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Subject: Response to the California Public Utilities Commission Deficiency Request Area No. 2, Deficiency Request Nos. 17 and 18, on the Proponent's Environmental Assessment for the Ventura Compressor Modernization Project

Dear Ms. Heustis:

In response to a request from SoCalGas, Yorke Engineering, LLC (Yorke) is providing this letter, responsive to California Public Utilities Commission (CPUC) Deficiency Request (DR) Nos. 17 and 18, to address the technical information related to estimated greenhouse gas (GHG) emissions and toxic air contaminant (TAC) emissions and potential health risks from (i) compressor venting, (ii) fugitive components, and (iii) blowdown emissions for the proposed Ventura Compressor Modernization (VCM) Project.

Potential TAC emissions from compressor venting, component fugitives, and blowdowns were not included in the operations Health Risk Assessment (HRA) of the Proponent's Environmental Assessment (PEA) because only emissions from permitted equipment are typically included in HRAs. However, per the CPUC's request and direction on the specific information requested, SoCalGas estimated the proposed project's GHG and TAC emission rates associated with natural gas volumes of vented emissions from compressor venting and blowdowns and fugitive emissions from component leaks. This response provides the technical considerations and strategies used to quantify these projected emissions. By way of summary, this response:

1) presents 2021 and 2022 baseline[1] data,
2) estimates natural gas volume releases,
3) uses estimated natural gas volumes to project future GHG and TAC emissions associated with natural gas releases from compressor venting, component fugitives, and blowdowns in response to DR No. 17,
4) analyzes predicted health impacts in response to DR No. 18, and

[1] The PEA was submitted in 2023 and the baseline period in the PEA was defined as the two most recent years that data were available, i.e., 2021 and 2022. The procedure of using the most recent two years is consistent with Ventura County Air Pollution Control District's Rule 26.6 New Source Review – Calculations, Section C., requirements, where the applicant is directed to use the two most recent years as the historical actual emissions (baseline period) unless, as determined by the Air Pollution Control Officer, another two-year period during the prior five years is more representative.

5) provides an overall analysis of results that takes into consideration new equipment controls and best management practices.

Since specific, detailed component counts are unknown for the VCM Project at this early stage of engineering, SoCalGas utilized a conservative approach of estimating natural gas volume releases based on reported historical data at the existing Ventura Compressor Station (VCS) to respond to the CPUC's request.

The existing compressors at VCS were installed in the 1980s, making the existing components over 35 years old. Because details of component count or final design for the VCM Project will not be known until final engineering design is complete, responding to DR Nos. 17 and 18 to quantify certain information required an estimation approach. Therefore, as noted above, for DR Nos. 17 and 18, SoCalGas estimated the volume of natural gas emitted from compressor venting, fugitive components, and blowdowns using historical data to estimate future gas volume releases from compressor venting, fugitive components, and blowdowns with implementation of the VCM Project.

This approach in this analysis is conservative because it does not:

1) take into account that new components are anticipated to be less prone to leaks than older components,
2) take full emission reduction credit from installation of Compressor Static-Pac Seals (CSS) and Vapor Recovery Unit (VRU) technology for vented emissions,
3) take any emission reduction credit from installation of a VRU for blowdown emissions, and
4) apply reductions from SoCalGas's existing best management practices (BMPs) and robust leak detection and repair (LDAR) process.

As such, it is anticipated implementation of the VCM Project will result in even fewer natural gas leaks and an associated GHG and TAC emissions reduction as compared to baseline conditions.

Laboratory analyses used in the estimation of TAC emission rates for DR 17 are provided in Attachment 1. Model inputs and output for the analysis prepared in response to DR 18 are provided in Attachment 2. For ease of review, we separately discuss Data Request Nos. 17 and 18 below.

DEFICIENCY REQUEST NO. 17 (DR 17)

> *Please quantify the reasonably foreseeable proposed project GHG and toxic air contaminant emissions rates associated with natural gas volumes of vented emissions and fugitive emissions from component leaks*.

For the analysis below, SoCalGas estimated the natural gas volume releases, which were then used to estimate the associated GHG and TAC emissions.

Natural Gas Volume Releases

While it is difficult to quantify the reasonably foreseeable proposed VCM Project GHG and TAC emission rates associated with vented, fugitive, and blowdown volumes at this stage of engineering, SoCalGas took a conservative approach and first estimated the amount of natural gas that could be emitted from proposed equipment as vented, fugitive, and blowdown emissions using historical data as discussed further below. Once the gas volumes were estimated, Yorke could calculate GHG emissions in Metric Tons of CO_2-equivalent ($MTCO_2e$), and the amount of each TAC could be estimated based on the parts per million by volume (ppmv) of the TAC in the natural gas.

SoCalGas also provided Yorke with the estimated potential emission reductions associated with controls and BMPs. These estimates were applied in the specific categories where reductions were identified. These categories were compressor venting and blowdown. Emission reductions associated with CSS and VRU are only applicable to compressor venting estimates. BMPs from 2022 to present have resulted in reduced blowdown emissions, for example, there were zero blowdown emissions in 2022. Estimated reductions achieved with the use of CSS and VRU for compressor venting and BMPs associated with blowdowns resulted in estimated GHG and TAC emission reductions.

Compressor Venting

The volume of natural gas emitted from compressor venting was quantified using historical California Air Resources Board (CARB) Oil & Gas (O&G) rod packing vented flow rates and estimated future hours of compressor operations. To comply with CARB O&G Rule standards (California Code of Regulations, Title 17, §95668), SoCalGas annually reports Ventura Compressor Station's rod packing vented flow rates per cylinder for each existing compressor (HP1, HP2, HP3) in the CARB O&G Report (Table A7). The calculated average rod packing vented flow rate per cylinder for each existing compressor is 0.4225 Standard Cubic Feet per Minute (SCFM) using data from the 2021 and 2022 CARB O&G Report (Table A7). With two cylinders per compressor, the total calculated average rod packing vented flow rate per hour for each existing compressor is 50.7 Standard Cubic Feet per Hour (SCFH).

As presented in PEA Section 5.6-6 Energy, SoCalGas analyzed two scenarios for energy impacts. Case 1 is based on two 2,500 nominal horsepower (HP) electric-driven compressors (EDCs) and Case 2 is based on two 2,000 nominal HP EDCs, where both cases have two 1,900 HP natural gas compressors. Case 1 EDCs will operate a maximum of 3,795 hours per year and Case 2 EDCs will operate a maximum of 3,890 hours per year. To be conservative, Case 2 was selected since it has the highest maximum hours of operations and highest annual process rate. Under normal operations using Case 2, the two proposed 2,000 HP EDCs are expected to be operated on a "first-on and last-off basis" and are expected to run a maximum of 3,890 hours/year each, while the two proposed 1,900 HP natural gas (NG) compressors are expected to run 1,935 hours/year each (see PEA, Appendix B, Air Quality & GHG Technical Report, Tables B-2a and F-4b).

As shown in Table 1 below, the average annual compressor vented natural gas volume for four compressors is projected to be 590.62 Thousand Standard Cubic Feet per Year (MSCF/year), with a total hourly volume of 0.20 MSCF/hour (approximately 0.051 MSCF/hour per compressor). However, this is a conservative estimate because it does not take into consideration the VCM Project's proposed utilization of a CSS or a VRU. The CSS includes compressor static-pack seals

with an ability to reduce up to 96%[2] of fugitive emissions and a VRU with a capture and recovery efficiency of up to 95%[3]. The proposed use of both the CSS and the VRU provides the foundation for the conservative estimate of an overall 50% reduction in the projected VCM compressor vented natural gas volumes. Fifty percent was chosen to be a conservative assessment, as compared to the potential 95%-96% reduction and capture/recovery rates, to account for any differences between the available literature and actual installation. Fifty percent of the projected compressor vented emissions would result in an approximate reduction of 295.3 MSCF/year of projected natural gas volumes.

Table 1: Projected Compressor Vented Gas Volumes

Compressor	Average Actual Compressor Vent Measurement per Cylinder (SCFM)(1)	Average Actual Compressor Vent Measurement (SCFH)(2)	Projected Annual Hours of Operation (Hour/Year)	Projected Annual Volume (MSCF/Year)
NG Unit 1	0.4225	50.7	1,935	98.09
NG Unit 2	0.4225	50.7	1,935	98.09
EDC Unit 1	0.4225	50.7	3,890	197.22
EDC Unit 2	0.4225	50.7	3,890	197.22
		Projected Total (for 4 Units)	**Annual Volume (MSCF/year)**	**590.62**
			Annual Volume w/ CSS & VRU (MSCF/year)	**295.31**
			Hourly Volume (MSCF/hour)	**0.20**
			Hourly Volume w/ CSS & VRU (MSCF/hour)	**0.10**

Notes:

1. The average actual compressor vent measurements are based on rod packing vent flow rates for Ventura Compressor Station's three existing compressors, per cylinder, from 2021 and 2022 CARB Oil and Gas reports.
2. Average Actual Compressor Vent Measurement (SCFH) = Average Actual Vent Compressor Vent Measurement per Cylinder (SCFM) * (60 minutes/hour) * 2 (two cylinders per compressor). Existing units have two cylinders per compressor and new proposed compressors are assumed to have two cylinders.

[2] See Static-Pac Shutdown Seals - Cook Compression

[3] See Vapor Recovery Units US Environmental Protection Agency

Component Fugitives

The volume of natural gas emitted from component fugitives was quantified by SoCalGas using Senate Bill (SB) 1371 Natural Gas: Leakage Abatement data and historical CARB O&G Leak Detection and Repair (LDAR) Inspection Records. To comply with SB 1371 requirements, SoCalGas reports Ventura Compressor Station's annual natural gas volumes from compressor and component fugitive leaks to the CPUC and CARB. The calculated average natural gas volume from fugitive leaks is 61.49 MCF/year using the 2021 and 2022 SB 1371 Annual Report, Transmission Compressor Station: Compressor and Component Fugitive Leaks data table. The number of components inspected for fugitive leaks is approximately 3,263 with an average of 13,504 components inspected per year calculated using 2021 and 2022 CARB O&G LDAR Inspection Records (Table A4). Since the Ventura Compressor Station will increase from three to four compressors, SoCalGas is projecting a 33% increase in components and associated inspections, although actual numbers may be lower. With this increase, the projected compressor component count is estimated to be 4,340 with an estimated 17,361 components inspected per year. The annual component fugitive volume is projected to be 81.79 MSCF/year (33% increase), with an hourly volume of 0.009 MSCF/hour (Table 2). This is a conservative approach because this calculation does not account for the fact that newer components are expected to emit less than older components.

Table 2: Projected Component Fugitive Volumes

Data	2021	2022	Average Data	Projected Data
Fugitive LDAR Component Count	3,266	3,261	3,263	4,340
Fugitive LDAR Components Inspected per Year	13,062	13,045	13,504	17,361
SB 1371 Component Fugitive Volume (MSCF/year)[(1)]	48.49	74.50	61.49	
			Projected Total[(2)] (MSCF/year)	**81.79**
			Projected Total (MSCF/hour)	**0.009**

Notes:

1. The reported historical volume is from the 2021 and 2022 SB 1371 Annual Reports submitted on June 15, 2022, and June 15, 2023, respectively.
2. Historical volume of 61.49 MSCF/year was multiplied by the projected component inspections per year divided by average historical component inspections per year.

Blowdowns

Vented gas "blowdown" emissions are associated with the operations of natural gas transmission systems to allow operators to safely perform maintenance, inspections, construction, and emergency response. The volume of natural gas emitted from blowdowns vented to atmosphere are reported within the SB 1371 Annual Reports. The projected annual blowdown volume was estimated for the new facility by averaging reported 2021 and 2022 blowdown volumes (MSCF/year) from the SB 1371 Annual Reports. A revision to the 2021 SB 1371 Annual Report submitted in August 2024, included a correction to reported blowdown volumes. Blowdown volumes were corrected from 0 MSCF to 51.4 MSCF.

