

ENGINEERING EVALUATION

Facility ID No. 202111
Circle K
NW corner of intersection of CA-29 and Napa Junction, American Canyon, CA 94513
Application No. 629943

BACKGROUND

The applicant has requested an Authority to Construct and Permit to Operate for the following:

S-1 Gasoline Dispensing Facility (GDF)

The facility configurations are described below:

Proposed Configuration
3 gasoline USTs (1 -20,000 gal, 1- 15,000 gal, and 1-8,000 gal)
Phase I OPW EVR (VR-102)
Phase II Balance EVR with Veeder-Root Vapor Polisher and Veeder-Root ISD (VR-204)
16 triple product gasoline nozzles
1 - 15,000 gallons diesel tank
8 diesel nozzles
10.0 million gallons of gasoline per year throughput limit

This is a new GDF with no historical throughput.

This application is being processed as a new source defined in Regulation 2-1-232.

EMISSION CALCULATIONS

Table 1 summarizes annual and daily permitted emissions.

Table 1. Annual and Daily Emissions

Criteria Pollutant	Emissions Factors (lb/thousand gallon)	Annual Average Emissions (lb/day)	Annual Emissions (lb/year)	Annual Emissions (ton/year)
POC	0.516	14.13	5158.2	2.58

Basis:

- Annual throughput of Unleaded Gasoline: 17.0 million gallons per year
- Operation schedule: 24 hr/day (max), 24 hr/day (typical), 7 day/week, 52 week/yr
- Phase I EVR for UST
- Phase II EVR for UST

- POC is Precursor Organic Compound.
- Emissions of POC include emissions from loading, breathing, refueling and spillage
- Emission factors are taken from the California Air Resources Board’s “Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities” (12/23/13).

FACILITY CUMULATIVE INCREASE

Table 2 summarizes the cumulative increase in criteria pollutant emissions that will result from this application.

Table 2. Facility Cumulative Emissions Increase, Post 4/5/91

Cumulative Increase	Existing Emissions (ton/yr)	Application Emissions (tons/yr)	Total Emissions (tons/yr)
POC	0.0	2.58	2.58

TOXIC EMISSIONS AND HEALTH RISK ASSESSMENT (HRA)

A Health Risk Assessment (HRA) is required when the emissions of toxic air contaminants (TACs) are at or exceed the trigger levels outlined in Regulation 2, Rule 5, Table 2-5-1. An HRA is required, based on the toxic emissions for this source, summarized in Table 3.

Table 3. Toxic Emissions

TACs	Category	Emissions (Chronic) (lb/yr)	Emissions (Maximum) (lb/hr)	Reg 2-5 Chronic Trigger (lb/yr)	Reg 2-5 Acute Trigger (lb/hr)	HRA Required
Benzene	Both Carcinogen and Other	29.038	0.03019	2.90	0.06	Yes
Ethylbenzene	Both Carcinogen and Other	32.878	0.03279	33.00	n/a	No
Hexane	TAC - Other	92.531	0.09747	270000.00	n/a	No
Naphthalene	TAC - Other	4.028	0.00398	2.40	n/a	Yes
Toluene	TAC - Other	163.535	0.16512	12000.00	82.00	No
Xylene	TAC - Other	166.979	0.16611	27000.00	49.00	No

Basis:

- Emission factors are taken from the California Air Resources Board’s “Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities” (12/23/13).
- Composition Data is from ARB Organic Gas Speciation Profiles for E10 Gasoline Fuels (Liquid and Headspace for both Summer and Winter blends), revised 2013 and 2015
- Hourly emissions are calculated in accordance with BAAQMD’s Air Toxics NSR Program HRA Guidelines for GDFs, dated December 2016.

Health Risk estimates were calculated in accordance with BAAQMD’s Air Toxics NSR Program HRA Guidelines for Gasoline Dispensing Facilities, dated December 2016. The assessment was performed for this facility using site specific land use data and the report is attached to this application. Results are summarized in Table 4.

