TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit 22-3541
Air Discharge Permit Application CO-1056

Issued: September 15, 2022

SAFEWAY FUELING FACILITY No. 1078

SWCAA ID – 2209

Prepared By: Clint Lamoreaux
Air Quality Engineer
Southwest Clean Air Agency

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ABBREVIATIONS

List of Acronyms

ADP ..... Air Discharge Permit
AP-42 ..... Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA
BACT..... Best available control technology
BART ..... Best Available Retrofit Technology
CARB ..... California Air Resources Board
CFR..... Code of Federal Regulations
EPA..... U.S. Environmental Protection Agency
EU ..... Emission Unit
EVR ..... Enhanced Vapor Recovery
LAER..... Lowest achievable emission rate
MACT..... Maximum Achievable Control Technologies
NESHAP..... National Emission Standards for Hazardous Air Pollutants
NSPS..... New Source Performance Standard
ORVR ..... Onboard Refueling Vapor Recovery
PSD..... Prevention of Significant Deterioration
RACT..... Reasonably Available Control Technology
RCW ..... Revised Code of Washington
SEPA..... State Environmental Policy Act
SQER ..... Small Quantity Emission Rate listed in WAC 173-460
Standard ..... Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
SWCAA ..... Southwest Clean Air Agency
T-BACT ..... Best Available Control Technology for toxic air pollutants
WAC..... Washington Administrative Code

List of Units and Measures

tpy ..... Tons per year

List of Chemical Symbols, Formulas, and Pollutants

CO ..... Carbon monoxide

CO_2 ..... Carbon dioxide

CO_2e ..... Carbon dioxide equivalent

HAP ..... Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act

NO_X ..... Nitrogen oxides

O_2 ..... Oxygen

PM ..... Particulate Matter with an aerodynamic diameter 100 µm or less

PM_{10} ..... PM with an aerodynamic diameter 10 µm or less

$PM_{2.5}$ ..... PM with an aerodynamic diameter 2.5 µm or less

SO_2 ..... Sulfur dioxide

SO_X ..... Sulfur oxides

TAP ..... Toxic air pollutant pursuant to Chapter 173-460 WAC

VOC ..... Volatile organic compound

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

1. FACILITY IDENTIFICATION

Applicant Name:	Safeway Stores, Inc.
Applicant Address:	PO Box 473 Amboy, WA 98601
Facility Name:	Safeway Fueling Facility No. 1078
Facility Address:	2944 Ocean Beach Hwy. Longview, WA 98632
SWCAA Identification:	2209
Contact Person:	Ms. Shawn Carter-Elton
Primary Process:	Gasoline dispensing
SIC/NAICS Code:	5541: Gasoline service stations 44711: Gas stations with convenience stores
Facility Classification:	Natural Minor

2. FACILITY DESCRIPTION

This facility is a gas station associated with a Safeway grocery store.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit (ADP) application number CO-1056 received July 22, 2022. ADP application CO-1056 requests approval to replace vacuum-assist style Stage II vapor recovery systems with balance-style Stage II vapor recovery systems.

4. PROCESS DESCRIPTION

This facility receives unleaded gasoline from tanker trucks for storage in two underground storage tanks or tank compartments. The gasoline storage tanks or compartments are equipped with two-point vapor balance systems that return gasoline vapors vented from the underground storage tanks to the tanker truck during filling (Stage I vapor recovery). Gasoline is dispensed from 12 pumps. Two of these pumps also dispense diesel through a separate hose. Vapors displaced from individual motor vehicle gasoline tanks during filling will be returned to the gasoline storage tanks using balance-style Stage II vapor recovery.

Products at Pump	Number of Pumps
Blended gasoline	10
Blended gasoline and diesel through separate hoses	2

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Storage Tanks. The following storage tanks are utilized at the facility:

Tank	Product	Capacity
1	Regular Unleaded	20,000 gallons
2 – 1	Super Unleaded	10,000 gallons
2 – 2	Diesel	10,000 gallons

The applicant does not propose to modify the existing Stage I vapor recovery systems that substantially conform to the equipment approved as components of CARB Executive Order VR-101-C "Phil-Tite Phase I Vapor Recovery System for Gasoline Dispensing Facilities." The following equipment was originally approved:

Component	Make / Model
Drop Tube / Overfill Protection	OPW / 61SO
Fill Adapters[1]	Phil-Tite / SWF-100-B
Fill Caps	Morrison / SWF 305C
Vapor Adapters[1]	Phil-Tite / SWF-101-B
Vapor Caps	Morrison / 323C
Extractor Assembly	Universal / V421
Float Vent Valve	N/A
Spill Bucket	Unknown
Pressure / Vacuum Valve	Husky / 4885[2]

[1] This is a two point system.

[2] If the pressure / vacuum valves are replaced, the only replacements currently approved by CARB are the Husky model 5885, FFS model PV-Zero, or the OPW model 723V.

The following Stage II vapor recovery equipment, hoses, and nozzles will be installed as components of the ORVR compatible balance-style vapor recovery system approved by CARB Executive Order G-70-52-AM using components certified under CARB Executive Orders G-70-52-AM and VR-203-W.

Component	Make / Model
Nozzles	Emco Wheaton / A4005-EVR-052
Hoses	VST / VDV-EVR
Hose – Whips	VST / VSTA-EVR
Breakaway Couplings	Emco Wheaton / A4119EVR-020
Vapor Pump	N/A – this is a balance-style system
Swivels	Integral to hose
Dispensers	Wayne / Ovation
Pressure / Vacuum Valve	Husky / 4885[1]

[1] If the pressure / vacuum valves are replaced, the only replacements currently approved by CARB are the Husky model 5885, FFS model PV-Zero, or the OPW model 723V.

5.b. Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Retail Gasoline Dispensing Facility	Stage I and II Vapor Recovery Systems

6. EMISSIONS DETERMINATION

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

(a) Continuous emissions monitoring system (CEMS) data;
(b) Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
(c) Source emissions test data (other test method); and
(d) Emission factors or methodology provided in this TSD.

6.a. Gasoline Vapors. Total potential VOC emissions were estimated using the following emission factors from the California Air Resources Board December 23, 2013 document "Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities":

Emission Source	VOC Emission Factor (lb/1,000 gallons of fuel)
Loading – Stage I Controlled (EVR)	0.150
Breathing – Controlled with P/V Valve	0.092
Controlled Refueling – (non-ORVR vehicles, Stage II)	0.3192[1]
Controlled Refueling - (ORVR vehicles, Stage II)	0.0575[2]
Spillage (Stage II nozzles)	0.420
Hose Permeation (balance-style hoses)	0.0051
Total	**1.0438**

[1] Based on 90% of the gasoline being dispensed to vehicles equipped with carbon canisters (ORVR). The base emission factor, assuming no ORVR vehicles, is 8.4 lb/1,000 gallons. 10% of the vehicles are not equipped with ORVR and a 62% in-use efficiency is assumed ("Technical Guidance—Stage II Vapor Recovery Systems for Control of Vehicle Refueling at Gasoline Dispensing Facilities" EPA–450/3–91–022a, November 1991.): 8.4 lb/1,000 gallons * (1-0.90) (1-0.62) = 0.3192 lb/1,000 gallons.

[2] This is the amount of vapor released during refueling that is attributable to those vehicles equipped with carbon canisters (ORVR) assuming carbon canisters provide for 98% control and the Stage II system provides an additional 62% control: 8.400 lb/1,000 gallons * (90% of gas dispensed to vehicles with ORVR) * (2% of vapors not captured by the canister) * (1 - 0.62) = 0.05746 lb/1,000 gallons.

The above calculations assume that 90% of the fuel is dispensed to vehicles equipped with onboard refueling vapor recovery (ORVR). SWCAA expects this level was met in Clark County in 2020 and will be met a few years later in Cowlitz, Lewis, Skamania, and Wahkiakum counties.

At a throughput of 5,000,000 gallons of gasoline per year, the facility would emit 2.61 tons of volatile organic compounds. Based on EPA Speciate 3.2 profile number 2455, approximately 50.0% of the total VOC emissions are toxic air pollutants (TAPs) as defined by WAC 173-460 (as in effect August 21, 1998), and approximately 12.9% of the total VOC emissions are federally listed hazardous air pollutants (HAPs). For a throughput of 5,000,000 gallons per year, TAP and HAP emission rates are estimated at 1.30 tons per year, and 0.34 tons per year respectively.

6.b. Emissions Summary

Air Pollutant	Potential to Emit (tpy)	Project Impact (tpy)
NO_X	0	0
CO	0	0
VOC	2.61	-1.98[1]
SO_2	0	0
PM	0	0
PM_{10}	0	0
$PM_{2.5}$	0	0
CO_2/CO_2e	0	0
Toxic Air Pollutants	1.30	-0.99[1]
Hazardous Air Pollutants	0.34	-0.26[1]

[1] Based on the projected percentage of fuel dispensed to ORVR-equipped vehicles, replacement of the Stage II vapor recovery at this facility will result in reduced emissions. The magnitude of the project impact presented here assumes a gasoline throughput of 5,000,000 gallons per year.

7. REGULATIONS AND EMISSION STANDARDS

Regulations have been established for the control of emissions of air pollutants to the ambient air. Regulations applicable to the proposed facility that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the following regulations, codes, or requirements. These items establish maximum emissions limits that could be allowed and are not to be exceeded for new or existing facilities. More stringent limits are established in this ADP consistent with implementation of Best Available Control Technology (BACT):

7.a. Title 40 Code of Federal Regulations (CFR) Part 63.11110 et seq. Subpart CCCCCC "National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline

Dispensing Facilities" establishes emission control, testing, recordkeeping and reporting requirements for new and existing gasoline dispensing facilities. Which requirements apply to a specific facility depend upon when the facility began operation and the monthly throughput. This facility began operation prior to January 10, 2008 and has a potential throughput of 100,000 gallons per month or more. Facilities with a throughput of 100,000 gallons per month or more that began operation prior to January 10, 2008 must be in compliance with a state rule or federally enforceable permit that contains requirements to achieve emission reductions of at least 90% by January 10, 2008 or comply with requirements found in Table 1 of Subpart CCCCCC including:

(1) All vapor connections and lines on the storage tank shall be equipped with closures that seal upon disconnection;
(2) The vapor line from the gasoline storage tank to the gasoline cargo tank shall be vapor tight;
(3) The vapor balance system shall be designed such that the pressure in the tank truck does not exceed 18" w.c. pressure or 5.9" w.c. vacuum during product transfer;
(4) The vapor recovery and product adaptors, and the method of connection with the delivery elbow, shall be designed so as to prevent the over-tightening or loosening of fittings during normal delivery operations;
(5) Liquid fill connections for all systems shall be equipped with vapor-tight caps;
(6) Pressure/vacuum vent valves shall be installed on the storage tank vent pipes. The positive pressure setting shall be 2.5" w.c. to 6" w.c. and the negative pressure setting shall be 6" w.c. to 10" w.c. The total leak rate for all pressure/vacuum valves at an affected facility, including connections, shall not exceed 0.17 cubic foot per hour at a pressure of 2.0" w.c. and 0.63 cubic foot per hour at a vacuum of 4" w.c.;
(7) The vapor balance system shall be capable of meeting the static pressure performance requirement found in Table 1 of Subpart CCCCCC; and
(8) Each new or existing gasoline storage tank shall be equipped with a dual-point vapor balance system.

As of January 10, 2008 this facility was complying with the requirements of SWCAA 491 which required Stage I vapor recovery equipment as approved by CARB or SWCAA. The Stage I vapor recovery equipment provided at least 90% control of gasoline vapors; therefore, this facility is not subject to the requirements of Table 1 or any other requirement of this rule including initial notification. Note that although the rule adds no requirements for this facility, this facility is an affected source for the purposes of this rule.

7.b. Title 40 CFR Part 80 "Regulation of Fuels and Fuel Additives" in section 80.22(j) requires that after January 1, 1998, every retailer and wholesale purchaser-consumer of gasoline and methanol shall limit each nozzle from which gasoline or methanol is introduced into motor vehicles to a maximum fuel flow rate not to exceed 10 gallons per minute.

7.c. Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the

Washington Clean Air Act (RCW 70A.15) and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 Ex. Sess.

7.d. RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an ADP for installation and establishment of an air contaminant source.

7.e. Washington Administrative Code (WAC) 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect August 21, 1998) requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety from new sources not provided an exemption under WAC 173-460-030. WAC 173-460-030(1)(b)(ii) exempts gasoline dispensing facilities from the provisions of WAC 173-460.

7.f. WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, SO_2, NO_X, ozone, and CO in the ambient air, which must not be exceeded.

7.g. SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, SO_2, concealment and masking, and fugitive dust.

7.h. SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere.

7.i. SWCAA 400-040(4) "Odors" requires any source which generates odors that may unreasonably interfere with any other property owner's use and enjoyment of their property to use recognized good practice and procedures to reduce these odors to a reasonable minimum.

7.j. SWCAA 400-109 "Air Discharge Permit Applications" requires that an ADP application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source." Sources wishing to modify existing permit terms may submit an ADP application to request such changes. An ADP must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.k. SWCAA 400-110 "New Source Review" requires that SWCAA issue an ADP in response to an ADP application prior to establishment of the new source, emission unit, or modification.

7.l. SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source will be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) BACT will be employed for all air contaminants to be emitted by the proposed equipment;
(3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

The facility is located in an area that is in attainment for all criteria pollutants; therefore, this regulation applies to the facility.

7.m. SWCAA 491-040(4) "Gasoline Vapor Control Requirements – Gasoline Dispensing Facilities" establishes the following requirements:

(1) All gasoline dispensing facilities with an annual gasoline throughput greater than two hundred thousand (200,000) gallons in Clark County and three hundred sixty thousand (360,000) gallons in Cowlitz, Lewis, Skamania and Wahkiakum Counties shall be subject to gasoline Stage I vapor control requirements;
(2) All gasoline dispensing stations subject to this section shall be equipped with submerged or bottom fill lines and fittings to balance gasoline vapors with the delivery transport tank;
(3) The owner or operator of a gasoline dispensing facility subject to this section shall not permit the loading of gasoline into a storage tank equipped with vapor recovery equipment from a transport tank equipped with vapor recovery fittings unless Stage I vapor recovery equipment is attached to the transport tank and operated satisfactorily;
(4) Every retailer and wholesale purchaser-consumer shall equip each pump from which gasoline is dispensed into motor vehicles with a nozzle that dispense fuel at a flow rate not to exceed 10 gallons per minute;
(5) Stage II vapor recovery equipment compatible with ORVR may be removed from service beginning January 1, 2023 after an Air Discharge Permit has been issued for the modification; and
(6) New gasoline dispensing facilities (built after February 7, 2020), or existing gasoline dispensing facilities without Stage II vapor recovery, are not required to install Stage II vapor recovery equipment.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate BACT for the types and amounts of air contaminants emitted by the processes as described below:

8.a. Retail Gasoline Dispensing Facility. SWCAA has determined that Best Available Control Technology for the control of gasoline vapors emitted from new gasoline dispensing facilities with a throughput of more than 360,000 gallons per year in Cowlitz County consists of EVR Stage I vapor recovery equipment as tested and approved by CARB, enhanced conventional nozzles (where Stage II is not in place), and low permeation hoses if throughput could exceed 1,400,000 gallons per year and liquid gasoline is carried against the outermost hose wall.

This facility is equipped with EVR Stage I vapor recovery equipment. The use of low-permeation hoses does not apply to this facility because balance-style hoses do not carry liquid against the outermost hose wall. The proposed balance-style vapor recovery system is ORVR-compatible and satisfies the requirement to utilize BACT. No additional measures are currently necessary for this facility to meet the requirements of BACT.

8.b. PSD Applicability. Maximum potential emissions from this facility are well below PSD thresholds; therefore, PSD permitting is not required.

