3475 E. Foothill Boulevard
Pasadena, California 91107

Ms. Mona Arteaga Bontty
Public Participation Supervisor
Dept. of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

KS:cm
KS02.109

ATTACHMENT B

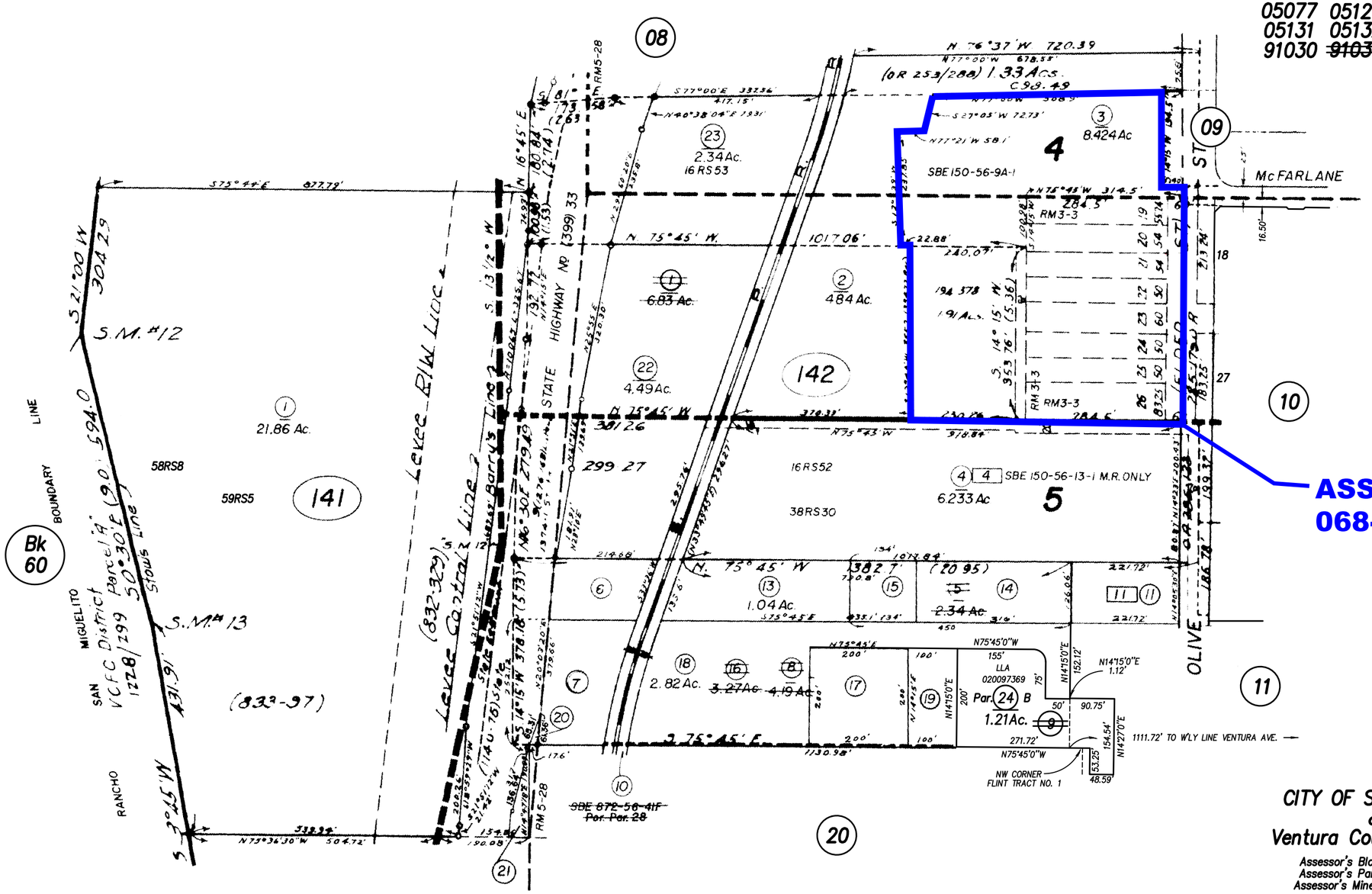
PARCEL MAP

RANCHO EX-MISSION

Tax Rate Area
05030 05090
05077 05123
05131 05132
91030 ~~91035~~

68-14

1" = 200'



ASSESSOR'S PARCEL NUMBER
068-0-142-030

CITY OF SAN BUENAVENTURA
& VICINITY
Ventura County Assessor's Map.

Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
Assessor's Mineral Numbers Shown in Squares.

Leighton Survey, M.R. Bk.5, Pg.28, & Bk.5, Pg.43
Portion McMenemin Tract, M.R. Bk.3, Pg.3
Rancho Ex-Mission, Tract No.1, M.R. Bk.2, Pg.103

NOTE: ASSESSOR PARCELS SHOWN ON THIS PAGE DO NOT NECESSARILY CONSTITUTE LEGAL LOTS. CHECK WITH COUNTY SURVEYOR'S OFFICE OR PLANNING DIVISION TO VERIFY.

DRAWN		REVISED	3-2-2017
REDRAWN		CREATED	
INKED	PLOTTED	EFFECTIVE	ROLL
Compiled By Ventura County Assessor's Office			

ATTACHMENT C

APPLICABLE, RELEVANT, AND APPROPRIATE REQUIREMENTS (ARARS)

Attachment C - Table 1

Federal Chemical-Specific ARARs

Requirement	Prerequisite	Citation	ARAR Determination	Comments
Soil				
Resource Conservation and Recovery Act (RCRA)/HWCA				
Definition of RCRA hazardous waste.	Waste soil	40 CFR 261.3; Title 22 CCR 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Relevant and appropriate to excavation alternative	Hazardous waste not expected to be generated at this site. All waste to be disposed will be profiled prior to disposal.
Toxic Substances Control Act (TSCA)				
Regulates use and manufacture of toxic substances and storage and disposal of polychlorinated biphenyls (PCBs).	Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 parts per million (ppm).	40 CFR 761.60, excluding 761.60(a)(B) and(D), 761.60(a)(3)(iii)(3), 761.60(e), 761.60(f); 761.65(a) and (b); 761.65(c) except 761.65(c)(9); 761.65(e)(6)(ii and iii); 765.65(e)(7) and (8); 761.79 (15 USC 2601 et seq)	Not an ARAR	Site has no known PCB-contaminated or PCB-containing materials
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)*				
Procedures recommended for all pesticide storage and disposal activities.	Recommendations for the disposal of organic pesticides, metal-organic pesticides, organic mercury, lead, cadmium, arsenic, and all inorganic pesticides	40 CFR 165.8	Not an ARAR	Processes and disposal practices at the site did not include any of the regulated substances under this act
Water				
Clean Water Act (CWA) 33 USC 1251-1376				
Regulates discharges of water from a facility or site including site runoff.	Wastewater discharge to a water body	40 CFR 100-149	Not an ARAR	There is no wastewater to be generated at this site.
Safe Drinking Water Act (SDWA) 42 USC 300f - 300j				
Regulates the quality of drinking water supply and lists maximum contaminant levels.	Drinking water	40 CFR 141-143	Not an ARAR	There is no drinking water source at this site.

Attachment C - Table 1

Federal Chemical-Specific ARARs

Requirement	Prerequisite	Citation	ARAR Determination	Comments
Air				
Clean Air Act (CAA), 40 USC 7401 et.seq.				
National Ambient Air Quality Standards (NAAQS); Primary and secondary standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare.	40 CFR 50.4 - 50.13	Not an ARAR	See Table 6 for VCAPCD ARARs
Provisions of State Implementation Plan (SIP) approved by EPA under Section 110 of CAA.	Major sources of air pollutants.	40 USC 7410; portions of 40 CFR 52.220 applicable to VCAPCD	Potentially relevant and appropriate.	See Table 6 for VCAPCD ARARs

*Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the preparer accepts the entire statutes or policies as potential ARARs. Specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.

ARARs = Applicable or relevant and appropriate requirements
CAA = Clean Air Act
CCR = California Code of Regulations
CFR = Code of Federal Regulations
EPA = U.S. Environmental Protection
FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act
NAAQS = National Ambient Air Quality Standards (primary and secondary)
RCRA = Resource Conservation and Recovery Act
ppm = Parts per million
PCB = Polychlorinated biphenyls
RI = Remedial Investigation
SIP = State Implementation Plan
TBC = "To Be Considered" Guidance
TSCA = Toxic Substances Control Act
USC = United States Code
VCAPCD = Ventura County Air Pollution Control District

Chemical-specific concentrations used may not be ARARs indicated in this table, but may be concentrations based upon other factors. Such factors may include the following:

- Human health risk-based concentrations (risk-based; PRGs 40 CFR 300.430(e)(A)(1) and (2)).
- Ecological risk-based concentrations (40 CFR 300.430(e)(G)).
- Practical quantitation limits of contaminants (40 CFR 300.430(e)(A)(3)).

Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.