Table 4. Maximum Project Risk

Maximally Exposed Receptor	Cancer Risk	Chronic Non-Cancer Hazard Index
Resident	6.8 chances in a million	0.039

STATEMENT OF COMPLIANCE

The owner/operator is expected to comply with all applicable requirements. Key requirements are listed below:

California Environmental Quality Act (CEQA), Regulation 2-1-311:

This permit application is not subject to CEQA because the evaluation is a ministerial action conducted using the fixed standards and objective measurements outlined in the Permit Handbook Chapter 3.2. The Procedures for Ministerial Evaluation (Section 2-1-427) and Criteria for Approval of Ministerial Permit Applications (Section 2-1-428) have been complied with in the determination that this application is exempt from CEQA.

The City of American Canyon, the CEQA lead agency, has classified the project with a Notice of Exemption pursuant to CEQA Guidelines Section 15332. The City of American Canyon approved Conditional Use Permit PL20-0010 on October 22, 2020.

Public Notification, Regulation 2-1-412

The facility is located within 1000 feet of the outer boundary of Napa Junction Magnet Elementary School located at 300 Napa Junction Rd., American Canyon, and Calvary Baptist Christian Academy located at 117 Theresa Ave, American Canyon, and is therefore subject to the public notification requirements.

A public notice has been prepared and sent to all addresses within 1,000 feet of the proposed source and to the parents or guardians of students enrolled at the schools.

Best Available Control Technology (BACT), Regulation 2-2-301

Because this GDF will emit 10 or more pounds per day of POC, the facility is required to install BACT. BACT for GDFs is considered the use of CARB-certified Phase I and Phase II enhanced vapor recovery equipment.

Offsets, Regulation 2-2-302

Because the total facility potential to emit will be less than 10 tons per year of POC, the facility is not required to provide offsets.

Best Available Control Technology for Toxics (TBACT), Regulation 2-5-301

The expected increased health risk from this project will exceed 1 per million, thus TBACT requirement is triggered. TBACT for GDFs requires the use of CARB certified Phase I and Phase II vapor recovery equipment.

Project Risk Requirement, Regulation 2-5-302

HRA results show that the increased cancer risk does not exceed 10 in one million, the chronic and acute hazard indexes do not exceed 1, and therefore the project complies with the project risk requirement.

District Rules (Limits to emissions of pollutants or performance standards)

Regulation 8-7 (Organic Compounds – Gasoline Dispensing Facilities)

Section 8-7-301 – Phase I Requirements

Section 8-7-302 – Phase II Requirements

Section 8-7-304 – Certification Requirements

California Air Resources Board (CARB) Vapor Recovery Certification

Phase I and Phase II Vapor Recovery System Executive Orders VR-102 and VR-204.

Airborne Toxic Control Measure for Benzene for Retail Service Stations

ATCM, 5/13/1988, Section 93101, Title 17, CA Code of Regulations.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

40 CFR 63, Subpart CCCCCC (*Gasoline Dispensing Facilities*)

CONDITIONS

Authority to Construct Conditions

This GDF is subject to the following Construction Conditions:

1. The owner/operator shall install, operate, and maintain the Phase I OPW EVR system in accordance with CARB Executive Order VR-102 and the corresponding System Installation, Operation and Maintenance Manual.
2. The owner/operator shall install, operate, and maintain the Phase II Balance EVR system with Vapor Polisher and ISD in accordance with CARB Executive Order VR-204 and the corresponding System Installation, Operation and Maintenance Manual.

Start-up Conditions

This GDF is subject to the following Start-up Conditions:

1. The owner/operator shall ensure the performance tests are successfully conducted at least ten (10) days, but no more than thirty (30) days after start-up. To comply with this condition, all tests shall be conducted after back-filling, paving, and installation of all required Phase I and Phase II components.
2. The owner/operator shall ensure the following vapor recovery system tests are successfully conducted in accordance with the latest version of CARB E.O. VR- 102 and E.O. VR-204.
 - a. A Static Pressure Performance Test using CARB procedure TP-201.3.
 - b. A Phase I Adaptor Static Torque Test.
 - c. One of the following tests:
 - Stations equipped with drop tube overflow prevention devices ("flapper valves"): a Drop Tube Overflow Prevention Device and Spill Container Drain Valve Leak Test in accordance with CARB Test Procedure TP-201.1D and the applicable CARB Executive Order.
 - All other stations: a Drop Tube/Drain Valve Assembly Leak Test in accordance with CARB Test Procedure TP-201.1C and the applicable CARB Executive Order.
 - d. Dynamic Back Pressure Test using CARB procedure TP-201.4.
 - e. Liquid Removal Test.
 - f. Nozzle Bag Test.
 - g. Vapor Pressure Sensor Verification Test.
 - h. Veeder-Root Vapor Polisher Operability Test.
 - i. Veeder-Root Vapor Polisher Emissions Test.
 - j. ISD Vapor Flow Meter Operability Test.