8.c. Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this source because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

9.a. The retail gasoline dispensing facility equipped with EVR Stage I and ORVR-compatible Stage II vapor recovery systems will not cause the ambient air quality standards established by Title 40 Code of Federal Regulations Part 50 (40 CFR 50), "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.b. The retail gasoline dispensing facility equipped with EVR Stage I and ORVR-compatible Stage II vapor recovery systems, if properly installed and maintained, can be operated without causing a violation of the applicable emission standards which include the limits established under SWCAA 400-040 "General Standards for Maximum Emissions."

9.c. The retail gasoline dispensing facility equipped with EVR Stage I and ORVR-compatible Stage II vapor recovery systems will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants," (as in effect August 21, 1998) or WAC 173-476 "Ambient Air Quality Standards" to be violated.

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 22-3541 in response to ADP application CO-1056. ADP 22-3541 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards, as discussed below.

10.a. Supersession of Previous Permits. ADP 03-2513 will be superseded in its entirety.

10.b. Emission Limits. An annual VOC emission limit of 2.61 tons per year was established. This limit is based upon the facility utilizing properly operated Stage I enhanced vapor recovery systems, balance-style Stage II vapor recovery systems, dispensing 90% of the fuel to ORVR-equipped vehicles, and a gasoline throughput of 5,000,000 gallons per year.

10.c. Operational Limits and Requirements. Consistent with SWCAA 400-040(4), the permittee is required to use recognized good practice and procedures to minimize odors that impact other property owners.

The gasoline throughput was limited to 5,000,000 gallons per year. At higher throughputs the facility would be required to increase the frequency of vapor recovery system testing.

The remaining requirements are related to proper operation of the Stage I and Stage II vapor recovery systems.

The pressure/vacuum valve leak rate requirements for individual valves were taken from recent CARB Stage I executive orders. The combined leak rate requirements for all pressure/vacuum valves in the system can be found in 40 CFR 63 Subpart CCCCCC.

10.d. Monitoring and Recordkeeping Requirements. The permittee is required to record each occurrence of maintenance and repairs to vapor recovery equipment so that SWCAA and the permittee can assure that maintenance and repairs are consistent with approved vapor recovery requirements.

10.e. Reporting Requirements. Total gasoline throughput and the annual emissions inventory are required to be submitted to SWCAA by January 31st of each year (unless otherwise directed by SWCAA) to demonstrate compliance with the throughput limitation in the permit and allow for the development of a comprehensive emissions inventory. Test results must be reported to SWCAA within 14 days of test completion consistent with CARB and SWCAA reporting requirements.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a. Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown," technology-based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

This source is capable of achieving continuous compliance with all applicable requirements; therefore, no start-up or shutdown provisions were included in the ADP.

11.b. Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were accommodated by the approval conditions.

11.c. Pollution Prevention Measures. SWCAA conducted a review for possible pollution prevention measures outside of the use of Stage I and Stage II vapor recovery equipment. No other pollution prevention measures were identified by either the permittee or SWCAA. Therefore, none were accommodated in the approval conditions.

12. EMISSION MONITORING AND TESTING

In accordance with the requirements of SWCAA 491-040(4)(n) that became effective February 7, 2020, testing of each pressure-vacuum vent valve is required every 36 months. This testing frequency is consistent with the testing required by 40 CFR 63 Subpart CCCCCC. New pressure/vacuum vent valves are typically tested at the factory, therefore initial testing does not apply to new valves with a factory test.

In accordance with SWCAA 491, initial testing static pressure decay and backpressure blockage testing is required prior to returning the equipment to service rather than within 60 days after startup as specified in the applicable CARB Executive Order.

Air Discharge Permit 02-2408 required Stage I vapor recovery system testing once every three years. SWCAA 491 requires that such testing be conducted annually beginning in 2023, so the Stage I testing frequency was changed to match.

13. FACILITY HISTORY

13.a. Previous Permitting Actions. The following approvals, Permits, and Orders have been issued for this facility:

Permit / Order #	Application #	Date Issued	Description
03-2513	CO-763	12/11/2003	Installation of new gas station with two gasoline storage tanks, EVR Stage I vapor recovery equipment, and vacuum-assist style Stage II vapor recovery equipment

Bold font indicates that the Air Discharge Permit was superseded or no longer in effect upon issuance of Air Discharge Permit 22-3541.

13.b. Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a. Public Notice for ADP Application CO-1056. Public notice for ADP application CO-1056 was published on the SWCAA website for a minimum of 15 days, beginning on July 22, 2022.

14.b. Public/Applicant Comment for ADP Application CO-1056. SWCAA did not receive specific comments, a comment period request, or any other inquiry from the public or the applicant regarding ADP application CO-1056. Therefore, no public comment period was provided for this permitting action.

14.c. State Environmental Policy Act. This project is exempt from SEPA requirements pursuant to WAC 197-11-800(3) since it only involves repair, remodeling, maintenance, or minor alteration of existing structures, equipment or facilities, and does not involve material expansions or changes in use. SWCAA issued a determination that the project is exempt from SEPA review on September 15, 2022 (Determination of SEPA Exempt - SWCAA 22-028).

Appendix A

CARB Executive Order VR-101-C

Phil-Tite Phase I Vapor Recovery System

State of California
AIR RESOURCES BOARD

Executive Order VR-101-C
Phil-Tite Phase I Vapor Recovery System

WHEREAS, the California Air Resources Board (CARB) has established, pursuant to California Health and Safety Code sections 39600, 39601 and 41954, certification procedures for systems designed for the control of gasoline vapor emissions during the filling of underground gasoline storage tanks, in its **CP-201, *Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities*** (Certification Procedure) as last amended July 1, 2003 incorporated by reference in title 17, California Code of Regulations, Section 94011;

WHEREAS, CARB has established, pursuant to California Health and Safety Code sections 39600, 39601 and 41954, test procedures for determining the compliance of Phase I vapor recovery systems with emission standards;

WHEREAS, Phil-Tite Enterprises (Phil-Tite) requested and was granted certification of the Phil-Tite Phase I Vapor Recovery System (Phil-Tite system) pursuant to the Certification Procedure on June 19, 2001 by Executive Order VR-101-A, as modified July 12, 2002 by Executive Order VR-101-B;

WHEREAS, Phil-Tite requested a further modification to the certification to include additional components of the Phil-Tite system;

WHEREAS, the requested modifications to the certification of the Phil-Tite system have been tested and evaluated pursuant to the Certification Procedure;

WHEREAS, the Certification Procedure provides that the CARB Executive Officer shall issue an Executive Order if he or she determines that the vapor recovery system, including modifications, conforms to all of the applicable requirements set forth in the Certification Procedure;

WHEREAS, G-01-032 delegates to the Chief of the Monitoring and Laboratory Division the authority to certify or approve modifications to certified Phase I and Phase II vapor recovery systems for gasoline dispensing facilities (GDF); and

WHEREAS, I, William V. Loscutoff, Chief of the Monitoring and Laboratory Division, find that the Phil-Tite Phase I Vapor Recovery System, including modifications, conforms with all of the requirements set forth in the Certification Procedure, and results in a vapor recovery system which is at least 98.0 percent efficient as tested in accordance with test procedure **TP-201.1**, ***Volumetric Efficiency for Phase I Systems***;

NOW THEREFORE, IT IS HEREBY ORDERED that the Phil-Tite System is certified to be at least 98.0 percent efficient when installed and maintained as specified herein and in the following Exhibits. Exhibit 1 contains a list of the certified components. Exhibit 2 contains the performance standards and specifications, typical installation drawings and maintenance intervals for the Phil-Tite System as installed in a gasoline dispensing facility (GDF). Exhibit 3

contains the manufacturing specifications. Exhibit 4 is test procedure ***Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves***

IT IS FURTHER ORDERED that compliance with the applicable certification requirements, rules and regulations of the Division of Measurement Standards of the Department of Food and Agriculture, the Office of the State Fire Marshal of the Department of Forestry and Fire Protection, and the Division of Occupational Safety and Health of the Department of Industrial Relations are made conditions of this certification.

IT IS FURTHER ORDERED that Phil-Tite shall provide a warranty for the vapor recovery system and components to the initial purchaser and each subsequent purchaser within the warranty period. The manufacturer of components not manufactured by Phil-Tite, shall provide a warranty for each of their components certified herein. This warranty shall include the ongoing compliance with all applicable performance standards and specifications, and shall comply with all warranty requirements in Section 9.2 of the Certification Procedure. Phil-Tite may specify that the warranty is contingent upon the use of trained installers. Copies of the warranty for the system and components shall be made available to the gasoline dispensing facility owner/operator.

IT IS FURTHER ORDERED that the certified Phil-Tite system shall be installed and maintained in accordance with the ***ARB-Approved Installation and Maintenance Manual*** **for the Phil-Tite Phase I Vapor Recovery System.** A copy of this Executive Order and manual shall be maintained at each GDF where a certified Phil-Tite system is installed.

IT IS FURTHER ORDERED that equipment listed in Exhibit 1, unless exempted, shall be clearly identified by a permanent identification showing the manufacture's name and model number.

IT IS FURTHER ORDERED that any alteration in the equipment, parts, design, installation or operation of the system certified hereby is prohibited and deemed inconsistent with this certification unless the alteration has been submitted in writing and approved in writing by the Executive Officer or Executive Officer's delegate.

IT IS FURTHER ORDERED that the following requirements are made a condition of certification. The owner or operator of the Phil-Tite System shall conduct, and pass, the following tests no later than 60 days after startup and at least once every 3 years after startup testing, using the latest adopted version of the following test procedures. TP-201.3, ***Determination of 2 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities***, TP-201.1B, ***Static Torque of Rotatable Phase I Adaptors*** and depending on the system configuration, either TP-201-1D, ***Leak Rate of Drop Tube Overfill Prevention Device and Spill Container Drain Valve***; or TP-201.1C, ***Leak Rate of Drop Tube/Drain Valve Assembly.*** Shorter time periods may be specified in accordance with local district requirements. Notification of testing, and submittal of test results, shall be done in accordance with local district requirements and pursuant to the policies established by that district. Alternative test procedures may be used if determined by the Executive Officer, in writing, to yield comparable results. Testing the P/V valve will be at the option of the local districts. If P/V valve testing is required by the district, the test shall be conducted in accordance with Exhibit 4.

IT IS FURTHER ORDERED that the Phil-Tite System shall be compatible with fuels in common use in California at the time of certification and any modifications to comply with future California fuel requirements shall be approved in writing by the Executive Officer or Executive Officer delegate.

IT IS FURTHER ORDERED that the certification of the Phil-Tite Phase I vapor recovery system is valid through June 30, 2005.

IT IS FURTHER ORDERED that Executive Order VR-101-B issued on July 12, 2002 is hereby superceded by this Executive Order.

Executed at Sacramento, California, this 16th day of September 2003.

William V. Loscutoff, Chief
Monitoring and Laboratory Division

Attachments:

Exhibit 1 Phil-Tite Phase I Vapor Recovery System Equipment List
Exhibit 2 Installation, Maintenance and Compliance Specifications
Exhibit 3 Manufacturing Performance Standards and Specifications
Exhibit 4 Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valve

Executive Order VR-101-C Phil-Tite Phase I Vapor Recovery System

Exhibit 1

Phil-Tite Phase I Vapor Recovery System Equipment List

Equipment	Manufacturer/Model Number
Spill Container	Phil-Tite 85100-F = Product (replacement spill container) 85000-S = Product with Stainless Steel (SS) Sleeve 85000-GS = Product with SS Sleeve and Gravel Shield 85000-EXT = Product, external for sump configuration 85100-15 = Product, 15-gallon capacity 85101-NV = Vapor (replacement spill container) 85001-NV-S = Vapor with Stainless Steel (SS) Sleeve 85001-NV-GS = Vapor with SS Sleeve and Gravel Shield 85001-NV-EXT= Vapor, external for sump configuration
Spill Container Lid **Sump Configuration Lid[1]**	Phil-Tite 85011 (not required with sump configuration lid) Fibre-Lite FL-36 inch
Debris Bucket	Phil-Tite PP-1005 TB (product) (required) Phil-Tite PP-1005 TBP (vapor) (not required)
Product Adaptor	Phil-Tite SWF-100-B
Vapor Adaptor	Phil-Tite SWV-101-B
Riser Adaptor	Phil-Tite M/F4X4
Dust Cap	Morrison Brothers 323C-0100ACEVR (vapor) Morrison Brothers 305C-0100ACEVR(product) OPW 1711T-EVR (vapor) OPW 634TT-EVR (product)
Pressure/Vacuum Vent Valve	Husky 4885
Tank Gauge Port Components	Ever-Tite 4097AGBR (adaptor) Ever-Tite 4097AGMBRNL (adaptor) Ever-Tite 4097MBR (cap) Veeder-Root 312020-952 (cap & adaptor)
Extractor[1]	Universal V421 OPW 233
Ball Float Vent Valve[1]	Universal 37

[1] Component optional for vapor recovery system configuration; other requirements may apply.

	OPW	53VML
	OPW	30MV
Drop Tube Overfill Prevention Device[1]		
	Phil-Tite	61SO-PT
Drop Tube[1]	OPW	61-T (various lengths)
Riser Offset[1]	Phil-Tite	M-6050
Double Fill[1]	Phil-Tite	(configuration only)
Sump Configuration[1]	Phil-Tite	85000-EXT-CA2
Tank Bottom Protector[1]	Phil-Tite	TBP-3516

The following components may not be installed as new or replacement parts on or after September 1, 2002. These components, if installed prior to September 1, 2002, may be used for the remainder of their useful life.

Component Name	Manufacturer	Model Number
Drop Tube	EBW	782-204 (various lengths)
	Emco Wheaton	A0020 (various lengths)
Extractor Fitting	EBW	3XX Series
	Emco Wheaton	A0079 Series

Table 1
Components Exempt from Identification Requirements

Component Name	Manufacturer	Model Number
Drop Tube	OPW	61-T Straight Drop Tube
Ball Float	Universal	Model 37
Tank Gauge Components	Ever-Tite	4097 AGBR, AGMBRNL, MBR
Riser Adaptor	Phil-Tite	M/F4X4
Riser Offset	Phil-Tite	M-6050

[1] Component optional for vapor recovery system configuration; other requirements may apply.

Executive Order VR-101-C Phil-Tite Phase I Vapor Recovery System

Exhibit 2

Installation, Maintenance and Compliance Specifications

This exhibit contains the installation, maintenance and compliance standards and specifications applicable to a Phil-Tite system installed in a gasoline dispensing facility (GDF).

General Specifications

1. Typical installations of the Phil-Tite System are shown in Figures 2A and 2B.

2. The Phil-Tite System shall be installed and maintained in accordance with the ***ARB-Approved Installation and Maintenance Manual for the Phil-Tite Phase I Vapor Recovery System.***

3. Any repair or replacement of system components shall be done in accordance with the ***ARB-Approved Installation and Maintenance Manual for the Phil-Tite Phase I Vapor Recovery System***.

4. The Phil-Tite System shall comply with the applicable performance standards and performance specifications in CP-201. Compliance of the system and all components shall be demonstrated in accordance with the latest adopted version of **TP-201.3, *Determination of 2 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities***.

5. There shall be at least one vapor recovery connection, throughout all Phase I deliveries, between the cargo tank and the GDF storage tank into which fuel is being delivered to ensure that vapor is returned to the cargo tank from the underground storage tank system.

Pressure/Vacuum Vent Valves For Storage Tank Vent Pipes

1. No more than three certified pressure/vacuum vent valves (P/V valves) listed in Exhibit 1 shall be installed on any GDF underground storage tank system.

