ENGINEERING EVALUATION
AUTHORITY TO CONSTRUCT

Facility Name:	S&R Chevron
Application Number:	APCD2024-APP-008436
Equipment Type:	Retail Gas Station with Phase I and II – 26A
Facility ID:	APCD1981-SITE-02607
Equipment Address:	1575 E Valley Pkwy Escondido, CA 92027
Facility Contact: **Company Affiliation:** **Contact Title:** **Contact Phone:** **Email:**	Sam Charry S&R Chevron Facility (619) 729-3729
Facility Contact: **Company Affiliation:** **Contact Title:** **Contact Phone:** **Email:**	Mark Kunze Southwest Contract, Inc. Contractor (619) 342-6458 mkunze.swc@gmail.com
Permit Engineer:	John Lee

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Allison Weller
Senior Engineer

Senior Engineer:

1.0 BACKGROUND

1.1 Type of Application – This application is to modify the existing permitted gas station as follows:

1) Re-pipe vent and vapor lines
2) Add one (1) 20,000-gallon underground gasoline tank.

1.2 Permit History – This gas station has been in operation since 1986 and is permitted under APCD2006-PTO-850146.

1.3 Facility Description – This is a retail gasoline dispensing facility (GDF) with CARB-certified Phase I and II control systems.

1.4 Other Background Information – There have been no hearing board actions, permit denials, legal settlements, NOVs or nuisance complaints within the last five years. However, they received two notice-to-comply, APCD2022-NTC-00303 and APCD2021-NTC-00211. This is not a Title V facility.

2.0 PROCESS DESCRIPTION

2.1 Equipment Description –

Existing Equipment Description:
Gasoline Dispensing Facility (Retail): Twelve (12) nozzles, as listed in Exhibit 1 of the Phase II Executive Order specified below, with three (3) grades per nozzle
Phase II VRS: Healy Vacuum Assist per ARB EO VR-202-Z
ISD System: Veeder Root Software Version 01.06
CAS Configuration: Vertical Position per Exhibit 2 of ARB EO VR-202-Z
Phase I VRS: Two Point OPW per ARB EO VR-102-T
Tanks: Two (2) 10,000 gallon, gasoline, underground {manifolded underground and aboveground}

Post-project Equipment Description:
Gasoline Dispensing Facility (Retail): Twelve (12) nozzles, as listed in Exhibit 1 of the Phase II Executive Order specified below, with three (3) grades per nozzle
Phase II VRS: Assist per ARB EO VR-202
ISD System: Compliant Veeder Root Software Version
CAS Configuration: Vertical Position per Exhibit 2 of ARB EO VR-202
Phase I VRS: OPW per ARB EO VR-102
Tanks: One (1) 20,000 gallon and two (2) 10,000 gallon, gasoline, underground {manifolded underground and aboveground}

2.2 Process – This is a GDF equipped with underground gasoline tanks and the associated equipment to receive, store and dispense gasoline.

2.3 Emissions Controls – This facility is equipped with CARB-certified Phase I and Phase II control systems.

2.4 Attachments – CARB Executive Order and/or Installation, Operation and Maintenance Manual (Vapor Recovery Executive Orders | California Air Resources Board)

3.0 EMISSIONS

3.1 Emission Estimate Summary – The emission estimate summary provided in Table 1 includes a summary of the Pre-Project Potential to Emit (PTE), Post-Project PTE, and expected PTE increase.

Table 1: Pre and Post Potential to Emit (PTE)

Emission Rates	Pre-project	Post-Project	Post – Pre	Unit
Annual VOC Emissions	1599	1599	0	lbs/year
Annual VOC Emissions	0.8	0.8	0	tons/year
Daily VOC Emissions	4.4	4.4	0	lbs/day
Average Hourly Emissions	0.2	0.2	0	lbs/hour
Maximum Hourly Emissions*	3.1	6.1	+3.0	lbs/hour

** Refer to Section 3.2 Emission Estimate Assumptions for details*

3.2 Emission Estimate Assumptions – The PTE calculation assumes the followings:

1. The annual gasoline throughput is 3 million gallons for both pre- and post-project.
2. The average hourly emissions are based on the annual emissions distributed equally over the year.
3. The maximum hourly emission rate is based on the worst-case scenario, where gasoline is simultaneously transferred from transport tanks to underground tanks and from underground tanks to automobiles for one hour.
4. The assumptions and limitations listed in the District's standard calculation method for Gasoline Dispensing Operation are assumed.

