Owner/Operator's Guide to Operation and Maintenance of Vapor Recovery Systems at Gasoline Dispensing Facilities

API RECOMMENDED PRACTICE 1639
FIRST EDITION, JULY 2003

REAFFIRMED, MAY 2020

AMERICAN PETROLEUM INSTITUTE

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Downstream Segment

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FOREWORD

This recommended practice provides guidance for owners and operators of gasoline dispensing facilities and regulatory officials regarding the operation and maintenance of gasoline vapor recovery systems and components. Proper operation and maintenance of vapor recovery equipment can improve compliance with vapor recovery regulations and provide substantial emission reductions.

In preparing this recommended practice, careful consideration was given to the following:

a. Promoting safety.
b. Protecting human health and the environment.
c. Preventing release of vapors from service stations.
d. Detecting petroleum vapor releases.
e. Minimizing the cost of effective maintenance.

Every effort has been made to ensure the consistency of the recommendations with the applicable sections of NFPA 30 *Flammable Liquid Code* and NFPA 30A *Code for Motor Fuel Dispensing Facilities and Repair Garages*. In addition, consideration was given to local, state and federal laws and regulations.

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Owner/Operator's Guide to Operation and Maintenance of Vapor Recovery Systems at Gasoline Dispensing Facilities

1 Purpose and Scope

This Recommended Practice (RP) is designed to provide guidance to owners and operators of gasoline dispensing facilities (GDF) to effectively operate and maintain Stage I and Stage II vapor recovery systems. This guide does not address the maintenance required by qualified service technicians to perform periodic testing and major system repairs. Federal and/or State regulatory agency certified or approved vapor recovery systems/equipment must be used to maintain the efficiency of the vapor recovery system. The appropriate state and/or locality should be contacted individually for site-specific requirements.

This RP recommends the need for periodic inspections of Stage I and Stage II equipment. The equipment and the criteria for inspection are identified in highlighted text with a corresponding letter that indicates the frequency of the inspection. That is, a (**D**) represents a recommendation for a daily inspection; (**W**) recommends a weekly inspection; (**M**) recommends a monthly inspection; and (**A**) recommends an annual inspection. Appendix A is a suggested inspection checklist for the equipment and criteria identified in the text.

2 References

API

RP 1007 *Loading and Unloading of MC 306/DOT 406 Cargo Tank Motor Vehicles*

NFPA[1]

30 *Flammable Liquid Code*

30A *Code for Motor Fuel Dispensing Facilities and Repair Garages*

3 Definitions and Acronyms

Appendix B lists definitions and acronyms that may be helpful in understanding vapor recovery systems.

4 Vapor Recovery Requirements

4.1 VAPOR RECOVERY SYSTEMS

4.1.1 Stage I vapor recovery involves the return of vapors stored in the underground storage tank (UST) back to the tank truck during product delivery. Vapors in the underground tank headspace, i.e., the area in the tank above the liquid level, are displaced by the gasoline entering the tank during delivery. Headspace is also known as ullage. A flexible hose, provided by the transport company, connects the storage tanks providing a path for the vapors to return to the truck. Vapors in the truck are then returned to the distribution terminal for processing.

Stage I vapor recovery is required by state and local regulations in most of the United States. Stage II vapor recovery is required in certain air quality nonattainment areas by federal regulations, and is administered by the states. Stage II regulations include some requirements for Stage I equipment.

[1]National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02269.

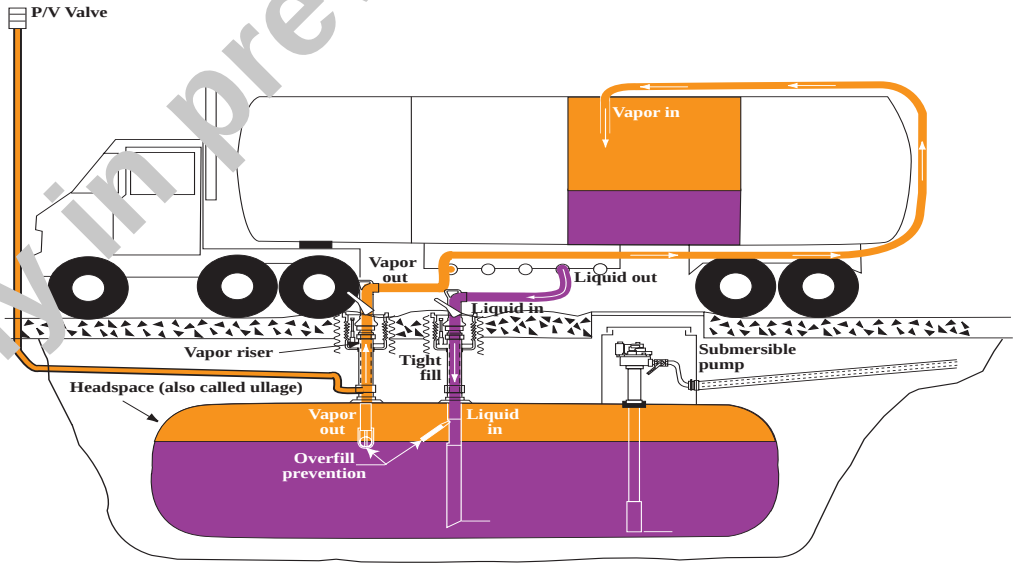

Figure 1—Stage I Vapor Recovery Two-Point (Dual) System