The blowdown capacity for the existing station is approximately 105 MSCF, and the blowdown capacity estimated for the proposed Ventura Compressor Station project is 150 MSCF, representing a potential 42.86% capacity increase. The SB 1371 blowdown volumes for 2021 and 2022 are 51.4 MSCF and 0 MSCF, respectively. The average blowdown volume for these two years is 25.7 MSCF. A projected increase in capacity of 42.86% for the proposed VCM Project results in an average volume blowdown of 36.7 MSCF (Table 3).

Table 3: Projected Blowdown Volumes

Data	2021	2022	Average	Projected Volume
SB 1371 Blowdown Volume (MSCF/year)	51.4(1)	0	25.7	36.7(2)

Notes:

1. See Ventura Data Request –A.23.09-018-Cause-SCG-01
2. Projected Volume= (2021 and 2022 Average SB 1371 Blowdown Volume)*(Projected Increase in Capacity Percentage)

SoCalGas has progressively employed best management practices to reduce potential vented emissions from blowdowns. The use of isolation and blowdown valves, cross compression, and other enhanced maintenance considerations have greatly reduced potential vented emissions associated with blowdowns. For example, in 2022, reported blowdown volumes were 0 MSCF. The VCM Project will also include a permanent VRU for capture and recovery of blowdown emissions. Potential reductions from the VRU are not included in the emissions reduction calculations.

Natural Gas Volume Releases Summary

Both Section 5.3 (Air Quality) and Section 5.8 (Greenhouse Gas Emissions) of the VCM Project PEA indicate that:

> SoCalGas has a robust leak detection and repair process at the Ventura Compressor System to minimize natural gas leaks from the components in fugitive service, such as valves and flanges. The installation of new fugitive components coupled with the robust leak detection and repair process is anticipated to result in fewer natural gas leaks compared to baseline conditions. (p. 5.3-20)
>
> and
>
> To comply with the CARB Oil and Gas Regulation, SoCalGas has a robust leak detection and repair (LDAR) process at the Ventura Compressor Station to minimize natural gas

> leaks from the components in fugitive service, such as valves and flanges. A vapor capture and recovery system will be implemented at the Project Site that will prevent 85%–100% of the natural gas from being released to the atmosphere during venting. The installation of brand-new fugitive components coupled with the robust LDAR process is anticipated to result in fewer natural gas leaks and associated GHG emissions as compared to baseline conditions. … new components will be installed as part of the Project and new components are less prone to leaks than older components. (p. 5.8-12)

As provided in the PEA, SoCalGas continues to expect that emissions from fugitive leaks and compressor venting will decrease under the VCM Project compared to the existing station. However, as noted above, SoCalGas took a conservative approach in responding to the CPUC request for GHG and TAC emissions associated with natural gas volumes of vented, fugitive emissions from component leaks, and blowdowns. Natural gas volume releases were estimated and used to project future vented, component fugitive emissions, and blowdowns associated with GHG and TAC emissions. As such, this analysis does not account for the potential upgrades to new components.

A summary of the projected natural gas volume emissions from Tables 1, 2, and 3 are presented in Table 4. These estimates are based on scaling the baseline data to account for the difference in the number of compressors planned relative to the three existing engine driven compressors in the baseline.

Table 4: Summary of Estimated Natural Gas Volumes Emitted from Compressor Venting (Mitigated), Fugitive Components, and Blowdowns

Source Category	Annual Volume (MSCF/year)	Maximum Hourly Volume (MSCF/hour)
Compressor Venting (Mitigated)	295.3[(1)]	0.0254
Fugitive Components	81.79	0.009
Blowdowns	36.7[(2)]	Not Applicable
Total	**413.8**	

Notes:

1. Includes 50% reduction from CSS and VRU for vented emissions.
2. Blowdowns occur infrequently, over periods of time of up to 3 minutes, and therefore were only projected as annual volumes.

Greenhouse Gas Emission Calculations

SoCalGas Response to PEA Completeness Review, September 2023, dated November 2023, PEA Section 5.8.1 (p. 5.8.-1) gave the results of operations GHG emissions as excerpted below. As discussed in the Blowdowns section above, a revision to the 2021 SB 1371 Annual Report submitted in August 2024, included a correction to reported blowdown volumes from 0 MSCF to 51.4 MSCF. The corrections to SoCalGas's response text are shown below with deletions in strikeout and additions in bold underline) :

> Existing compressor leaks are summarized in the California Air Resources Board (CARB) Oil and Gas reports from 2021–2022. Based on CARB's Oil and Gas reports, Ventura Compressor Station recorded 24 leaks from components in fugitive service in 2021 and 17 in 2022. The existing compressor-vented emissions and emissions associated with leaks from components in fugitive service are summarized in Senate Bill (SB) 1371 reports that are submitted to the California Public Utilities Commission (CPUC) and CARB annually. The natural gas volumes reported in response to the requirements of SB 1371 were ~~398~~ **449** thousand standard cubic feet (MSCF) in 2021 and 803 MSCF in 2022. In 2021, ~~88~~**78**% of the volume was associated with compressor vents, ~~and 12~~**11**% was associated with fugitive components**, and 11% was associated with blowdowns**. In 2022, 91% of the volume was associated with compressor vents**,** ~~and~~ 9% was associated with fugitive components**, and 0% was associated with blowdowns**.
>
> In response to the CPUC request for additional information, the GHG emissions estimated to be associated with these volumetric reported values were calculated in metric tons of CO_2-equivalent ($MTCO_2e$). For baseline years 2021 and 2022, the calculated values are ~~180~~**203** $MTCO_2e$ and 361 $MTCO_2e$, respectively, with a calculated average of ~~270.5~~**282** $MTCO_2e$. The Ventura Compressor Station's on-site natural gas is limited to the volume stored in the on-site pipelines. In the event of an abnormal condition resulting in the accidental release of natural gas, the volume of natural gas released would be limited to the volume stored in the pipelines at that time.

To estimate future GHG emissions from the VCM Project, SoCalGas used the projected annual compressor vented, fugitive, and blowdown natural gas volumes shown in Table 4. GHG emissions associated with compressor vented emissions, component fugitive emissions, and blowdown emissions were calculated to be 133.5 $MTCO_2e$/year, 37 $MTCO_2e$/year, 16.6 $MTCO_2e$/year, respectively. As noted above, this analysis is conservative because it does not take into account the full reduction efficiency of the VRU and CSS system for vented emissions, does not take any reduction efficiency for VRU for blowdowns, and the upgrades to new components. The total projected calculated GHG emissions is 187 $MTCO_2e$/year as shown in Table 5.

Table 5: Projected Greenhouse Gas Emissions ($MTCO_2e$)

	Compressor Vented (Mitigated) Emissions	Component Fugitive Emissions	Blowdown Emissions
NG Volume (MSCF/year)	295.3	81.79	36.7
NG Volume (SCF/year)	295,300	81,790	36,720
Mole Fraction Carbon Dioxide (CO_2)(1)	0.0091	0.0091	0.0091
Mole Fraction Methane (CH_4)(1)	0.9407	0.9407	0.9407
CO_2 Volume (SCF)(2)	2,687.23	744.29	334.15
CH_4 Volume (SCF)(3)	277,788.71	76,939.85	34,542.50
Density CO_2	0.0526	0.0526	0.0526
Density CH_4	0.0192	0.0192	0.0192
Global Warming Potential (GWP) CO_2	1	1	1
GWP CH_4(4)	25	25	25
$MTCO_2$/year(5)	0.141	0.04	0.02
$MTCH_4$/year(6)	5.33	1.48	0.66
$MTCO_2e$/year(7)	133.5	37.0	16.6
Total Mitigated (MTCO2e/year)	**187**		

Notes:

1. Average mole fractions based on continuous Gas Control data
2. Converted NG (SCF) volume to CO_2 volume (SCF)= NG volume (SCF) * CO_2 (mole)
3. Converted NG (SCF) volume to CH_4 volume (SCF) = NG volume (SCF) * CH4 (mole)
4. GWP for methane from the CARB required reporting value based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4)
5. Metric Tons of CO_2 ($MTCO_2$) = CO_2 Volume (SCF) * Density (CO_2) * 10^-3
6. Metric Tons of CH_4 ($MTCH_4$) = CH_4 Volume (SCF) * Density (CH_4) * 10^-3
7. Metric Tons of CO_2-equivalent ($MTCO_2e$) = ($MTCO_2$ * GWP[CO_2]) + ($MTCH_4$ * GWP[CH_4])

A summary of baseline and projected vented, fugitive, and blowdown GHG emissions is shown in Table 6 below.

Table 6: Baseline and Projected Greenhouse Gas Emissions ($MTCO_2e$)

Source Category	Baseline 2021/2022 Average ($MTCO_2e$/year)	Projected ($MTCO_2e$/year)	Projected Difference ($MTCO_2e$/year)
Compressor Vented GHG Emissions (Mitigated)	243	133.5	(109)
Component Fugitive GHG Emissions	27.7	37.0	9.3
Blowdown Emissions	11.6	16.6	5
Total	**281.8**	**187.1**	**(94.7)**

Note: Numbers in parenthesis are negative numbers.

Based on this conservative approach, total GHG emissions from vented, fugitive, and blowdown emissions are estimated to decrease from an average 282.3 $MTCO_2e$/year (2021 and 2022 baseline emissions) to a projected 187.1 $MTCO_2e$/year for a net reduction of 94.7 $MTCO_2e$/year.

Vented emissions from compressors are projected to decrease by 109 $MTCO_2e$/year. Fugitive emissions from fugitive components are projected to increase by 33% due to the increase in the number of fugitive components. Blowdowns are projected to increase in volume potential by 42.86%, resulting in an average volume blowdown of 36.7 MSCF/year. However, this projected increase does not account for the benefits of upgraded equipment. The proposed new compressors are expected to vent less than existing compressors since the new equipment will include brand-new valves and instruments equipped with low emissions packing system. Additionally, the use of isolation and blowdown valves, cross compression, and other enhanced maintenance considerations have greatly reduced potential vented emissions associated with blowdowns.

With respect to fugitive emissions, SoCalGas also has a robust LDAR program as required by CARB O&G regulations and additionally performs routine proactive leak detection of fugitive components outside of regulatory required timelines, which may further minimize GHG leak related emissions. On January 1, 2020, CARB revised their Oil and Gas regulation to require that all leaks from >10,000 ppmv to >1,000 ppmv be repaired within 14 days. CARB is currently amending their rule and considering an even lower leak threshold level which may result in even further emission reductions.

Based on the analysis above, GHG emissions from vented, fugitive, and blowdown sources would not change the significance findings in the PEA.

TAC Emission Calculations

To estimate TAC emission rates associated with the gas emissions shown in Table 4, on August 13, 2024, SoCalGas collected six natural gas samples from three locations near the Ventura Compressor Station. The samples were collected along natural gas transmission lines 324, 406, and 404, which feed into the Ventura Compressor Station. Two samples were collected at each of the three locations, *i.e.*, a sample and a field duplicate were taken at each site. Samples were collected in 6-liter canisters using a Silonite-treated regulator. The regulator was flushed with high purity nitrogen prior to each sampling event. The samples were analyzed for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to United States Environmental Protection Agency (EPA) Method TO-15. Analysis results are summarized in Table 7 and provided in Attachment 1. TAC emission rates, estimated from the Table 4 volumetric flowrates and the Table 7 analysis results, are shown in Table 8.