3.3 Emission Calculations – The PTEs are calculated based on the district's standard calculation for Gasoline Dispensing Operation (APCD-Gas-Dispensing-Operation), which is outlined in the section below. Table 2 summarizes all emission factors used in the calculation.

Equations:

$$E_a = U_a \times E_{Ft} \times C_i$$

$$E_h = T \times E_{Fh} \times C_i$$

Variables:

Symbols	Values	Units	Descriptions
E_a	-	lbs/year	Annual emissions of gasoline vapor
E_h	-	lbs/hour	Maximum hourly emissions of gasoline vapor
U_a	3,000,000	gallons/year	Annual gasoline throughput
T	40,000	gallons	Maximum one-hour bulk gasoline delivery; equal to total volume of gasoline tank(s)
E_{Ft}	0.53	lbs/1000 gallon	Sum of emission factors
E_{Fh}	0.15	lbs/1000 gallon	Emission factor for underground tank loading
C_i	1	lb/lb	Concentration of each listed substance in the gasoline vapor

Table 2: Emission Factors:

Category	Revised (lbs/1000 gal)
	EVR
Phase II Fueling*	0.11
Phase I Bulk Transfer Losses	0.15
Pressure Driven Losses	0.024
Phase II Fueling – Spillage	0.24
Gasoline Dispensing Hose Permeation	0.009
Year 2017	
Total	**0.53**

** The Phase II Fueling emission factor for Non-ORVR and ORVR vehicles was calculated based on a weighted average per the "Engineering Manager Assigned Task – GDF Risk Assessment Report (Dated: 7/22/2014)." The document assumed ARB's 2015 ORVR saturation rate of 0.78 for the state. The weighted average calculation is as follows:*

$$E_{F,Phase\ II\ Fueling} = \sum E_{F,i} w_i$$

$$E_{F,Phase\ II\ Fueling} = \left(0.22 \times \frac{0.42\ lbs}{1000\ gal}\right) + \left(0.78 \times \frac{0.021\ lbs}{1000\ gal}\right) = \frac{0.11\ lbs}{1000\ gal}$$

Where i represents ORVR or Non-ORVR.

3.4 Attachments – VR Emission Calculations

4.0 APPLICABLE RULES

4.1 Prohibitory Rules

Rule 61.3 – Transfer of Volatile Organic Compounds into Stationary Storage Tanks
The facility will be subject to Rule 61.3.1, which is more stringent than this rule. Compliance with 61.3.1 is expected as outlined below.

Rule 61.3.1 – Transfer of Gasoline into Stationary Underground Storage Tanks
Before issuance of the PTO, the engineering inspection will ensure the equipment is installed in compliance with this rule. Conditions will be included in the ATC and PTO to further ensure compliance.

Phase I VR-102 is installed. The Authority to Construct (ATC) and Permit to Operate (PTO) will incorporate conditions pertaining to the allowable replacement parts and identification, installation, maintenance, repairs, operation, required testing and recordkeeping.

Rule 61.4 – Transfer of Volatile Organic Compounds into Vehicle Fuel Tanks
The facility will be subject to Rule 61.4.1, which is more stringent than this rule. Compliance with 61.4.1 is expected as outlined below.

Rule 61.4.1 – Transfer of Gasoline from stationary underground storage tanks into vehicle fuel tanks

(a) APPLICABILITY

Except as otherwise provided in Section (b), this rule is applicable at the following gasoline dispensing facilities where gasoline is transferred from stationary underground storage tanks into any motor vehicle fuel tank with a capacity greater than 5 gallons (18.9 liters):

(1) Any retail gasoline dispensing facility where gasoline is dispensed into motor vehicle fuel tanks from any stationary underground storage tank with a capacity of 250 gallons (946 liters) or more, and…

Compliance is expected. This gas station has a Phase II EVR system installed.

Rule 61.5 – Visible Emissions Standards for Vapor Control Systems

No person shall discharge, or allow to be discharged, into the atmosphere from any vapor control system used to meet the requirements of Rules 61.1, 61.2, 61.3, 61.4 or 61.7, air contaminants in such a manner that the opacity of the emission is:

(1) Greater than 10% for a period or periods aggregating more than one (1) minute in any 60 consecutive minutes; or

(2) Greater than 40% at any time.