Attachment C - Table 2
State Chemical-Specific ARARs

Requirement	Prerequisite	Citation	ARAR Determination	Comments
Soil				
Cal-EPA Department of Toxic Substances Control (DTSC)				
Definition of "Non-RCRA hazardous waste"	Waste	22 CCR 66261.22(a)(3) and (4), 66261.24(a)(2) to (a)(8), 66261.101, 66261.3(a)(2)(C), or 66261.3(a)(2)(F)	Applicable	Hazardous waste not expected to be generated at this site. All waste to be disposed will be profiled prior to disposal.
Water				
State and Regional Water Quality Control Board (RWQCB)*				
Authorizes the State and Regional Water Boards to establish in Water Quality Control Plans beneficial uses and numerical and narrative standards to protect both surface and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.	Waste discharge	California Water Code, Division 7, Sections 13241, 13243, 13263(a), and 13360 (Porter-Cologne Water Quality Control Act) and other provisions of the Porter-Cologne Water Quality Control Act	Potentially applicable, if groundwater or surface water are impacted by the site	Specific actions are focused in remediating soil, although, underlying groundwater is expected to be an impacted resource

Attachment C - Table 2
State Chemical-Specific ARARs

Describes the water basins in the Los Angeles Region, establishes beneficial uses of ground and surface waters, establishes water quality objectives, including narrative and numerical standards, establishes implementation plans to meet water quality objectives and protect beneficial uses, and incorporates statewide water quality control plans and policies.	Waste discharge	Water Quality Control Plan (Basin Plan) Los Angeles Region, June 13, 1994	Potentially applicable, if groundwater or surface water are impacted by the site	Substantive provisions in Chapters 2, 3, 4 and 5 include beneficial use designations, water quality objectives, waste discharge requirements, non-point source management requirements, drinking water policy and policies and procedures for investigation and cleanup and abatement of discharges.

*Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the preparer accepts the entire statutes or policies as potential ARARs. Specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.

ARARs = Applicable or relevant and appropriate requirements
RCRA = Resource Conservation and Recovery Act
Chemical-specific concentrations used for removal action alternative evaluation may not be ARARs indicated in this table, but may be concentrations based upon other factors. Such factors may include the following:

. Human health risk-based concentrations (risk-based; PRGs 40 CFR 300.430(e)(A)(1) and (2))
. Ecological risk-based concentrations (40 CFR 300.430(e)(G))
. Practical quantitation limits of contaminants (40 CFR 300.430(e)(A)(3))

Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.

Attachment C - Table 3

Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Hazardous Waste Control Act (HWCA)*					
Within 100-year floodplain	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste, treatment, storage, or disposal of hazardous waste	22 CCR 66264.18(b)	TBC	Hazardous waste not expected to be generated at this site.
Executive Order 11988, Protection of Floodplains*					
Within floodplain	Actions taken should avoid adverse effects, minimize potential harm, and restore and preserve natural and beneficial resources	Action that will occur in a floodplain (i.e., lowlands) and relatively flat areas adjoining inland and coastal waters and other flood-prone areas	44 CFR 9, Appendix A	Relevant and Appropriate	Site is highly urbanized and is adjacent to the Ventura River. The River has been transformed as a flood control channel
Archaeological Resources Protection Act, 16 USC Section 469 at seq*					
Within area where action may cause irreparable harm, loss, or destruction of significant artifacts	Construction on previously undisturbed land would require an archaeological survey of the area	Alteration of terrain that threatens significant scientific, prehistoric, historic, or archaeologic data	Substantive requirements of 36 CFR 65	Relevant and Appropriate	Remedial excavation at Parcel A did not reveal archaeological artifacts.
National Historic Preservation Act, 16 USC Section 470*					
Historic project owned or controlled by Federal agency	Action to preserve historic properties; planning of action to minimize harm to national historic landmarks.	Property included in or eligible for the National Register of Historic Places	Substantive requirements of 36 CFR 800	Not an ARAR	No known historic property that needs to be preserved
Endangered Species Act of 1973*					
Critical habitat upon which endangered species or threatened species depend	Action to conserve endangered species or threatened species, including consultation with the Department of the Interior.	Determination of effect upon endangered or threatened species or their habitat	16 USC 1536(a)	Not an ARAR	No known endangered or listed species at site
Executive Order 11990, Protection of Wetlands*					
Wetland	Action to minimize the destruction, loss, or degradation of wetlands.	Wetland as defined by Executive Order 11990, Section 7	44 CFR 9, Appendix A	Not an ARAR	Site is not within a wetland zone
Clean Water Act, Section 404*					
Wetland	Action to prohibit discharge of dredged or fill material into wetland without permit. Mitigation may be required to avoid net loss of wetlands	Wetland as defined by Executive Order 11990, Section 7	40 CFR 230.10; 40 CFR 231 (excluding 231.1, 231.2, 231.7, and 231.8)	Not an ARAR	Site is not within a wetland zone

Attachment C - Table 3

Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Wilderness Act*					
Wilderness Area	Area must be administered in a manner that will leave it unimpaired as wilderness and preserve its wilderness character	Federally owned area designated as wilderness area	50 CFR 35.1 et seq.	Not an ARAR	Site is highly urbanized
National Wildlife Refuge System*					
Wildlife refuge	Only actions allowed under the provisions of 16 USC 668 dd(c) may be undertaken in areas that are part of the National Wildlife Refuge System	Area designated as part of the National Wildlife Refuge System	50 CFR 27	Not an ARAR	Site is highly urbanized
Fish and Wildlife Coordination Act, Section 662*					
Area affecting stream or other water body	Action taken should protect fish or wildlife.	Diversion, channeling, or other activity that modifies a stream or other water body and affects fish or wildlife	16 USC 662	Not an ARAR	There will be no physical modification of any water body affecting fish or wildlife
Wild and Scenic Rivers Act*					
Within area affecting national wild, scenic, or recreational river	Avoid taking or assisting in an action that will have direct adverse effect on scenic river.	Activities that affect or may affect any of the rivers specified in 16 USC 1276(a)	16 USC 1271 et seq., Section 7(a)	Not an ARAR	There will be no physical modification of any water body affecting fish or wildlife
Coastal Zone Management Act*					
Within coastal zone	Conduct activities in a manner consistent with approved State management programs.	Activities affecting the coastal zone, including lands thereunder and adjacent shoreland.	Section 307(c) of 16 USC 1456(c); 15 CFR 930 and 923.45	Not an ARAR	Site is inland, at least 20 miles from the ocean
Coastal Barrier Resources Act, Section 3504*					
Within designated coastal barrier	Prohibits any new Federal expenditure within the Coastal Barrier Resource System.	Activity within the Coastal Barrier Resource System	16 USC 3504	Not an ARAR	Site is inland, at least 1.5 miles from the ocean
Historic Sites, Buildings, and Antiquities Act*					
Historic Sites	Avoid undesirable impacts on landmarks.	Areas designated as historic sites	16 USC 461-467	Not an ARAR	There are no historic sites on site

Attachment C - Table 3

Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Rivers and Harbors Act of 1890*					
Navigable waters	Permits required for structures or work in or affecting navigable waters.	Activities affecting navigable waters	33 USC 403	Not an ARAR	Ventura River is a flood control channel with little or no navigational activities
Migratory Bird Treaty Act of 1972*					
Migratory bird area	Protects almost all species of native birds in the United States from unregulated "take", which can include poisoning at hazardous waste sites	Presence of migratory birds	16 USC 703	Not an ARAR	Site is not a known migratory bird habitat
Marine Mammal Protection Act*					
Marine mammal area	Protects any marine mammal within the United States from unregulated "take" except as provided by international treaties	Presence of marine mammals	16 USC 1372(2)	Not an ARAR	Site is not a marine ecological system
Magnuson Fishery Conservation and Management Act*					
Fishery under management	Provides for conservation and management of specified fisheries within specified fishery conservation zones	Presence of managed fisheries	16 USC 1801 et seq.	Not an ARAR	Site is not a marine ecological system

*Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs. Specific potential ARARs follow each general heading.

ARARs = Applicable or relevant and appropriate requirements
CCC = California Coastal Commission
CCR = California Code of Regulations
CFR = Code of Federal Regulations
HWCA = Hazardous Waste Control Act
NWS = Naval Weapons Station
RCRA = Resource Conservation and Recovery Act
RWQCB = California Regional Water Quality Control Board
SHPO = State Historical Preservation Officer
USC = United States Code

Attachment C - Table 4

State Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Fish and Wildlife Game Code*					
Endangered Species Habitat	No persons shall import, export, take, possess, or sell any endangered or threatened species or part or product thereof.	Threatened or endangered species determination on or before 1 January 1985 or a candidate species with proper notification	FGC 2080	Not an ARAR	There is no threatened or endangered species listed for the site.
Endangered Species Habitat	Department policy and legislative findings and definitions for significant natural areas.		FGC 2050-2068	Not an ARAR	There is no threatened or endangered species listed for the site.
Endangered Species Habitat	Procedures for listing endangered species.		FGC 2070	Not an ARAR	There is no threatened or endangered species listed for the site.
Endangered Species Habitat	Ensures that action taken will not jeopardize the survival and reproduction of any threatened or endangered species.		FGC 2090-2096	Not an ARAR	Not effective after January 1, 1994.
California Coast Act of 1976*					
Coastal Zone	Regulates activities associated with development to control direct significant impacts on coastal waters and protect State and national interests in California coastal resources. Requires a consistency determination for federal activities within a coastal		PRC 30000-30900; 14 CCR 13001-136664.4	Not an ARAR	Procedural, not a "cleanup standard," "standard of control," or "other substantive requirement, criteria or limitation." However, the CERCLA process contains the functional equivalent in the feasibility study report.