2. Compliance detemination of the following P/V valve performance specifications shall be at the option of the districts:

    1. The leak rate of each P/V valve shall not exceed 0.05 cubic feet per hour (CFH) at 2.00 inches of H_2O positive pressure and 0.21 CFH at -4.00 inches negative pressure as determined by Exhibit 4, ***Leak Rate and Cracking Pressure of Pressure/Vacuum Valves***.
    2. The positive pressure setting is 3.0 ± 0.5 inches of H_2O and the negative pressure setting is -8.0 ± 2.0 inches of H_2O as determined by Exhibit 4, ***Leak Rate and Cracking Pressure of Pressure/Vacuum Valves***.

3. A manifold may be installed on the vent pipes to reduce the number of potential leak sources and P/V valves installed. Vent pipe manifolds shall be constructed of steel pipe or an equivalent material that has been listed for use with gasoline. If a material other

than steel is used, the GDF operator shall make available information demonstrating that the material is compatible for use with gasoline. One example of a typical vent pipe manifold is shown in Figure 2F. This shows only one typical configuration; other manifold configurations may be used. For example, a tee may be located in a different position, or fewer pipes may be connected, or more than one P/V valve may be installed on the manifold.

4. The vent pipe manifold shall be installed at a height not less than 12 feet above the grade used for gasoline cargo tank delivery operations and shall conform to all applicable regulations.

5. Each P/V valve shall have permanently affixed to it a yellow or gold-colored label with black lettering stating the following specifications:

Positive pressure setting: 3.0 ± 0.5 inches H_2O
Negative pressure setting: -8.0 ± 2.0 inches H_2O
Positive Leakrate: 0.05 CFH at 2.0 inches H_2O
Negative Leakrate: 0.21 CFH at -4.0 inches H_2O

Rotatable Product and Vapor Recovery Adaptors

1. Rotatable product and vapor recovery adaptors shall be capable of at least 360-degree rotation and have an average static torque not to exceed 108 pound-inch (9 pound-foot). Compliance with this requirement shall be demonstrated in accordance with the latest adopted version of TP-201.1B, ***Static Torque of Rotatable Phase I Adaptors***.

2. The vapor adaptor poppet shall not leak when closed. Compliance with this requirement may be verified by the use of commercial liquid leak detection solution, or by bagging, when the vapor containment space of the underground storage tank is subjected to a non-zero gauge pressure. (Note: leak detection solution will detect leaks only when positive gauge pressure exists.)

Vapor Recovery and Product Adaptor Dust Caps

1. Dust caps with intact gaskets shall be installed on all Phase I tank adaptors.

Spill Container Drain Valve

1. The spill container drain valve is configured to drain liquid directly into the drop tube and is isolated from the underground storage tank ullage space. The leak rate of the drain valve shall not exceed 0.17 CFH at 2.00 inches H_2O. Depending on the presence of the drop tube overfill prevention device, compliance with this requirement shall be demonstrated in accordance with the latest adopted version of either TP-201.1C, ***Leak Rate of Drop Tube Overfill Prevention Device and Spill Container Drain Valve***; or TP-201.1D, ***Leak Rate of Drop Tube/Drain Valve Assembly.***

Drop Tube Overfill Prevention Device

1. The Drop Tube Overfill Prevention Device (overfill device) is designed to restrict the flow of gasoline delivered to the underground storage when liquid levels exceed a specified

capacity. The drop tube overfill device is not a required component of the vapor recovery system, but may be installed as an optional component of the system. Other requirements may apply.

2. The leak rate of the overfill device shall not exceed 0.17 CFH at 2.00 inches H_2O when tested as in accordance with the latest adopted version of TP-201.1D, ***Leak Rate of Drop Tube Overfill Prevention Device and Spill Container Drain Valves***.

Threaded Riser Adaptor

1. The Threaded Riser Adaptor shall provide a machined surface on which a gasket can seal and ensures that the seal is not compromised by an improperly cut or improperly finished riser. A Threaded Riser adaptor shall be installed on the following required connections. As an option, the adaptor may be installed on other connections.

    a. Product Spill Container (required)
    b. Vapor Recovery Spill Container (required)
    c. Tank Gauging Components (required)

Ball Float Vent Valve

1. A ball float vent valve (ball float) is designed to restrict the flow of a gasoline delivery by using back pressure when the storage tank levels exceed a specified level. If installed, a ball float must be installed at each vapor and vent connection to the tank. Ball floats are not required components of the vapor recovery system, but may be installed as optional components for vapor recovery; other requirements may apply.

Vapor Recovery Riser Offset

1. The vapor recovery tank riser may be offset from the tank connection to the vapor recovery Spill Container provided that the maximum horizontal distance (offset distance) does not exceed twenty (20) inches. One example of an offset is shown in Figure 2E.

2. A vapor recovery riser shall be offset up to 20 inches horizontal distance with use of commercially available, four (4) inch steel pipe fittings, a Phil-Tite Model M-6050 Vapor Riser Offset, or a combination of the two products. An example of a Phil-Tite Model M-6050 configuration is shown in Figure 2E.

Tank Gauge Port Components

1. The tank gauge adaptor and cap are paired. Therefore, an adaptor manufactured by one company shall be used only with a cap manufactured by the same company.

Connections and Fittings

1. All connections and fittings not specifically certified with an allowable leak rate shall not leak. The absence of vapor leaks may be verified with the use of commercial liquid leak detection solution (LDS), or by bagging, when the vapor containment space of the underground storage tank is subjected to a non-zero gauge pressure. (Note: leak detection solution will detect leaks only when positive gauge pressure exists).

Double Fill Configuration

1. A Phil-Tite Double Fill Configuration shall be allowed for installation provided that no more than two fill points are installed on any single underground storage tank and that no offset of the vapor recovery riser pipe is installed. An example of a Phil-Tite Double Fill configuration is shown in Figure 2C.

2. Two vapor return hoses shall be connected to the double fill configuration with at least one connection to each cargo tank(s) used to simultaneously deliver gasoline through two product hoses into a single tank.

Sump Configuration

1. The Phil-Tite Sump Configuration is designed to place the spill containers inside of an underground sump with a single exterior lid. Phil-Tite sump configuration that uses the thirty-six inch Fibre Lite F-36 lid do not require the Phil-Tite 85011 Cast Lids. The Phil-Tite "-EXT" Spill Container uses a permanently installed composite ring in place of the separate stainless steel ring. An example of a Phil-Tite Sump Configuration is shown in Figure 2D.

Maintenance Records

1. Each GDF operator/owner shall keep records of maintenance performed at the facility. Such record shall be maintained on site or in accordance with district requirements or policies. The records shall include the test or maintenance date, repair date to correct test failure, maintenance or test performed, and, if applicable, affiliation, telephone number and name of individual conducting maintenance or test. An example of a Phase I Maintenance Record is shown in Figure 2G.

Table 2-1
Gasoline Dispensing Facility Compliance Standards and Specifications

Component	Test Method	Standard or Specification
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 pound-inch average static torque
Overfill Prevention Device	TP-201.1D	≤0.17 CFH at 2.00 inches H_2O
Spill Container Drain Valve	TP-201.1C or TP-201.1D	≤0.17 CFH at 2.00 inches H_2O
P/V Valve[1]	Exhibit 4	Positive pressure setting: 3.0 ± 0.5 inches H_2O Negative pressure setting: -8.0 ± 2.0 inches H_2O Positive Leakrate: 0.05 CFH at 2.0 inches H_2O Negative Leakrate: 0.21 CFH at -4.0 inches H_2O
Gasoline Dispensing Facility	TP-201.3	As specified in TP-201.3 and/or CP-201
Connections and fittings certified without an allowable leak rate	Leak Detection Solution or bagging	No leaks

Table 2-2
Maintenance Intervals for Phil-Tite System Components

Manufacturer	Component	Maintenance Interval
Husky	Pressure/Vacuum Vent Valve	Annual
OPW	Dust Cap	Annual
OPW	61-T Straight Drop Tube	Annual
OPW	Ball Float (all models)	Every 3 years
Phil-Tite	Spill Container (all models)	Every 3 years
Phil-Tite	Drop Tube Overfill Prevention Device	Annual
Phil-Tite	SWV-101-B Vapor Recovery Adaptor	Annual
Universal	Ball Float	Every 3 years

[1] Compliance determination is at the option of the district.

