SOUTHERN CALIFORNIA GAS COMPANY

CPUC-ENERGY DIVISION DATA REQUEST
RE: VENTURA COMPRESSOR STATION
DATE REQUESTED: MAY 12, 2021
DATE RESPONDED: MAY 14, 2021

QUESTION 1:

Please provide the calculated emissions load for each of the three currently operational compressors at the Ventura Compressor Station as well as the combined calculated emissions load for the station as a whole under current conditions.

RESPONSE 1:

The 2020 annual emissions for each of the three currently operational compressors at the Ventura Compressor Station have been calculated and are provided in Table 1 below. The emission factors are obtained from the source tests conducted by a third-party in August 2019 which are the most recent data available per the Ventura County Air Pollution Control District (VCAPCD) Permit to Operate (PTO) requirements. The emissions are calculated using this source test data and the annual fuel use consumed by each of the engines during 2020.

Table 1: Calculated 2020 Actual Emissions for Each of Three Current Compressors

Pollutant	Unit #1		Unit #2		Unit #3	
	Current EF (lb/MMscf)	2020 Actual (tpy)	Current EF (lb/MMscf)	2020 Actual (tpy)	Current EF (lb/MMscf)	2020 Actual (tpy)
ROC	0.281	0.004	9.99	0.170	7.86	0.118
NOx	113	1.614	109	1.853	111	1.673
PM10	10	0.143	10	0.170	10	0.151
SOx	0.6	0.009	0.6	0.010	0.6	0.009
CO	7.92	0.113	4.97	0.084	1.27	0.019

The total combined calculated annual emissions for 2020 are provided in Table 2 below in units of tons per year (tpy). Table 2 also includes the current permitted potential annual emissions per the PTO issued by the VCAPCD, for reference. These permitted potential emissions are calculated using the maximum rated fuel use of the engine compressors and the permitted emission factors provided in the VCAPCD PTO.

Table 2: Calculated Annual Emissions for Three Current Compressors Combined

Pollutant	2020 Actual Emissions (tpy)	Current Potential Emissions (tpy)
ROC	0.29	23.17
NOx	5.14	21.41
PM10	0.46	1.25
SOx	0.03	0.07
CO	0.22	13.61

QUESTION 2:

Please provide the calculated emissions load for each of the four proposed new compressors at the Ventura Compressor Station as well as the combined calculated emissions for the four proposed compressors.

RESPONSE 2:

The Ventura Compressor Modernization project (VCM) calculated annual emissions for each of the four proposed new compressors at Ventura Compressor Station and are provided in Table 3 below. The emission factors are based on the Best Available Control Technology (BACT) emission factors included in the Authority to Construct (ATC) application package that was submitted to the VCAPCD in March 2020. The emissions are calculated using these emission factors and the annual fuel use that would have been consumed by each of the engines in 2020. In other words, the total 2020 fuel use consumed was divided by four and attributed equally to each of the four proposed new engine compressors.

Table 3: Calculated Projected Actual Emissions for Each of Four New Compressors		
Pollutant	**BACT EF (lb/MMscf)**	**Projected Emissions (tpy)**
ROC	42.8	0.50
NOx	42.8	0.50
PM10	9.7	0.11
SOx	0.6	0.01
CO	171.2	1.98

The total combined calculated projected annual emissions based on 2020 fuel use are provided in Table 4 below. Table 4 also includes the proposed permitted potential emissions included in the ATC application package submitted to VCAPCD, for reference. These proposed potential annual emissions are calculated using the maximum rated fuel use of the proposed new engine compressors and the BACT emission factors included in the ATC application package.

Table 4: Calculated Annual Emissions for Four Proposed New Compressors		
Pollutant	**Projected Actual Emissions (tpy)**	**Proposed Potential To Emit (tpy)**
ROC	1.98	11.00
NOx	1.98	11.00
PM10	0.45	2.57
SOx	0.03	0.15
CO	7.94	44.02

QUESTION 3:

Please describe any NOx reducing devices currently in place at the Ventura Compressor Station as well as any such devices that are proposed to be used with the new compressors.

RESPONSE 3:

The three existing lean burn engine compressors are equipped with Low Emission Combustion (LEC) equipment which provides passive control of NOx emissions. LEC equipment uses Pre-Combustion Chambers (PCC) to reduce the formation of NOx by creating stable combustion at lean conditions. The existing engine compressors also use an oxidation catalyst for the reduction of CO and VOC. To further reduce NOx from these engines, an external control device, Selective Catalytic Control (SCR), would need to be added which would require the storage and use of aqueous ammonia or urea at the facility.