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ARARs = Applicable or relevant and appropriate requirements
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CCR = California Code of Regulations
FGC = Fish and Game Code
NA = Not an ARAR
PRC = Public Resources Code
TBC = To be considered

Attachment C - Table 5

Federal Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
Resource Conservation and Recovery Act (RCRA) 42 USC 6901 et seq.*							
On-site waste generation	Person who generates waste shall determine if that waste is hazardous.	Generator of hazardous waste in California	22 CCR 66262.11	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
Hazardous waste accumulation	Generator may accumulate waste on site for 90 days or less or must comply with requirements for operating a storage facility.	Accumulate hazardous waste	22 CCR 66262.34	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
Recordkeeping	Generator must keep manifests, biennial and exception reports and records of waste determination for at least 3 years.	Generate hazardous waste.	22 CCR 66262.40	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
Container storage	Containers of RCRA hazardous waste must be 1) maintained in good condition, 2) compatible with hazardous waste to be stored and 3) closed during storage except to add or remove waste	Storage of hazardous waste in containers for more than 90 days.	22 CCR 66264.171, 172, 173	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	Inspect container storage areas weekly for deterioration.		22 CCR 66264.174	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system		22 CCR 66264.175(a) and (b)	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled.
	Keep containers of ignitable or reactive waste at least 50 feet from the facility property line.		22 CCR 66264.176	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled

Attachment C - Table 5
Federal Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
	Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.		22 CCR 66264.177	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers, liners.		22 CCR 66264.178	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
Closure of surface impoundments	General performance standard requires elimination of need for further maintenance and control; elimination of post closure escape of hazardous waste, hazardous constituent, leachate, contaminated runoff, or hazardous waste decomposition products.	Land based unit containing hazardous waste. RCRA hazardous waste placed at site after the effective date of the requirements, or placed into another unit. Cleanup to health-based standards that will not require long-term management. Not applicable to material treated, stored, or disposed only before the effective date of the requirements, or if treated in situ, or consolidated within	22 CCR 66264.111 except as it cross-references procedural requirements such as preparation and submittal of closure plans and other notifications.				No surface impoundments present at the site
Clean closure of surface impoundments (removal)	Removal or decontamination of all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate, and management of them as hazardous waste.	Surface impoundments, container or tank liners and hazardous waste residues, or contaminated soil (including soil from dredging or soil disturbed in the course of drilling or excavation) returned	22 CCR 66264.111 and 66264.228(a)(1)and (c), except as it cross- references procedural requirements such as closure plans and annual reports.				No surface impoundments present at the site

Attachment C - Table 5
Federal Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
Closure of surface impoundments with waste in place (capping)	Requirements include eliminating free liquids, stabilizing remaining waste to support a cover and covering the surface impoundment. The cover should be constructed to prevent downward entry of water for 100 years, function with minimum maintenance, promote drainage and eliminate erosion, accommodate settling and shear forces, have a permeability of less than or equal to permeability of	Surface impoundment containing hazardous waste.	22 CCR 66264.228(a)(2), (b) and (d) through (r), except as it cross- references procedural requirements such as closure plans and annual reports				No surface impoundments present at the site
Excavation of soil from vicinity of surface impoundment	Area from which materials are excavated may require cleanup to levels established by closure requirements.	RCRA hazardous waste placed at site after the effective date of the requirements.	22 CCR 66264.228(a), (b), (e) through (k), (m), (o) through (q); 22 CCR 66264.258(a) and (b), except as it cross- references procedural				No surface impoundments present at the site
Groundwater monitoring for surface impoundment	Owners/operators of RCRA surface impoundment, waste pile, land treatment unit, or landfill shall conduct a monitoring and response program for each regulated unit.	Surface impoundment, waste pile, land treatment unit, or landfill for which constituents in or derived from waste in the unit may pose a threat to human health or the	22 CCR 66264. (c), 66264.91(a) and (c), 66264.92-.95, 66264.97-.98 except as it cross- references permit requirements				No surface impoundments present at the site
Excavation	Movement of excavated materials to new location and placement in or on land will trigger land disposal restrictions for the excavated waste or closure requirements for the unit in which the waste is being placed	environment aining RCRA Materials cont hazardous wastes subject to land disposal restrictions are placed in another unit.	22 CCR 66268.40	3, 4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
Treatment when waste will be land disposed	Treatment of waste subject to ban on land disposal must attain levels achievable by best demonstrated available treatment technologies (BDAT) for each hazardous constituent in each listed waste, if residual is to be land disposed.	Placement of RCRA hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, or underground mine or cave	22 CCR 66268.40 and 42	3, 4			Hazardous waste not expected to be generated at this site. Soil will be treated through thermal desorption prior to disposal.
Placement of waste in land disposal unit	Attain land disposal treatment standards before putting waste into landfill in order to comply with land ban restrictions.		22 CCR 66268.40	3,4			Hazardous waste not expected to be generated at this site. Soil will be treated through thermal desorption prior to disposal.

Attachment C - Table 5

Federal Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
Clean Air Act (CAA) 40 USC 7401 et seq.							
Discharge to air	Provisions of State Implementation Plan (SIP) approved by EPA under Section 110 of CAA.	Major sources of air pollutants	VCAPCD Rules		3,4		See Table 6 for VCAPCD ARARs
	National Primary and Secondary Ambient Air Quality Standards (NAAQS) - standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead)	Contamination of air affecting public health and welfare	40 CFR Sections 50.4 - 50.13		3,4		
U.S. Department of Transportation, 49 USC 1802, et seq.*							
Hazardous Materials Transportation	No person shall represent that a container or package is safe unless it meets the requirements of 49 USC 1802, et seq. or represent that a hazardous material is present in a package or motor vehicle if it is not.	Interstate carriers transporting hazardous waste and substances by motor vehicle. Transportation of hazardous material under contract with any department of the executive branch of the Federal government.	49 CFR 171.2(f)	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled.
	No person shall unlawfully alter or deface labels, placards or descriptions, packages, containers, or motor vehicles used for transportation of hazardous materials		49 CFR 171.2(g)	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
Hazardous Materials Marking, Labeling, and Placarding	Each person who offers hazardous material for transportation or each carrier that transports it shall mark each package, container, and vehicle in the manner required.	Person who offers hazardous material for transportation; carries hazardous material; or packages, labels, or placards hazardous material.	49 CFR 172.300	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled.
	Each person offering nonbulk hazardous materials for transportation shall mark the proper shipping name and identification number (technical name) and consignee's name and address		49 CFR 172.301	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled

Attachment C - Table 5
Federal Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
	Hazardous materials for transportation in bulk packages must be labeled with proper identification (ID) number, specified in 49 CFR 172.101 table, with required size of print. Packages must remain marked until cleaned or refilled with material requiring other marking		49 CFR 172.302	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled.
	No package marked with a proper shipping name or ID number may be offered for transport or transported unless the package contains the identified hazardous material or its residue		49 CFR 172.303	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	The markings must be durable, in English, in contrasting colors, unobscured, and away from other markings.		49 CFR 172.304	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	Labeling of hazardous material packages shall be specified in the list.		49 CFR 172.400	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	Nonbulk combination packages containing liquid hazardous materials must be packed with closures upward, and marked with arrows pointing upward.		49 CFR 172.312	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled
	Each bulk packaging or transport vehicle containing any quantity of hazardous material must be placarded on each side and each end with the type of placards listed in Tables 1 and 2 of 49 CFR 172 504		49 CFR 172.504	3,4			Hazardous waste is not expected to be generated during these activities. Hazardous waste determinations for excavated soil will be made at the time soils are stockpiled

Attachment C - Table 5
Federal Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	

*Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs. Specific potential ARARs are addressed in the table below each general heading.

A = Applicable
ACLs = Alternate concentration limits.
ARAR = Applicable or relevant and appropriate requirement
BACT = Best available control technology
BDAT = Best demonstrated available technologies
CAA = Clean Air Act
CAMU = Correction action management unit
CCR = California Code of Regulations
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CWA = Clean Water Act
DOT = U.S. Department of Transportation
EPA = U.S. Environmental Protection Agency
LAER = Lowest achievable emission rate
MCLs = Maximum contaminant levels
MCLGs = Maximum contaminant level goals
NAAQS = National Ambient Air Quality Standards (primary and secondary)
NCP = National Contingency Plan
NESHAPs = National emissions standards for hazardous air pollutants
NPDES = National Pollutant discharge elimination system
ppm = Parts per million
ppmv = Parts per million by weight
RA = Relevant and appropriate
RCRA = Resource Conservation and Recovery Act
RWQCB = California Regional Water Quality Control Board, San Diego Region
SDWA = Safe Drinking Water Act
SIP = State Implementation Plan
SMCLs = Secondary maximum contaminant levels
SWRCB = California State Water Resources Control Board
TBC = "To Be Considered" Guidance
UIC = Underground injection control
USDW = Underground source of drinking water
VCAPCD = Ventura County Air Pollution Control District

Attachment C -Table 6

State Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB)*							
Discharge affecting water quality	Authorizes the State and Regional Water Boards to establish in Water Quality Control Plans beneficial uses and numerical and narrative standards to protect both surface and ground water quality. Authorizes regional water boards to issue permits for discharges to land or surface or ground water that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.	Discharge to waters of the State	California Water Code, Division 7, Sections 13241, 13243, 13263(a), and 13360 (Porter-Cologne Water Quality Control Act) and other provisions of the Porter-Cologne Water Quality Control Act				No water discharge is expected from this site
Construction activity that results in 5 or more acres of soil disturbance	Requires discharges from construction sites to 1) submit a Notice of Intent to comply with the General Permit, 2) prepare a Storm Water Pollution Prevention Plan, 3) implement Best Management Practices that prevent construction pollutants from contacting storm water and prevent eroded products from moving off site, 4) eliminate or reduce non-storm water discharges and 5) inspect Best Management Practices to make sure they are in place.	Soil disturbance	State Water Resources Control Board Water Quality Order No. 99-08- DWQ, National Pollutant Discharge Elimination System General Permit No. CAS 000002, Waste Discharge Requirements for Discharges of Storm Water Associated with Construction Activity				Site is less than 5 acres
Remediation of a surface impoundment	Authorizes the RWQCB to regulate surface impoundments containing hazardous waste as defined in 22 CCR, prohibits discharges to such surface impoundments unless they meet specified siting and design requirements. Requires compliance with specific investigation, remediation, and reporting	Surface impoundment containing waste	HSC Section 25208 (Toxic Pits Cleanup Act)				No surface impoundements present at the site