Figure 2A

Typical Product Side Installation Using Phil-Tite System

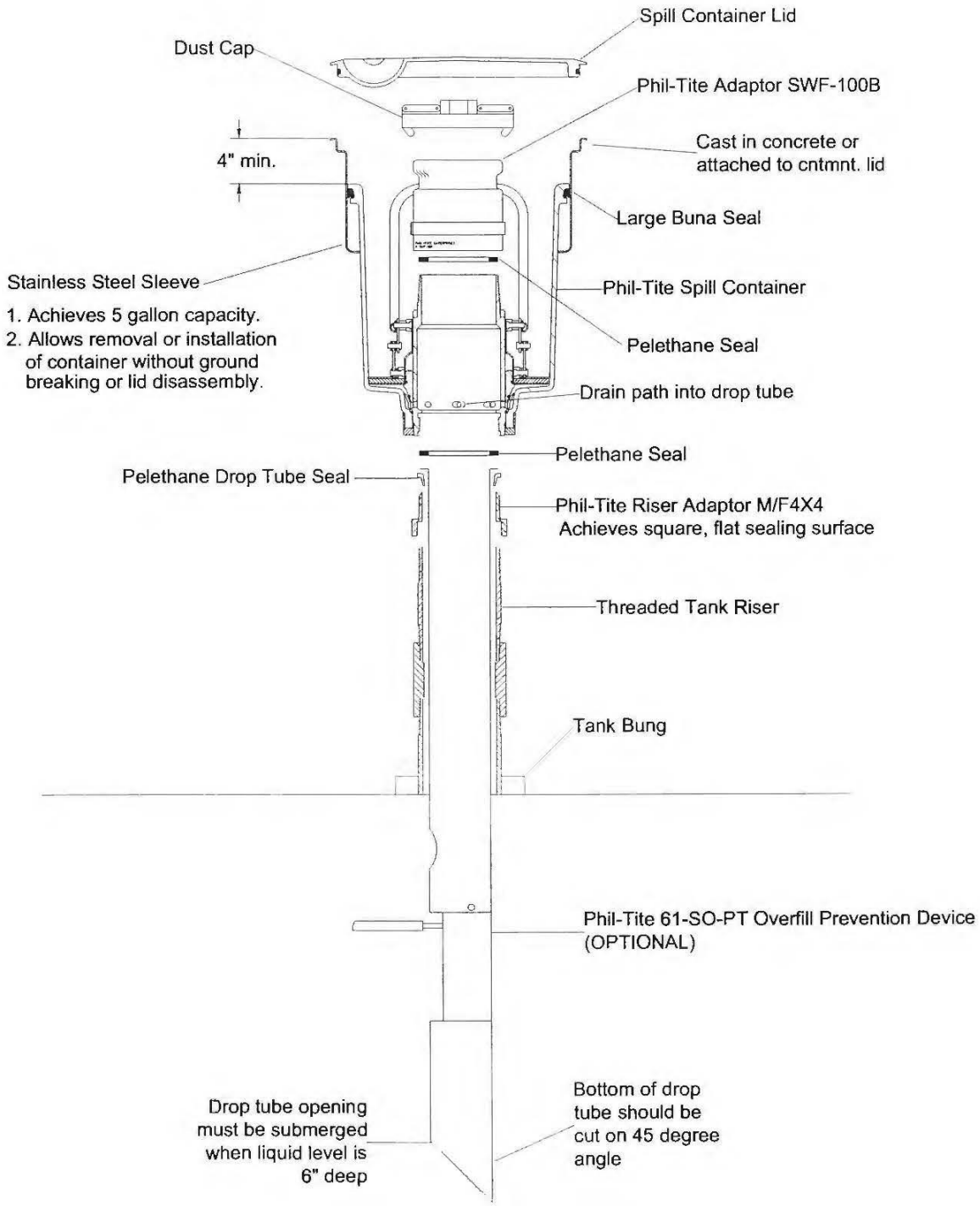


Figure 2B

Typical Vapor Recovery Installation Using Phil-Tite System

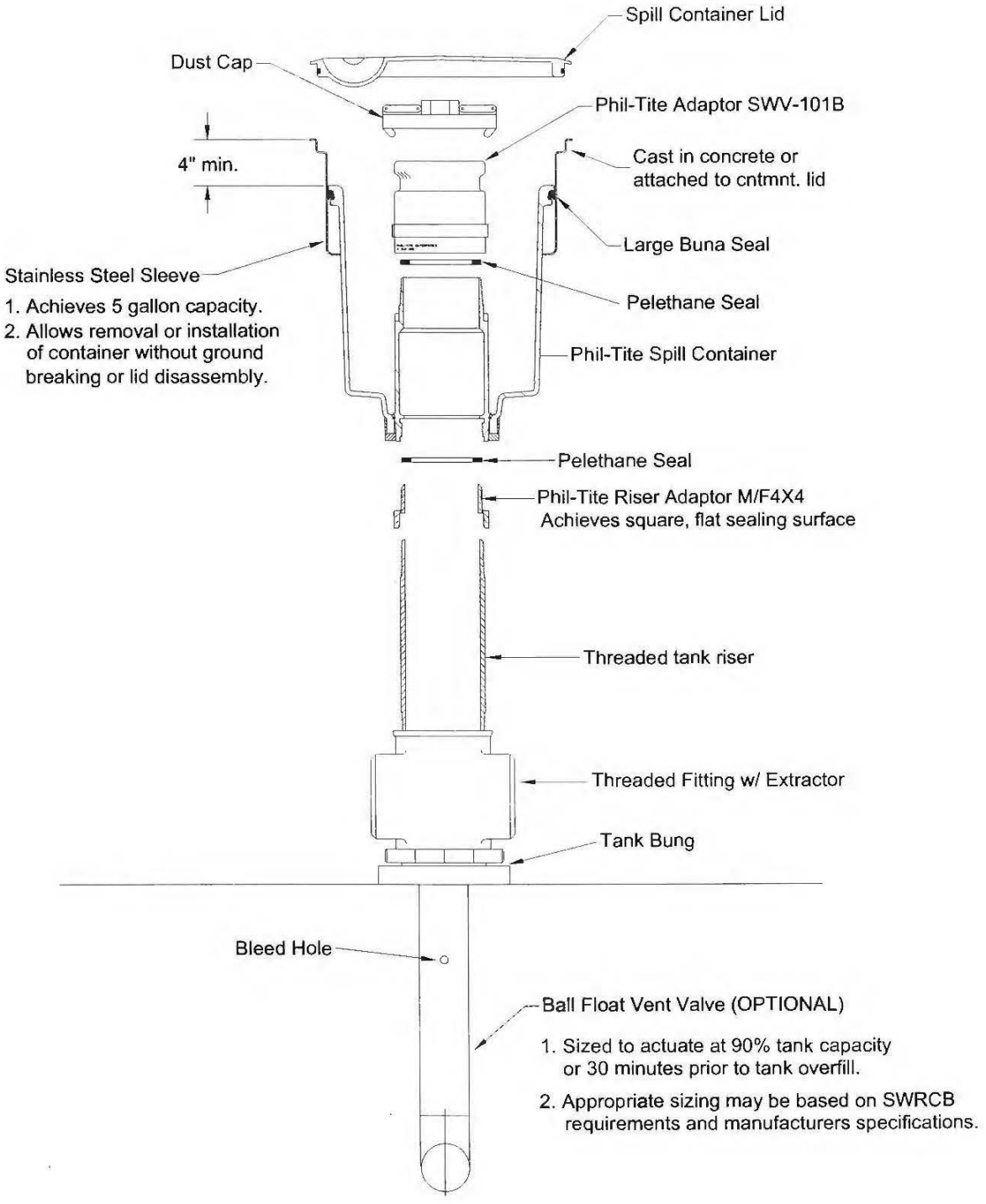


Figure 2C

Typical Phil-Tite Double Fill Configuration

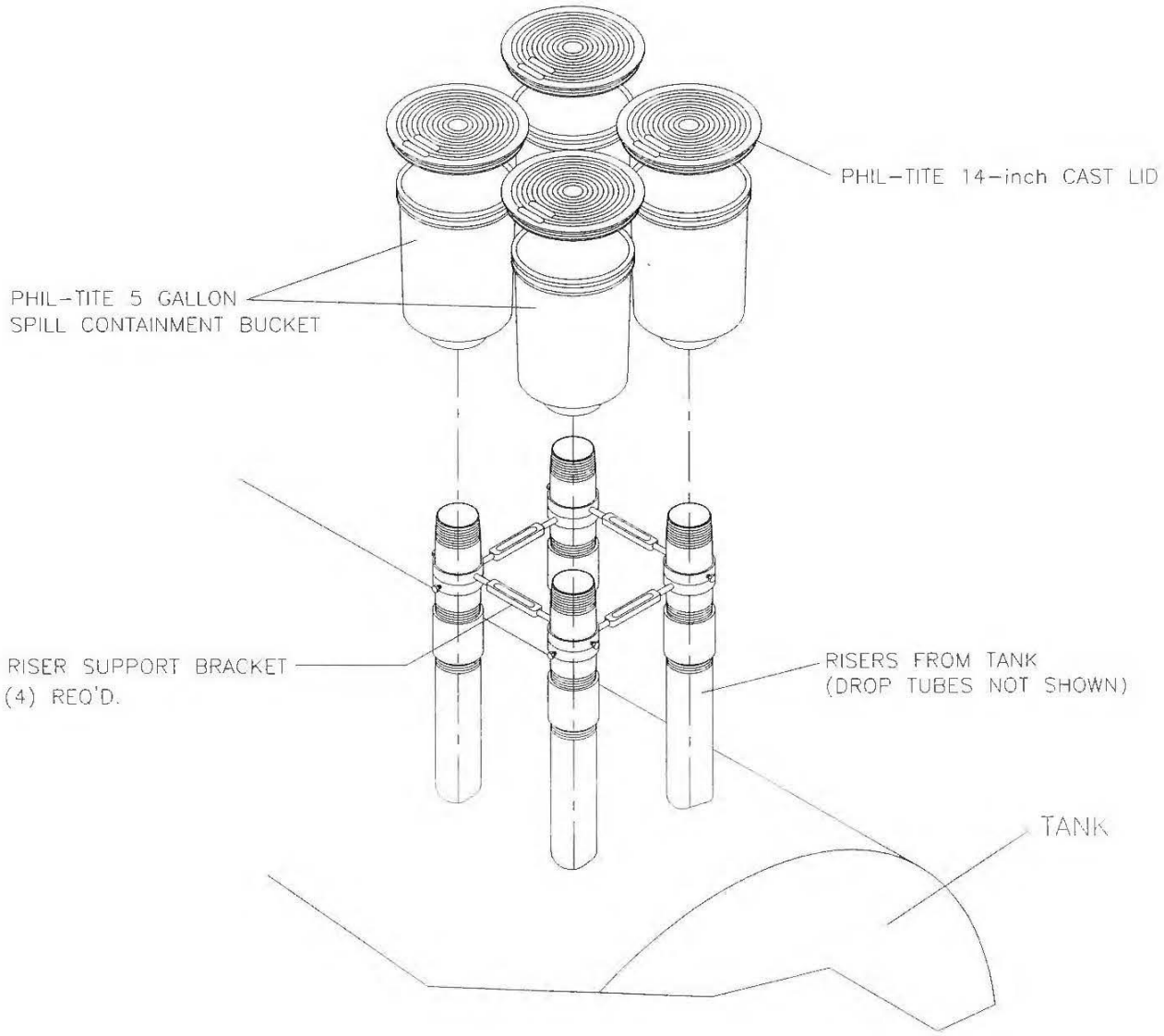


Figure 2D

Typical Phil-Tite Sump Configuration

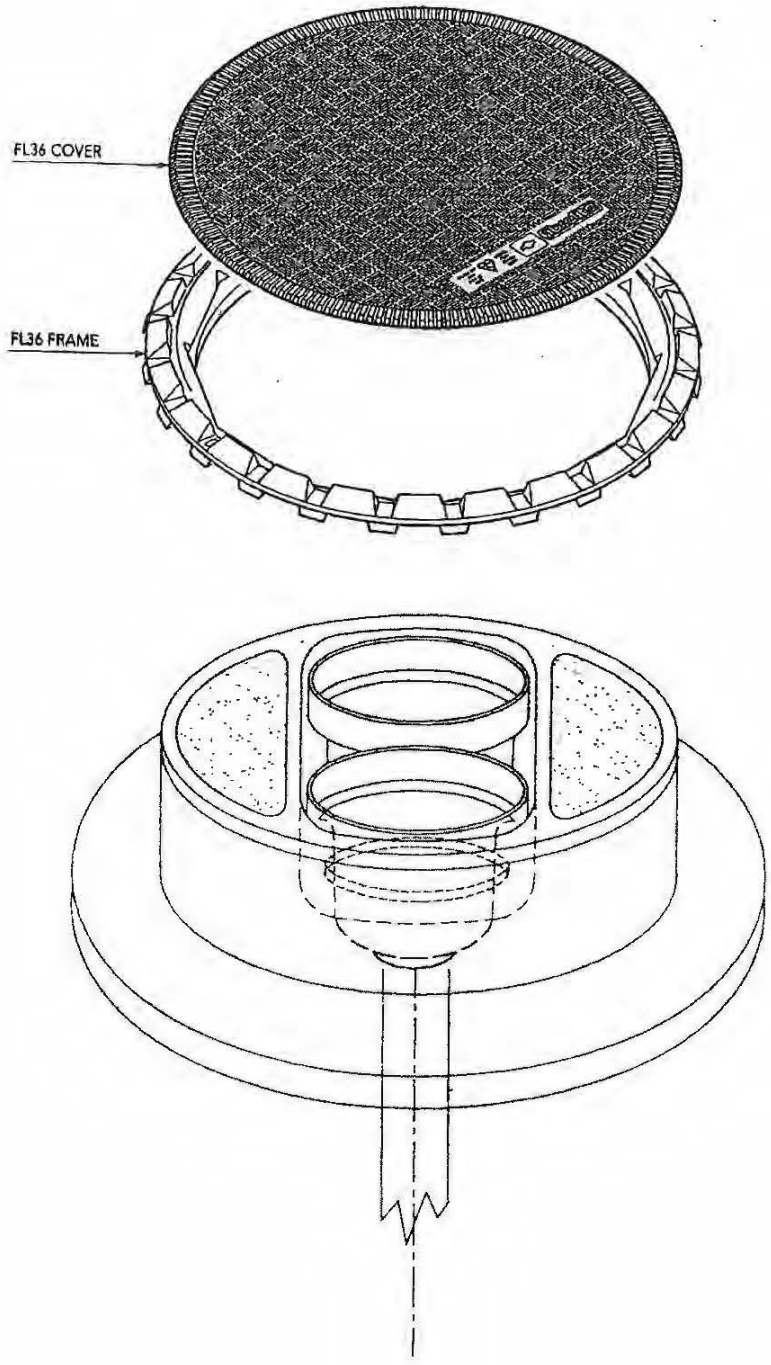
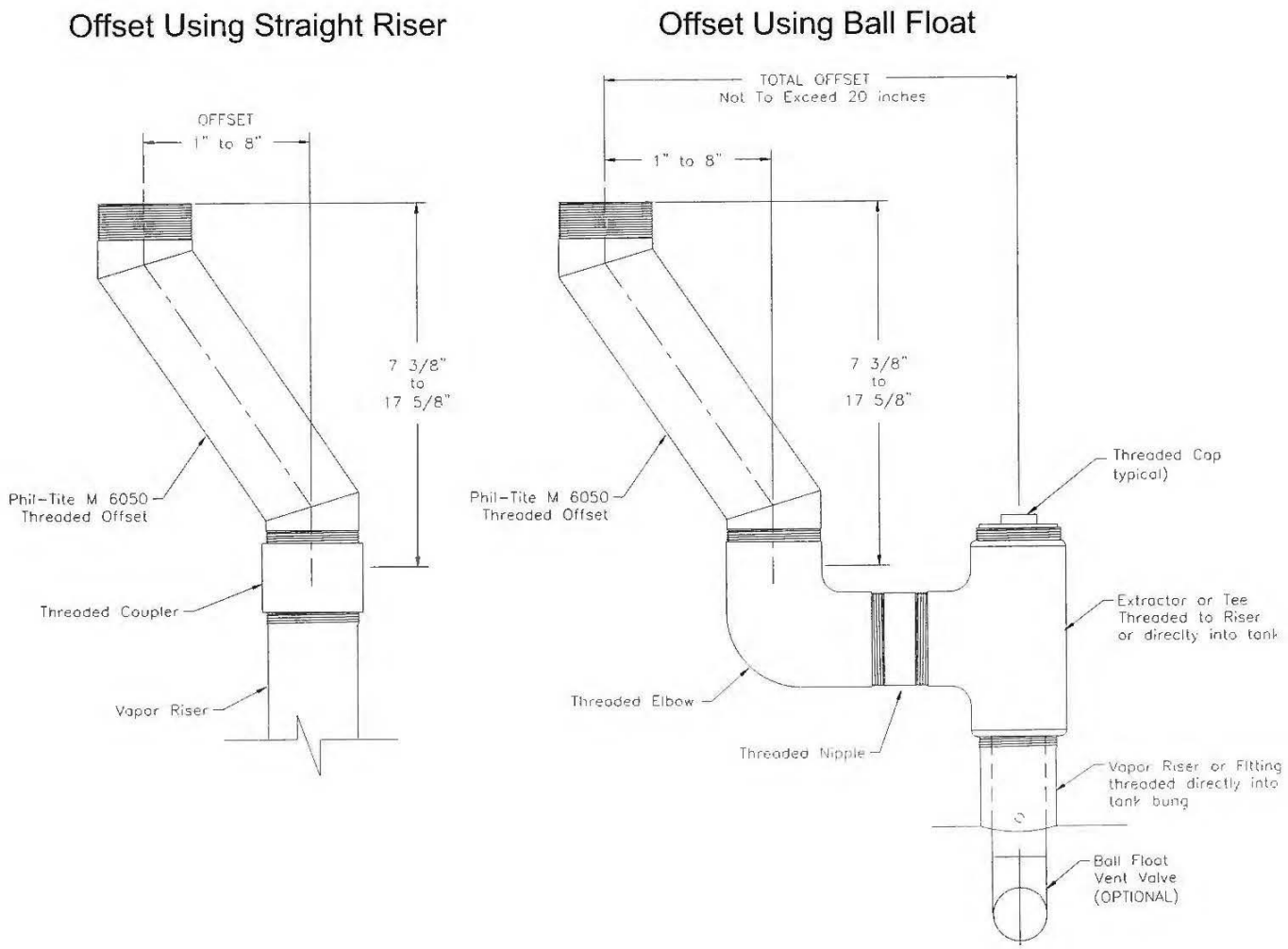


Figure 2E

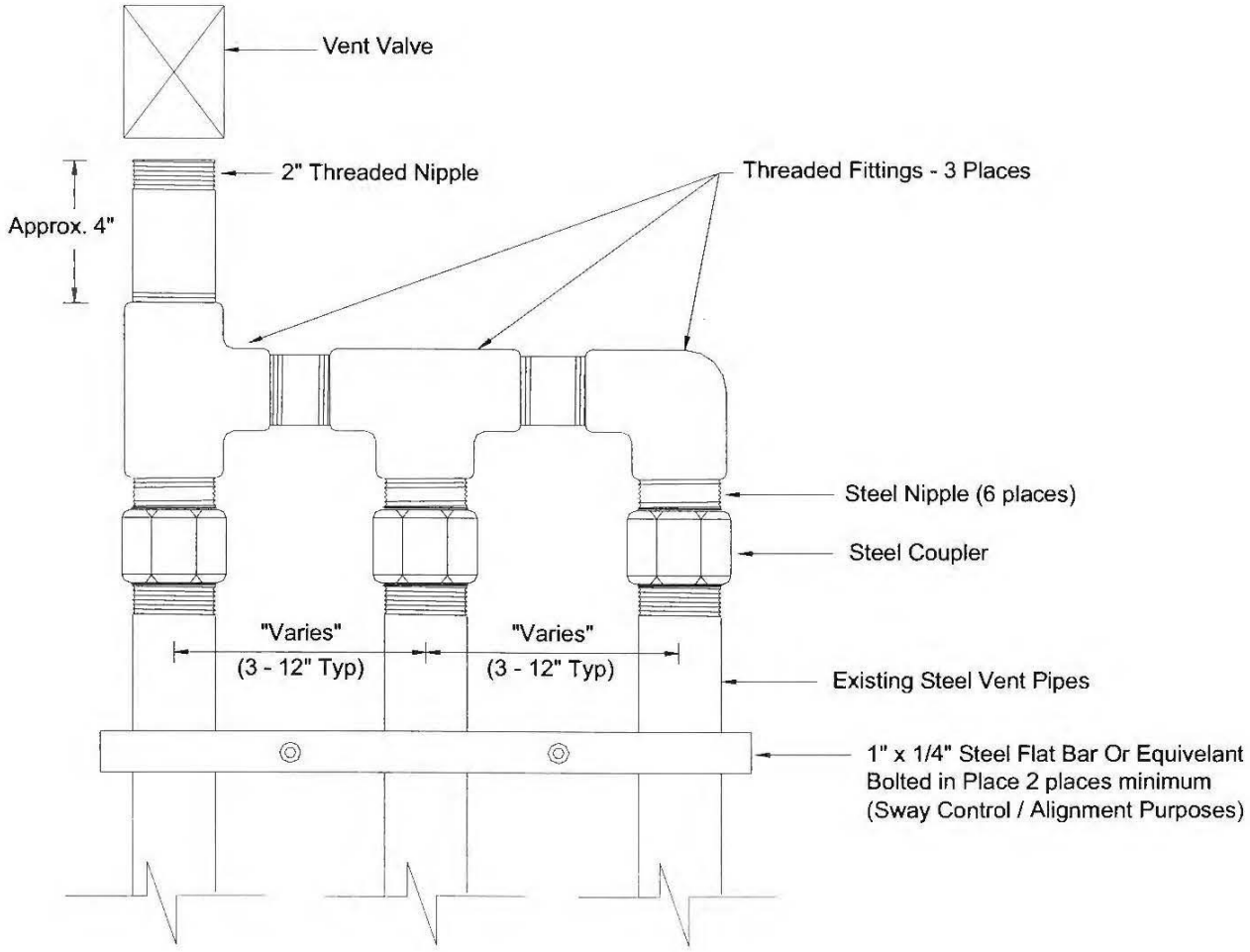
Typical Phil-Tite Model M-6050 Vapor Recovery Riser Offset



Note: This figure represents one instance where a vapor recovery riser has been offset in order to construct a two-point Phase I vapor recovery system. The above figure illustrates an offset using a 90-degree elbow. However, in some instances, elbows less than 90 degrees may be used. All fittings and pipe nipples shall be 4-inch diameter similar to those of the spill container and rotatable Phase I adaptors in order to reduce back pressure during a gasoline delivery.

Figure 2F

Typical Vent Pipe Manifold



Note: This shows one typical configuration; other manifold configurations may be used. For example, a tee may be located in a different position, or fewer pipes may be connected, or more than one P/V valve may be installed on the manifold.