Prior to the sampling, it is noted that a search was conducted by Yorke to find published emissions factors for TAC from natural gas transmissions stations. Multiple Air Pollution Control District (APCD)/Air Quality Management District (AQMD) databases, reporting guidelines, and/or permit information were searched including CARB, Ventura County APCD, Santa Barbara County APCD, San Luis Obispo County APCD, San Diego County APCD, South Coast AQMD, San Joaquin Valley APCD, and Bay Area AQMD. Some TAC information was available for natural gas production and processing plants, but no documents containing specific guidance related to fugitive emissions from fugitive components handling 100% natural gas or natural gas venting were found. For instance, San Joaquin Valley APCD TAC emission factors[4] are provided for "Natural Gas (Unrefined) Fugitives." The factors are noted in the footnotes to the San Joaquin Valley APCD's table to be based "on a June 2001 Material Safety Data Sheet (MSDS) for Natural Gas Condensate provided by Pacific Gas and Electric Company. This composition represents raw natural gas and will differ from refined natural gas." Hence, sampling of the specific natural gas present at the Ventura Compressor Station was performed.

[4] See https://ww2.valleyair.org/media/4pmopthn/natural-gas-and-propane-fugitives.xls

Table 7: BTEX Analysis Results

TAC	CAS No.	Molecular Weight (lb/lbmol)	Analysis Result[(1)] (ppmv)	Emission Factor[(2)] (lb/mmscf)
Benzene	71432	78.11	1.550	3.19E-01
Toluene	108883	92.14	1.880	4.57E-01
Ethylbenzene	100414	106.17	0.096	2.689E-02
Xylenes	1330207	106.16	0.718	2.011E-01

Notes:

1. Analysis Result (ppmv) = Average of six sample results, in units of parts per million by volume. *The analysis results are in units of parts per billion by volume. The numbers shown in Table 7 are calculated by spreadsheet and may include rounding.*
2. Emission Factor (lb/mmscf) = Emission factor in units of pounds per million square feet. Emission Factor (lb/mmscf) = Analysis Result (ppmv) x Molecular Weight (lb/lbmol) / Molar Volume (scf/lbmol). Molar Volume = 379 scf/lbmol, is the molar volume of an ideal gas at 60 Degrees Fahrenheit. *These numbers are calculated by spreadsheet and may differ from hand-calculation due to rounding.*

Table 8: Projected TAC Emission Rates

TAC	CAS No.	Compressor Venting (Mitigated)		Fugitive Components		Blowdowns
		Annual Emissions[(1)] (lb/yr)	Maximum Hourly Emissions[(2)] (lb/hr)	Annual Emissions[(1)] (lb/yr)	Maximum Hourly Emissions[(2)] (lb/hr)	Annual Emissions[(1,3)] (lb/yr)
Benzene	71432	9.43E-02	8.11E-06	2.61E-02	2.98E-06	1.17E-02
Toluene	108883	1.35E-01	1.16E-05	3.74E-02	4.27E-06	1.68E-02
Ethylbenzene	100414	7.9E-03	6.8E-07	2.2E-03	2.5E-07	9.87E-04
Xylenes	1330207	5.9E-02	5.1E-06	1.6E-02	1.9E-06	7.38E-03

Notes:

1. Annual Emissions (lb/yr) = Annual Emissions (mscf/yr) [Table 4]/ 1,000 x Emission Factor (lb/mmscf) [Table 7]. *The numbers shown in Table 8 are calculated by spreadsheet and may differ from hand-calculation using the numbers shown in Tables 4 and 7 due to rounding.*
2. Maximum Hourly Emissions (lb/hr) = Maximum Hourly Emissions (mscf/hr) [Table 4]/ 1,000 x Emission Factor (lb/mmscf) [Table 7]. *The numbers shown in Table 8 are calculated by spreadsheet and may differ from hand-calculation using the numbers shown in Tables 4 and 7 due to rounding.*
3. Blowdowns occur infrequently, over periods of time of up to 3 minutes, and therefore were only projected as annual emissions.

DEFICIENCY REQUEST NO. 18 (DR 18)

Please confirm the vented emissions and fugitive emissions from component leaks are considered and included in the Health Risk Assessment for the predicted health risks during project operation. Please include quantified cancer risk and noncancer hazard indices for these sources.

SoCalGas Response to PEA Completeness Review, September 2023, dated November 2023, PEA Section 5.3 (p. 5.3-18) gave the results of an operations HRA for the proposed project as follows:

> The operations HRA modeling analyzed the total post-Project TAC emissions based on the proposed Project's PTE from the new natural gas compressors and standby generator rather than the delta between pre-Project and post-Project TAC emissions. TAC emissions were calculated for the TACs expected from the combustion of natural gas in the proposed new natural gas equipment, using emission factors provided by the VCAPCD during prior permitting efforts. Dispersion modeling was conducted with AERMOD using the on-site meteorological data and receptor locations around the property boundary, gridded receptors, and receptors at specific sensitive receptor locations. The AERMOD results were input into the Hot Spots Analysis and Reporting Program (HARP2) software tool for conducting HRAs. The HRA followed the California Office of Environmental Health Hazard Assessment Guidelines (OEHHA 2015) as well as the VCAPCD Air Quality Assessment Guidelines (VCAPCD 2003). Additional information on the TAC emission calculations and the methodology, input parameters, and detailed results for each predicted health impact and at each receptor type, broken down by pollutant and source, for the operational HRA are provided in Appendix B.
>
> The results of the HRA from the proposed Project's operational TAC emissions are summarized in [PEA] Table 5.3-10. The results show that the predicted health impacts are below the VCAPCD health risk thresholds; therefore, impacts from the Project's TAC emissions would be less than significant.

Table 5.3-10. Operational Health Risk Assessment Results[5]

Predicted Health Impact	Maximally Exposed Individual Residential	Maximum Sensitive Receptor	Maximally Exposed Individual Worker	VCAPCD CEQA Threshold	Significant?
Cancer Risk (In One Million)	2.81	0.54	1.25	10	No
Chronic Hazard Index (HIC)	0.009	0.002	0.01 (annual) 0.05 (8-hour)	1	No
Acute Hazard Index (HIA)	0.03	0.03	0.02	1	No

Notes: VCAPCD = Ventura County Air Pollution Control District; CEQA = California Environmental Quality Act.

[5] This table is from Section 5.3 of the PEA and does not consider venting, fugitive, or blowdown emissions.

Potential TAC emissions from compressor venting, component fugitives, and blowdown were not included in the operations HRA in the PEA because only emissions from permitted equipment are typically included. The VCAPCD Air Quality Assessment Guidelines published in October 2003 do not include requirements for including TAC emissions from venting, component fugitives, or blowdowns in Air Quality Impact Analyses or HRAs. VCAPCD has not required including TAC emissions from venting, component fugitives, or blowdowns in HRAs done for air permit applications or for Assembly Bill (AB) 2588 Air Toxics "Hot Spots" Information and Assessment Act submittals for the Ventura Compressor Station. Hence, there was no expectation that potential TAC emissions from these sources should be included.

In response to this CPUC request, an analysis was done using the same methodology, meteorological data, receptor grid and discrete receptors, etc. as was used for the HRA provided for the VCM Project PEA. All applicable Ventura County APCD and OHHEA HRA Guidelines were followed. The analysis model inputs, and detailed output are provided in Attachment 2. As shown in Attachment 2, the compressor venting was modeled as point sources at the vent stack for each compressor, the blowdown emissions were modeled as a point source at the emergency shut down stack, and as a polygonal area source for the component fugitives. Since the VRU design has not been finalized, the model used unmitigated compressor venting volumes. The estimated vapor capture and recovery efficiency of 50% was not included in the model because the necessary model inputs are not available at this stage of the project design. The results of the analysis do not include proposed mitigations and therefore do not reflect the actual operation which is expected to result in lower predicted health impacts than those shown in Table 9. Because a blowdown event is infrequent and lasts only a few minutes at a time and not throughout the year like compressor venting and component fugitives, blowdown emissions were modeled separately, and the results are presented separately in Table 9 and Attachment 2.

Table 9: Analysis Results from Compressor Venting, Component Fugitive, and Blowdown TAC Emissions

Predicted Health Impact	Maximally Exposed Individual Residential	Maximum Sensitive Receptor	Maximally Exposed Individual Worker	VCAPCD CEQA Threshold	Significant ?
Compressor Venting[1] and Fugitive Components					
Cancer Risk (In One Million)	0.008	0.003	0.002	10	No
Chronic Hazard Index (HIC)	0.00004	0.00002	0.0001 (annual) 0.0001 (8-hour)	1	No
Acute Hazard Index (HIA)	0.0005	0.0005	0.0009	1	No
Blowdowns					
Cancer Risk (In One Million)	0.00006	0.00003	0.00002	10	No
Chronic Hazard Index (HIC)	0.0000003	0.0000001	0.000001 (annual) 0.000001 (8-hour)	1	No

Notes:

1. The model includes the annual emissions per compressor at the total divided by 4; the model includes the maximum hourly emissions per compressor at the maximum hourly per unit. That is, the annual volume vented per year per compressor is 590.62 MSCF/year divided by 4, and the maximum hourly volume vented per hour per compressor is 50.7 SCF/hour.

CONCLUSION

SoCalGas used a conservative approach of estimating natural gas release volumes associated with compressor venting, fugitive components, and blowdowns based on reported historical data at the existing VCS. These natural gas volumes were scaled to account for the configuration of the proposed VCM Project relative to the existing configuration of the VCS. These volumes were used to estimate GHG and TAC emissions to respond to the CPUC's request. This analysis overestimates emissions as it is anticipated that new components will be less prone to leaks than older components. Additionally, the conservative approach used to develop the emissions rates does not account for the full reduction potential of the CSS or VRU for vented emissions, which is anticipated to have a much higher emissions reduction as it can reduce 95%-96% of vented emissions but only a 50% reduction was applied to conservatively address any unknown variables. Lastly, the analysis does not account for any potential from the VRU for blowdowns or account for SoCalGas's existing BMPs and robust LDAR process.

The VCM project is estimated to result in a net reduction of 94.7 $MTCO_2e$/year from compressor venting, fugitive components, and blowdowns as compared to existing conditions. The predicted health impacts from TAC emissions from compressor venting, fugitive components, and blowdowns are below the VCAPCD health risk thresholds.

Sincerely,

James J. Adams
Senior Engineer
Yorke Engineering, LLC
JAdams@YorkeEngr.com

Enclosures:

1. Attachment 1 – Laboratory Report
2. Attachment 2 – Analysis Model Inputs and Outputs

ATTACHMENT 1 – LABORATORY REPORT

ALS Environmental
2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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LABORATORY REPORT

August 26, 2024

Shahid Razzak, M.L. 723B
Southern California Gas Company
Terminal Annex
Los Angeles, CA 90051

RE: Ventura Station Testing / TS2024-CO12

Dear Shahid:

Enclosed are the results of the samples submitted to our laboratory on August 13, 2024. For your reference, these analyses have been assigned our service request number P2403329.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

ALS | Environmental

By Sue Anderson at 4:22 pm, Aug 26, 2024

Sue Anderson
Project Manager

ALS Environmental
2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T +1 805 526 7161

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Client: Southern California Gas Company
Project: Ventura Station Testing / TS2024-CO12

Service Request No: P2403329

CASE NARRATIVE

The samples were received intact under chain of custody on August 13, 2024 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.4 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	https://dec.alaska.gov/spar/csp/lab-approval/list-of-approved-labs	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	https://internet.deq.louisiana.gov/portal/divisions/lelap/accredited-laboratories	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtm	2022028
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	006-999-456
New Jersey DEP (NELAP)	https://dep.nj.gov/dsr/oqa/certified-laboratories/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oklahoma DEQ (NELAP)	labaccreditation.deq.ok.gov/labaccreditation/	2207
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-012
Pennsylvania DEP	hhttp://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413
Utah DOH (NELAP)	https://uphl.utah.gov/certifications/environmental-laboratory-certification/	CA01627
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Southern California Gas Company
Service Request: P2403329
Project ID: Ventura Station Testing / TS2024-CO12

Date Received: 8/13/2024
Time Received: 09:24

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC Cans
2553T-324	P2403329-001	Air	8/13/2024	06:46	SC00374	5.12	5.12	X
2553T-324-D	P2403329-002	Air	8/13/2024	06:50	SC01547	5.10	5.10	X
2553T-406	P2403329-003	Air	8/13/2024	07:16	SC01904	4.08	4.08	X
2553T-406-D	P2403329-004	Air	8/13/2024	07:21	SC00151	4.55	4.55	X
805T-404	P2403329-005	Air	8/13/2024	08:15	SC01558	3.14	3.14	X
805T-404-D	P2403329-006	Air	8/13/2024	08:21	SC00568	3.77	3.77	X

Air - Chain of Custody Record & Analytical Service Request

Page _____ of _____

P2403329

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

ALS Project No.