Attachment C -Table 6
State Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
Groundwater monitoring	Monitoring requirements for waste management units; establishes water quality protection standards for corrective action, including concentration limits for constituents of concern at background levels unless infeasible to achieve	Surface impoundment containing waste	HSC Sections 2550.0(a) and (d), 2550.1(a) and (c), 2550.2, 2550.3, 2550.4, 2550.5, 2550.7(c), 2550.8				No surface impoundements present at the site.
Closure of surface impoundments with waste in place (capping)	Closure requirements for landfills and surface impoundments include removing free liquids, computing residual wastes and covering the waste. The cover should be designed to function with minimum maintenance and prevent ponding. The discharger shall maintain the cover, maintain monitoring systems, prevent erosion and protect and	Surface impoundment containing waste	HSC Sections 2581 and 2582				Site is not a landfill or surface impoundment.
Clean closure of surface impoundments (removal of waste)	Clean closure requirements for surface impoundments include removing all free liquid, all residual wastes, and underlying contaminated soil	Surface impoundment containing waste	HSC 2582(a) and (b)(1)				No surface impoundements present at the site
Los Angeles County Department of Public Works (LACDPW)							
Construction activity	Requires dischargers from construction sites to 1) incorporate good housekeeping measures and Best Management Practices into their subdivision improvement plans and grading plans, 2) prepare an Erosion Control Plan for any construction that occurs between October 1 and June 1 and 3) prepare a Storm Water Management Plan for LACDPW approval for construction projects with two or more acres of disturbed soil or 40,000 or more square feet of impervious area.	Soil disturbance	Los Angeles County Department of Public Works NPDES Permit		3, 4		

Attachment C -Table 6
State Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
California Department of Fish and Game Code*							
Waste discharge affecting ecological receptors	Prohibits taking animals with nets, poison, cage, etc.		Fish and Game Code Section 3005				There is no threathened or endangered species listed for the site.
Ventura County Air Pollution Control District (VCAPCD)							
Discharges to air	Limits visible emissions from any point source.	Visible emission to the atmosphere	VCAPCD Rules		3, 4		Dust generated during removal actions will be controlled.
Discharges to air	Requires permit for construction and operation of equipment that can potentially emit VOCs or toxics.	Vapor extraction system and/or water treatment system	VCAPCD Rules				No SVE system or water treatment system is required.
Discharges to air	Prohibits the discharge of any air emissions in quantities that may cause injury, detriment, nuisance, or annoyance to the public.	Dust and/or vapor emissions	VCAPCD Rules		3, 4		Dust and vapors generated during removal actions will be controlled.
Activities capable of generating fugitive dust, such as excavation	Requires actions to prevent, reduce or mitigate fugitive dust emissions such that concentrations of fugitive dust at the property line are not visible and the downwind particulate concentration is not more than 50 micrograms per cubic meter above the upwind particulate concentration. Also requires prevent the track-out of bulk material onto public roadways and remove any visible dust that is tracked out. Large and medium operators are required to prepare a fugitive dust emissions control plan for VCAPCD approval or notify the VCAPCD and maintain daily records of actions taken to prevent, or mitigate fugitive dust emissions.	These requirements do not apply when wind gusts exceed 25 miles per hour, provided that control measures for high wind conditions are implemented.	VCAPCD Rules		3, 4		Dust generated during removal actions will be controlled.

Attachment C -Table 6
State Action-Specific ARARs

Alternatives: 1 - No Action, 2 - Institutional Controls, 3 - Excavation with Off-Site Treatment/Disposal, 4 - Soil Vapor Mitigation with Institutional Controls

Action	Requirement	Prerequisite	Citation	ARAR Determination			Comments
				A	RA	TBC	
California Health and Safety Code							
Recycling of hazardous waste	Prohibits the recycling of non-RCRA hazardous waste if it is used in a "use constituting disposal." Prohibits recycling RCRA-hazardous waste.	RCRA and non-RCRA hazardous waste	HSC 25143.2			3, 4	RCRA and non-RCRA hazardous wastes are not expected to be generated atr this site.

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ARAR = Applicable or relevant and appropriate requirement
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CAMU = Correction action management unit
CCR = California Code of Regulations
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CWA = Clean Water Act
DOT = U.S. Department of Transportation
EPA = U.S. Environmental Protection Agency
LAER = Lowest achievable emission rate
MCLs = Maximum contaminant levels
MCLGs = Maximum contaminant level goals
NAAQS = National Ambient Air Quality Standards (primary and secondary)
NCP = National Contingency Plan
NESHAPs = National emissions standards for hazardous air pollutants
NPDES = National Pollutant discharge elimination system
ppm = Parts per million
ppmv = Parts per million by weight
RA = Relevant and appropriate
RCRA = Resource Conservation and Recovery Act
RWQCB = California Regional Water Quality Control Board, San Diego Region
SDWA = Safe Drinking Water Act
SIP = State Implementation Plan
SMCLs = Secondary maximum contaminant levels
SWRCB = California State Water Resources Control Board
TBC = "To Be Considered" Guidance
UIC = Underground injection control
USC= United Sdtates Code
USDW = Underground source of drinking water
VCAPCD = Ventura County Air Pollution Control District

ATTACHMENT D

SAMPLING AND ANALYSIS PLAN

ATTACHMENT D
SAMPLING AND ANALYSIS PLAN

The objective of the confirmation sampling program is to characterize the onsite residual levels of PAH, arsenic, lead remaining in-place following excavation in accessible areas. In addition, confirmation samples will be collected for analysis of total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs). An additional objective of the confirmation sampling program is to ensure that the difference between concentrations detected in the background samples and the concentrations detected at the Site could be discerned with a reasonable level of confidence. The confirmation sampling program consists of collection of soil samples with 30-foot systematic triangular grid spacing for bottom samples and 30-foot spacing for sidewall samples. This spacing was determined to provide more than an adequate level of statistical power necessary to demonstrate attainment of the remedial action goal. However, in order to obtain a better conceptual profile of PAHs, arsenic, and lead remaining onsite, and to account for the resulting irregular geometry of actual excavation, additional samples may be collected.

Confirmation soil samples will be collected from the bottom of the excavation and from the sidewalls. In general, if there is no visible discolored or lampblack layering, the sidewall samples will be taken from the midpoint between the top and the bottom of the sidewall. Photographs of remediation activities will be taken. Prior to sampling, any loose material or soil will gently be cut to clearly observe the soil lithology and to collect a sample from an area unaffected by the excavation. Samples will be collected in laboratory-supplied, 8- ounce, glass jars with Teflon-lined lids. Samples collected for analysis for VOCs will be collected in accordance with USEPA Method 5035. Each sample container will be labeled appropriately, and sealed in plastic bags before being stored on ice at 4 degrees Centigrade (°C) in a cooler. The confirmation soil samples will be transported to the analytical laboratory, generally on the same day as collection, with chain-of-custody documentation by a courier from the analytical laboratory.

5.3 ANALYTICAL PROGRAM

The soil confirmation samples will be analyzed for the following compounds:

- PAH by USEPA Method 8310;
- TPH extended range hydrocarbons in gasoline (TPH-g), diesel range (TPH-d) and as heavy hydrocarbon range (TPH-h) using USEPA Modified Method 8015;
- VOCs by USEPA Method 5035/8260B; and,
- Metals by USEPA Method 6010B/7471A.

ATTACHMENT E

QUALITY ASSURNACE/QUALITY CONTROL PLAN

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PLAN

Introduction

Quality Assurance (QA) is an integral part of all projects, particularly those involving collection and analysis of field and laboratory data. QA is not merely a series of requirements and procedures, but is a management discipline which results in validated and verifiable information. Moreover, QA is a discipline which begins with effective and conscientious work planning and ends with a carefully constructed set of checks designed to ensure that uncertainty has been reduced to a known and practical minimum.

QA/QC Objectives

The goal of the QA program is to assure that all environmental data obtained for the Site will be scientifically valid, defensible, of known quality and that reports are correct and accurate. This goal will be achieved by: 1) planning for QA and allocation of adequate resources as part of the initial planning for data collection and analysis efforts, 2) incorporating specific QA procedures into the entire process (from initial planning through data usage), and 3) assigning appropriately trained and experienced staff to perform the tasks. The following sections discuss specific quality assurance/quality control (QA/QC) procedures used for Site investigation or remediation sampling, data analyses, and report preparation. These same procedures will be applied to this project.

QA/QC Procedures for Sampling

For Site investigation or remediation sampling, procedures specified in the USEPA guidance for Superfund investigations (i.e., Scientific and Technical Standards for Hazardous Waste Site, Volume 1: Site Characterization) will be used.

Standard Operating Procedures (SOPs), specified throughout this RAW, will be used for all activities related to remediation. Calibration of equipment and maintenance procedures follow manufacturer's written instructions or accepted standard procedures.

Collection of QA/QC Samples

Additional samples will be collected to quantify potential sources of variability in the field and in the laboratory. The QA/QC samples will be labeled the same as regular samples so that the laboratory staff cannot identify them as QA samples. In addition, the laboratory will prepare the following samples to check internal accuracy and precision:

Matrix spike samples to provide percent recovery; and
Matrix spike duplicates to check precision.

Use of Proper Sample Handing Procedures

Chain of Custody

The possession and handling of samples should be traceable from the time of collection, through analysis, until first disposition. Components of the chain of custody (sample labels and seals, a field log book, chain of custody record, and sample analysis request form) and procedures for their use are described in the following sections. Sample custody procedures will follow USEPA and DTSC guidance procedures.

A sample is considered to be under a person's custody if it is: 1) in a person's physical possession; 2) in view of the persons after he/she has taken possession; 3) secured by the person so that no one can tamper with the sample; and, 4) secured by that person in an area that is restricted to unauthorized personnel. To establish the documentation necessary to trace sample possession from the time of collection, a chain of custody record must be filled out and accompany every sample. Standard forms have been developed for labeling samples and tracing chain of custody. The person who collects the sample initially fills out the chain of custody form. Each person who later receives the samples must sign the form. Samples must not be left unattended unless they are secured and sealed.