Figure 2G

Example of a GDF Phase I Maintenance Record

Date of Maintenance/ Test/Inspection/ Failure	Repair Date to Correct Test Failure	Maintenance/Test/Inspection Performed and Outcome	Affiliation	Name of Individual Conducting Maintenance or Test(s)	Telephone Number

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Exhibit 3

Manufacturing Performance Standards and Specifications

The Phil-Tite system and all components shall be manufactured in compliance with the performance standards and specifications in CP-201, as well as the requirements specified in this Executive Order. All components shall be manufactured as certified; no change to the equipment, parts, design, materials or manufacturing process shall be made unless approved in writing by the Executive Officer. Unless specified in Exhibit 2 or in the ARB approved Installation, Operation and Maintenance Manual for the Phil-Tite Phase I Vapor Recovery System, the requirements of this section apply to the manufacturing process and are not appropriate for determining the compliance status of a GDF.

Pressure/Vacuum Vent Valves for Storage Tank Vent Pipes

1. Each Pressure/Vacuum Vent Valve (P/V valve) shall be 100 percent performance tested at the factory for cracking pressure and leak rate at each specified pressure setting and shall be done in accordance to Exhibit 4. Each P/V valve shall be shipped with an card or label stating the performance specifications listed below, and a statement that the valve was tested to, and met, these specifications.

    a. The pressure settings for the P/V valve
        Positive pressure setting of 3.0 ± 0.5 inches H_2O.
        Negative pressure setting of -8.0 ± 2.0 inches H_2O.

    b. The leak rate for each P/V valve, including connections, shall not exceed:
        0.05 CFH at 2.0 inches H_2O.
        0.21 CFH at -4.0 inches H_2O.

2. Each P/V valve shall have permanently affixed to it a yellow or gold label with black lettering listing the positive and negative pressure settings specified above. The lettering of the label shall have a minimum font size of 20.

Rotatable Product and Vapor Recovery Adaptors

1. The rotatable product and vapor recovery adaptors shall not leak.

2. The product adaptor cam and groove shall be manufactured in accordance with the cam and groove specifications shown in Figure 3A of CP-201.

3. The vapor recovery adaptor cam and groove shall be manufactured in accordance with the cam and groove specifications shown in Figure 3B of CP-201.

4. Each product and vapor recovery adaptor shall be 100 percent performance tested at the factory for static torque, rotatability, and the absence of liquid or vapor leaks. Each adaptor shall have affixed to it a card or label stating the performance specification listed below, and a statement that the adaptor was factory tested to, and met, the following specifications:

a. The average static torque for the rotatable adaptor shall not exceed 108 pound-inch average static torque when tested in accordance with the latest adopted version of TP-201.1B, ***Static Torque of Rotatable Phase I Adaptors.***

b. The rotatable adaptor shall be capable of rotating at least 360 degrees when tested in accordance with the latest adopted version of TP-201.1B, ***Static Torque of Rotatable Phase I Adaptors***.

Spill Container and Drain Valves

1. Each Spill Container Drain Valve shall be 100 percent performance tested at the factory. Each Spill Container Drain Valve shall have affixed to it a card or label stating the performance specifications listed below, and a statement that the valve was tested to, and met, the following performance specification;

   a. The maximum leak rate shall not exceed 0.17 CFH at 2.00 inches H_2O when tested in accordance with the latest adopted version of either TP-201.1C, ***Leak Rate of Drop Tube/Drain Valve*** or TP-201.1D, ***Leak Rate of Drop Tube Overfill Prevention Device.***

Drop Tube Overfill Prevention Device

1. Each Drop Tube Overfill Prevention Device shall be 100 percent performance tested at the factory to verify that it does not exceed the maximum allowable leak rate. Each Drop Tube Overfill Prevention Device shall have affixed to it a card or label stating the performance specifications listed below, and a statement that the device was tested to, and met, the following performance specification;

   a. The maximum leak rate shall not exceed 0.17 CFH at 2.00 inches H_2O when tested in accordance with the latest adopted version of TP-201.1D, ***Leak Rate of Drop Tube Overfill Prevention Device.***

Table 3-1
Manufacturing Component Standards and Specifications

Component	Test Method	Standard or Specification
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 pound-inch average static torque
Rotatable Phase I Adaptors	Micrometer	Cam and Groove Specifications (CP-201)
Overfill Prevention Device	TP-201.1D	≤0.17 CFH at 2.00 inches H_2O
Spill Container Drain Valve	TP-201.1C or TP-201.1D	≤0.17 CFH at 2.00 inches H_2O
Pressure/Vacuum Vent Valve	Exhibit 4	Positive Pressure: 3.0 ±0.5 inches H_2O Negative Pressure: -8.0 ±2.0 inches H_2O Leak rate: ≤ 0.05 CFH at +2.0 inches H_2O ≤ 0.21 CFH at -4.0 inches H_2O

Executive Order VR-101-C Phil-Tite Phase I Vapor Recovery System

Exhibit 4

Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves

Definitions common to all certification and test procedures are in:

D-200 Definitions for Vapor Recovery Procedures

For the purpose of this procedure, the term "CARB" refers to the California Air Resources Board, and the term "Executive Officer" refers to the CARB Executive Officer or his or her authorized representative or designate.

1. PURPOSE AND APPLICABILITY

The purpose of this procedure is to determine the pressure and vacuum at which a Pressure-/Vacuum Vent Valve (P/V Valve) actuates, and to determine the volumetric leak rate at a given pressure as specified in CP-201, Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities. This procedure is applicable for certification and compliance testing of P/V Valves.

2. PRINCIPLE AND SUMMARY OF TEST PROCEDURE

The volumetric leak rate of a P/V Valve is determined by measuring the positive and negative flow rates at corresponding pressures. The positive and negative cracking pressures of the valve are determined by measuring the pressure at which the P/V Valve opens to atmospheric pressure. With the exception of certification testing performed by the Executive Officer, these measurements are determined by removing the P/V Valve and conducting the test on a test stand. A flow metering device is used to introduce flow while measuring pressure.

3. BIASES AND INTERFERENCES

3.1 Installing a P/V Valve onto the test stand in a manner that is not in accordance with the manufacturer's recommended installation instructions can produce erroneous results.

3.2 Leaks in the test stand or test equipment can produce erroneous results.

4. SENSITIVITY, RANGE, AND PRECISION

4.1 Electronic Pressure Measuring Device. Minimum sensitivity shall be 0.01 inches H_2O with a maximum full-scale range of 20 inches H_2O and minimum accuracy of plus or minus 0.50 percent full-scale range.

4.2 Flow Meter. The measurable leak rate is dependent upon the sensitivity, range and precision of the flow meter used for testing. For electronic flow metering devices, the minimum sensitivity shall be 1.0 ml/min (0.0021 CFH) with a minimum full-scale accuracy of ±1.0 percent. For rotameters, the flow meter minimum sensitivity shall be 12.5 ml/min (.026 CFH) with minimum accuracy of ± 5 percent full-scale. The device scale shall be 150mm (5.91 inches) tall to provide a sufficient number of graduations for readability.

5. EQUIPMENT

5.1 Nitrogen. Use commercial grade gaseous nitrogen in a high-pressure cylinder equipped with a pressure regulator and one (1.00) psig pressure relief valve. As an alternative, compressed air may be used to pressurize to the minimum working pressure required by the Flow Metering device.

5.2 Ballast Tank. If required, use a commercially available tank (2 gallon minimum), capable of being pressurized or evacuated (placed under vacuum) to the minimum working pressure required by the flow-metering device(s).

5.3 Vacuum Pump or Vacuum Generating Device. Use a commercially available vacuum pump or equivalent, capable of evacuating the ballast tank or test stand to the minimum working pressure required by the flow-metering device.

5.4 Electronic Pressure Gauge. Use an electronic pressure gauge or digital manometer that conforms to the minimum requirements listed in section **4** to measure the pressure inside of the test stand.

5.5 Flow Metering Device(s). Use either an electronic flow-metering device or Rotameter as described below to measure or introduce a volumetric flow rate. Although the use of either type of instrument is allowed, electronic flow metering devices provide higher accuracy and precision. For the purpose of certification testing, only electronic flow metering devices shall be used.

5.5.1 Electronic Flow Metering Device. Use a Mass Flow Meter that conforms to the minimum requirements listed in section 4 to introduce nitrogen or compressed air into the test stand. The Mass Flow Meter shall be equipped with a high precision needle valve to accurately adjust the flow settings. The meter may be used for both positive and negative flow rates by reconfiguring the pressure or vacuum lines.

5.5.2 Rotameters. Two (2) devices required. Use two Flow Meters with minimum specifications described in Section 4 to measure or introduce flow rates. One meter shall use a needle valve oriented for introducing positive flow and the other using an inverted needle valve for introducing vacuum.

5.6 Test Stand. If a bench test arrangement is used, use a test stand as shown in Figure 1, or equivalent, equipped with a 2-inch NPT threaded pipe on at least one end for attaching the P/V Valve in an upright position. If other than 2-inch NPT is required, use an adaptor to reduce or enlarge the 2 inch pipe. The test stand shall be equipped with at least two (2) ports used for introducing flow and measuring pressure. Use a bypass valve to enable the tester to set the required flow without pressurizing the P/V Valve. Once the required flow rate is set, the bypass valve shall be closed to route the flow into the stand and pressurize the P/V Valve to check cracking pressure. Test stands may be constructed of various materials or dimensions. For certification testing conducted by Executive Officer only, the P/V valve may be isolated and tested in place at the facility.

6. PRE-TEST PROCEDURES

6.1 All pressure measuring device(s) shall be bench calibrated using a reference gauge, incline manometer or NIST traceable standard at least once every six (6) months. Calibration shall be performed at 20, 50, and 80 percent of full scale. Accuracy shall be within five (5) percent at each of these calibration points.

6.2 Electronic pressure measuring devices shall be calibrated immediately prior to testing using the zero gauge pressure adjustment knob located on the instrument.

6.3 The Flow Metering device(s) shall be calibrated using a reference meter or NIST traceable standard. Calibrations shall be performed at 20, 50, and 80 percent of full-scale range and shall take place at a minimum of once every six (6) months.

6.4 Leak check the test stand or test assembly prior to installing the P/V Valve.

(a) Install a 2-inch cap onto the NPT threads in place of the P/V Valve using pipe sealant or Teflon tape.

(b) Check all fittings for tightness and proper assembly.

(c) Slowly establish a stable gauge pressure in the test stand between 18.00 and 20.00 inches water column and allow pressure to stabilize.

(d) Check for leaks by applying a leak detection solution around all fittings and joints and by observing the pressure for pressure changes that may identify a leak. If no bubbles form, the test stand is leak tight.

(e) If soap bubbles form or the test stand pressure will not stabilize, repeat (a) through (d); it may be necessary to place the test apparatus in an environment that is free from the effects of wind or sunlight.

TEST PROCEDURE

7.1 Install the P/V Valve in an upright position following the installation instructions provided by the manufacturer. Incorrectly installing the valve will invalidate any pressure versus flow rate measurement.

7.2 Positive Leak Rate. Slowly open the control valve on the Positive Flow Metering device until the pressure stabilizes at the positive leak rate pressure described in CP-201 section 3. Maintain steady state pressure by using the control valve for at least ten (10) seconds. Steady state flow is indicated by a pressure change of no more than 0.05 inches H_2O on the pressure gauge. Record the final flow rate on the data sheet and close the control valve.

7.3 Positive Cracking Pressure. Open the bypass valve to route the flow outside of the test assembly. Open the control valve on the Positive Flow Metering device to establish a flow rate of 120 ml/min. Once flow is stabilized, close the bypass valve to route the flow into the test assembly. Observe the pressure. The P/V Valve should "crack" at a pressure within the range of positive cracking pressure as described in CP-201 section 3. This is marked by a sudden drop in pressure. Record the cracking pressure (highest pressure achieved) on the data sheet and close the control valve.

7.4 Negative Leak Rate. Open the control valve on the Negative Flow Metering device until the pressure stabilizes at the negative leak rate pressure described in CP-201 section 3. Maintain steady state pressure by using the control valve for at least ten (10) seconds. Steady state flow is indicated by a pressure change of no more than 0.05 inches H_2O on the pressure gauge. Record the final flow rate on the data sheet and close the control valve.

7.5 Negative Cracking Pressure. Open the bypass valve to route the flow outside of the test assembly. Open the control valve on the Negative Flow Metering device to establish a negative flow rate of 200 ml/min. Once flow is stabilized, close the bypass valve to route the flow into the test assembly. Observe the pressure. The P/V Valve should "crack" at a pressure within the range of negative cracking pressure as described in CP-201 section 3. This is marked by a sudden drop in vacuum. Record the cracking pressure (highest vacuum achieved) on the data sheet and close the control valve.

8. POST-TEST PROCEDURES

8.1 Remove the P/V Valve from the test assembly.

8.2 Disassemble the pressure regulator from the compressed nitrogen cylinder (if used) and place the safety cap back on the cylinder.

8.3 Disassemble all remaining test equipment and store in a protected location.

9. CALCULATING RESULTS

9.1 Commonly used flow rate conversions:

1 CFH = 471.95 ml/min

Example: Convert 0.17 CFH to ml/min:

0.17 CFH (471.95) = 80 ml/min

1 ml/min = 0.00212 CFH

Example: Convert 100 ml/min to CFH:

100 ml/min (0.00212) = 0.21 CFH

10. REPORTING RESULTS

10.1 Record the station or location name, address and tester information on Form 1.

10.2 Record the P/V Valve manufacturer's name and model number on Form 1.

10.3 Record the results of the test(s) on Form 1. Use additional copies of Form 1 if needed to record additional P/V Valve tests.

10.4 Alternate data sheets or Forms may be used provided they contain the same parameters as identified on Form 1.

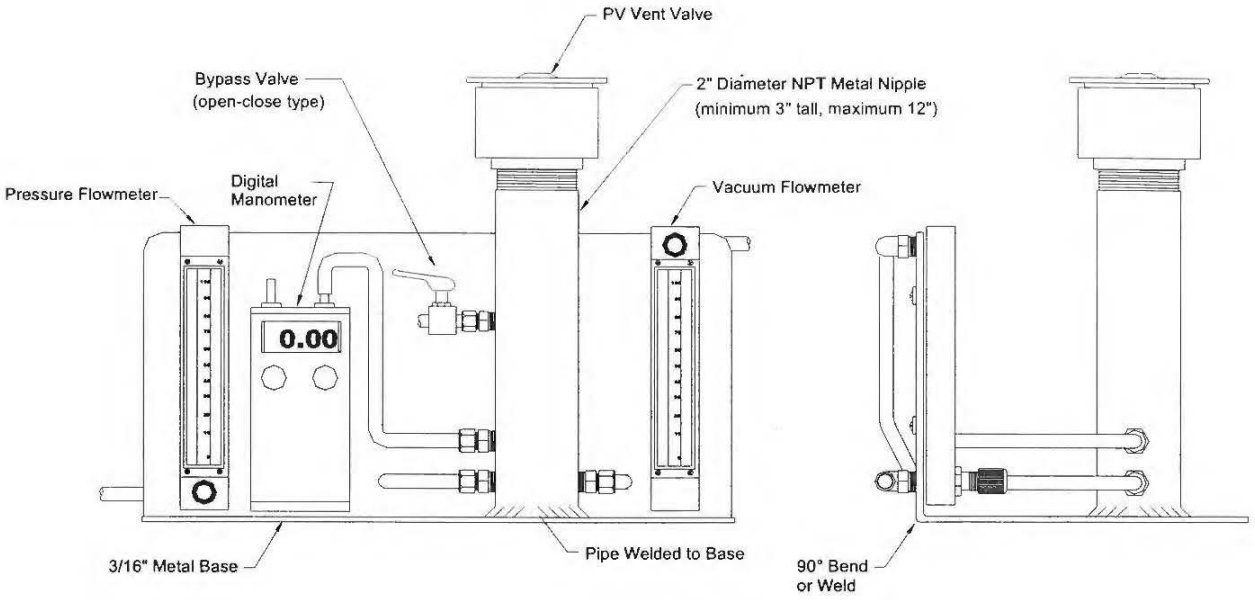
10.5 Use the formulas and example equation provided in Section 9 to convert the flow measurements into units of cubic feet per hour (CFH).

