

Bay Area Air Quality Management District
939 Ellis Street
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**Proposed Amendments to
BAAQMD Regulation 8, Rule 7:
Gasoline Dispensing Facilities**

Final Staff Report

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FINAL STAFF REPORT

REGULATION 8, RULE 7

GASOLINE DISPENSING FACILITIES

EXECUTIVE SUMMARY

The Gasoline Vapor Recovery program is a statewide program, as outlined in Health & Safety Code Section 41950 et. seq. and the State Implementation Plan. Primary responsibility for the successful implementation of the program belongs to the California Air Resources Board (CARB). Regulation 8, Rule 7: Gasoline Dispensing Facilities, implements these CARB regulations in the San Francisco Bay Area.

Regulation 8, Rule 7 was last amended on November 17, 1999. These amendments implemented Control Measure SS-08, Emission Reductions From Gasoline Dispensing Facilities from the 1999 San Francisco Bay Area Ozone Attainment Plan, incorporating several measures to enhance the effectiveness of the gasoline vapor recovery, as well as making numerous minor amendments to clarify the applicability and intent of the rule.

On July 25, 2001, the United States Environmental Protection Agency (EPA) issued a limited approval and a limited disapproval of the amended Regulation 8, Rule 7 in the Federal Register (66 Fed. Reg. 38561, July 25, 2001). EPA based their limited disapproval of the rule on the following items:

- The rule cites the California Health and Safety Code (CH&SC) instead of the California Code of Regulations (CCR) for a list of vapor recovery system defects.
- The rule does not incorporate any periodic reverification testing requirements to ensure continued proper operation of vapor recovery equipment.

The proposed rule amendments address EPA's concerns by incorporating the CCR reference to the defects list into the regulation and adding requirements for annual reverification testing for all facilities with vapor recovery equipment. It should be noted that approximately one third of the gasoline dispensing facilities (GDFs) in the District are already required to perform reverification testing by CARB Executive Orders and/or District permit conditions.

The proposed amendments also include several minor administrative revisions. These changes will remove redundant language, clarify the scope and applicability of existing requirements, and make the regulation consistent with state law. They will not impose any additional requirements on new or existing stations.

BACKGROUND

Number of Sources

There are approximately 2,650 GDFs in the District. Of these, about 1,725 are retail facilities that sell fuel directly to the general public. The balance are non-retail stations located at a wide variety of facilities such as industrial plants, airports, car rental agencies, and other businesses which operate fleets of vehicles or mobile equipment which need to be refueled on-site. Although some non-retail locations have large throughputs, retail stations dispense the overwhelming majority of gasoline in the District and are the primary source of emissions from this source category.

Amount of Ozone-Forming Pollutants

Gasoline is a highly volatile organic liquid with a Reid vapor pressure (RVP) varying from 7.0 psi to 11.0 psi according to seasonal requirements. As such, there is a large potential for emissions of volatile organic compounds (VOCs) whenever gasoline is stored, loaded, or handled. GDFs are one of the major potential sources of VOC emissions in the Bay Area. In absence of any controls whatsoever on GDFs, VOC emissions from this category would be approximately 73 tons/day.

Method of Control

The primary technique for controlling emissions from GDFs is vapor recovery. Vapor recovery systems collect and contain vapors generated during the handling of volatile organic liquids that would otherwise be emitted to the atmosphere. Vapor recovery equipment for GDFs falls into two categories: Phase I and Phase II. Phase I vapor recovery captures vapors generated when gasoline is transferred from a tanker truck (a.k.a. cargo tank) into a stationary storage tank. Phase II vapor recovery collects vapors when individual motor vehicles are being refueled.

State Regulation

The California Air Resources Board (CARB), under Health & Safety Code Section 41954, has sole authority for certifying vapor recovery systems and their components for use in California. Equipment vendors submit their systems to CARB for testing and evaluation. Approved systems are issued an Executive Order, which sets specifications for the installation and operation of the system and lists allowable components and configurations. There are currently more than 80 Executive Orders in force for Phase I and Phase II systems. Because of CARB's leadership role in the field, many jurisdictions outside California also only allow the installation of vapor recovery systems and components certified by CARB.

District Regulation

The BAAQMD has regulated gasoline dispensing operations since 1972. Currently, GDFs are regulated under Regulation 8, Rule 7. Over the years Reg. 8-7 has been modified and its applicability expanded to the point where almost all GDFs, both retail and non-retail, are subject to some control requirements. Reg. 8-7 also sets standards for both the operation and maintenance of vapor recovery systems and general housekeeping requirements that apply to all stations.