Sample Labels

Sample labels are necessary to prevent misidentification of samples. Gummed paper labels will be affixed to sample containers prior to or at the time of sampling. The sample labels will be filled out at the time of sample collection. The sample label will identify each sample with the appropriate sample identification. The exact sample location and type of sample will be recorded in the sample log book.

Documentation

The most important aspect of sample custody is through record keeping. At the time of sampling, the sample identification code will be entered into a field log book along with date and time of sample collection, sample type and depth, and name of person collecting the sample. The types of chemical analyses requested will also be listed.

Shipping

Samples will be packaged and hand delivered or shipped according to the U.S. Department of Transportation and USEPA regulations. Samples will be delivered to the laboratory on a timely basis, preferably on the same day of collection, so that the requested analyses can be performed within the specified allowable holding times. Samples will be accompanied by a completed chain-of-custody record. The chain-of-custody will list the variables to be analyzed by the laboratory and the total number and type of samples shipped for analysis. Authorized laboratory personnel will acknowledge receipt of shipment and condition of samples upon receipt by signing and dating the form and returning a copy to NOREAS, Inc. The laboratory will record the temperature

inside of the cooler on the chain-of-custody form. For hand delivered samples, the chain-of-custody form will be signed by an authorized laboratory staff member and a copy of it given to the person delivering the samples. A copy is also sent with the completed laboratory analysis results.

Use of USEPA-Recommended Laboratory Procedures

Standard USEPA methods will be used for all analyses as listed previously in this report. All analyses will be performed by laboratories certified by the State of California to perform such analyses.

Field Equipment Calibration and Maintenance

Equipment related to health and safety concerns (i.e., OVA, Miniram dust monitor, etc.) are discussed in the Health and Safety Plan.

Laboratory Data Validation

The laboratory data will be evaluated to see that units are correct, detection limits are provided, all analyses of the blanks are below detection, and that holding time requirements have been met. The percent recoveries from the matrix spike analyses will be checked to see that they are within the prescribed limits (± 25 percent). Duplicate samples will be used to determine the relative percent difference. This value should be within ± 20 percent for water and 35 percent for soil/residue samples when values are greater than five times the detection limit. For values below detection limit, the difference should be equal to the detection limit or less. The coefficient of variation for the replicate samples is then determined, and ideally should be low. All the data will be checked to be sure that the desired detection limits, as specified in the report, are achieved. Any questionable values or cases with high detection limits will be rechecked with the laboratory and, if needed, will be rerun.

QA/QC Audits and Correction Actions

Audits of data quality involve assessments of the methods used to collect, interpret, and report information. The assessment entails a detailed review of: 1) the recording and transfer of raw data; 2) data calculations; 3) documentation of procedures, particularly changes from those stated in the workplan; and, 4) verification that all available information has been used in the interpretation. This assessment will be completed prior to preparing report conclusions.

Field audits of sampling and documentation procedures will be conducted by NOREAS, Inc. staff. Any variances between actual procedures and those in the workplan will be brought to the attention of the project manager. Necessary changes to the workplan (i.e., relocating a borehole location) will be noted in the field log book and explained in the final report. Other variances (i.e., incomplete record in sample log book) will be corrected as soon as identified.

Audits of the laboratory will be made if data problems occur such as several samples with blank contamination or high variances among replicate samples. Calibration

procedures including control charts and documentation will be reviewed at this time. Corrective actions such as changing analytical methods will be suggested if necessary, to minimize matrix interference problems.

QA/QC for Review of Documents

As a final step to ensure that project objectives are met, a formal review of draft and final reports will be conducted prior to their release. Draft reports may be reviewed by senior staff familiar with the project objectives but who were not involved in the preparation of the report. This helps identify sections of the report which may not be clearly written or where more detailed substantiation of results is needed. Review of reports involving calculations will include rechecking the computations, review of assumptions used and the rationale for input data, and checking the input data against the original sources to be sure that one of the most common of all problems, transcription errors, has not occurred.

Quality Assurance Objectives for Measurement Data

Data quality objectives (DQOs) are qualitative and quantitative statements developed to specify the quality of data from field and laboratory collection activities to support specific decisions or regulatory actions. The DQOs describe what data are needed, why the data are needed, and how the data will be used to address the problem. DQOs also establish numeric limits for the data to determine whether data collected are of sufficient quality for use in their intended application. Data needs for the remedial effort include both screening measurements and data of sufficient quality to be used in achieving cleanup objectives.

The USEPA has established a hierarchy of DQOs that specify the quality of data required to support regulatory decisions during remedial response (USEPA, 1987). Table 1 provides a summary of analytical levels appropriate to data uses during the work effort. For data collected, the main analytical program will be performed at Level III protocol at a stationary laboratory. Site specific health and safety screening and measurement of parameters during environmental sample collection will be at Level I protocol. Quality criteria to be employed at the Site address the following data characteristics: accuracy, precision, completeness, representativeness, and comparability. These criteria are discussed below.

Definition of Criteria

Accuracy

Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value, and is a measure of bias in the system. For this project, accuracy of the measured data will be assessed and controlled. Field instruments have a potential accuracy which is specified by the manufacturer. The ability to obtain this level of accuracy depends on proper calibration. For the laboratory, results of method blank analysis, as well as reagent, matrix, and surrogate

QC sample results will be the primary indicators of accuracy. These results will be used to control accuracy within acceptable limits by requiring that specific criteria be met. As these spiked QC samples are analyzed, spike recoveries will be calculated and compared to pre-established laboratory acceptance limits.

The calculation formula for percent recovery is:

$$\%\ Spike\ Recovery = \frac{(\text{Value of Sample Plus Spike Added}) - (\text{Value of Unspiked Sample})}{(\text{Value of Spike Added})} \times 100$$

Acceptance criteria, also termed "control limits," will be based on previously established (i.e., historical) laboratory capabilities for similar samples using control chart techniques. In this approach, the control limits reflect the minimum and maximum recoveries expected for individual measurements to establish that the system was in control. Recoveries outside the established control limits indicate some assignable cause, other than normal measurement error, and the possible need for corrective action. Corrective action could include recalibration of the instrument, reanalysis of the QC sample, reanalysis of the samples in the batch, or flagging the data as suspect if the problem cannot be resolved. These results will be reported to the Project Manager.

Resampling may be performed if samples exceed their specific holding time requirements or are not preserved properly. If second column analysis, where appropriate, is not performed within the specified holding time, resampling may be undertaken.

Precision

Precision is a measure of mutual agreement among individual measurements of the same property under prescribed similar conditions.

Precision is defined as a measure of mutual agreement of a measurement or average of measurements with an accepted reference of "true" value. Based on these results, a measure of bias within the system can be estimated. Precision of the measurement data gathered during the work effort at the Site will be based on QC sample analyses (repeatability), replicate analyses (replicability), and results obtained from duplicate/replicate field samples (sample replicability).

Precision is independent of the error (accuracy) of the analyses and reflects only the degree to which the measurements agree with one another, not the degree to which they agree with the "true" value for the parameter measured.

Precision is calculated in terms of relative percent difference (RPD), which is expressed as follows:

$$RPD = \frac{(X_1 - X2)}{[(X_1 + X_2)/2]} \quad x\ 100$$

where:

X_1 and $X2$ represent the individual values for the target analyte in the two replicate analyses.

RPDs must be compared to the laboratory established RPD for the analysis. For concentrations less than 10 times the detection limit, RPD criteria are not valid, and variations may be as great as 100 percent. Precision of duplicates may again depend on sample homogeneity. Initial spike concentrations will be greater than the detection limits and will have a range comparable to those stated in pertinent USEPA guidelines.

When RPDs exceed previously established control limits, the analyst or his/her supervisor must investigate why the data exceed stated acceptance limits and report these findings to the Project Manager. RPDs outside the established control limits can indicate some assignable cause, other than normal measurements errors, and the need for corrective action. Follow-up action can include recalibration, reanalysis of the matrix spike/matrix spike duplicates (MS/MSD) or duplicate QC sample, environmental sample reanalysis, or flagging the data as suspect if problems cannot be resolved.

Replicate analysis of control samples will be obtained when QC samples specific to the environmental samples are analyzed. Analytical precision will be evaluated from MS/MSD RPD analyses. Use of duplicate samples during analysis can also allow a measure of precision to be determined.

Field duplicates normally apply to water samples and are defined as two samples collected independently at a single sampling location during a single act of sampling. Field duplicates will be acquired at a rate of 1 per 20 environmental samples, or 5 percent of the total number.

A field replicate is defined as a single sample that is collected, then divided into two equal parts for the purpose of analysis or two samples representative of one soil. Field replicates will be acquired at a rate of 1 per 20 environmental samples, or 5 percent of the total number. Field replicates will be collected for soil/sediment samples and analyzed for the same parameters. Discretely sampled field duplicates/replicates are useful in determining sampling variability. However, differences greater than expected between replicates may occur because of variability in the sample material. In these instances, a visual examination of the sample material will be performed to document the reason for the difference. Field sample duplicates/replicates shall be used as a QC measure to monitor precision relative to sample collection activities. Analytical precision shall be evaluated using RPDs for MS/MSD, or duplicate samples.

Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected under correct, normal conditions. The target value for completeness of all parameters is 100 percent. Measurement data completeness is a measure of the extent that the database resulting from a specific measurement effort fulfills the objectives for the amount of data required. For this program, completeness will be defined as the valid data percentage of the total test requested as follows:

$$\text{Completeness (\%)} = \frac{\text{No. of Successful Analyses}}{\text{No. of Requested Analyses}} x100$$

Successful analyses are defined as those in which the sample arrived at the laboratory intact, properly preserved, in sufficient quantity to perform the requested analyses, and accompanied by a completed chain-of-custody form. Furthermore, the sample must be analyzed within the specified holding time and according to QC acceptance criteria.