Compliance is expected given the nature of the process.

Rule 61.6 – NSPS Requirements for Storage of Volatile Organic Compounds

Any person owning or operating any source subject to the provisions of any federal New Source Performance Standard (NSPS), the enforcement of which has been delegated to the San Diego County Air Pollution Control District must, in addition to complying with Rules 61.1 through 61.5 and 61.7 and 61.8, comply with Regulation X.

This source is not subject to NSPS requirements.

Rule 61.7 – Spillage and Leakage of Volatile Organic Compounds

This rule is applicable to the spillage and fugitive liquid leaks associated with the transfer and storage of volatile organic compounds.

(1) Except as provided for in Section (b) above, no person shall:

(i) Spill, allow the spillage or cause spillage of such compounds during the disconnection of fittings used for transfer, except for spillage which would normally occur with equipment handled in a manner designed to minimize spillage.

(ii) Use or allow equipment to be used to transfer fuel unless the equipment is free of defects and properly maintained in a manner designed to minimize spillage, and

(iii) No person shall allow fugitive liquid leaks along the liquid transfer path, including any storage tank.

The facility is expected to comply. Conditions will be added to the permit to limit spillage and fugitive liquid leaks. Compliance with Rule 61.7 will be verified during inspections, and performance tests will be required on an annual basis to verify the vapor recovery systems comply with Rule 61.7.

Rule 61.8 – Certification Requirements for Vapor Control Equipment

This rule is applicable to all vapor recovery systems installed after July 1, 1976, which are subject to the certification requirements of Division 26, Part 4, Chapter 3, Article 5, of the State of California Health and Safety Code.

(c) ***STANDARDS***

No person shall install, provide, sell or sell for use within the County of San Diego a gasoline vapor control system or system component subject to the certification requirements of Division 26, Part 4, Chapter 3, Article 5, of the State of California Health and Safety Code unless it has been certified by the California Air Resources Board.

Compliance is expected. This facility is equipped with CARB-certified Phase I and Phase II systems.

4.2 New Source Review (NSR)

Rule 20.1 New Source Review – General Provisions

This rule is applicable to any new or modified stationary source or emission unit if the stationary source is not a major stationary source. A federal major stationary source, as defined in Rule 20.1(c)(30), means "any emission unit, project or stationary source which has, or will have after issuance of an Authority to Construct or modified Permit to Operate, an aggregate potential to emit one or more air contaminants in amounts equal to or greater than any of the emission rates listed below in Table 20.1 –5b".

TABLE 20.1 – 5b
Federal Major Stationary Source

Air Contaminant	Emission Rate (Ton/yr)
Fine Particulate Matter ($PM_{2.5}$)	100
Particulate Matter (PM_{10})	100
Oxides of Nitrogen (NOx)*	
marginal or moderate	100
serious	50
severe	25
extreme	10
Volatile Organic Compounds (VOC)*	
marginal or moderate	100
serious	50
severe	25
extreme	10
Oxides of Sulfur (SOx)	100
Carbon Monoxide (CO)	100
Lead (Pb)	100

* based on EPA's ozone nonattainment designation for the San Diego Air Basin in 40 CFR 81.305

The gas station proposes to add one 20,000 gallon underground gasoline tank to the facility, which increases their emissions; therefore, New Source Review (NSR) applies. The proposed aggregate VOC PTE is less than 25 tons per year, therefore the source is

not a major stationary source as given in Table 20.1-6 and is subject to the non-major source requirements of Rule 20.2.

Rule 20.2 – Non-Major Stationary Sources

(d)(1)(i) BACT for New or Modified Emission Units

Any new or modified emission unit which has any increase in its potential to emit particulate matter (PM10), oxides of nitrogen (NOx), volatile organic compounds (VOC) or oxides of sulfur (SOx) and which unit has a post-project potential to emit of 10 pounds per day or more of PM10, NOx, VOC, or SOx shall be equipped with Best Available Control Technology (BACT) for each such air contaminant.

The PTE for VOC from this operation can exceed 10 pounds per day; therefore, Best Available Control Technology (BACT) is required. The facility is equipped with CARB-certified Phase I and Phase II EVR systems with compatible ISD software, which is considered BACT and T-BACT.