ALS Contact:

Company Name & Address (Reporting Information)
So Cal Gas
8101 Rosemeade Blvd, Pico Rivera

Project Name: Ventura Station Testing
Project Number: TS2024-C012
P.O. # / Billing Information: 300833518

Project Manager: Shuhad Razzak
Phone: 323-680-1442
Fax: -
Email Address for Result Reporting: SRazzak@socalgas.com
Sampler (Print & Sign): David Kammever

Analysis Method

TO15-BTEX

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume
2553T-324		8/13/24	6:46A	SC0374	-	-29.28	4.60	-
2553T-324-D			6:50A	SC1547	-	-29.83	4.46	-
2553T-406			7:16A	SC1904	-	-29.72	3.57	-
2553T-406-D			7:21A	SC00151	-	-29.85	3.98	-
805T-404			8:15A	SC1558	-	-30.12	2.90	-
805T-404-D			8:21A	SC0568	-	-30.04	3.58	-

Comments
e.g. Actual Preservative or specific instructions

Report Tier Levels - please select
Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries) _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
David Kammever	8/13/24	9:24		8-13-24	0924
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: Southern California Gas Company Work order: P2403329

Project: Ventura Station Testing / TS2024-CO12

Sample(s) received on: 8/13/2024 Date opened: 8/13/2024 by: ANTHONY.VASQUEZ

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒
12	Lab Notification: Analyst and PM were alerted of Short HT or RUSH samples?	☐	☐	☒
13	Client Notification: Client has been notified regarding HT exceedances and/or other CoC discrepancies?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2403329-001.01	6.0 L Source Can					
P2403329-002.01	6.0 L Source Can					
P2403329-003.01	6.0 L Source Can					
P2403329-004.01	6.0 L Source Can					
P2403329-005.01	6.0 L Source Can					
P2403329-006.01	6.0 L Source Can					
P2403329-007.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **2553T-324** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P2403329-001

Test Code: EPA TO-15 Date Collected: 8/13/24
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: 8/13/24
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/22/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.0050 Liter(s)
Test Notes:
Container ID: SC00374

Initial Pressure (psig): 5.12 Final Pressure (psig): 5.12

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**3,400**	100	**1,100**	32	
108-88-3	Toluene	**5,200**	110	**1,400**	29	
100-41-4	Ethylbenzene	**320**	110	**74**	25	
179601-23-1	m,p-Xylenes	**1,900**	210	**430**	49	
95-47-6	o-Xylene	**390**	110	**90**	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **2553T-324-D** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P2403329-002

Test Code: EPA TO-15 Date Collected: 8/13/24
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: 8/13/24
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: SC01547

Initial Pressure (psig): 5.10 Final Pressure (psig): 5.10

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**4,900**	51	**1,500**	16	
108-88-3	Toluene	**6,800**	54	**1,800**	14	
100-41-4	Ethylbenzene	**350**	55	**79**	13	
179601-23-1	m,p-Xylenes	**2,100**	110	**470**	25	
95-47-6	o-Xylene	**430**	54	**98**	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **2553T-406** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P2403329-003

Test Code: EPA TO-15 Date Collected: 8/13/24
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: 8/13/24
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: SC01904

Initial Pressure (psig): 4.08 Final Pressure (psig): 4.08

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**4,600**	51	**1,400**	16	
108-88-3	Toluene	**6,100**	54	**1,600**	14	
100-41-4	Ethylbenzene	**360**	55	**83**	13	
179601-23-1	m,p-Xylenes	**2,300**	110	**530**	25	
95-47-6	o-Xylene	**490**	54	**110**	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **2553T-406-D** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P2403329-004

Test Code: EPA TO-15 Date Collected: 8/13/24
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: 8/13/24
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: SC00151

Initial Pressure (psig): 4.55 Final Pressure (psig): 4.55

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**5,000**	51	**1,600**	16	
108-88-3	Toluene	**7,100**	54	**1,900**	14	
100-41-4	Ethylbenzene	**390**	55	**91**	13	
179601-23-1	m,p-Xylenes	**2,600**	110	**600**	25	
95-47-6	o-Xylene	**530**	54	**120**	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **805T-404** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P2403329-005

Test Code: EPA TO-15 Date Collected: 8/13/24
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: 8/13/24
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: SC01558

Initial Pressure (psig): 3.14 Final Pressure (psig): 3.14

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**6,100**	51	**1,900**	16	
108-88-3	Toluene	**8,900**	54	**2,400**	14	
100-41-4	Ethylbenzene	**560**	55	**130**	13	
179601-23-1	m,p-Xylenes	**3,400**	110	**770**	25	
95-47-6	o-Xylene	**860**	54	**200**	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **805T-404-D** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P2403329-006

Test Code: EPA TO-15 Date Collected: 8/13/24
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: 8/13/24
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: SC00568

Initial Pressure (psig): 3.77 Final Pressure (psig): 3.77

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**5,800**	51	**1,800**	16	
108-88-3	Toluene	**8,400**	54	**2,200**	14	
100-41-4	Ethylbenzene	**520**	55	**120**	13	
179601-23-1	m,p-Xylenes	**3,100**	110	**710**	25	
95-47-6	o-Xylene	**790**	54	**180**	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **Method Blank** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P240815-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: NA
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	ND	0.51	ND	0.16	
108-88-3	Toluene	ND	0.54	ND	0.14	
100-41-4	Ethylbenzene	ND	0.55	ND	0.13	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
95-47-6	o-Xylene	ND	0.54	ND	0.12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Southern California Gas Company**
Client Sample ID: **Method Blank** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P240821-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: NA
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/21/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	ND	0.51	ND	0.16	
108-88-3	Toluene	ND	0.54	ND	0.14	
100-41-4	Ethylbenzene	ND	0.55	ND	0.13	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
95-47-6	o-Xylene	ND	0.54	ND	0.12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Southern California Gas Company**
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Project ID: P2403329

Test Code: EPA TO-15
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date(s) Collected: 8/13/24
Analyst: Pruthuvi Heenatigala Date(s) Received: 8/13/24
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 8/15 - 8/22/24
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P240815-MB	**99**	**103**	**103**	70-130	
Method Blank	P240821-MB	**98**	**103**	**101**	70-130	
Lab Control Sample	P240815-LCS	**98**	**104**	**110**	70-130	
Lab Control Sample	P240821-LCS	**99**	**105**	**110**	70-130	
Duplicate Lab Control Sample	P240815-DLCS	**99**	**103**	**109**	70-130	
Duplicate Lab Control Sample	P240821-DLCS	**101**	**105**	**109**	70-130	
2553T-324	P2403329-001	**100**	**104**	**104**	70-130	
2553T-324-D	P2403329-002	**99**	**100**	**100**	70-130	
2553T-406	P2403329-003	**100**	**101**	**102**	70-130	
2553T-406-D	P2403329-004	**99**	**101**	**100**	70-130	
805T-404	P2403329-005	**101**	**101**	**100**	70-130	
805T-404-D	P2403329-006	**101**	**100**	**100**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Southern California Gas Company**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P240815-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: NA
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/15/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
71-43-2	Benzene	41.2	33.7	35.0	**82**	**85**	73-128	4	25	
108-88-3	Toluene	42.8	38.0	38.8	**89**	**91**	64-121	2	25	
100-41-4	Ethylbenzene	43.6	40.2	41.3	**92**	**95**	64-119	3	25	
179601-23-1	m,p-Xylenes	86.4	83.1	85.8	**96**	**99**	64-121	3	25	
95-47-6	o-Xylene	43.2	42.5	43.5	**98**	**101**	66-122	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Southern California Gas Company**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2403329
Client Project ID: **Ventura Station Testing / TS2024-CO12** ALS Sample ID: P240821-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Entech 7200CTS/Agilent 7890B/5977B/MS26 Date Received: NA
Analyst: Pruthuvi Heenatigala Date Analyzed: 8/21/24
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
71-43-2	Benzene	41.2	34.7	34.7	**84**	**84**	73-128	0	25	
108-88-3	Toluene	42.8	39.0	39.3	**91**	**92**	64-121	1	25	
100-41-4	Ethylbenzene	43.6	41.1	41.6	**94**	**95**	64-119	1	25	
179601-23-1	m,p-Xylenes	86.4	85.4	86.4	**99**	**100**	64-121	1	25	
95-47-6	o-Xylene	43.2	44.0	44.4	**102**	**103**	66-122	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ATTACHMENT 2 – ANALYSIS MODEL INPUTS AND OUTPUTS

Table / Figure	Contains
Compressor Venting and Fugitive Components	
Table 2.1	Source parameters for the dispersion model setup.
Figure 2.1	Image showing the location of each source identified in Attachment 2 Table 2.1.
Table 2.2	Dispersion modeling and HRA modeling software used to prepare the response to DR18.
Table 2.3	Dispersion modeling software options and assumptions.
Table 2.4	Health risk modeling software options and assumptions.
Figure 2.2	Image showing the residential / sensitive receptors identified in Table 9.
Figure 2.3	Image showing the worker receptors identified in Table 9.
Figure 2.4	Image showing the Point of Maximum Impact for Non-Cancer Acute Hazard Index.
Table 2.5	Cancer Risk by TAC at the residential / sensitive and worker receptors identified in Table 9.
Table 2.6	Cancer Risk by source at the residential / sensitive and worker receptors identified in Table 9.
Table 2.7	Non-Cancer Chronic and 8-hour Non-Cancer Chronic Cancer Hazard Indices by TAC at the residential / sensitive and worker receptors identified in Table 9.
Table 2.8	Non-Cancer Chronic and 8-hour Non-Cancer Chronic Cancer Hazard Indices by source at the residential / sensitive and worker receptors identified in Table 9.
Table 2.9	Non-Cancer Acute Hazard Index by TAC at the residential / sensitive and worker receptors identified in Table 9.
Table 2.10	Non-Cancer Acute Hazard Index by source at the residential / sensitive and worker receptors identified in Table 9.
Blowdowns	
Table 2.11	Source parameters for the dispersion model setup.
Figure 2.5	Image showing the location of each source identified in Attachment 2 Table 2.11.
Table 2.12	Dispersion modeling and HRA modeling software used to prepare the response to DR18.
Table 2.13	Dispersion modeling software options and assumptions.
Table 2.14	Health risk modeling software options and assumptions.
Figure 2.6	Image showing the residential / sensitive receptors identified in Table 9.
Figure 2.7	Image showing the worker receptors identified in Table 9.
Table 2.15	Cancer Risk by TAC at the residential / sensitive and worker receptors identified in Table 9.
Table 2.16	Cancer Risk by source at the residential / sensitive and worker receptors identified in Table 9.
Table 2.17	Non-Cancer Chronic and 8-hour Non-Cancer Chronic Cancer Hazard Indices by TAC at the residential / sensitive and worker receptors identified in Table 9.
Table 2.18	Non-Cancer Chronic and 8-hour Non-Cancer Chronic Cancer Hazard Indices by source at the residential / sensitive and worker receptors identified in Table 9.