10.6 For certification testing, compare results to the performance standards listed in Table 3-1 of CP-201. For compliance testing, compare the results to the manufacturer's specifications listed on the P/V Valve for both leak rate and cracking pressure. For volumetric leak rates less than the manufacturers specified leakrate and cracking pressures within the manufacturers specified range, circle Pass on the data sheet where provided. If either the volumetric leak rate or cracking pressure exceeds the manufacturers specifications, circle Fail on the data sheet where provided.

11. ALTERNATIVE TEST PROCEDURES

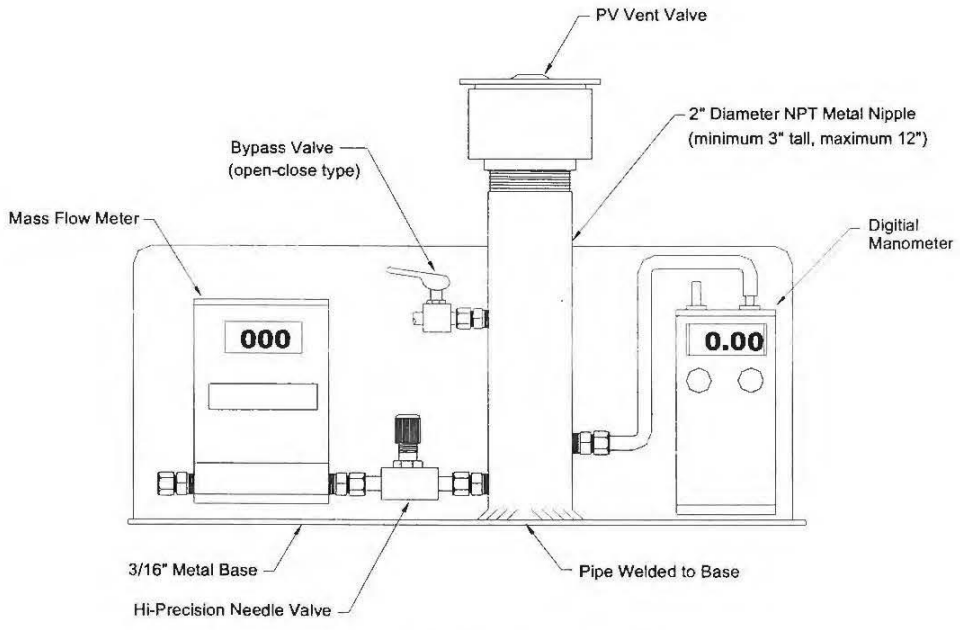
This procedure shall be conducted as specified. Any modifications to this test procedure shall not be used unless prior written approval has been obtained from the Executive Officer pursuant to section 14 of CP-201.

Figure 1
Example of Test Stand



FLOW METER CONFIGURATION

SIDE VIEW



MASS FLOW METER CONFIGURATION

Form 1

Pressure/Vacuum (P/V) Vent Valve Data Sheet

Facility Name:	Test Date:
Address:	**Test Company:**
City :	**Tester Name:**

P/V Valve Manufacturer:	**Model Number:**	**Pass Fail**
Manufacturers Specified Positive Leak Rate (CFH):	Manufacturers Specified Negative Leak Rate (CFH):	
Measured Positive Leak Rate (CFH):	Measured Negative Leak Rate (CFH):	
Positive Cracking Pressure (in. H_2O):	Negative Cracking Pressure (in. H_2O):	

P/V Valve Manufacturer:	**Model Number:**	**Pass Fail**
Manufacturers Specified Positive Leak Rate (CFH):	Manufacturers Specified Negative Leak Rate (CFH):	
Measured Positive Leak Rate (CFH):	Measured Negative Leak Rate (CFH):	
Positive Cracking Pressure (in. H_2O):	Negative Cracking Pressure (in. H_2O):	

P/V Valve Manufacturer:	**Model Number:**	**Pass Fail**
Manufacturers Specified Positive Leak Rate (CFH):	Manufacturers Specified Negative Leak Rate (CFH):	
Measured Positive Leak Rate (CFH):	Measured Negative Leak Rate (CFH):	
Positive Cracking Pressure (in. H_2O):	Negative Cracking Pressure (in. H_2O):	

P/V Valve Manufacturer:	**Model Number:**	**Pass Fail**
Manufacturers Specified Positive Leak Rate (CFH):	Manufacturers Specified Negative Leak Rate (CFH):	
Measured Positive Leak Rate (CFH):	Measured Negative Leak Rate (CFH):	
Positive Cracking Pressure (in. H_2O):	Negative Cracking Pressure (in. H_2O):	

Appendix B

CARB Executive Order G-70-52-AM

Certification of Components for Red Jacket, Hirt, and Balance Phase II Vapor Recovery Systems

&

VR-203 Equipment List

State of California
AIR RESOURCES BOARD

Executive Order G-70-52-AM
Certification of Components for Red Jacket, Hirt, and Balance
Phase II Vapor Recovery Systems

WHEREAS, the Air Resources Board (the "Board") has established, pursuant to Sections 39600, 39601, and 41954 of the Health and Safety Code, certification procedures for systems designed for the control of gasoline vapor emissions during motor vehicle fueling operations ("Phase II vapor recovery systems") in its "Certification Procedures for Gasoline Vapor Recovery Systems at Service Stations" as last amended December 4, 1981 (the "Certification Procedures"), incorporated by reference in Section 94001 of Title 17, California Code of Regulations;

WHEREAS, the Board has established, pursuant to Sections 39600, 39601, and 41954 of the Health and Safety Code, test procedures for determining compliance of Phase II vapor recovery systems with emission standards in its "Test Procedures for Determining the Efficiency of Gasoline Vapor Recovery Systems at Service Stations" as last amended September 1, 1982 (the "Test Procedures"), incorporated by reference in Section 94000 of Title 17, California Code of Regulations;

WHEREAS, the certification for use with Phase II vapor recovery systems has been applied for as specified in Attachment A of this Executive Order;

WHEREAS, Section VIII-A of the Certification Procedures provides that the Executive Officer shall issue an order of certification if he or she determines that a vapor recovery system conforms to all of the requirements set forth in Sections I through VII;

WHEREAS, I find that the equipment specified in Attachment A of this Executive Order, when used on Phase II balance and assist vapor recovery systems, conforms with all the requirements set forth in Sections I through VII of the Certification Procedures and will not compromise the efficiency of the Phase II vapor recovery systems on which they will be installed;

NOW THEREFORE, IT IS HEREBY ORDERED that the certification, Executive Order G-70-52-AL, is hereby modified to add vapor recovery equipment listed in Attachment A and to incorporate the requirements and conditions specified in the Exhibits of this Order for use on Phase II vapor recovery systems;

IT IS FURTHER ORDERED that the equipment listed in Attachment A of this Executive Order is certified as shown in Exhibits 4 through 11. A reference identifying the vapor recovery systems for which the hose configurations are approved is contained in Exhibit 1. Certified components for the systems are listed in Exhibit 2. A cross reference identifying which vapor recovery nozzle is approved for each vapor recovery system is shown in Exhibit 3. The systems shall otherwise comply with all the certification requirements in the latest applicable Phase II vapor recovery system certification.

IT IS FURTHER ORDERED that where a balance type vapor recovery system is to be installed at a new installation only the balance type coaxial vapor recovery nozzles and coaxial hose configurations may be used.

IT IS FURTHER ORDERED that nozzle bellows covers, hereinafter refered to as "boot protectors" may not be used on any nozzles after July 26, 1992, and that they are prohibited prior to that date on certain nozzles as specified in Exhibits 2 and 3 of this Order.

IT IS FURTHER ORDERED that the compliance with the applicable certification requirements and rules and regulations of the Division of Measurement Standards, the Office of the State Fire Marshal, and the Division of Occupational Safety and Health of the Department of Industrial Relations are made a condition of this certification.

IT IS FURTHER ORDERED that the components and alternative hose configurations certified hereby shall perform in actual use with the same effectiveness as the certification test system.

IT IS FURTHER ORDERED that any alteration of the equipment, parts, design, or operation of the configurations certified hereby, is prohibited, and deemed inconsistent with this certification, unless such alteration has been approved by the undersigned or the Executive Officer's designee.

IT IS FURTHER ORDERED that all nozzles approved for use with the Phase II vapor recovery systems specified in this Executive Order shall be 100 percent performance checked at the factory including checks of proper functioning of all automatic shutoff mechanisms.

Executed at Sacramento, California this 4 day of October, 1991.

James D. Boyd
Executive Officer

Executive Order G-70-52-AM
Attachment A

Gasoline Vapor Recovery Equipment Added to Exhibit 2

Dresser Division/Wayne Industries
590 Blending Dispenser
390Dx-GQU Dispenser

Emco Wheaton A4019 coaxial hose breakaway coupling

Gates Kleanaire coaxial hose

Gilbarco Advantage motor fuel dispenser

Goodyear Maxxim coaxial hose with green outer hose

High retractor dispenser - coaxial hose configuration with liquid removal system (Exhibit 8c)

OPW Division/Dover Corporation
66-CL coaxial hose breakaway coupling
43-CRT elbow swivel

Exhibit 1

Executive Order G-70-52-AM

Phase II Vapor Recovery Systems

Certified for Hose Configurations Shown in Exhibits 4-11

Executive Order G-70-	Vapor Recovery System Name
14	Red Jacket
17	Emco Wheaton Balance
23	Exxon Balance
25	Atlantic Richfield Balance
33	Hirt
36	OPW Balance
38	Texaco Balance
48	Mobil Balance
49	Union Balance
53	Chevron Balance

Additional Executive Orders Pertaining to

Vapor Recovery Nozzles Not Listed in the Above Orders

Executive Order G-70-	Vapor Recovery System Name
78	EZ-flo rebuilts
102	EZ-flo rebuilts
107	Rainbow rebuilts
125	Husky Model V
127	OPW 111V
134	EZ-flo rebuilts

Exhibit 2

Executive Order G-70-52-AM
Component[1] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits									Exhibit 3 X-Reference
		4	5	6	7	8a,b,c	9a,b,c	10	11	11a	
Nozzles (new or rebuilt by original manufacturer)[2]											
Emco Wheaton A3003, RA3003[7]	001:007:005	X		X	X						1
Emco Wheaton A3005, RA3005	005:007:006	X	X	X	X	X	X	X	X	X	2
Emco Wheaton A3006, RA3006	005:007:020	X		X	X						3
Emco Wheaton A3007, RA3007	005:007:025	X	X	X	X	X	X	X	X	X	4
Emco Wheaton A4000, RA4000[7/8]	005:007:022	X		X	X						5
Emco Wheaton A4001, RA4001[8]	005:007:023	X	X	X	X	X	X	X	X	X	6
Emco Wheaton A4002[8]	005:007:022	X		X	X						7
Emco Wheaton A4003[8]	005:007:023	X	X	X	X	X	X	X	X	X	8
Emco Wheaton A4005, RA4005[8]	005:007:025	X	X	X	X	X	X	X	X	X	9
OPW 7V-E (34,36,47,49)	002:008:014-17	X		X	X						10
OPW 11V-C (22,24,47,49)	005:008:030	X	X	X	X	X	X	X	X	X	11
OPW 11VS-C (22,24,47,49)[7]	005:008:039	X		X	X						12
OPW 11V-E (34,36,47,49)	005:008:033	X	X	X	X	X	X	X	X	X	13
OPW 11VS-E (34-36,47,49)	005:008:035	X		X	X						14
OPW 11V-F (22,24,47,49)	005:008:037	X	X	X	X	X	X	X	X	X	15
OPW 11VS-F (22,24,47,49)[7]	005:008:038	X		X	X						16
OPW 111-V (22,24,47,49)[8]	005:008:045	X	X	X	X	X	X	X	X	X	17
Husky Model V[8]	005:021:005	X	X	X	X	X	X	X	X	X	18

Executive Order G-70-52-AM
Component[1] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits 4	5	6	7	8a,b,c	9a,b,c	10	11	11a	Exhibit 3 X-Reference
Rebuilt Nozzles (rebuilt by other than original manufacturer)[2]											
EZ-flo 3003[7][9]	005:029:003	X		X	X						1
EZ-flo 3005[9]	005:029:004	X	X	X	X	X	X	X	X	X	2
EZ-flo 3006[9]	005:029:004	X		X	X						3
EZ-flo 3007[9]	005:029:005	X	X	X	X	X	X	X	X	X	4
EZ-flo A4000[7][8]	005:029:006	X		X	X						5
EZ-flo A4001[8]	005:029:006	X	X	X	X	X	X	X	X	X	6
EZ-flo A4002[8][9]	005:029:006	X		X	X						7
EZ-flo A4003[8][9]	005:029:006	X	X	X	X	X	X	X	X	X	8
EZ-flo A4005[8][9]	005:029:006	X	X	X	X	X	X	X	X	X	9
EZ-flo EZE 8 (22,24,47,49)[10]	005:029:002	X		X	X						10a
EZ-flo 11VS (coaxial)[8]	005:029:007	X	X	X	X	X	X	X	X	X	15
EZ-flo 11VS (dual)[7][8]	005:029:007	X		X	X						16
EZ-flo 11VE (coaxial)[8]	005:029:007	X	X	X	X	X	X	X	X	X	13
EZ-flo 11VE (dual)[8]	005:029:007	X		X	X						14
Rainbow RA3003[7][11][16]	005:035:002	X		X	X						1
Rainbow RA3005[11][16]	005:035:003	X	X	X	X	X	X	X	X	X	2
Rainbow RA3006[11]	005:035:004	X		X	X						3
Rainbow RA3007[11]	005:035:005	X	X	X	X	X	X	X	X	X	4
Rainbow RPP (34,36,47,49)	005:035:006	X		X	X						10b
Nozzle Bellows											
Daystar [13]		X	X	X		X	X	X	X		

Executive Order G-70-52-AM
Component[1] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits												
		4	5	6	7	8a	8b	8c	9a	9b	9c	10	11	11a
High-Retractor Hose Configurations[3]														
Overhead Hose Retractors														
CNI Series 9900, 9910 and 9930		X	X						X	X	X			X
Dresser Wayne 360-series		X	X											
Gasboy Model 90-750-2		X	X											
Gilbarco									X	X	X			
OPW 55 (coax)			X											
OPW 56 (dual)		X												
Petro-Vend PV-8		X	X											
Pomeco 100A, B, C and 102		X	X								X			X
Radikas		X	X								X			X
Red Jacket		X	X								X			X
Rusken		X	X								X			X
Topmaster		X	X								X			X
Universal Valve #880		X	X								X			X
High Retractor Dispensers[4]														
Bennett Pump 6012, 6013, 6022, 6024, 6025, 6027			X											
Dresser Wayne Series 370/380				X										
Dresser Wayne DecadeMarketer Series 310/320					X									
Gasboy Series 50		X	X											
Tokheim Series 162		X	X											
Tokheim 262 [19]		X	X											
Tokheim 242 and 244			X											
Tokheim 330A and 333A MMD					X									
Tokheim retrofit 222 and 333												X		
Low Retractor Dispensers[4]														
Tokheim TCS														
311, 312, 322, 324, 413, 426, 614, 628													X	X