The four proposed new engine compressors will be rich burn, which allows the use of Non-Selective Catalytic Reduction (NSCR) controls, which simultaneously reduces NOx, CO, and VOC in a single catalyst. This is the same technology that is used in cars. NSCR does not require the use of aqueous ammonia or urea to reduce NOx.

QUESTION 4:

Please provide a comparison of the noise level associated with the current compressors compared to the estimated noise level of the new compressors.

a. What measures does SoCalGas plan to take to reduce the noise associated with the new compressors?

RESPONSE 4:

As part of the initial design process, a noise study was performed on the proposed compressor station plot plan under the operating condition that generates the highest noise levels. A noise model was created within noise modeling software that takes into account the locations of the equipment, the vendor noise data for each piece of equipment, and the other structures in the area such as walls and buildings. The study identified a series of noise receptors within the adjacent noise zones, as defined in the City of Ventura noise ordinance, and evaluated the noise impacts on those receptors across the octave band frequencies. If the total impact is greater than allowed, noise mitigation measures are incorporated into the project design as it moves forward to completion.

The City of Ventura noise ordinance has changed little since the original Plant 1 was designed and constructed in the late 1980's. That said, the new VCM project will be designed in accordance with the same noise requirements as before and as described in Table 1 – Exterior Noise Levels.

Current City of Ventura Municipal Code

The City of Ventura Noise Ordinance (Municipal Code § 10.650) prohibits unnecessary, excessive, or annoying noise in Ventura. The ordinance does not control traffic noise but applies to all noise sources located on private property including traffic noise. As part of this ordinance, property within Ventura is assigned a noise zone based on its corresponding land use.

Noise Zone 1:	"Noise-sensitive" properties
Noise Zone 2:	Residential properties
Noise Zone 3:	Commercial properties
Noise Zone 4:	Industrial/agricultural districts

Note: Section 10.650.120 of the municipal code defines "noise sensitive properties" as schools, hospitals, convalescent care, boarding, and rest homes, regardless of the under lying zoning. The

ordinance also limits the amount of noise generated by uses during normal operation that may affect the surrounding areas. Table 1 shows the allowable noise levels and corresponding times of day for each of the identified noise zones.

Table 1 Exterior Noise Levels in dBA

Time Period	Zone I	Zone II	Zone III	Zone IV
7 a.m. to 10 p.m.	50	50	60	70
10 p.m. to 7 a.m.	45	45	55	70

Source: City of Ventura Municipal Code § 10.650.130B.

The Plant 1 noise study recommended a series of measures to mitigate noise generated by the facility. They include the addition of a compressor building, sound walls, exhaust silencers, insulating blankets, and the perimeter walls on the north and east sides of the facility. For Plant 2, while a more sophisticated modeling software was used, the recommended measures were very similar. The Plant 2 study recommends the following: replacing the west and south side chain-link fencing with block walls and the front chain-link rolling gate with a solid gate; providing the minimum Sound Transmission Class (STC) rating for the compressor building; and increasing the silencer rating above the rating originally specified. With these measures in place, the VCM project will comply with all current applicable noise limits (45 dBA limit within the Zone I and II areas east of the Ventura Compressor Station and 55 dBA limit within the Zone III area to the west, south and north of the Ventura Compressor Station).

QUESTION 5:

Envoy currently shows a reduction in La Goleta injection capacity of 70 MMcfd due to the combined impacts of mechanical limitations at the Olive Street (Ventura) Compressor Station and the decline in California production. Would the new compressors only solve the mechanical limitation problem (20 MMcfd) or would they also help compensate for the reduction in California production (50 MMcfd)? In other words, would the increase in pipeline capacity from 120 to 160 MMcfd due to the new compressors increase La Goleta injection capacity by 20 MMcfd or 40 MMcfd?

Storage Field - Inj	Goleta	02/23/2017	TBD	20	20680	Unplanned	Mechanical limitations at Olive Street Compressor Station. Compression improvements discussed in the 2018 General Rate Case.	03/08/2021 10:44:08 AM PCT	4842
Storage Field - Inj	Goleta	03/12/2013	TBD	50	51700	Unplanned	Non Maintenance related due to diminished California Production. Not enough supply is available to meet North Coastal demand and injection.	03/30/2020 11:13:30 AM PCT	4215

RESPONSE 5:

The new compression equipment planned at the Ventura Compressor Station will resolve both the mechanical limitations with the existing equipment as well as the loss of local California gas supply. Pipeline capacity to and from the Ventura Compressor Station is not impacted by this project and will remain the same.