Completeness for the entire project also involves elements specific to field and laboratory documentation of sample collection. This includes documentation detailing whether samples and analyses specified in the Workplan have been processed using the procedures as specified, and whether laboratory SOPs have been implemented.

Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

Representativeness describes how well the data reflect site conditions in the vicinity of the data point at the time of collection. Representativeness may be maintained or attained by careful documentation of data collection procedures and adherence to standard data collection procedures.

The characteristics of representativeness are usually not quantifiable. Subjective factors to be taken into account are as follows:

- Degree of homogeneity of a site;
- Degree of homogeneity of a sample taken from one point in a site; and,
- Available information on which a sample plan is based.

Field duplicates (for water) and field replicates (for soil), as defined under precision, are also used to assess representativeness. Two samples that are collected at the same location and at the same time are considered to be equally representative of the Site at a given point in space and time. Soil borings will be chosen to represent the areas of interest at the Site. To maximize representativeness of results, sampling techniques, sample size, sample locations, and depths will be carefully selected so they provide laboratory samples that are representative of the Site and specific area. Samples exhibiting obvious stratification or lithologic changes should not be used as replicates. The analytical laboratory will take precautions to extract from the sample an

aliquot representative of the whole sample. The soil sample is mixed and foreign objects are removed; then the sample is passed through a 1-millimeter sieve. An aliquot is

removed for analysis. For samples requiring volatile analysis, premixing or homogenizing samples will be avoided.

Comparability

Comparability expresses the confidence with which one data set can be compared to another data set measuring the same property. Comparability is ensured through the use of established and approved sample collection techniques and analytical methods, consistency in the basis of analytes (wet weight, volume, etc.), consistency in reporting units, and analysis of standard reference materials.

Comparability is the degree to which data from separate, data sets may be compared. For instance, sample data may be compared to data from background locations to established criteria or to data from earlier sampling events. Comparability is attained by careful adherence to standardized sampling procedures and rigorous documentation of sample locations (including depth, time, and date).

Data comparability will be achieved by using standard units of measure as specified for metals, inorganics, and organics in soil samples.

The use of standardized methods to collect and analyze samples (i.e., American Society for Testing and Materials [ASTM] and USEPA methods), along with instruments calibrated against National Institute for Standards and Technology (NIST) and USEPA-traceable standards, will also ensure comparability.

Comparability also depends on other data quality characteristics. Data sets can be compared with confidence only when data are judged to be representative of the environmental conditions, and when precision and accuracy are known.

Goals for Assessment Criteria

Project quality objectives for various measurement parameters associated with the remediation effort cannot be quantified for representativeness and comparability. The following elements delineate assessment criteria discussed in detail elsewhere in this QA/QC plan:

Laboratory accuracy limits and analytical precision criteria will be assessed to the current Contract Laboratory Program (CLP) Statement of Work (SOW) for each method;

Overall precision for the work effort at the Site, which includes both sampling and analytical factors, can be expected to show RPDs up to 40 percent for soil samples; and,

A completeness factor of 90 percent is acceptable for the work effort at the Site.

TABLE 1
SUMMARY OF ANALYTICAL LEVELS APPROPRIATE TO DATA USES
(According to USEPA Guidelines 1987)

DATA USES	ANALYTICAL LEVEL	TYPE OF ANALYSES	LIMITATION	DATA QUALITY OBJECTIVE
Site Characterization; Monitoring During Implementation	Level I	Total organic/inorganic vapor detection using portable instruments, field determination of pH, conductivity Field test kits	Instruments respond to naturally occurring compounds	Can provide indication of contamination if instruments are calibrated and data are interpreted correctly
Site Characterization; Evaluation of Alternatives; Engineering Design; Monitoring During Implementation	Level II	Variety of organics by gas chromatography during soil gas survey, geophysical survey to determine depth to bedrock; buried landfill materials; point counting of asbestos fibers using plane polarized microscopy. Detection limits vary from low parts per million to low parts per billion	Tentative identification	Dependent on QA/QC steps employed
Risk Assessment; Site Characterization; Evaluation of Alternatives; Engineering Design; Monitoring During Implementation	Level III	Organics/inorganics using USEPA procedures other than CLP; can be analyte specific RCRA characteristics tests	Tentative identification in some cases Can provide data of same quality as Level IV	Similar detection limits to CLP Less rigorous QA/QC
Risk Assessment; Evaluation of Alternatives; Engineering Design	Level IV	Hazardous Substance List; organics/inorganics by gas chromatography/mass spectroscopy; atomic absorption; inductively coupled plasma. Low parts per billion detection limits.	Tentative identification of non-hazardous substance list parameters. Some time may be required for validation of packages.	Goal is data of known quality Rigorous QA/QC
Risk Assessment	Level V	Nonconventional parameters. Method-specific detection limits. Modification of existing methods Appendix 8 parameters	May require method development/modification. Mechanism to obtain services requires special lead time.	Method-specific

Source: Environmental Protection Agency, 1987

ATTACHMENT F

RESPONSE TO COMMENTS

RESPONSE TO DTSC OCTOBER 19, 2020, HERO COMMENTS ON REMOVAL ACTION WORKPLAN FORMER VENTURA MANUFACTURED GAS PLANT SITE VENTURA, CALIFORNIA		
Comment Number	**Comment**	**Response**
1	**Section 3.1, Soil Impacts**: HERO requests that the soil confirmation sampling results from the Removal Action for Parcel A (e.g., I7-S1, I11-S1, and I15-S3 on Figure 4) be added to Tables 1 and 2 and discussed in this section. Because PAH and TPH levels exceeding the screening levels were detected at these locations and did not appear to be removed due to lack of access previously, these sample locations should be addressed in the RAW (see Comment 2a).	Noted. Section 3.1 has been revised accordingly. Data from I7-S1, I11-S1, and I15-S3 have been added to Tables 1 and 2. The excavation areas have been expanded to cover these sampling points. The RAW has been revised accordingly. Please note the first and third paragraphs of Section 3.1.
2	**Section 4.0, Human Health Risk Assessment**: a) As noted in Comment 1, several confirmation samples along the southern boundary of Parcel A have elevated PAH and TPH levels, and these locations should also be included in the removal action plan described in Section 8. b) Besides elevated soil vapor concentrations in the area of the proposed Compressor Building, naphthalene concentrations at B8-14 and B8-24 located in the proposed Warehouse also exceed the corresponding residential Health Based Goal (see Table 7-3 of the Revised HHRA) and should also be noted in the last paragraph. c) HERO notes that some of the estimated health risks (e.g., direct soil contact at the Compressor Building) do not match those in the Revised HHRA. Please	2a: Noted. Please note response to Comment 1. Also, please note the second paragraphs of Section 5.1 and first paragraph of Section 8.1.1. 2b Noted. The RAW has been revised accordingly. Please note the fourth, fifth, and tenth paragraphs of Section 4.0. 2c: Noted. The RAW has been revised accordingly. Please note the fourth paragraph of Section 4.0.

	update this section following DTSC approval of the final HHRA Report (see HERO's 10/19/2020 memorandum on Revised HHRA).	
3	**Section 5.1, RAOs for Shallow Soil**: The remedial action objectives (RAOs) proposed for shallow soil are based on residential land use, and HERO notes the following issues that need to be addressed: (a) For soil in the Compressor Building area, the noncancer hazards exceed the threshold of one for the residential and construction scenarios (2.1 and 1.6, respectively), primarily attributed to TPH fractions according to Tables 6-11 and 6-13 of the Revised HHRA; thus, TPHs should be listed as COCs here and in Section 8.1 for the proposed removal action. (b) A land use covenant (LUC) is still required at the southern portion due to deeper soil impacts exceeding residential and/or industrial screening levels (e.g., B1, B3, B5, and B6 on Figure 4) left in place after the proposed development. Specifically, the LUC should stipulate that a soil management plan will be required if the impacted soils are to be disturbed in the future	Noted. 3a: Noted: The HIs exceeding 1 are mainly due to TPHs at I15-S3-5 and B1-2. Both locations are included in the areas targeted for soil excavated. The second paragraphs of Section 5.1 and first paragraph of Section 8.1.1 have been revised accordingly. 3b: Agreed. Section 10.4 has been revised accordingly to mention that a LUC will be required to prevent the potential use of the southern portion of the Site for future residential uses, and the LUC will stipulate that a soil management plan will be required if the impacted soils are to be disturbed in the future.
4	**Section 5.2, RAOs for Vapor Intrusion**: For clarity, HERO recommends expanding the RAOs for vapor intrusion pathway to note that mitigation measures to protect human receptors (onsite workers and/or hypothetical residents) may also be required for future buildings proposed outside the planned Compressor Building (i.e., Locations B1, B3, B5, B6, B8, B9, and B15 on Table 7-3 of the Revised HHRA).	Noted. The RAW has been revised accordingly. Please note the first paragraph of Section 5.2.

5	**Section 7.3.4, Conclusion on Alternative 2**: HERO recommends revising the discussion to indicate that a LUC is needed for (a) shallow soil if the unrestricted land use criteria cannot be met due to physical constraints as discussed in Section 5.1, and (b) deeper soil impacts exceeding residential and/or industrial screening levels (see Comment 3b). Please revise Section 10.4 accordingly.	Noted: 5a: Clarification has been added Section 10.4. 5b: Clarification has been added Section 10.4.
6	**Section 7.5, Alternative 4 for Soil Vapor**: This Alternative proposes soil vapor mitigation for the new Compressor Building only. Please clarify that mitigation measures may also be required for other future buildings (see Comment 4).	Noted: Section 7.5 has been revised accordingly.
7	**Section 8.1.2, Mitigation Measures for Vapor Intrusion**: While HERO does not object to reliance of adequate ventilation and post-construction indoor air sampling to verify that the proposed mitigation measures will be protective of future occupants, a long-term operation and maintenance (O&M) plan should be prepared for DTSC approval to ensure that the building ventilation system be operated and maintained as designed. Section 10.2 should be revised accordingly.	Following the design of the compressor building, an O&M Plan will be prepared for review by DTSC. Section 10.2 is revised accordingly.