(d)(2)(i) AQIA for New or Modified Emission Units

For each project which results in an emissions increase equal to or greater than any of the amounts listed in Table 20.2 - 1, the applicant shall demonstrate to the satisfaction of the Air Pollution Control Officer through an AQIA that the project will not:

(A) cause a violation of a state or national ambient air quality standard anywhere that does not already exceed such standard, nor

(B) cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded, nor

(C) cause additional violations of a state ambient air quality standard anywhere the standard is already being exceeded, except as provided for in Subsection (d)(2)(v), nor

(D) prevent or interfere with the attainment or maintenance of any state or national ambient air quality standard.

TABLE 20.2 - 1
AQIA Trigger Levels

	Emission Rate		
Air Contaminant	(lb/hr)	(lb/day)	(tons/yr)
Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	67	10
Oxides of Nitrogen (NOx)	25	250	40
Oxides of Sulfur (SOx)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6

The emissions are below the levels listed in Table 20.2-1, therefore an AQIA is not required. This subsection and all subsequent provisions ((d)(3) and (d)(4)) of Rule 20.2 do not apply because emissions do not exceed the thresholds requiring an AQIA as summarized in Table 20.2-1 and (d)(4) (i.e., VOC emissions increase of 250 pounds per day or 40 tons per year).

4.3 Toxic New Source Review- Rule 1200

Rule 1200 applies to any new, relocated or modified emission unit which results in any increase in emissions of one or more toxic air contaminant(s), and for which an Authority to Construct or Permit to Operate is required. This rule requires health risks be reviewed to ensure the risks are below one in one million for cancer (with T-BACT installed), and that the health hazard index is less than one from chronic non-cancer and acute toxic air contaminants.

Rule 1200 (b) ***EXEMPTIONS***

(1) The standards of Section (d) shall not apply to:

(v) The following emission units provided the resulting increase in maximum incremental cancer risk at every receptor location is less than 100 in one million, the total acute noncancer health hazard index is less than 10 and the total chronic noncancer health hazard index is less than 10:

(B) Gasoline service station emission units, provided that T-BACT will be installed.

The GDF is equipped with a CARB-certified Phase I and Phase II vapor recovery controls, which are considered T-BACT, therefore, the health risk standards for Rule 1200 exemption are as follows: cancer risk < 100 in one million, total acute noncancer health hazard index < 10, and total chronic noncancer health hazard index < 10.

The District performed a de minimis health risk assessment to evaluate the health risks associated with the increase in emissions from the change in equipment. The inputs, including the emissions and modeling parameters, used in the de minimis assessment are shown in Table 3 and 4, respectively:

Table 3: Toxic Air Contaminant Emission Increases

Toxic Air Contaminant (TAC)	CAS #	Hourly [lbs/hr]	Annual [lbs/yr]
BENZENE	71432	1.2E-02	0
ETHYL BENZENE	100414	3.0E-03	0
TOLUENE	108883	3.3E-02	0
XYLENES (mixed isomers)	1330207	1.2E-02	0

Table 4: Emission Modeling Parameters

Parameters	Values	Units
Source Type	Volume Source	-
Release Height	12	ft
Receptor Distance	33	ft
Acute Receptor Distance	33	ft