Over 97% of the GDFs in the District (about 2,500 stations) are required to have Phase I vapor recovery. Almost all of the stations with Phase I are also required to have Phase II recovery. (All stations with Phase II controls are required to have Phase I controls.) Reg. 8-7 includes several exemptions from Phase I and Phase II requirements based on size limitations and technical considerations. Most GDFs exempt from vapor recovery requirements are small, non-retail facilities with low throughputs that service a limited fleet of vehicles. Many refuel vehicles such as boats or aircraft for which Phase II vapor recovery is not effective.

Reg. 8-7 functions primarily as the District's implementation of state law. It has been revised numerous times over the years in response to changes in legal requirements and advances in vapor recovery technology. The rule was last amended in November 1999.

PROPOSED AMENDMENTS

Periodic Testing Requirements

- **Phase I Periodic Testing** (*proposed Section 301.13*)

Minimizing vapor leaks reduces fugitive emissions from GDFs and enhances the vapor collection efficiency of both Phase I and Phase II vapor recovery systems. The proposed section will require all GDFs equipped with Phase I vapor recovery to demonstrate compliance with the vapor tightness standards annually by passing a pressure decay test conducted using CARB-approved source test procedures per proposed Section 8-7-602.

All GDFs with Phase II vapor recovery are required to also have Phase I controls under Section 8-7-309. All stations with Phase II controls, as well as stations equipped with Phase I but exempted from Phase II will be subject to this requirement. This will ensure that both Phase I and Phase II systems will be tested for pressure decay. A properly conducted pressure decay test tests the tank headspace, vapor piping, and all affiliated fittings and vapor recovery equipment for leaks. This includes the Phase II as well as the Phase I vapor recovery equipment. Phase II

vapor recovery equipment is an integral part of the overall vapor recovery system. There is no need to perform additional pressure decay testing to verify the integrity of the Phase II controls.

Currently, approximately 40% of the retail and 15% of the non-retail stations in the District are already required to perform annual pressure decay tests by conditions on their permit.

Section 301.13 does not reference a specific standard, as the allowable pressure decay varies according to equipment configuration and station conditions at the time of the test. All CARB-approved pressure decay test methods include a formula to calculate the allowable pressure decay. Essentially, the standards are incorporated into the test method.

- **Phase II Periodic Testing, Balance Systems** (*proposed Section 302.14*)

Balance-type Phase II vapor recovery systems achieve maximum vapor collection when the pressure drop along the vapor path between the nozzle/fill pipe interface and the tank headspace is at a minimum. This pressure drop is measured using a back pressure test method such as District Source Test Method ST-27 or CARB Test Procedure 201.4. Proposed Section 302.14 would require stations operating balance Phase II systems to pass this test annually. The District does not currently require periodic performance of this test for any station equipped with a balance system.

- **Phase II Periodic Testing, Vacuum Assist Systems** (*proposed Section 302.15*)

The CARB Executive orders for all currently available vacuum assist Phase II systems require the systems to pass one or more annual performance tests to demonstrate effective vapor collection. For most systems, the Executive Orders specify an Air-to-Liquid (A/L) ratio test. However, some Executive Orders (such as G-70-187 for the Healy 400 ORVR system) specify different test methods. Each Executive Order sets the standards that must be met for each required test.

All stations operating vacuum assist systems in the District are currently required to perform this testing annually under both the CARB Executive Order and the conditions of their District permit. Proposed Section 302.15 would incorporate these annual testing requirements into Regulation 8-7.

Although back-pressure testing is required for new and modified vacuum assist systems at start-up, periodic back pressure testing is not proposed for vacuum assist type systems. Unlike back pressure test methods for balance-type systems, which measure the pressure drop along the entire vapor path from the nozzle to the headspace, the back pressure tests on vacuum assist systems only measure the pressure drop from the

dispenser riser to the tank headspace. This test can only detect blockage in the underground vapor return piping.

Blockage problems generally occur in nozzle/hose assembly and the internal dispenser piping where they can be detected using an A/L test. Blockage in properly installed underground piping is not a significant problem. A back pressure test performed at start-up is sufficient to establish that the vapor return piping is installed correctly. Periodic back pressure testing on vacuum assist systems is redundant and unnecessary.

- **Exemption, Periodic Testing Requirements** (*proposed Section 8-7-116*)

Section 8-7-116 will offer a limited exemption from periodic testing for stations starting up new or modified equipment. All stations undergoing modifications are required by conditions of their Authority to Construct (A/C) to perform one or more performance tests during the start-up period (generally the first 30 days of operation) to demonstrate that the equipment was installed properly. Tests to be performed include all those required by Sections 8-7-301 and 302. Stations which fail to obtain an A/C are required to perform the start up tests by Section 8-7-406.

This section waives periodic testing requirements for tests that are otherwise required to be performed during the start-up period. This will prevent stations from being forced to rush their testing by an annual periodic testing deadline falling early in the start-up period. Testing immediately upon start-up is neither desirable nor necessary. Some systems are even required to wait at least 10 days after start-up before testing to allow any defective components to fail.