8	**Section 9.2.4, Additional Investigation**: HERO recommends adding TPH fractions to the analyte list as they are also considered COCs for shallow soil (see Comment 3a). Please also clarify whether these sampling results may be used to supplement the confirmation soil sampling results (Section 9.4.1) in the post-remediation risk assessment discussed in Section 10.1.	TPH fractions have been added to list of the analytes in Section 9.2.4 for the samples that will be collected during the additional investigation and also confirmation samples. Please note that the additional investigation is meant to more accurately define the area of excavation prior to the start of the excavation. The results should also help to segregate the excavated soil for profiling purposes. Some of the results that represent the soil that ultimately will remain in place will be used in post-remediation risk assessment. The most important point that needs to be emphasized is that all the soil exceeding the cleanup levels will be targeted for removal based on field observations and/or confirmation sampling (see Sections 8.1.1, 9.0, and 9.4.1). If impacted soil has to remain in place due to physical constraints, samples will be collected and analyzed and the remaining impacted soil will be documented.
9	**Section 9.3.2, VCAPCD Rules Implementation**: Besides pertinent Ventura County Air Pollution Control District (VCAPCD) Rules, HERO recommends real-time air/dust monitoring along the eastern and southern property boundary to ensure protection of adjacent offsite receptors during soil excavation.	Noted. Please note the revised Section 9.3.2.
10	**Section 9.4.1, Confirmation Sampling**: If the soil excavation extends beyond four feet bgs, additional sidewall samples should be collected from deeper intervals (e.g., every two feet) to ensure the excavation boundary is properly defined vertically.	Noted: Additional notes are included in Section 9.4.1.

11	**Section 9.4.2, Backfill Placement**: Please follow the DTSC Clean Fill Advisory (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP_FS_Cleanfill-Schools.pdf) for sampling and analysis of candidate borrow sources and providing this information for DTSC review prior to importing.	Noted: Additional notes are included in Section 9.4.2.
12	**Figure 6, Excavation Plan**: HERO recommends also depicting soil boring locations on this figure to demonstrate that the proposed excavation area includes the locations targeted for soil excavation, including B1, B2, B15, I7-S1, I11-S1, and I15-S3 (see Comment 1).	Noted: Figure 6 has been revised accordingly.
13	**Attachment B, Human Health Risk Assessment (HHRA)**: HERO recommends removing this attachment, as the HHRA Report is still under review and will be approved as a standalone document by DTSC	Noted: This attachment has been removed.

NOREAS
Environmental Engineering and Science

RESPONSE TO DTSC OCTOBER 23, 2020, COMMENTS FROM ENGINEERING AND SPECIAL PROJECTS OFFICE ON REMOVAL ACTION WORKPLAN FORMER VENTURA MANUFACTURED GAS PLANT SITE VENTURA, CALIFORNIA		
Comment Number	**Comment**	**Response**
1	A Table listing Chemical of Potential Concerns and Quantitative Remedial Objectives for different environmental media should be included.	Section 4.0 of the revised RAW has been revised to include a discussion of the chemicals of the potential concern (see Table 4). The Health Based Goals (HBGs) for soil and soil vapor (i.e., Quantitative Remedial Objectives) for different environmental media are presented as Tables 5 through 7 of the revised RAW.
2	The RAW indicates that the soil vapor and groundwater impacts are from upgradient sources and not related to past MGP operations (crude oil used in gas production process). Note that onsite features such as the former seepage pit, former USTs and the Parcel A MGP process likely would have contributed to onsite releases and potentially impacted soil vapor and groundwater. In addition, the degradation of the TPHs in soil would have resulted in VOCs in soil vapor. Therefore, active remediation/monitoring for soil vapor and groundwater (at least soil vapor and groundwater monitoring with	The first sentence in this review comment is not accurate. Section 2.2 and Section 7.0 of the RAW do specifically quote DTSC's March 18, 2016, statement regarding groundwater contamination: "*All of the accessible manufactured gas plant (MGP) related contaminants have been removed from the Site and the remaining groundwater contaminants are from petroleum fuel releases unrelated to former MGP operations.*" However, Section 2.2 of the RAW also cites the previous consultant's opinions regarding groundwater contamination and reads "*some of the above contaminants…are not related to MGP operations, and* ***some may be related to multiple***

	contingency) with vapor intrusion mitigation should be considered.	***sources, including MGP operations***." Sections 4.0 and 10.2 of the RAW present professional opinions based collectively on previous and recent data and include: "*...VOCs in deep soil are related to residual groundwater impact,* ***mainly*** *originating from upgradient non-MGP sources in Parcels B and C.*" The seepage pit was used for the disposal of sewage wastes, not industrial wastes, before sanitary sewer service became available in the northwest portion of the City. Based on data generated as part of the supplemental remedial investigation, sewage effluent from the seepage pit has not appreciably contributed to soil vapor or groundwater contamination. Similarly, analytical data generated at former UST locations suggest a negligible contribution to soil vapor or groundwater contamination. As acknowledged in the RAW and as outlined in the HHRA, elevated VOCs concentrations occur in soil vapor within the western portion of the site where the new compressor building will be constructed. As it's neither reasonable nor technically feasible to remediate soil vapor or groundwater largely emanating from offsite, upgradient sources, mitigation of soil vapor risks is the only viable alternative. That is precisely why that approach is outlined in the RAW and why DTSC's Human and Ecological Risk Office (HERO) and Site Mitigation and Restoration Program (SMRP) have accepted this approach.

3	Upgradient groundwater source (former bulk storage tank farm which was part of the MGP site prior) related information should be presented. Upgradient and onsite groundwater well concentrations, groundwater flow direction, supporting hydrogeological information and trends should be presented and discussed to substantiate the claim of an offsite source.	Please refer to the preceding response to Comment 2. Groundwater contamination has already been extensively assessed and the remedial investigation has already been completed to DTSC's satisfaction. In keeping with standard practice, previous groundwater assessment data are merely summarized in the RAW and the pertinent previous documents detailing offsite groundwater sources are cited therein. Rather than incorporating extensive details that have already been addressed to DTSC's satisfaction, we instead refer the reviewer to previous technical submittals and the associated DSTC correspondence that are readily available on Envirostor.
4	Section 7.1 Remedial Technology Screening Alternatives considered are listed based on the different impacted environmental media. For example, Alternative 2 addresses soil and soil vapor while Alternative 3 addresses soil only. Each remedial alternative should address all environmental media for consistency. Please make appropriate changes. A land use covenant should be part of all the Alternatives	Please note that this is an RAW for a relatively small and simple project and it was designed to be as streamlined as possible. The screening process in Section 7.0 of the RAW addressed both soil and soil vapor together where it was reasonably feasible to do so. For example, both soil and soil vapor were evaluated together in Alternative 1 (no action) and Alternative 2 (land use covenant) as both mediums could be effectively evaluated together. However, Alternative 3 only included the excavation of shallow soil (and not soil vapor), mainly impacted with PAHs, arsenic and lead since excavation of deep, saturated, contaminated soil to address soil vapor issues would not be a practical or feasible scenario. Similarly, Alternative 4 only included mitigation of soil vapor, as ventilation of indoor air would have little effect on lead. arsenic or PAH-impacted soil. A land use covenant has been evaluated as Alternative 2 and was selected in combination with Alternatives 3 and

		4 (see Section 10.4. Addressing a land use covenant with the no action alternative wasn't considered as institutional controls are, in fact, action.
5	A land use covenant (LUC) will be required at the southern portion due to deeper soil/groundwater impacts exceeding residential and/or industrial screening levels	The reviewer is referred to Section 10.4 of the RAW.
6	Section 9.3.4 Soil Stockpile Area Construction and 3.14 Waste Transportation and Disposal. These sections should elaborate on the soil profiling procedure based on TTLC, TCLP, and STCL for RCRA and Cal-Hazardous Waste.	Section 9.3.4 of the RAW has not been modified, as this section is intended to address onsite soil stockpile management – not analytical test methods and waste classification procedures. As the RAW does not include a section number of 3.14 and there is no section entitled "Waste Transportation and Disposal," the spirit of the reviewer's comments has been addressed in Section 9.5 (Transportation and Offsite Disposal) (see Section 9.5.1 Waste Stream). Please also note that not a single sample collected as part of the supplemental remedial investigation contained an analyte concentration that exceeded the respective Total Threshold Limit Concentration. As such, the potential for Resource Conservation and Recovery Act (RCRA) or non-RCRA hazardous waste is remote.

7	Section 7.5 S (sic) Alternative 4 for Soil Vapor: Soil Vapor Mitigation at New Compressor Building and Section 10.2 Vapor Intrusion Mitigation Measure These sections propose soil vapor mitigation measures at the New Compressor Building. This includes roof-ridge ventilator and air supply fans to achieve a minimum rate of 6 air exchanges. Following are comments pertaining to vapor mitigation. - Provide discussion on the design basis or screening vapor intrusion mitigation alternatives. Note that no subslab components such as membrane and passive/active venting are proposed for one proposed building. For more information please refer to https://dtsc.ca.gov/wp- content/uploads/sites/31/2016/01/VIMA_Final_Oct_20111.pdf - Utility Trench dams and conduit seals should be included to eliminate any potential utility related preferential pathways - Sublsab and soil vapor monitoring points should be included as part of the mitigation measures.	The design basis for the compressor building, as noted in the RAW, includes a ventilation system that will provide for a *minimum* of six air exchanges per hour to minimize the potential for combustible vapor from the gas compression equipment to accumulate within the building. The minimum air exchange rate is based on criteria set forth in the American Petroleum Institute's (API's) Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities (aka RP 500). Considering building design requirements, including the minimum air exchange rate, the installation of trench dams, conduit seals, subslab monitoring points, and soil vapor monitoring points are unwarranted. Post-construction indoor air sampling data will be used to demonstrate that the ventilation system adequately serves to mitigate vapor intrusion risks. The reviewer is reminded that DTSC's HERO and SMRP have acknowledged and accepted this approach. Preliminary design drawings remain conceptual in nature (30 percent design submittal) and are currently insufficient for the purposes of operation and maintenance (O&M) plan preparation (see Section 10.2).