Southern California Gas Company
Response to Deficiency Request No. 18 (DR18)
Proponent's Environmental Assessment (PEA) for Ventura Compressor Modernization Project

Attachment 2 Analysis Input and Output

Table 2.1 Source Parameters

Compressor Venting / Fugitive Components	Source ID (Image Notation)	Source Type	Stack Orienation[1]	Release Height[2] (ft)	Stack Diameter[3] (in)	Exhaust Velocity[4] (m/s)	Exhaust Temperature[5] (Deg F)	Emission Rate[6]
Compressor Venting	VENT01	Point Source	~Downward	52.5	2	0.001	Ambient	1 g/s
Compressor Venting	VENT02	Point Source	~Downward	52.5	2	0.001	Ambient	1 g/s
Compressor Venting	VENT03	Point Source	~Downward	52.5	2	0.001	Ambient	1 g/s
Compressor Venting	VENT04	Point Source	~Downward	52.5	2	0.001	Ambient	1 g/s
Fugitive Components	FUGTVS	Polygonal Area Source	--	6	--	--	--	0.000189 g/s-m2

[1] Point source stack orientation provided by SoCalGas.

[2] Point source release height assumed to be approximately equivalent to building height.
Polygonal area source release height is an approximation of the average height of potential sources of fugitive emissions (e.g., pipe runs).

[3] Point source stack diameter provided by SoCalGas.

[4] Per guidance from the Iowa Department of Natural Resources, point sources with downward discharge should be modeled using a point source with an exit velocity of 0.001 m/s.
Reference (Page 6 of 19): https://www.iowadnr.gov/Portals/idnr/uploads/air/dispmodel/psd_modeling_guideline.pdf
Also See (Page 2 of 3): https://www.iowadnr.gov/portals/idnr/uploads/air/dispmodel/stacks_and_vents.pdf ---------->

Downward
Any stack or vent where the exhaust is directed 30 degrees or more below horizontal at the point of release to the atmosphere. Downward stacks and vents should be modeled using the POINT source type and the exit velocity should be set to the nominally low value of 0.001 m/s in order to suppress momentum plume rise[3].

Figure 5 - Downward Release

[5] Exhaust temperature provided by SoCalGas.

[6] Each source is modeled with unitized emission rate in its own source group.

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Attachment 2 Analysis Input and Output

Figure 2.1 Source Locations

Point Source Icon
Red Crosses
(Compressor Venting)

Polygonal Area Source Icon
Dotted Green Line
(Fugitive Components)

Note: Buildings, property boundary receptors, and discrete receptors are unchanged from previous submittals for the Project.

Southern California Gas Company
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Attachment 2 Analysis Input and Output

Table 2.2 Models

Dispersion Modeling
AERMOD v 23132 AERMET v 19191 (On-Site MET Data) AERMAP v 18081 Software Interface: Lakes Environmental Software; AERMOD View™, Version 12.0.0

Risk Modeling
HARP2 ADMRT (dated 22118) Health Table Version 23279

Southern California Gas Company
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Proponent's Environmental Assessment (PEA) for Ventura Compressor Modernization Project

Attachment 2 Analysis Input and Output

Table 2.3 Dispersion Model Options/Assumptions

Parameter	Value				Comments
Control Pathway					
Regulatory Options	Default	☒	Non-Default	☐	--
Output Type	Concentration	☒	Dry Deposition	☐	--
	Total Deposition	☐	Wet Deposition	☐	
Depletion Options	Dry Depletion	☐	Wet Depletion	☐	--
	Disable Dry Depletion	☐	Disable Wet Depletion	☐	
Pollutant	Other				--
Averaging Time Options	1-Hour; Period				--
Dispersion Coefficient	Rural	☒	Urban	☐	Consistent with previous submittals for the Project.
Terrain Height Options	Elevated		☒		--
	Non-Default Regulatory Options				
	Flat	☐	Flat & Elevated	☐	
Receptor Elevations / Hill Heights	Run AERMOD using the AERMAP Receptor Output file (*.ROU)				--
Source Pathway					
Building Downwash	Include	☒	Exclude	☐	--
Background Concentrations	Include	☐	Exclude	☒	This project does not consider background concentrations.
Source Groups	Each source (FUGTVS, VENTS01-04) is assigned to its own source group.				--
Urban Groups	N/A				--
Variable Emissions	N/A				This project does not consider variable emissions. All sources are assumed to operate continuously.
Receptor Pathway					
Flagpole Receptors	Include	☐	Exclude	☒	Consistent with previous submittals for the Project, all receptor heights are set to ground-level.
Multi-Tier Receptor Grid Discrete Cartesian Receptors Plant Boundary Receptors	See Comments				All receptors are identical to previous submittals for the Project. The dispersion model includes a Multi-Tier Receptor Grid, Discrete Cartesian Receptors, and Plant Boundary Receptors.
Meteorology Pathway					
Meteorological Data	See Comments				Consistent with previous submittals for the Project, Meteorological (MET) data is from on-site data collected in 2002 and 2003.
Terrain Pathway					
Data File	USGS_NED_1_n35w120.tif				NED GEOTIFF Digital Terrain Files. Resolution: 1-arcsecond (30 meters).
AERMAP Domain Options	Not Specified	☐	User-Defined Domain	☒	Elevations and hill heights are calculated from a region measuring approximately 6,850 meters (width) by approximately 6,000 meters (height).

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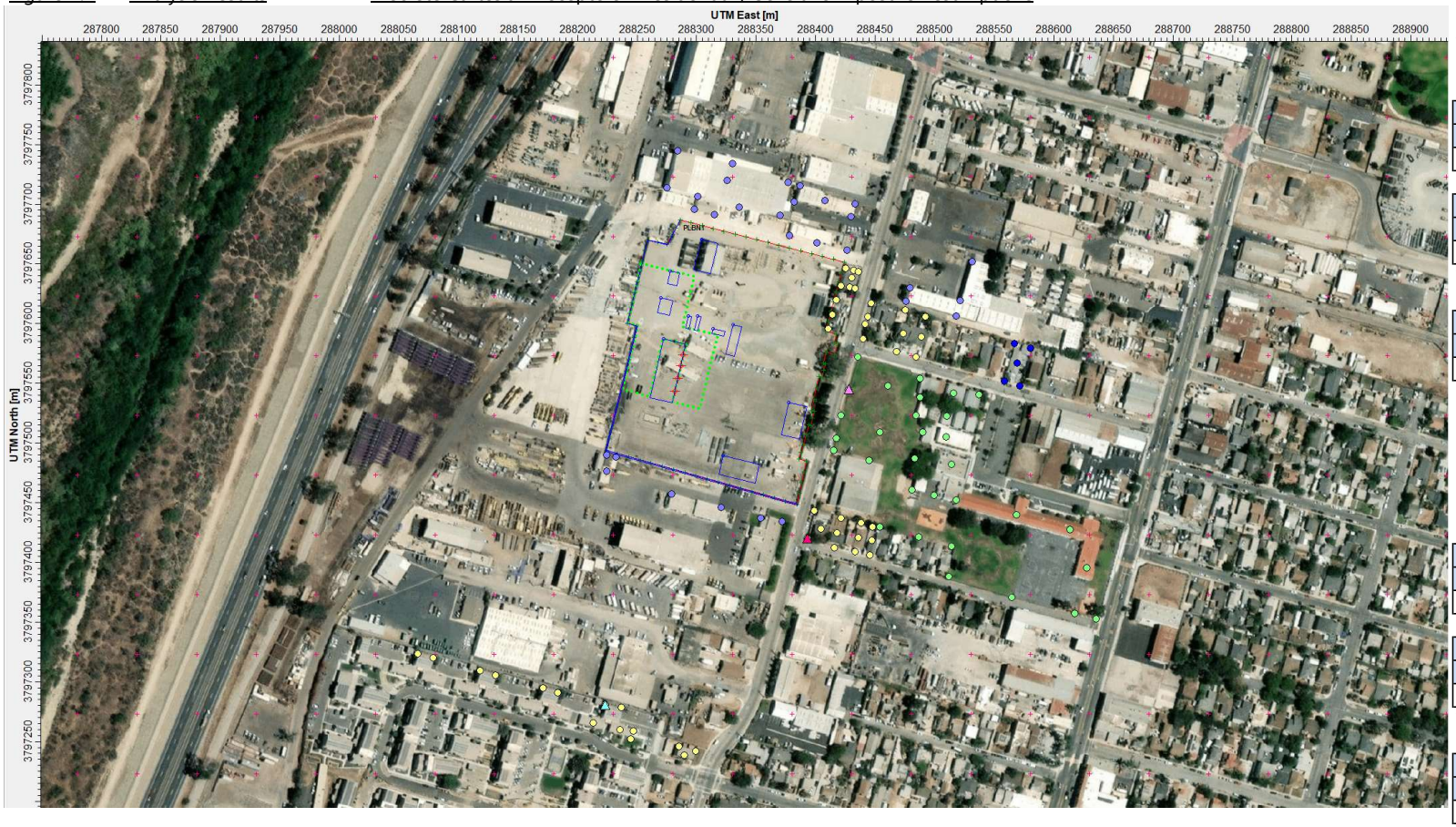
Attachment 2 Analysis Input and Output

Table 2.4 HARP2 Model Options/Assumptions

Parameter	Value				Comments
Multi-Pathway					
Inhalation	Res	☒	Work	☒	--
Soil	Res	☒	Work	☒	--
Dermal	Res	☒	Work	☒	"Warm" climate.
Mother's Milk	Res	☒	Work	☐	--
Drinking Water	Res	☐	Work	☐	--
Fish	Res	☐	Work	☐	--
Homegrown Produce	Res	☒	Work	☐	Default for "Households that Garden".
Beef/Dairy	Res	☐	Work	☐	--
Pigs, Chickens, and/or Eggs	Res	☐	Work	☐	--
Deposition Velocity	0.02 m/s				BTEX compounds are not multipathway substances. The value used in HARP2 is 0.02 m/s. However, 0.05 m/s vs. 0.02 m/s will not affect the results.
Residential Cancer Risk Assumptions					
Exposure Duration	30 years				--
Fraction of Time at Home	3rd Trimester to 16 years: Off 16 years to 30 years: Off				This is a conservative assumption. Given the results (no school receptors with cancer risk greater than one in one million), both parameters could be set to On, which would further reduce the results.
Inhalation Rate Basis	RMP				--
Analysis Option	RMP Using the Derived Method				--
Worker Cancer Risk Assumptions					
Exposure Duration	25 years				--
Analysis Option	OEHHA Derived Method				--
Inhalation Rate Basis	8-hr Breathing Rates, Moderate Intensity				--
Worker Adjustment Factor	1				The Project sources are assumed to operate continuously.
Residential and Worker Non-Cancer Risk Assumptions					
Analysis Option	OEHHA Derived Method				--
Inhalation Rate Basis	Residential: Long-Term 24-hr Off-Site Worker: 8-hr Breathing Rates, Moderate Intensity				--
Worker Adjustment Factor (8-hr Chronic Only)	1				The Project sources are assumed to operate continuously.