This exemption will allow stations to test new and modified equipment in an orderly fashion pursuant to the conditions of their A/C.

- **Limited Testing Frequency Exemption, ISD-equipped Tanks** (*proposed Section 8-7-117*)

Section 8-7-117 will allow stations equipped with CARB-certified In-Station Diagnostic (ISD) systems to reduce the frequency of periodic tests required by Sections 8-7-301 and 302 from every 12 months to every 24 months.

As currently conceived, ISD systems will continuously monitor system performance, shutting down fuel dispensing and/or alerting the operator when system malfunctions are detected. This could minimize or even completely eliminate the need for periodic performance testing to maintain effective vapor recovery.

An ISD system has yet to be certified by CARB, although several are currently undergoing evaluation. Provided a certified system becomes commercially available, ISD systems will begin to be required for new and modified GDFs dispensing more than 1.8 million gallons of gasoline per year starting April 1, 2003. Ultimately, ISD systems will be required at all stations dispensing more than 160,000 gal/yr by April 1, 2008.

The proposed limited exemption only applies the periodic testing requirements of Sections 8-7-301 and 302. More frequent testing may continue to be required by CARB Executive Orders or by District permit conditions.

Additional Revisions

In addition to the periodic testing requirements enumerated above, staff is proposing several other minor revisions to Regulation 8-7 to help clarify the meaning and intent of the regulation, make it consistent with ARB requirements and other state law and improve its overall enforceability and effectiveness. The most significant of these are as follows:

- **Clarify ORVR Phase II Exemption** (*revised Section 8-7-112.9*)

This section was adopted to exempt stations refueling ORVR-equipped fleets (such as car rental agencies) from Phase II vapor recovery requirements. This exemption is in conflict with the state Airborne Toxics Control Measure (ATCM), which requires Phase II controls on all retail stations dispensing more than 480,000 gallons of gasoline per year. The revision clarifies that this exemption does not override this, or any other applicable state requirements.

- **Delete Subsection 8-7-11.2**

This section exempted tanks installed before October 1, 1974 with a throughput of less than 60,000 gallons per year from Phase I vapor recovery requirements until June 1, 2000.

This deadline has passed. All such tanks must install Phase I controls unless exempted by another subsection.

EMISSIONS AND EMISSION REDUCTIONS

The proposed amendments to Reg. 8-7 do not include any stricter standards or impose any new requirements which will result in a quantifiable emission reduction. The increased testing requirements can potentially improve the in-use compliance rate by identifying equipment defects more promptly, reducing the amount of time the equipment operates out of compliance. Although this may

result in some actual emission reductions, these reductions will not exceed those calculated when the standards were originally adopted.

ECONOMIC IMPACTS

Of the 2,650 gas stations in the District, about 850 are already subject to annual testing under the conditions of their District Permit to Operate. This number includes all stations equipped with vacuum assist Phase II systems, as well as many non-retail stations operating aboveground storage tanks (ASTs).

Of the 1,800 stations not currently subject to annual testing, 1,000 are retail stations, almost all of which operate balance Phase II systems. The other 800 are non-retail stations which are either equipped with balance Phase II or exempted from Phase II requirements. Many of these non-retail stations operate ASTs.

The retail stations will be required to perform both a pressure decay test (ST-30) and a back pressure test (ST-27). These tests require specialized equipment and trained personnel. Most stations will probably hire one of the many maintenance firms operating within the District to perform this testing. The cost of hiring a contractor to perform these tests is estimated at \$300 for a pressure decay test and \$100 for a back pressure test, for a total of \$400 per station.

Non-retail stations equipped with balance Phase II vapor recovery and operating either underground storage tanks or aboveground storage tanks with remote dispensers will also be required to perform both tests at a cost of \$400 per station. Non-retail stations either exempt from Phase II or operating ASTs with tank-mounted dispensers will only be required to perform the pressure decay test (\$300).

The estimated cost of complying with the new periodic testing requirements should be no more than \$400 for affected facility. Staff does not expect any financially viable station to be forced to close as a result of these amendments.

Some stations may incur additional expense in repairing their equipment to pass these tests. This expense has not been included because it is not attributable to the proposed amendments. These tests demonstrate compliance with the existing standards in Regulation 8-7. Stations are required to be in compliance with these standards at all times.

Socioeconomic Impacts

Section 40728.5 of the California Health and Safety Code (H&SC) requires districts to assess the socioeconomic impacts of amendments to regulations that, "...will significantly affect air quality or emissions limitations." The proposed

amendments do not significantly affect air quality or emissions limitations. The proposed amendments do not alter existing emission limitations or impose any new limitations. Although the amendments do impose new testing requirements, these requirements are intended to ensure compliance with existing limitations. As a result, the proposed amendments cannot be said to “significantly affect air quality or emission limitations,” and the District has therefore not prepared the socioeconomic analysis that would otherwise be required under Section 40728.5 of the Health and Safety Code.