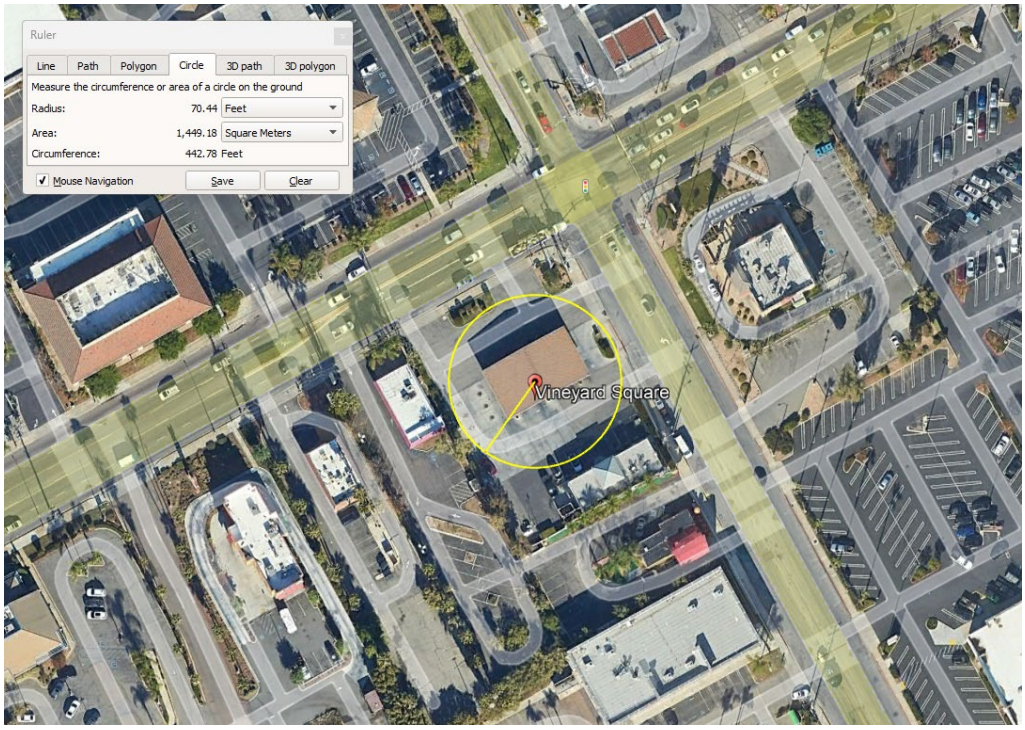
Discussion on parameters:

1) The gas station is modeled as a volume source because there is no defined exhaust port for the emissions.

2) The release height of 5ft represents general release points at the gas station, such as gasoline spills on the ground, vapor release from the vent, and a typical automobile fueling points.

3) As shown in the aerial map of the gas station, there are no receptors within 70 ft. Therefore, the receptor distance input of 33 ft in the de minimis assumes a worst-case scenario.

The de minimis results show that the increase in acute health hazard index is 6.4 and the cancer risk is 0 in one million; therefore, the modified gas station complies with the GDF exemption Rule 1200 and the standards (d) of Rule 1200 do not apply.



4.4 AB3205

AB3205 requires a public notice prior to issuing an Authority to Construct for equipment emitting hazardous air contaminants at a facility within 1000 feet of a school. The law also requires the District to consider any comments before authorizing construction.

There is a high school, Learn4Life Escondido – Innovation High School, located within 1,000 ft of the emission source. A notice will be sent to the School.

4.5 NESHAPS, NSPS and ATCMs

NESHAP:
CFR Part 63, Subpart CCCCCC, NESHAP for Area Source Categories: Gasoline Dispensing Facilities
This NESHAP is applicable to all gasoline dispensing facilities.
Date of Promulgation: January 1, 2008

All of the applicable requirements for this regulation are currently met by the Phase I and Phase II control systems that are installed at this location and operating practices required under the various CARB Executive Orders and SDAPCD District Rules 61.3.1 and 61.4.1 for gasoline dispensing facilities.

NSPS: None

ATCM:
Subchapter 7.5, Section 93101 Benzene Airborne Toxic Control Measure – Retail Service Stations

Compliance is expected. CARB-certified Phase I and Phase II EVR systems are installed.

4.6 **Title V** – This is not a Title V facility.

4.7 Attachments – N/A.

5.0 RECOMMENDATION

It is expected that the gasoline dispensing facility will comply with all applicable requirements, and it is recommended that an Authority to Construct (ATC) be issued at the end of the AB3205 comment period with standard conditions, including pre backfill requirements for a modified gas station, unless comments received would result in necessary changes to the project.

6.0 RECOMMENDED CONDITIONS

The recommended conditions are based off condition set APCD2009-CON-000036 – Retail or Non-Retail Gas Stations with Vacuum Assist, CAS and VR ISD, including 3 additional conditions for pre-backfill and startup testing:

Number	Description
28	In addition to the annual compliance tests referenced above, the applicant shall schedule an initial compliance test with the undersigned engineer, within 60 days of the Construction Completion. (Rule 61.3, 61.3.1, 61.4, 61.4.1)
29	Prior to the initial compliance test, the applicant shall schedule a pre-backfill inspection with the undersigned engineer. During this inspection, the engineer will verify the underground vapor recovery piping system is installed in accordance with the application and relevant Executive Orders. The tank sumps must be dry for this inspection. (Rule 61.4.1)