Figure 2.2 Analysis Results Discrete Cartesian Receptors - Residential / Sensitive Exposure Assumptions



Residential Receptors
Yellow Circles
Blue Triangle Overlay on Maximum
Dark Pink Triangle Overlay on Maximum (Acute)

Cancer Risk		
Receptor No.	**Result**	**Standard**
51	8.11E-03	1.00E+01

Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
51	3.89E-05	1.00E+00

Target Organ: Blood

Non-Cancer Acute Hazard Index		
Receptor No.	**Result**	**Standard**
38	4.96E-04	1.00E+00

Target Organ: Immune System, Reproductive / Developmental System, Blood

Sensitive Receptors
Green Circles, Dark Blue Circles
Pink Triangle Overlay on Maximum

Cancer Risk		
Receptor No.	**Result**	**Standard**
25	3.18E-03	1.00E+01

Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
25	1.52E-05	1.00E+00

Target Organ: Blood

Non-Cancer Acute Hazard Index		
Receptor No.	**Result**	**Standard**
25	5.28E-04	1.00E+00

Target Organ: Immune System, Reproductive / Developmental System, Blood

Southern California Gas Company
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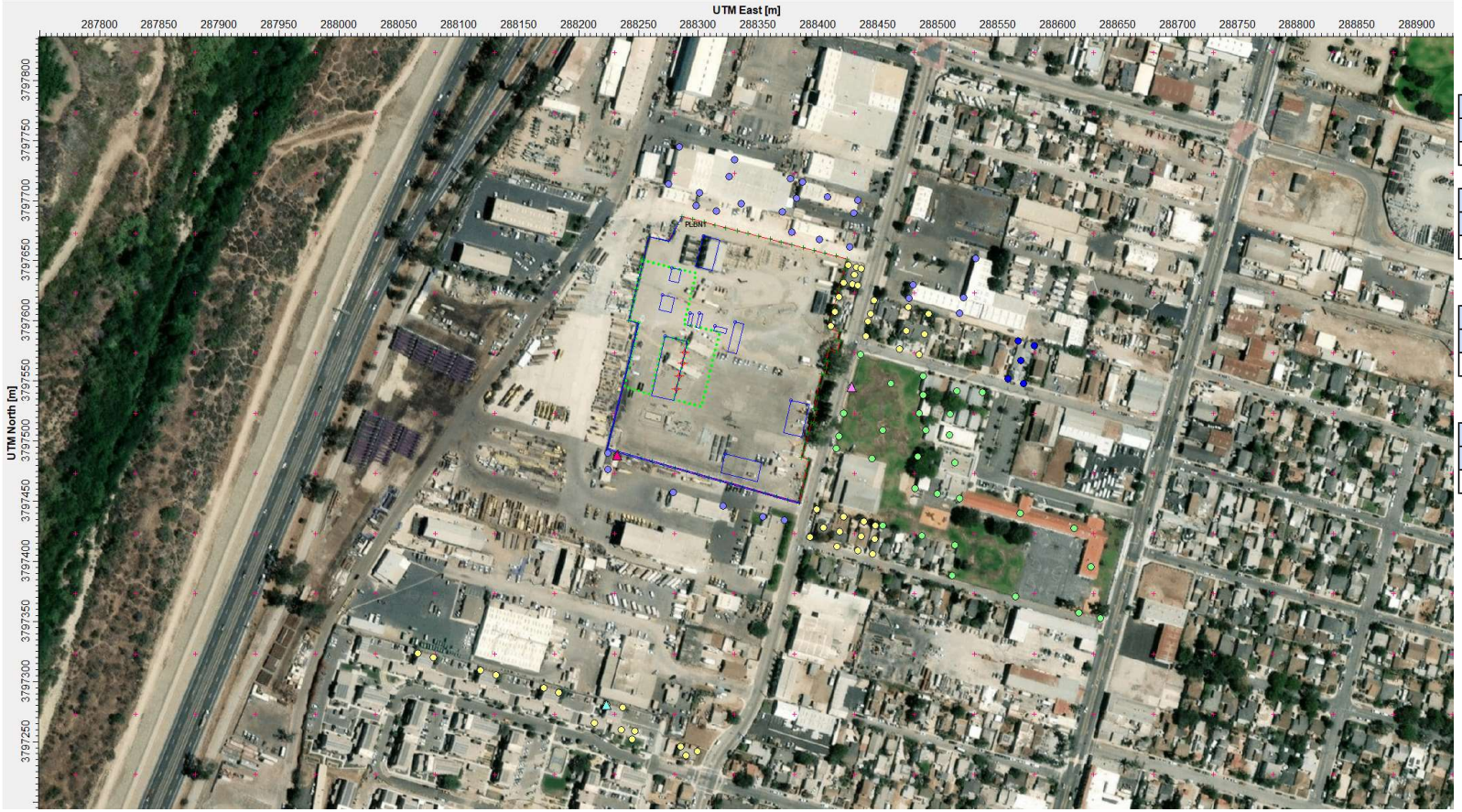
Proponent's Environmental Assessment (PEA) for Ventura Compressor Modernization Project

Attachment 2 Analysis Input and Output

Figure 2.3 Analysis Results Discrete Cartesian Receptors - Worker Exposure Assumptions



Worker Receptors
Light Purple Circles
Orange Triangle Overlay on Maximum
Dark Pink Triangle Overlay on Maximum (Acute)

Cancer Risk		
Receptor No.	**Result**	**Standard**
107	2.09E-03	1.00E+01

Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
107	1.23E-04	1.00E+00

Target Organ: Blood

8-hr Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
107	1.23E-04	1.00E+00

Target Organ: Blood

Non-Cancer Acute Hazard Index		
Receptor No.	**Result**	**Standard**
112	8.86E-04	1.00E+00

Target Organ: Immune System, Reproductive / Developmental System, Blood

Southern California Gas Company
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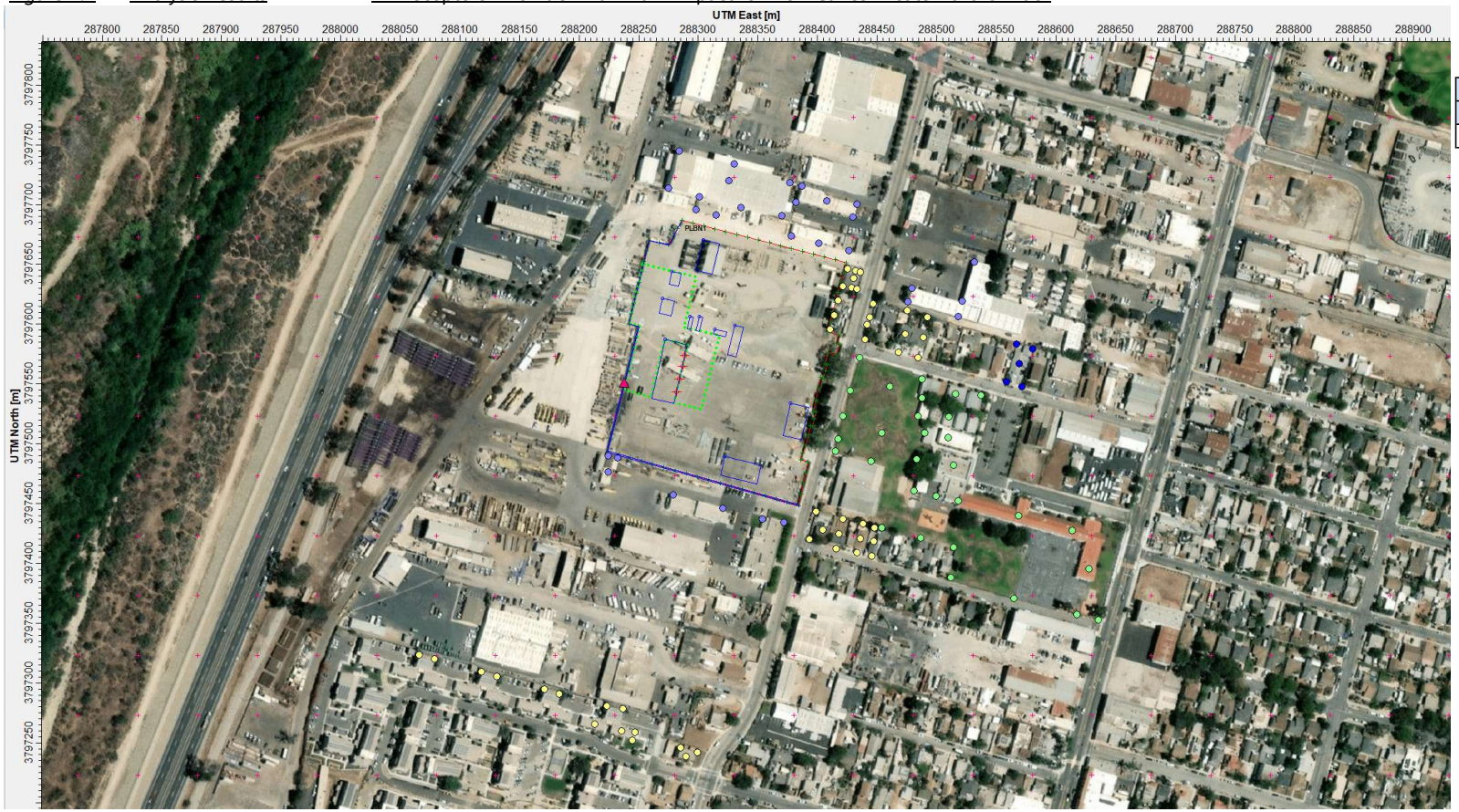
Proponent's Environmental Assessment (PEA) for Ventura Compressor Modernization Project

Attachment 2 Analysis Input and Output

Figure 2.4 Analysis Results All Receptors - Point of Maximum Impact for Non-Cancer Acute Hazard Index



All Receptors
Dark Pink Triangle Overlay on Maximum

Non-Cancer Acute Hazard Index		
Receptor No.	**Result**	**Standard**
3981	1.46E-03	1.00E+00

Target Organ: Immune System, Reproductive / Developmental System, Blood

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Table 2.5: Maximum Cancer Risk by Pollutant at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Compressor Venting and Fugitive Components

Pollutant CAS	Pollutant	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)	
		receptor #	3946	receptor #	51	receptor #	25	receptor #	107
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,250	3,797,598	288,223	3,797,281	288,428	3,797,545	288,279	3,797,457
		30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	25-Year Cancer Risk	Contribution (%)
-	ALL	4.03E-08	100%	8.11E-09	100%	3.18E-09	100%	2.09E-09	100%
71432	Benzene	4.01E-08	99.27%	8.05E-09	99.27%	3.16E-09	99.27%	2.08E-09	99.27%
108883	Toluene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
100414	Ethyl Benzene	2.93E-10	0.73%	5.90E-11	0.73%	2.31E-11	0.73%	1.52E-11	0.73%
1330207	Xylenes	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
			in a million	8.11E-03		3.18E-03		2.09E-03	

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Table 2.6: Cancer Risk by Source for All Pollutants Combined at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Compressor Venting and Fugitive Components

Source ID	Compressor Venting / Fugitive Components	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)	
		receptor #	3946	receptor #	51	receptor #	25	receptor #	107
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,250	3,797,598	288,223	3,797,281	288,428	3,797,545	288,279	3,797,457
		30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	25-Year Cancer Risk	Contribution (%)
ALL	--	4.03E-08	100%	8.11E-09	100%	3.18E-09	100%	2.09E-09	100%
VENT01	Compressor Venting	3.85E-09	9.54%	1.33E-09	16.39%	5.19E-10	16.33%	2.95E-10	14.11%
VENT02	Compressor Venting	3.95E-09	9.79%	1.32E-09	16.28%	5.33E-10	16.74%	3.11E-10	14.85%
VENT03	Compressor Venting	3.88E-09	9.61%	1.35E-09	16.70%	5.37E-10	16.87%	3.40E-10	16.22%
VENT04	Compressor Venting	3.62E-09	8.97%	1.46E-09	17.98%	5.30E-10	16.65%	3.62E-10	17.26%
FUGTVS	Fugitive Components	2.51E-08	62.09%	2.65E-09	32.66%	1.06E-09	33.40%	7.87E-10	37.56%

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Table 2.7: Maximum Chronic Hazard Index by Pollutant at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Compressor Venting and Fugitive Components