Incremental Costs

Under Health and Safety Code Section 40920.6, the District is required to perform an incremental cost analysis for a proposed rule under certain circumstances. To perform this analysis, the District must (1) identify one or more control options achieving the emission reduction objectives for the proposed rule, (2) determine the cost effectiveness for each option, and (3) calculate the incremental cost effectiveness for each option. To determine incremental costs, the District must “calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.” Because EPA’s limited disapproval of Regulation 8, Rule 7 required the District to modify the rule as proposed, the District can identify no other control options that meet the policy aims of this proposal, and no incremental cost analysis is required.

ENVIRONMENTAL IMPACTS

Pursuant to the California Environmental Quality Act, the District prepared an initial study for the proposed amendments to Regulation 8, Rule 7. The initial study concludes that the proposed amendments would not result in any significant environmental impacts. In general, some emissions increases are associated with the additional testing that is required by the proposed amendments. These emissions do not exceed District CEQA thresholds of significance and, in any case, are expected to be outweighed by emission reductions from better compliance. The District is proposing to adopt a negative declaration for the amendments.

REGULATORY IMPACTS

Section 40727.2 of the California Health and Safety Code requires the District to identify existing federal and District air pollution control requirements for the equipment or source type affected by the proposed rule. The District must then note any differences between these existing requirements and the requirements imposed by the proposed change. Where the district proposal does not impose a

new standard, make an existing standard more stringent, or impose new or more stringent administrative requirements, the district may simply note this fact and dispense with the analysis otherwise required by Section 40727.2. Although these proposed amendments do impose more stringent administrative requirements, there are no comparable federal or district standards for GDFs. Accordingly, the District therefore simply notes that no other federal or District standards apply.

RULE DEVELOPMENT HISTORY

The proposed amendments were developed in response to the EPA's limited approval/limited disapproval of the November 1999 amendments to Regulation 8-7 as published in the Federal Register (66 Fed. Reg. 38561, July 25, 2001). The rule as drafted included collaborative input from the Source Testing Section of the Technical Services Division, Compliance and Enforcement Division, and Permit Services Division. A workshop was conducted on June 21, 2002. The workshop was attended by 20 people, representing owners of individual gasoline dispensing facility, vapor recovery component manufacturers, the California Independent Oil Marketers' Association, and the Western States Petroleum Association.

DISTRICT STAFF IMPACTS

The proposed amendments to Regulation 8, Rule 7 will require additional staff resources. The new requirements will approximately triple the number of stations submitting tests to the District on an annual basis. Additional resources in the Source Test Division will be necessary to monitor testing in the field and expeditiously review and track results submitted to the District. Follow-up action for stations which either do not submit tests or submit failed results will require additional resources in the Permit Division and the Enforcement Division. Settling violation notices and collecting any penalties will require additional staff time in the Legal Division.

Staff estimates that the combined resources necessary to implement these measures will be equivalent to three full-time employees divided among the four impacted divisions.

COMMENTS AND RESPONSES

As of the date of this report, District staff has not received any written comments from affected parties regarding these proposed amendments.

CONCLUSION

The proposed amended rule is feasible in the Bay Area and can be enacted readily.

Pursuant to Section 40727 of the California Health and Safety Code, the proposed rule must meet findings of necessity, authority, clarity, consistency, non-duplication, and reference. The proposed amendments to Regulation 8, Rule 7 are:

- Necessary to limit emissions of volatile organic compounds, a primary precursor to ground-level ozone formation and to fulfill the requirements of the 1999 Ozone Attainment Plan in a source category, gasoline dispensing facilities, that contributes a large amount of VOC emissions into the ambient air;
- Authorized under Sections 39002, 40000, 40001, 40702, and 40725 through 40728, 41950, 41954, 41960.2, and 41960.3 of the California Health and Safety Code;
- Written or displayed so that the meaning can be easily understood by the persons directly affected by it;
- Consistent with other District rules, and not in conflict with state or federal law;
- Non-duplicative of other statutes, rules or regulations; and
- Implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 39002 (Local and State Agency Responsibilities), 40000 (Local/State Responsibilities), 40001 (Adoption and Enforcement of Rules and Regulations), 40702 (Adoption of Rules and Regulations), 41950 (Vapor Recovery Systems for Stationary Gas Tanks), 41954 (CARB Certification of Vapor Recovery Systems), 41960.2 (Maintenance of Installed Systems) and 41960.3 (Reporting Problems with Vapor Recovery Systems).

The proposed new rule has met all legal noticing requirements, has been discussed with the regulated community, and reflects the input and comments of many affected and interested parties. District staff recommends adoption of the proposed amendments to Regulation 8, Rule 7: Gasoline Dispensing Facilities and the proposed Negative Declaration.