Operating Conditions

This GDF is subject to the following Operating Conditions:

Condition Number #100013

The owner/operator shall not allow the total fuel dispensed at this source to exceed the following limits during any consecutive 12-month period:

- 10.0 million gallons of gasoline - unleaded

Condition Number #100015

The owner/operator shall ensure the Phase I OPW EVR is installed, operated, and maintained in accordance with the most recent revision of the California Air Resources Board (CARB) Executive Order (EO) VR-102.

Condition Number #100016

The owner/operator shall ensure the Phase II Balance System with Vapor Polisher and V.R. ISD is installed, operated, and maintained in accordance with the most recent revision of the California Air Resources Board (CARB) Executive Order (EO) VR-204.

Condition Number #100036

The owner/operator shall:

1. Notify Source Test by email (gdfnotice@baaqmd.gov) or Fax (510-758-3087), at least 48 hours prior to any required testing.
2. Submit test results in a District approved format within thirty (30) days of testing.
 - For start-up tests results, cover sheet shall include the facility number (Facility ID) and application number of the Authority to Construct permit.
 - For annual test results, cover sheet shall include the facility number (Facility ID) and identified as 'Annual' in lieu of the application number.
 - Test results shall be emailed (gdfresults@baaqmd.gov) or mailed to the Districts main office.

Condition Number #100037

The owner/operator shall conduct and pass the following tests at the indicated intervals:

1. A Static Pressure Performance Test, in accordance with CARB procedure TP-201.3 at least once in each 12-month period.
2. Phase I Adaptor Static Torque Test on all rotatable Phase I adaptors in accordance with CARB TP-201.1B at least once in each 36-month period.
3. One of the following tests in each 36-month period. The measured leak rate for each component shall be within the limits set in the applicable CARB Executive Order:
 - Stations equipped with drop tube overflow prevention devices ("flapper valves"): a Drop Tube Overflow Prevention Device and Spill Container Drain Valve Leak Test in accordance with CARB Test Procedure TP-201.1D and the applicable CARB Executive Order.
 - All other stations: a Drop Tube/Drain Valve Assembly Leak Test in accordance with CARB Test Procedure TP-201.1C and the applicable CARB Executive Order.

Condition Number #100043

The owner/operator shall ensure that the Phase II Balance EVR with the Veeder-Root Vapor Polisher and ISD can demonstrate on-going compliance with the vapor integrity requirements of CARB Executive Order E.O. VR-204 by conducting and passing the following tests at least once in each consecutive 12-month period following successful completion of start-up testing. The owner/operator shall ensure tests are conducted and

evaluated using the reference test methods and standards from the latest version of the applicable executive order and/or test procedure.

1. Dynamic Back Pressure Test - TP-201.4
2. Liquid Removal Test.
3. Vapor Pressure Sensor Verification Test.
4. Veeder-Root Vapor Polisher Operability Test.
5. Veeder-Root Vapor Polisher Emissions Test.
6. ISD Vapor Flow Meter Operability Test.

Condition Number #100051

The owner/operator of the facility shall maintain the following records. Records shall be maintained on site and made available for inspection for a period of 24 months from the date the record is made.

1. Monthly totals of throughput (sales) of gasoline (all-grades) and other fuels pumped and summarized on an annual basis for each type of fuel (excluding diesel).
2. All scheduled testing and maintenance activities, including:
 - the date of maintenance, inspection, failure and, if applicable, ISD alarm history;
 - the date and time of maintenance call;
 - the maintenance performed;
 - Certified Technician ID number or name of individual conducting maintenance and their phone number.
3. Weekly, quarterly and annual inspection sheets as required by the appropriate CARB Executive Orders.

RECOMMENDATION

I recommend that an Authority to Construct be issued to alter the following:

S-1 Gasoline Dispensing Facility

Prepared by: Duncan Campbell, Air Quality Specialist

Date: 8/11/2021