Pollutant CAS	Pollutant	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)		Maximally Exposed Individual Worker (MEIW)	
		receptor #	3946	receptor #	51	receptor #	25	receptor #	107	receptor #	107
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,250	3,797,598	288,223	3,797,281	288,428	3,797,545	288,279	3,797,457	288,279	3,797,457
		Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic 8-hr Hazard Index	Contribution (%)
-	ALL	1.93E-04	100%	3.89E-05	100%	1.52E-05	100%	1.23E-04	100%	1.23E-04	100%
71432	Benzene	1.93E-04	100.00%	3.89E-05	100.00%	1.52E-05	100.00%	1.23E-04	100.00%	1.23E-04	100.00%
108883	Toluene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
100414	Ethyl Benzene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
1330207	Xylenes	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%

Target Organ(s): BLOOD

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Table 2.8: Chronic Hazard Index by Source for All Pollutants Combined at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Compressor Venting and Fugitive Components

Source ID	Compressor Venting / Fugitive Components	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)		Maximally Exposed Individual Worker (MEIW)	
		receptor #	3946	receptor #	51	receptor #	25	receptor #	107	receptor #	107
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,250	3,797,598	288,223	3,797,281	288,428	3,797,545	288,279	3,797,457	288,279	3,797,457
		Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic 8-hr Hazard Index	Contribution (%)
ALL	--	1.93E-04	100%	3.89E-05	100%	1.52E-05	100%	1.23E-04	100%	1.23E-04	100%
VENT01	Compressor Venting	1.84E-05	9.54%	6.38E-06	16.39%	2.49E-06	16.33%	1.74E-05	14.11%	1.74E-05	14.11%
VENT02	Compressor Venting	1.89E-05	9.79%	6.33E-06	16.28%	2.55E-06	16.74%	1.83E-05	14.85%	1.83E-05	14.85%
VENT03	Compressor Venting	1.86E-05	9.61%	6.49E-06	16.70%	2.57E-06	16.87%	2.00E-05	16.22%	2.00E-05	16.22%
VENT04	Compressor Venting	1.74E-05	8.97%	6.99E-06	17.98%	2.54E-06	16.65%	2.13E-05	17.26%	2.13E-05	17.26%
FUGTVS	Fugitive Components	1.20E-04	62.09%	1.27E-05	32.66%	5.09E-06	33.40%	4.63E-05	37.56%	4.63E-05	37.56%

Target Organ(s): BLOOD

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Table 2.9: Maximum Acute Hazard Index by Pollutant at PMI, MEIR, MEIW and Sensitive Receptor Ventura Compressor Modernization Project - Analysis for Compressor Venting and Fugitive Components

Pollutant CAS	Pollutant	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)	
		receptor #	3981	receptor #	38	receptor #	25	receptor #	112
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,238	3,797,551	288,393	3,797,420	288,428	3,797,545	288,232	3,797,488
		Acute Hazard Index	Contribution (%)	Acute Hazard Index	Contribution (%)	Acute Hazard Index	Contribution (%)	Acute Hazard Index	Contribution (%)
-	ALL	1.46E-03	100%	4.96E-04	100%	5.28E-04	100%	8.86E-04	100%
71432	Benzene	1.46E-03	100.00%	4.96E-04	100.00%	5.28E-04	100.00%	8.86E-04	100.00%
108883	Toluene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
100414	Ethyl Benzene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
1330207	Xylenes	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%

Target Organ(s): IMMUN, REPRO/DEVEL, BLOOD

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Table 2.10: Maximum Acute Hazard Index by Pollutant at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Compressor Venting and Fugitive Components

Source ID	Compressor Venting / Fugitive Components	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)	
		receptor #	3981	receptor #	38	receptor #	25	receptor #	112
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,238	3,797,551	288,393	3,797,420	288,428	3,797,545	288,232	3,797,488
		Acute Hazard Index	Contribution (%)	Acute Hazard Index	Contribution (%)	Acute Hazard Index	Contribution (%)	Acute Hazard Index	Contribution (%)
ALL	--	1.46E-03	100%	4.96E-04	100%	5.28E-04	100%	8.86E-04	100%
VENT01	Compressor Venting	2.80E-04	19.10%	8.90E-05	17.95%	1.25E-04	23.75%	1.70E-04	19.24%
VENT02	Compressor Venting	3.48E-04	23.80%	9.95E-05	20.07%	1.29E-04	24.43%	1.83E-04	20.67%
VENT03	Compressor Venting	3.63E-04	24.82%	1.10E-04	22.13%	1.11E-04	20.96%	1.95E-04	22.07%
VENT04	Compressor Venting	3.49E-04	23.83%	1.17E-04	23.65%	9.04E-05	17.14%	2.08E-04	23.47%
FUGTVS	Fugitive Components	1.24E-04	8.44%	8.04E-05	16.22%	7.23E-05	13.71%	1.29E-04	14.55%

Target Organ(s): IMMUN, REPRO/DEVEL, BLOOD

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Attachment 2 Analysis Input and Output (Blowdowns)

Table 2.11 Source Parameters

Release Description	Source ID (Image Notation)	Source Type	Stack Orienation[1]	Release Height[2] (ft)	Stack Diameter[3] (ft)	Exhaust Velocity[4] (m/s)	Exhaust Temperature[5] (Deg F)	Emission Rate[6]
Blowdowns	BDNSTK	Point Source	Vertical	62.5	8	1.241	70	1 g/s

[1] Point source stack orientation provided by SoCalGas.
[2] Point source release height provided by SoCalGas.
[3] Point source stack diameter provided by SoCalGas.
[4] Point source exhaust velocity estimated from data provided by SoCalGas.

Average Flowrate (scfm) = Volume Vented (mscf) x 1,000 / Vent Time (minutes)

Volume Vented	36.7	mscf; Table 4
Vent Time	3	minutes; Table 4, Footnote 1
Average Flowrate	12233	scfm

Average Flowrate (acfm) = Average Flowrate (scfm) x [460 + Exhaust Temperature (Deg F)] / [460 + 68]

Average Flowrate	12233	scfm
Exhaust Temperature	70	Deg F
Average Flowrate	12280	acfm

Exhaust Velocity (m/s) = Average Flowrate (acfm) / [pi / 4 x (Stack Diameter (ft))^2] / 60 x 0.3048

Average Flowrate	12280	acfm
Stack Diameter	8	ft
Exhaust Velocity	1.241	m/s

[5] Per SoCalGas, point source exhaust temperature assumed to be ambient. To allow for estimation of exhaust velocity, ambient temperature is assumed to be approximately 70 Deg F.
[6] The stack is modeled with unitized emission rate in its own source group.

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Figure 2.5 Source Locations

Point Source Icon
Red Crosses
(Blowdown Stack)

Note: Buildings, property boundary receptors, and discrete receptors are unchanged from previous submittals for the Project.

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Table 2.12 Models

Dispersion Modeling
AERMOD v 23132 AERMET v 19191 (On-Site MET Data) AERMAP v 18081 Software Interface: Lakes Environmental Software; AERMOD View™, Version 12.0.0

Risk Modeling
HARP2 ADMRT (dated 22118) Health Table Version 23279

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Table 2.13 Dispersion Model Options/Assumptions

Parameter	Value				Comments
Control Pathway					
Regulatory Options	Default	☒	Non-Default	☐	--
Output Type	Concentration	☒	Dry Deposition	☐	--
	Total Deposition	☐	Wet Deposition	☐	
Depletion Options	Dry Depletion	☐	Wet Depletion	☐	--
	Disable Dry Depletion	☐	Disable Wet Depletion	☐	
Pollutant	Other				--
Averaging Time Options	1-Hour; Period				--
Dispersion Coefficient	Rural	☒	Urban	☐	Consistent with previous submittals for the Project.
Terrain Height Options	Elevated		☒		--
	Non-Default Regulatory Options				
	Flat	☐	Flat & Elevated	☐	
Receptor Elevations / Hill Heights	Run AERMOD using the AERMAP Receptor Output file (*.ROU)				--
Source Pathway					
Building Downwash	Include	☒	Exclude	☐	--
Background Concentrations	Include	☐	Exclude	☒	This project does not consider background concentrations.
Source Groups	Each source (BDNSTCK) is assigned to its own source group.				--
Urban Groups	N/A				--
Variable Emissions	N/A				This project does not consider variable emissions. Although blowdowns are an infrequent occurrence, the AERMOD model assumes that the source vents throughout the year. This is expected to provide a conservative estimate of average Ground-Level Concentration over the period of the Meteorological Data.
Receptor Pathway					
Flagpole Receptors	Include	☐	Exclude	☒	Consistent with previous submittals for the Project, all receptor heights are set to ground-level.
Multi-Tier Receptor Grid Discrete Cartesian Receptors Plant Boundary Receptors	See Comments				All receptors are identical to previous submittals for the Project. The dispersion model includes a Multi-Tier Receptor Grid, Discrete Cartesian Receptors, and Plant Boundary Receptors.
Meteorology Pathway					
Meteorological Data	See Comments				Consistent with previous submittals for the Project, Meteorological (MET) data is from on-site data collected in 2002 and 2003.
Terrain Pathway					
Data File	USGS_NED_1_n35w120.tif				NED GEOTIFF Digital Terrain Files. Resolution: 1-arcsecond (30 meters).
AERMAP Domain Options	Not Specified	☐	User-Defined Domain	☒	Elevations and hill heights are calculated from a region measuring approximately 6,850 meters (width) by approximately 6,000 meters (height).

Attachment 2 Analysis Input and Output (Blowdowns)

Table 2.14 HARP2 Model Options/Assumptions

Parameter	Value				Comments
Multi-Pathway					
Inhalation	Res	☒	Work	☒	--
Soil	Res	☒	Work	☒	--
Dermal	Res	☒	Work	☒	"Warm" climate.
Mother's Milk	Res	☒	Work	☐	--
Drinking Water	Res	☐	Work	☐	--
Fish	Res	☐	Work	☐	--
Homegrown Produce	Res	☒	Work	☐	Default for "Households that Garden".
Beef/Dairy	Res	☐	Work	☐	--
Pigs, Chickens, and/or Eggs	Res	☐	Work	☐	--
Deposition Velocity	0.02 m/s				BTEX compounds are not multipathway substances. The value used in HARP2 is 0.02 m/s. However, 0.05 m/s vs. 0.02 m/s will not affect the results.
Residential Cancer Risk Assumptions					
Exposure Duration	30 years				--
Fraction of Time at Home	3rd Trimester to 16 years: Off 16 years to 30 years: Off				This is a conservative assumption. Given the results (no school receptors with cancer risk greater than one in one million), both parameters could be set to On, which would further reduce the results.
Inhalation Rate Basis	RMP				--
Analysis Option	RMP Using the Derived Method				--
Worker Cancer Risk Assumptions					
Exposure Duration	25 years				--
Analysis Option	OEHHA Derived Method				--
Inhalation Rate Basis	8-hr Breathing Rates, Moderate Intensity				--
Worker Adjustment Factor	1				The Project sources are assumed to operate continuously.
Residential and Worker Non-Cancer Risk Assumptions					
Analysis Option	OEHHA Derived Method				--
Inhalation Rate Basis	Residential: Long-Term 24-hr Off-Site Worker: 8-hr Breathing Rates, Moderate Intensity				--
Worker Adjustment Factor (8-hr Chronic Only)	1				The Project sources are assumed to operate continuously.