	- Engineering controls that ensure continuous operation of the air supply fans should be discussed. - Note that a design of the proposed vapor mitigation measures and operation and maintenance plan will be required. The design can be submitted under a separate cover. - Once the mitigation measures are in place, a full operation and maintenance plan can be developed with as-built drawings. The RAW should at least have a conceptual operation and maintenance plan including verification of desired air exchange, subslab, soil vapor and indoor air monitoring requirements	

RESPONSE TO DTSC NOVEMBER 2, 2020, PROJECT MANAGER COMMENTS ON REMOVAL ACTION WORKPLAN FORMER VENTURA MANUFACTURED GAS PLANT SITE VENTURA, CALIFORNIA		
Comment Number	**Comment**	**Response**
1	**Title Page:** • Title should be changed to Removal Action Workplan - Southern Portion of Parcel A - Former Ventura Manufactured Gas Plant. • Revised date should be provided every time the document is revised. • The document should be signed and stamped by a professional license holder.	• Parcel A only covers the northern part of the Site. The southern portion is a not part of Parcel A. The title has been changed as follows: **Removal Action Workplan** **Property South of Parcel A** **Former Ventura Manufactured Gas Plant** • The revision date has been added to the title page. • The document has been signed and stamped as requested.
2	**Table of Content:** • Revise Table of Content according to the changes asked in this memorandum.	• The table of contents has been regenerated as requested.

3	**Section 2.0: Background** • Provide EPA Identification Number and Cal Sites Database Number • Assessor's Parcel Number(s) and Maps • Ownership • Contact Person, Mailing Address and Telephone Number	The requested background information has been added to Section 2.1. Parcel map is added as Attachment B.
4	**Section 3:0: Nature, Source, And Extent of Soil and Soil Vapor Impacts** • This section should include the past and present chemicals of concern (COCs) and chemicals of potential concern in the southern area of Parcel A. • Include maximum concentrations and depths of the contaminants found in soil, soil gas and ground water. • Figures should be included in the RAW showing concentrations of past and present COCs in the soil and soil gas.	• Section 4.0 of the RAW has been revised to include a discussion of the chemicals of the potential concern and health-based goals. • The maximum concentrations detected in soil are listed in Tables 1 and 2 and are graphically depicted on Figure 4. The maximum concentrations detected in soil vapor are listed in Table 3 and are graphically depicted on Figure 5. Groundwater contamination is not subject to removal action but is described in Section 3.2, where reference is made to Section 2.3 where additional background information pertaining to groundwater is presented. • Figures depicting COCs in soil and soil gas are included as Figures 4 and 5, respectively.

5	**Section 7: Feasibility Study, Identification and Analysis of Removal Action Alternatives** • Conclusion for each four of the Alternatives are provided. Add a conclusive paragraph about all the chosen Alternatives and the reason at the end of the section.	Section 7.6 has been added in the revised RAW to provide conclusions and the bases for the alternatives.
6	**Section 9:0: Shallow Soil Removal Action Implementation** Add following sub sections: • Noise Monitoring and Control Plan • Dust Control Plan • Odor Control Plan • Stormwater Management Plan • Quality Assurance Project Plan	Section 9.6 has been added to address the following: • Noise Monitoring and Control Plan • Dust Control Plan • Odor Control Plan • Stormwater Management Plan Please see Attachment E for Quality Assurance/Quality Control Plan.

7	**Attachments** • Remove Attachment A, Removal Action Workplan Former Ventura Manufactured Gas Plant Site (Parcels A And F) dated May 2009 as it was not signed and not required to enclose the whole document with the current RAW. DTSC's Approval Letter can be left in the Attachment A. • Revise Attachment D, Health and Safety Plan for COVID-19 safety guidelines and submit as a standalone document. Add following as Attachments: • Quality Assurance Project Plan (QAPP)	Attachment A now only includes the DTSC approval letter. The HASP has been revised to include Health and Safety guidelines for COVID-19. The HASP will be submitted separately as a standalone document. A QA/QC Plan is included as Attachment E in the revised RAW

NOREAS
Environmental Engineering and Science

RESPONSE TO ADDITIONAL DTSC COMMENTS FROM
HEALTH AND ECOLOGICAL RISK ASSESSMENT
AND
ENGINEERING AND SPECIAL PROJECTS

REMOVAL ACTION WORKPLAN
FORMER VENTURA MANUFACTURED GAS PLANT SITE
VENTURA, CALIFORNIA

ADDITIONAL COMMENTS FROM HEALTH AND ECOLOGICAL RISK ASSESSMENT, DATED NOVEMBER 30, 2020 (Via Email)

Comment Number	Comment	Response
1	Section 5.1, RAOs for Shallow Soil: The HERO notes that the proposed removal target levels for TPHs (1700, 250, and 2700 mg/kg for TPH-g, TPH-d, and TPH-hh, respectively) do not agree with regulatory screening levels (e.g., USEPA Regional Screening Levels [RSLs] and SFBRWQCB Environmental Screening Levels [ESLs]) commonly used for TPH cleanup. Specifically, these target levels correspond to the health-based goals (HBGs) derived from the toxicity values based on aliphatic fractions only (e.g., no oral reference dose value for TPH-g) in the Human Health Risk Assessment. Because no speciated TPH data (aromatics vs. aliphatics) will be collected during confirmation soil sampling, HERO recommends using the SFBRWQCB ESLs for residential shallow soil (430, 260, and 12,000 mg/kg for TPH-g, TPH-d, and TPH-hh,	Section 5.1 has been modified to incorporate the use of initial removal target levels for TPH-g, TPH-d, and TPH-hh that are based on Environmental Screening Levels established by the San Francisco Bay Regional Water Quality Control Board.

	respectively) as initial removal target levels in this RAW for consistency with other DTSC projects.	
2	Arsenic and lead should also be listed as metals of potential concern on Table 4 for completeness.	Table 4 has been modified to include arsenic and lead as metals of potential concern.
3	The boring location B2 is shown outside the proposed excavation area on Figure 6, which contradicts with the recommendation that arsenic-impacted soil around B2 (13.3 mg/kg at 2-feet bgs) should be removed to meet the soil removal target of 12 mg/kg listed in Section 5.1.	Figure 6 has been modified to incorporate the removal of shallow soil in the B2 area.
ADDITIONAL COMMENTS FROM ENGINEERING AND SPECIAL PROJECTS, DATED DECMBER 2, 2020 (Via Email)		
Comment Number	**Comment**	**Response**
1	Some of the Responses indicate that DTSC's HERO and SMRP have acknowledged and accepted this approach. Those comments were previous ESPO comments (comment 2, 3 , 7). In this case, ESPO does not have any additional comments. The Responses provided make references to the impact in soil vapor and groundwater from the offsite sources and therefore negate the need for source removal/active remediation approach for the soil gas and groundwater and changes to the RAW.	Acknowledged.

2	All other responses and changes to the RAW are adequate. However, ESPO recommends including a contingency (such as increased air exchange rate etc.) to the selected mitigation measures during development of operation and maintenance plan. ESPO also suggests installing a few soil vapor and groundwater monitoring points. Monitoring frequency can be reduced or terminated over period of time. This will document trend in soil vapor and groundwater in light of potential off site sources.	The Operation and Maintenance Plan will incorporate contingencies for alternate mitigative scenarios. We do note, however, that an increased air exchange rate is probably an unlikely scenario since design criteria already include a full air exchange at intervals not exceeding ten minutes. The minimum air exchange rate will make indoor air essentially equivalent to ambient outdoor air. Soil vapor was assessed as part of the supplemental remedial investigation. As outlined in the human health risk assessment report and in the subject removal action workplan, soil vapor risks are isolated in the western portion of the property where the proposed compressor building will be constructed. Given the unique and complicated foundation design, indoor air quality will be assessed within the building once it is constructed. As such, further soil vapor assessment would not serve a beneficial purpose. We acknowledge, however, that additional soil vapor assessment may be necessary in the future, should additional buildings be proposed in the western portion of the site. A requirement for additional assessment of vapor risks for any other buildings will be addressed as part of the pending land use covenant. Regarding the suggestion that groundwater monitoring wells should be installed to document water quality trends, we again note that 36 groundwater monitoring wells were previously installed and monitored to assess groundwater quality in and around the site. Based on an extensive dataset and thorough analysis, DTSC determined that no further action related to groundwater would be necessary and authorized destruction of all groundwater monitoring wells. The proposed plan to remove residual wastes by excavation of shallow soil has

		no direct relation to groundwater quality. Moreover, the supplemental remedial investigation completed earlier this year did not reveal any evidence that conflicted with earlier assessment data. In sum, there's no technical basis to support reinstallation of wells that DTSC previously determined were unnecessary.
3	Table 10 cost estimate for Alternative 4 should be revised to include capital and long term operation/maintenance/monitoring and reporting cost (30 year present worth).	Table 11 is added to the RAW that includes long term operation/maintenance/monitoring and reporting cost (30 year present worth).