Executive Order G-70-52-AM
Component[1] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits												
		4	5	6	7	8a	8b	8c	9a	9b	9c	10	11	11a
High-Hang Hose Dispensers[3]														
Bennett Pump 7012, 7024, 8022, 8024, 8033											X	X		
Bennett Pump 8036, 9036, 9048											X	X		
Dresser Wayne 390					X	X	X	X	X	X	X	X		
Dresser Wayne 490						X	X	X				X		
Dresser Wayne 390Dx-GQU									X	X	X	X		
Gilbarco MPD									X	X	X	X		
Gilbarco Advantage									X	X	X	X		
Koppens Calcutrim											X	X		
Southwest 2300 and 2400 MPD											X	X		
Tokheim High-discharge TCS H311, H312, H322, H324, H413, H426, H614, H628											X	X		
Product Blending Dispensers[18]														
Dresser Wayne 395-1L Blender												X		
Dresser Wayne 375 Blender												X		
Dresser Wayne 585 Blender												X		
Dresser Wayne 590 Blender												X		
Gilbarco SalesMaker (SMK) Blender												X		
Gilbarco Multi-Product (MPD) Blender												X		
Tokehim 262 with blend valves[19]			X											
Tokehim 426 TCS with blend valves												X	X	X
Coaxial Hose Assembly[16]														
B.F. Goodrich Coax	005:014:001		X	X		X			X			X		
B.F. Goodrich Super II Coax	005:014:001		X	X		X			X			X		
Dayco Petroflex 2000 Mdl 7574	005:033:001		X	X		X	X	X	X	X	X	X	X	X
Dayco Petroflex 2000 Mdl 7573	005:033:002		X	X		X	X	X	X	X	X	X	X	X
Dayco Petroflex 3000 Model 7575 Blending Hose	005:033:006											X		
Gates Kleanaire	005:045:001		X	X		X	X	X	X	X	X	X	X	X

(continued next page)

Executive Order G-70-52-AM
Component[1] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits												
		4	5	6	7	8a	8b	8c	9a	9b	9c	10	11	11a
Coaxial Hose Assembly [16] (continued from previous page)														
Goodyear Maxxim (black or green) (1/2" or 5/8" inner hose)	005:036:001		X	X		X	X	X	X	X	X	X	X	X
Thermoid Superlite (HPD Industries) (1/2" or 5/8" inner hose)	005:037:001		X	X		X	X	X	X	X	X	X	X	X
Vapor Systems Technologies	005:044:001		X	X		X	X	X	X	X	X	X	X	X
Liquid Removal Systems														
Gilbarco Venturi CoVent (1/2")	005:026:011							X			X	X		
Gilbarco CoVent-2 (5/8")	005:026:012							X			X	X		
Wayne Purge System												X		
Coaxial Hose Assemblies with Liquid Removal Systems [22]														
Dayco Petroflex 7573 (1/2")	005:033:003							X			X	X	X	
Dayco Petroflex 7574 (5/8")	005:033:004							X			X	X	X	
Goodyear Maxxim Plus (5/8")	005:036:001							X			X	X	X	
Thermoid Superlite "V"	005:037:002							X			X	X	X	
Coaxial Hose Fittings														
OPW 38-C [14]	005:008:041		X	X										
OPW 38-CS [14]	005:008:041		X	X										
OPW 38-CX [14]	005:008:041		X	X										
Emco Wheaton 4041 [14]	005:007:029		X	X										
Emco Wheaton 4042 [21]	005:007:030		X	X					X	X	X	X		
Hose Breakaway Fittings - Dual Hose Systems Only														
Enterprise Brass Works 697-V	005:034:001	X		X	X									
Husky Safe-T-Break	005:021:003	X		X	X									
Richards R85 Safe-T-Gard	005:031:003	X		X	X									

Executive Order G-70-52-AM
Component[1] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits 4	5	6	7	8a	8b	8c	9a	9b	9c	10	11	11a
Coaxial Hose Breakaway Fittings - Factory or Kit Repairable Only														
Catlow C-200	005:030:003		X	X		X	X	X	X	X	X	X	X	X
Dayco C-200	005:033:005		X	X		X	X	X	X	X	X	X	X	X
Enterprise Brass Works 897	005:034:002		X	X		X	X	X	X	X	X	X	X	X
Husky 2730 Safe-T-Break	005:021:004		X	X		X	X	X	X	X	X	X	X	X
Richards Industries CXE-39	005:031:005		X	X		X	X	X	X	X	X	X	X	X
Coaxial Hose Breakaway Fittings - Designed to be Recoupled Without Repair Kit														
Catlow 2.N.1 (Nozzle end[20] installation prohibited)	005:030:004											X		
Emco Wheaton A4019	005:007:031		X	X		X	X	X	X	X	X	X	X	X
Husky 3030 Safe-T-Break	005:021:004		X	X		X	X	X	X	X	X	X	X	X
Richards Industries CX-40	005:031:004		X	X		X	X	X	X	X	X	X	X	X
Richards Insustries RCX-40	005:031:004		X	X		X	X	X	X	X	X	X	X	X
OPW 66-C (w/ pigtail)	005:008:044											X		
66-CL (w/o pigtail)	005:008:047		X	X		X	X	X	X	X	X	X	X	X
Vapor Check Valves														
Emco Wheaton														
A225	005:007:23	X		X										
A225-003	005:007:23	X		X	X									
A226	005:007:23		X											
A227	005:007:23		X[19]						X	X	X	X		
A228-001	005:007:024		X	X		X	X	X	X	X	X	X	X	X
Red Jacket systems only may also use:														
Red Jacket 104-184	002:001:003	X	X	X	X	X			X			X		
Hirt systems only may also use:														
Hazlett HC-2 ball check valve		X		X	X									
Hirt 3/4" NPT solenoid valve		X		X	X									

Component[1] Executive Order G-70-52-AM List for Red Jacket, Hirt, or Balance Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits												
		4	5	6	7	8a	8b	8c	9a	9b	9c	10	11	11a
Swivels[5]														
Nozzle Swivels														
Emco Wheaton														
A4110-001(45°)	005:007:31		X			X	X		X	X		X		
A4113-001(90°)	005:007:31					X			X					
Husky I+VI	005:021:2	X		X	X									
Husky I+VI F	005:021:2	X		X	X									
OPW 43	005:008:6	X		X	X									
OPW 43-C[6]/ (30°)	005:008:27		X			X	X		X	X		X		
OPW 43-CF-(45°)	005:008:040		X			X	X		X	X		X		
OPW 43-T[6]/ with 3/4" or 1" fuel line	005:008:31	X		X	X									
OPW 43-CR(90°)	005:008:46		X			X			X					
OPW 43-CRT(90°)	005:008:46		X			X			X					
Pomeco Model 7	005:025:2	X		X	X									
RCR 3 D	005:031:002	X		X	X									
Island Swivels														
Emco Wheaton A93-001	005:007:13		X											
OPW 36-CE	005:008:28		X											
Dispenser Swivels														
Emco Wheaton														
A4113-001 (90°)	005:008:31		X			X	X	X	X	X	X	X		
A92-001	005:007:11		X											
Wedgon PS 3445 VRM	005:013:2	X		X										
OPW 43-CR(90°)	005:008:46		X			X	X	X	X	X	X	X		
OPW 43-CRT(90°)	005:008:46		X			X	X	X	X	X	X	X		
Retractor Swivel														
Searle Leather & Packing B-1399 or State Fire Marshal approved equivalent			X											

Executive Order G-70-52-AM
Component[1/] List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

Manufacturer/Item and Model Number	SFM ID Number	Exhibits												
		4	5	6	7	8a	8b	8c	9a	9b	9c	10	11	11a
Flow Limiter														
Emco Wheaton A-10	001:007:1	X	X	X	X	X	X	X	X	X	X	X	X	X
or State Fire Marshal approved equivalent														
Recirculation Traps (Existing installations only) [17/]														
Emco Wheaton A008-001	001:007:4	X	X	X	X									
Emco Wheaton A94-001	005:007:8	X	X	X	X									
Emco Wheaton A95-001	005:007:9	X	X	X	X									
OPW 78, 78-S, 78-E, 78-ES	001:008:13													
	002:008:12	X	X	X	X									

Executive Order G-70-52-AM
Footnotes to Component 1/ List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

1/ Specific components for the Red Jacket system are listed in the latest version of Executive Order G-70-14. Specific components for the Hirt system are listed in the latest version of Executive Order G-70-33.

2/ See Exhibit 3 for a Nozzle/System Cross-Reference.

3/ High-hang or high-retractor hose configurations are required on all existing Balance, Red Jacket and Hirt stations by July 26, 1986, except for dispensers in compliance with Exhibit 11.

4/ Other dispensers are in compliance with ARB requirements if they are approved by the Division of Measurement Standards and are applicable to any of the configurations shown by Exhibits 4,5,6, & 7 in this Executive Order.

5/ Other nozzle multiplane swivels and island single plane swivels may be used if approved by California State Fire Marshal. Nozzle multiplane swivels and island single plane swivels are required on all existing twin hose dispensers by July 26, 1986.

6/ 43-T swivel not allowed with Hirt ball check valve.

7/ Dual-port nozzles not permitted on new installations utilizing a balance type Phase II vapor recovery system.

8/ Boot protectors are prohibited on Emco Wheaton A4000-series nozzles, EZ-flo 4000-series and 11V-series nozzles and OPW 111V and Husky Model V nozzles.

9/ Specific components for EZ-flo rebuilt 3000-series vapor recovery nozzles are listed in the latest version of Executive Order G-70-101. Specific components for EZ-flo rebuilt A4000-series and 11V-series vapor recovery nozzles are listed in the latest version of Executive Order G-70-134.

10/ Specific components for the EZ-flo Rebuilt OPW 7V-E vapor recovery nozzle are listed in the latest version of Executive Order G-70-78.

11/ Specific components for the Rainbow Rebuilt Emco Wheaton A3003, A3005, A3006, and A3007 vapor recovery nozzles are listed in the latest version of Executive Order G-70-107.

12/ Emco Wheaton red and gray bellows for A3000-type nozzles may not be used after July 26, 1989. (Bellows discolor in use and may appear tan rather than red or gray.)

13/ The boot must be used with Daystar Spacer (Daystar part number F00232-NL-00), and is only approved for use on Emco Wheaton 3003- and 3005-type nozzles.

14/ Appropriate certified swivels must be used to prevent closure of vapor passage due to kinking.

15/ Use of Rainbow Petroleum Products RA3003/RA3005 Blow Molded Gasoline Vapor Recovery Bellows approved.

16/ Coaxial hose assemblies which do not contain liquid removal systems may be used on Exhibits which are not indicated provided they are used with a certified liquid removal system (such as the Gilbarco Co-Vent) which is certified for that Exhibit.

Executive Order G-70-52-AM
Footnotes to Component 17/ List for Red Jacket, Hirt, or Balance
Phase II Vapor Recovery Systems

17/ Recirculation traps are permitted on existing installations only. Removal of internal assembly from existing recirculation traps is recommended whenever possible to reduce pressure drop.

18/ Any installation of blended product dispensers must be plumbed to allow the return of vapors from any product produced by blending to all tanks from which the component fuels may be withdrawn.

19/ The Emco Wheaton A227 vapor check valve may be installed in a vertical position (manufacturer's instructions specify installation within five degrees of horizontal) in Tokheim 262 dispensers manufactured before 1/1/90.

20/ Installation of the Catlow 2.N.1 breakaway at the nozzle end of the hose is prohibited.

21/ The Emco Wheaton A4042 fitting is to be marketed in combination with a gray scuff guard which clearly identifies it as an A4042 fitting. This gray scuff guard is not to be installed on A227 vapor check valves, and the use of the black scuff guard with which the A227 valve is marketed is prohibited with the A4042. Emco Wheaton A227 valves modified by removing poppets in an attempt to create A4042 fittings are considered uncertified equipment.

22/ Coaxial hoses with liquid removal systems are approved as indicated for Exhibits which require liquid removal systems. The use of hoses containing liquid removal systems is not prohibited on other Exhibits provided all requirements of the Exhibits, including hose loop specifications, are met.

Exhibit 3
Executive Order G-70-52-AM

Phase II Vapor Recovery System/Nozzle Cross-Reference
(Red Jacket and Hirt Assist Systems or Balance Systems)

Nozzle [1]	Dispensing Rate Systems Using Nozzles [2]	GPM Not To Exceed	Comments and Exhibit 2 Cross-Reference Number	
Emco Wheaton A3003, RA3003 EZ-flo 3003 Rainbow RA3003	Hirt Balance	10 [3] 10	Soft, tight-fitting faceplate Insertion interlock Dual-hose passageways Secondary (pressure) shutoff mechanism [4] Vapor check valve in nozzle	|1|
Emco Wheaton A3005, RA3005 EZ-flo 3005 Rainbow RA3005	Hirt Balance	10 10	Same as A3003 except coaxial Insertion interlock Soft, tight-fitting faceplate Secondary (pressure) shutoff mechanism [4] Vapor check valve in nozzle.	|2|
Emco Wheaton A3006, RA3006 EZ-flo 3006 Rainbow RA3006	Hirt Red Jacket	10 [3] 10	Loose-fitting assist-type facecone. No insertion interlock. Secondary (pressure) shutoff mechanism [4] Slim handle. Dual-hose passageways Remote vapor check valve required.	|3|
Emco Wheaton A3007, RA3007 EZ-flo 3007 Rainbow RA3007	Hirt Red Jacket	10	Same as A3006 except coaxial passageways Loose-fitting assist-type facecone Secondary (pressure) shutoff mechanism [4] Remote vapor check valve required.	|4|
Emco Wheaton A4000 [5] RA4000 [5] EZ-flo 4000 [5] [7]	Hirt Balance	10 [3] 10	Soft, tight-fitting faceplate Insertion interlock Secondary (pressure) shutoff mechanism [4] Remote vapor check valve required Dual-hose passageways	|5|
Emco Wheaton A4001 [5] RA4001 [5] EZ-flo 4001 [5]	Hirt Balance	10 10	Same as A4000 except coaxial. Insertion interlock. Soft, tight-fitting faceplate. Secondary (pressure) shutoff mechanism [4] Remote vapor check valve required	|6|

Exhibit 3 (continued)
Executive Order G-70-52-AM

Phase II Vapor Recovery System/Nozzle Cross-Reference
(Red Jacket and Hirt Assist Systems or Balance Systems)

Nozzle [1]	Dispensing Rate Systems Using Nozzles [2]	GPM Not To Exceed	Comments and Exhibit 2 Cross-Reference Number
Emco Wheaton A4002 [5] [7] EZ-flo 4002 [5]	Hirt	10 [3]	Loose-fitting assist-type facecone. No insertion interlock. Secondary (pressure) shutoff mechanism [4] Dual-hose passageways Remote vapor check valve required.	[7]
Emco Wheaton A4003 [5] EZ-flo 4003 [5] [7]	Hirt	10	Same as A4002 except coaxial passageways Loose-fitting assist-type facecone Secondary (pressure) shutoff mechanism [4] Remote vapor check valve required.	[8]
Emco Wheaton A4005 [5] RA4005 [5] EZ-flo 4005 [5] [7]	Hirt Balance	10 10	Vapor check valve in nozzle. Insertion interlock. Soft, tight-fitting faceplate. Secondary (pressure) shutoff mechanism [4] Coaxial passageways	[9]
OPW 7V Model E [6] -34 (unleaded, with clip) -36 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, w/out clip -60 (leaded, with clip) -61 (unleaded, with clip) -62 (leaded, w/out clip) -63 (unleaded, w/out clip)	Hirt Red Jacket	10 [3] 10	No insertion interlock. Loose-fitting assist-type facecone. Remote vapor check valve required. Dual passageways No new 7V nozzles being made by OPW. Secondary (pressure) shutoff mechanism [4]	[10]
E-Z Flo EZE8 -34 (leaded, with clip) -36 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, w/out clip)	Hirt Red Jacket	10 [3] 10	Rebuilt OPW 7V Model E nozzle. Loose-fitting assist-type facecone. No interlock, dual passageways. Remote vapor check valve required. Secondary (pressure) shutoff mechanism [4]	[10a]
Rainbow Petroleum Products RPP-34 (leaded, w/ clip) RPP-36 (leaded, w/out clip) RPP-47 (unleaded, with clip) RPP-49 (unleaded, w/out clip)	Hirt Red Jacket	10 [3] 10	OPW 7V Model E nozzle with Rainbow boot. No insertion interlock. Secondary (pressure) shutoff mechanism [4] Loose-fitting assist-type facecone. Remote vapor check valve required.	[10b]