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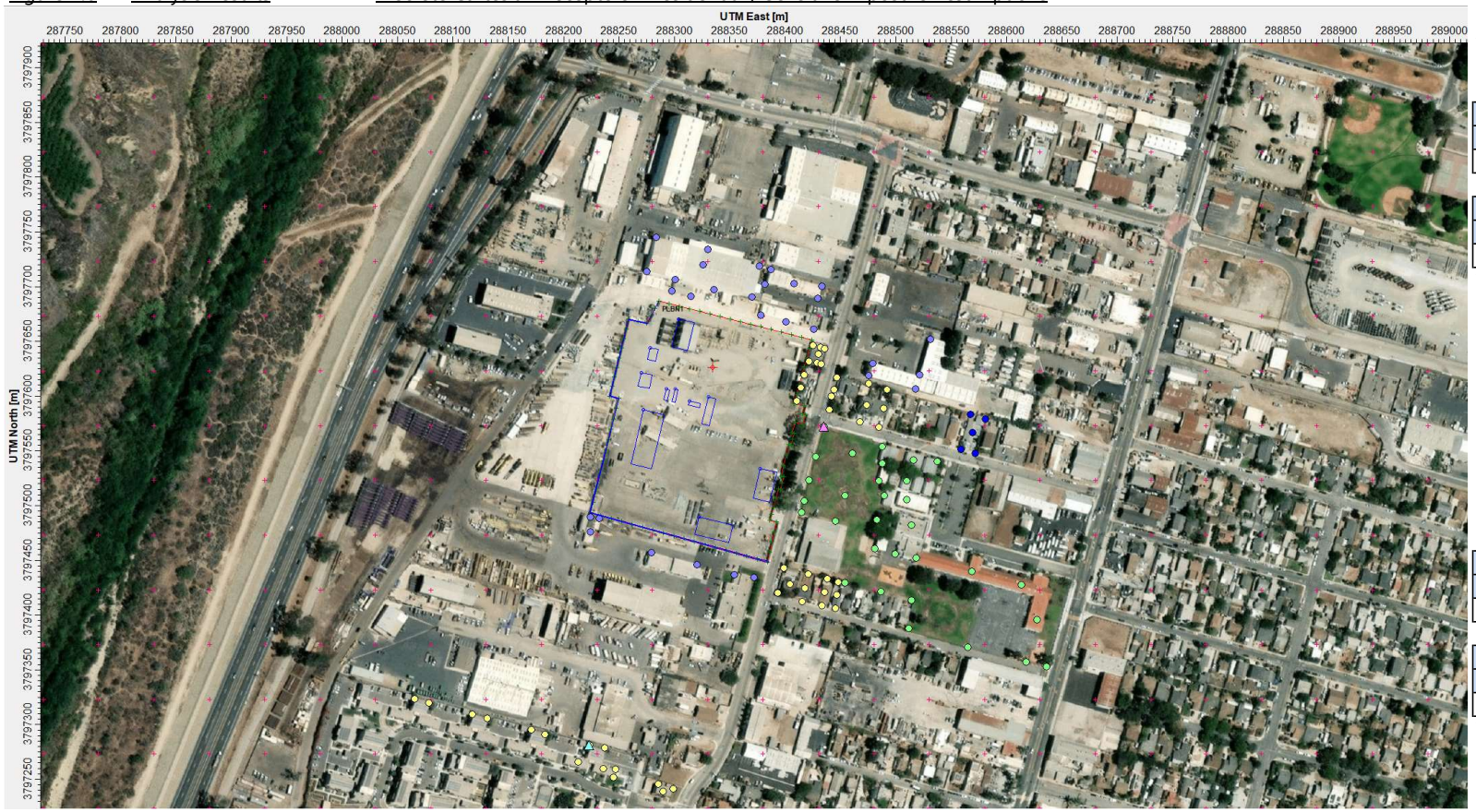
Attachment 2 Analysis Input and Output (Blowdowns)

Figure 2.6 Analysis Results Discrete Cartesian Receptors - Residential / Sensitive Exposure Assumptions



Residential Receptors
Yellow Circles
Blue Triangle Overlay on Maximum

Cancer Risk		
Receptor No.	**Result**	**Standard**
51	6.25E-05	1.00E+01

Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
51	3.00E-07	1.00E+00

Target Organ: Blood

Sensitive Receptors
Green Circles, Dark Blue Circles
Pink Triangle Overlay on Maximum

Cancer Risk		
Receptor No.	**Result**	**Standard**
24	2.78E-05	1.00E+01

Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
24	1.33E-07	1.00E+00

Target Organ: Blood

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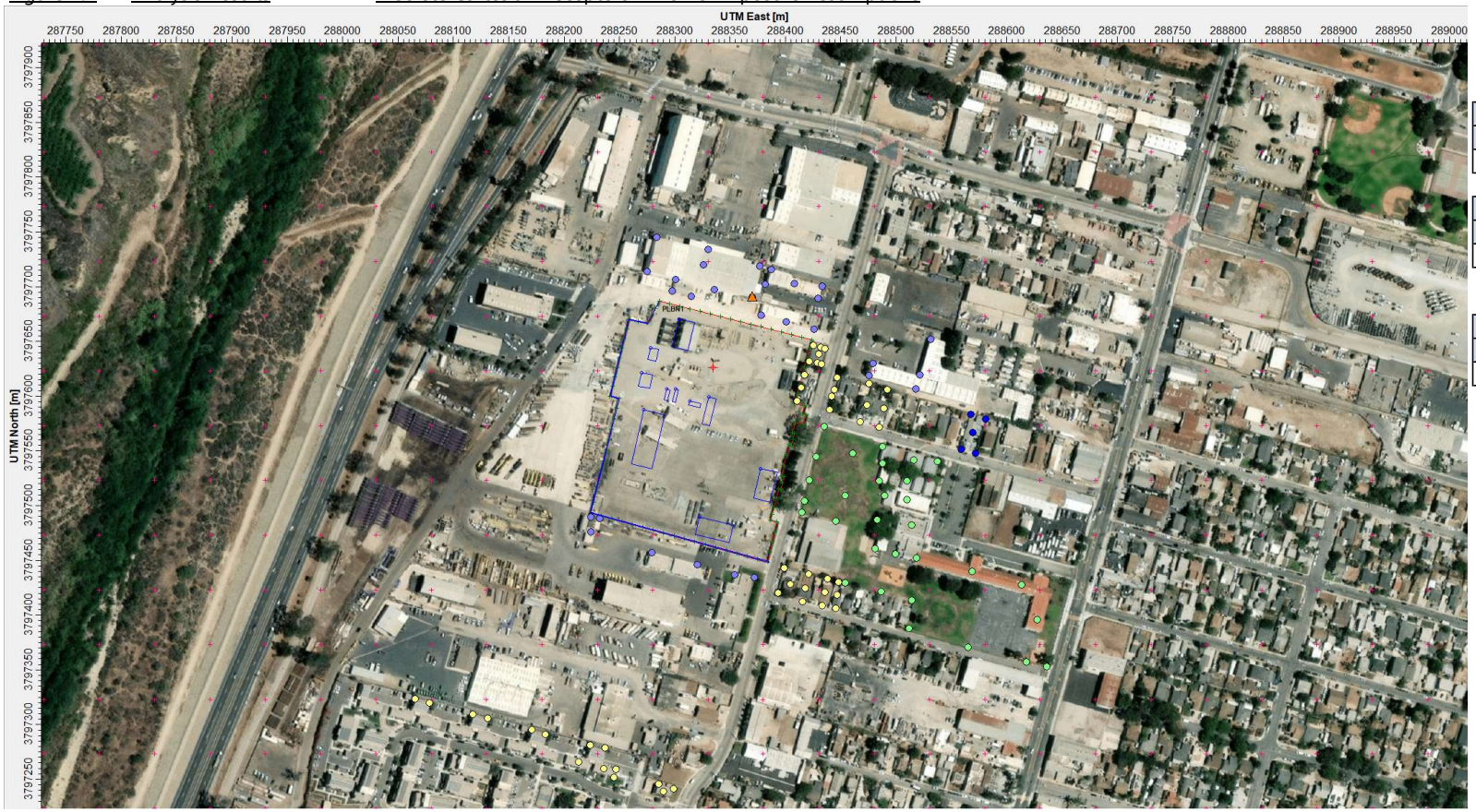
Attachment 2 Analysis Input and Output (Blowdowns)

Figure 2.7 Analysis Results Discrete Cartesian Receptors - Worker Exposure Assumptions



Worker Receptors
Light Purple Circles
Orange Triangle Overlay on Maximum

Cancer Risk		
Receptor No.	**Result**	**Standard**
93	2.02E-05	1.00E+01

Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
93	1.19E-06	1.00E+00

Target Organ: Blood

8-hr Non-Cancer Chronic Hazard Index		
Receptor No.	**Result**	**Standard**
93	1.19E-06	1.00E+00

Target Organ: Blood

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Table 2.15: Maximum Cancer Risk by Pollutant at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Blowdowns

Pollutant CAS	Pollutant	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)	
		receptor #	93	receptor #	51	receptor #	24	receptor #	93
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,370	3,797,691	288,223	3,797,281	288,435	3,797,572	288,370	3,797,691
		30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	25-Year Cancer Risk	Contribution (%)
-	ALL	2.48E-10	100%	6.25E-11	100%	2.78E-11	100%	2.02E-11	100%
71432	Benzene	2.47E-10	99.27%	6.20E-11	99.27%	2.76E-11	99.27%	2.01E-11	99.27%
108883	Toluene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
100414	Ethyl Benzene	1.81E-12	0.73%	4.55E-13	0.73%	2.03E-13	0.73%	1.47E-13	0.73%
1330207	Xylenes	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
			in a million	6.25E-05		2.78E-05		2.02E-05	

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Table 2.16: Cancer Risk by Source for All Pollutants Combined at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Blowdowns

Source ID	Release Description	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)	
		receptor #	93	receptor #	51	receptor #	24	receptor #	93
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,370	3,797,691	288,223	3,797,281	288,435	3,797,572	288,370	3,797,691
		30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	30-Year Cancer Risk	Contribution (%)	25-Year Cancer Risk	Contribution (%)
ALL	--	2.48E-10	100%	6.25E-11	100%	2.78E-11	100%	2.02E-11	100%
BDNSTK	Blowdowns	2.48E-10	100.00%	6.25E-11	100.00%	2.78E-11	100.00%	2.02E-11	100.00%

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Table 2.17: Maximum Chronic Hazard Index by Pollutant at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Blowdowns

Pollutant CAS	Pollutant	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)		Maximally Exposed Individual Worker (MEIW)	
		receptor #	93	receptor #	51	receptor #	24	receptor #	93	receptor #	93
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,370	3,797,691	288,223	3,797,281	288,435	3,797,572	288,370	3,797,691	288,370	3,797,691
		Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic 8-hr Hazard Index	Contribution (%)
-	ALL	1.19E-06	100%	3.00E-07	100%	1.33E-07	100%	1.19E-06	100%	1.19E-06	100%
71432	Benzene	1.19E-06	100.00%	3.00E-07	100.00%	1.33E-07	100.00%	1.19E-06	100.00%	1.19E-06	100.00%
108883	Toluene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
100414	Ethyl Benzene	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%
1330207	Xylenes	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%

Target Organ(s): BLOOD

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Table 2.18: Chronic Hazard Index by Source for All Pollutants Combined at PMI, MEIR, MEIW and Sensitive Receptor
Ventura Compressor Modernization Project - Analysis for Blowdowns

Source ID	Release Description	Point of Maximum Impact (PMI)		Maximally Exposed Individual Resident (MEIR)		Sensitive Receptor		Maximally Exposed Individual Worker (MEIW)		Maximally Exposed Individual Worker (MEIW)	
		receptor #	93	receptor #	51	receptor #	24	receptor #	93	receptor #	93
		UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)	UTM Easting (m)	UTM Northing (m)
		288,370	3,797,691	288,223	3,797,281	288,435	3,797,572	288,370	3,797,691	288,370	3,797,691
		Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic Hazard Index	Contribution (%)	Chronic 8-hr Hazard Index	Contribution (%)
ALL	--	1.19E-06	100%	3.00E-07	100%	1.33E-07	100%	1.19E-06	100%	1.19E-06	100%
BDNSTK	Blowdowns	1.19E-06	100.00%	3.00E-07	100.00%	1.33E-07	100.00%	1.19E-06	100.00%	1.19E-06	100.00%

Target Organ(s): BLOOD