Exhibit 3 (continued)
Executive Order G-70-52-AM

Phase II Vapor Recovery System/Nozzle Cross-Reference
(Red Jacket and Hirt Assist Systems or Balance Systems)

Nozzle [1]	Dispensing Rate Systems Using Nozzles [2]	GPM Not To Exceed	Comments and Exhibit 2 Cross-Reference Number
OPW 11V Model C -22 (leaded, with clip) -24 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, w/o clip)	Hirt Balance	10 10	Coaxial passageways. Insertion interlock. Soft, tight-fitting faceplate Secondary (pressure) shutoff mechanism [4] Vapor check valve in nozzle No new Model C nozzles being made by OPW |11|
OPW 11VS Model C -22 (leaded, with clip) -24 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, w/o clip)	Hirt Balance	10 [3] 10	Same as 11V except dual passageways. Insertion interlock. Soft, tight-fitting faceplate. Secondary (pressure) shutoff mechanism [4] Vapor check valve in nozzle No new Model C nozzles being made by OPW. |12|
OPW 11V Model E -34 (leaded, with clip) -36 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, w/out clip) EZ-flo 11V-E (coaxial) [5]	Hirt Red Jacket	10 10	Coaxial passageways. Loose fitting assist-type facecone. No insertion interlock. Remote vapor check valve required. Secondary (pressure) shutoff mechanism [4] |13|
OPW 11VS Model E [5] -34 (leaded, with clip) -36 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded w/out clip) EZ-flo 11V-E (dual) [5]	Hirt Red Jacket/	10 [3] 10	Same as 11V E except dual passageways. Loose fitting assist-type facecone. No insertion interlock. Remote vapor check valve required. Secondary (pressure) shutoff mechanism [4] |14|
OPW 11V Model F -22 (leaded, with clip) -24 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, without clip) EZ-flo 11V-F (coaxial) [5]	Hirt Balance	10 10	Vapor check valve in nozzle. Insertion interlock. Secondary (pressure) shutoff mechanism [4] Soft, tight-fitting faceplate. Coaxial passageways. |15|

Exhibit 3 (continued)
Executive Order G-70-52-AM

Phase II Vapor Recovery System/Nozzle Cross-Reference
(Red Jacket and Hirt Assist Systems or Balance Systems)

Nozzle [1]	Dispensing Rate Systems Using Nozzles [2]	GPM Not To Exceed	Comments and Exhibit 2 Cross-Reference Number	
OPW 11VS Model F -22 (leaded, with clip) -24 (leaded, w/out clip) -47 (unleaded, w/ clip) -49 (unleaded, w/o clip) EZ-flo 11V-F (dual) [5]	Hirt Balance	10 [3] 10	Same as 11V F except dual passageways. Vapor check valve in nozzle. Secondary (pressure) shutoff mechanism [4] Insertion interlock. Soft, tight-fitting faceplate.	|16|
OPW 111V [5] -22 (leaded, with clip) -24 (leaded, w/out clip) -47 (unleaded, with clip) -49 (unleaded, without clip)	Hirt Balance	10 10	Vapor check valve in nozzle. Insertion interlock. Secondary (pressure) shutoff mechanism [4] Soft, tight-fitting faceplate. Coaxial passageways.	|17|
Husky Model V [5]	Hirt Balance	10 10	Vapor check valve in nozzle. Insertion interlock. Secondary (pressure) shutoff mechanism [4] Soft, tight-fitting faceplate. Coaxial passageways.	|18|

1/ Spout and bellows may be changed from leaded to unleaded, or vice versa, when products in storage tanks are changed accordingly.

2/ The Executive Orders pertaining to Balance Phase II vapor recovery systems are listed in Exhibit 1.

3/ Flow rate of 12 gpm permitted only on dual Hirt systems which use 3/4" vapor hose.

4/ Secondary (pressure) shutoff mechanism at or below 10" water column (between 6" and 10", not over 10").

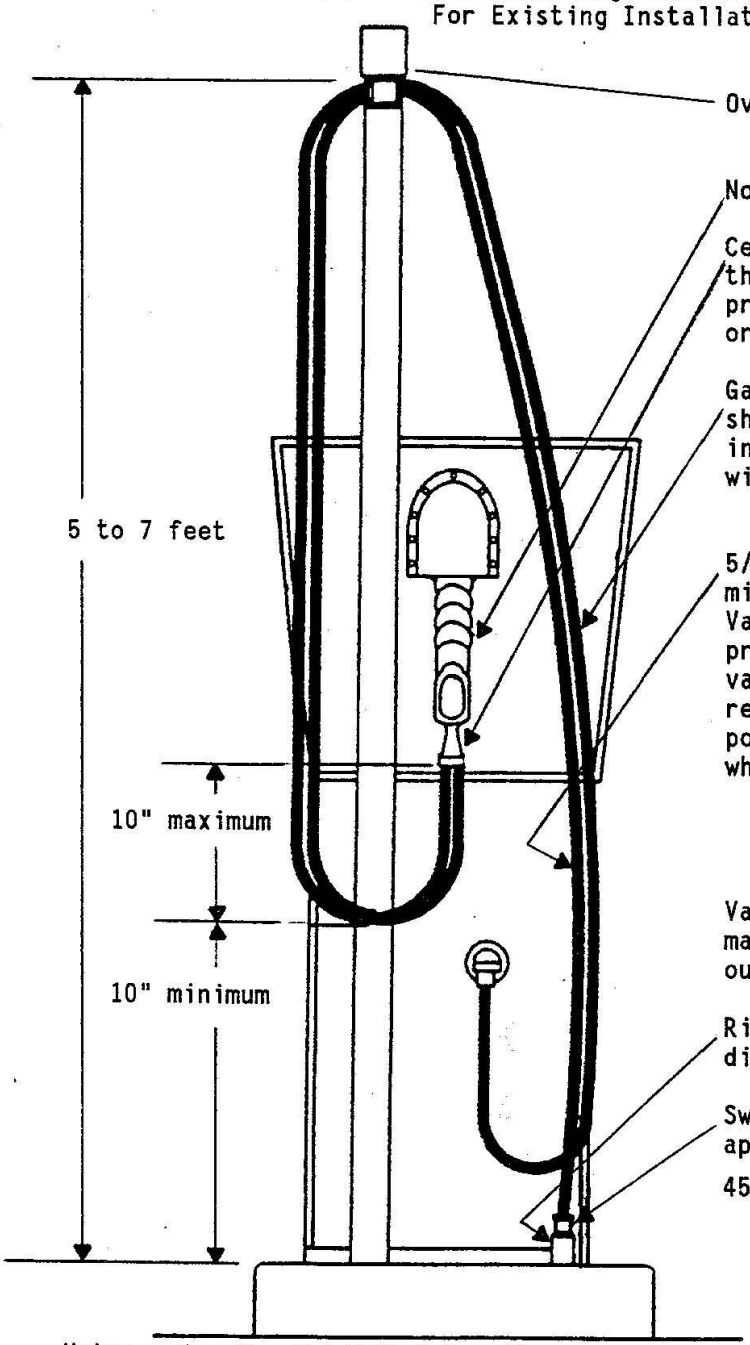
5/ Boot protectors are prohibited on Emco Wheaton A4000-series nozzles, EZ-flo 4000-series and 11V-series nozzles and OPW 111V and Husky Model V nozzles.

6/ OPW 7V Model E nozzle with OPW 7V Model H bellows/faceplate is acceptable.

7/ EZ-flo rebuilt nozzle bodies may be certified only with Emco Wheaton "front end" parts. Refer to the latest version of Executive Order G-70-134 for a listing of the approved combinations.

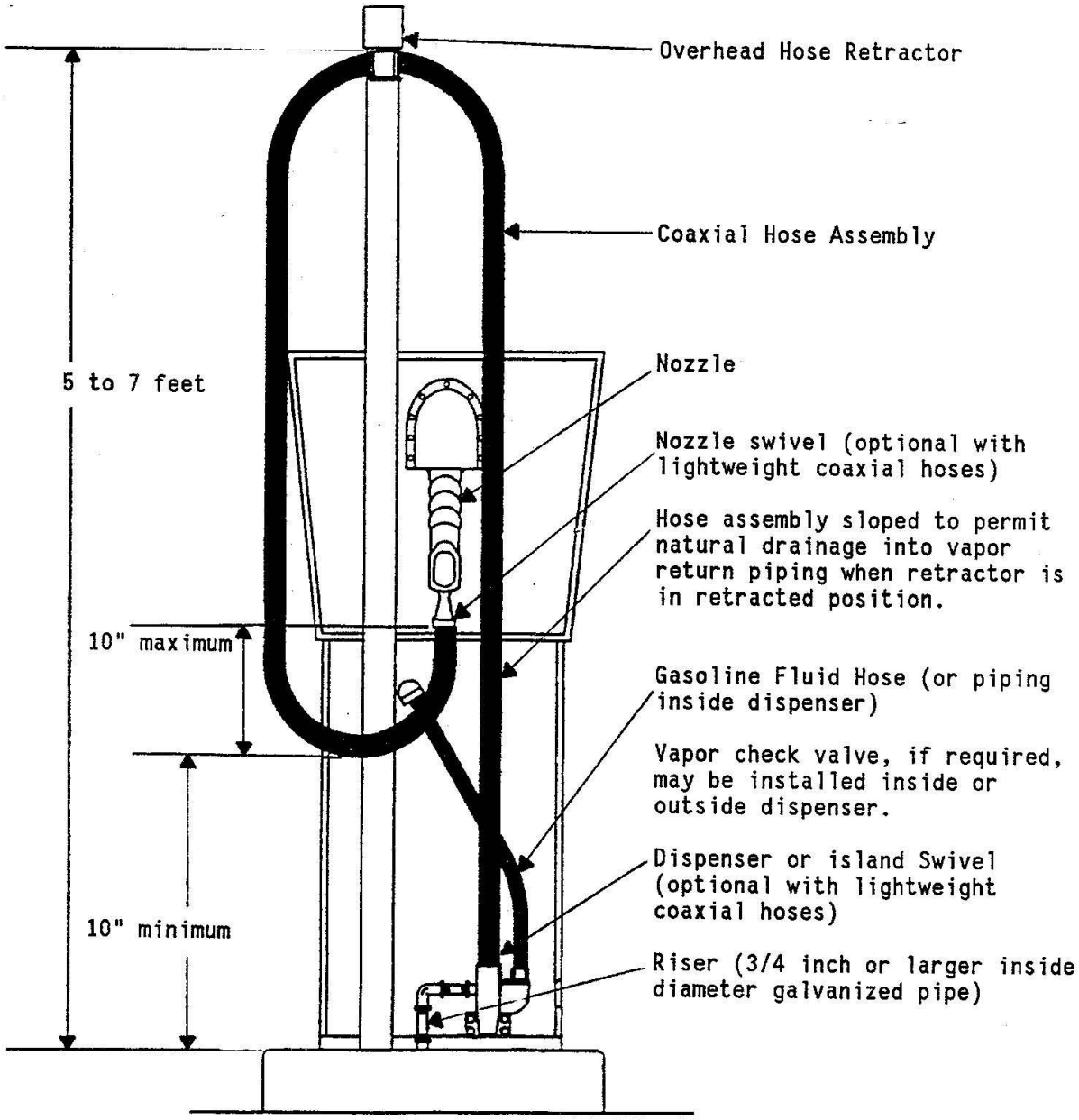
EXHIBIT 4
Executive Order G-70-52-AM

Dual Hose Side Mount High-Retractor Configuration
For Existing Installations Only



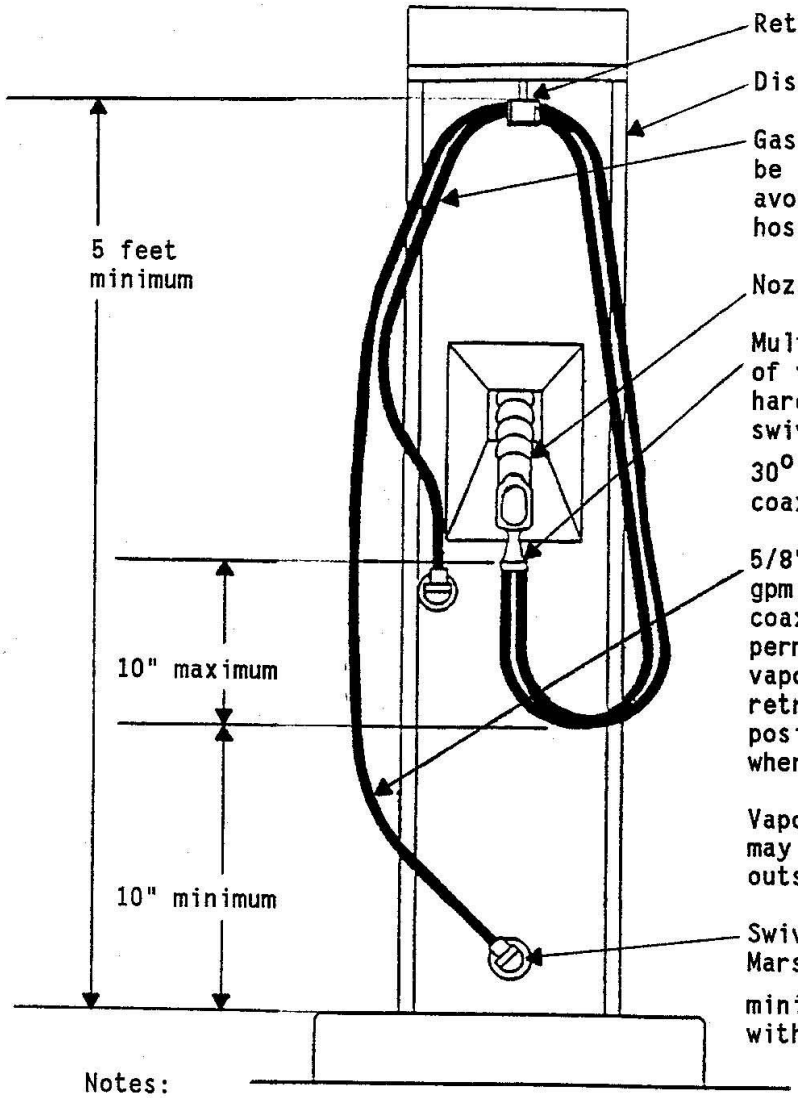
Notes:
1. See Exhibit 2 for the component list.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm. (A maximum flow rate of 12 gpm is permitted with the Hirt system provided vapor hoses are 3/4" ID.)
3. Use appropriate hose ties.
4. Vapor return piping may be installed on the inside or the outside of the dispenser cabinet.
5. The Emco Wheaton and EZ-flo A4000 and A4002 nozzles are permitted only when used in conjunction with certified vapor check valves.

EXHIBIT 5
Executive Order G-70-52-AM
Coaxial Hose Side-Mount High-Retractor Configuration
For New and Existing Installations



Notes:
1. See Exhibit 2 for the component list.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on all gasoline dispensers at the option of the local air pollution control district.
3. Vapor return piping may be installed on the inside or on the outside of the dispenser cabinet.
4. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.
5. Nozzle and dispenser or island swivels are required with hardwall coaxial hoses, and are optional with lightweight coaxial hoses.

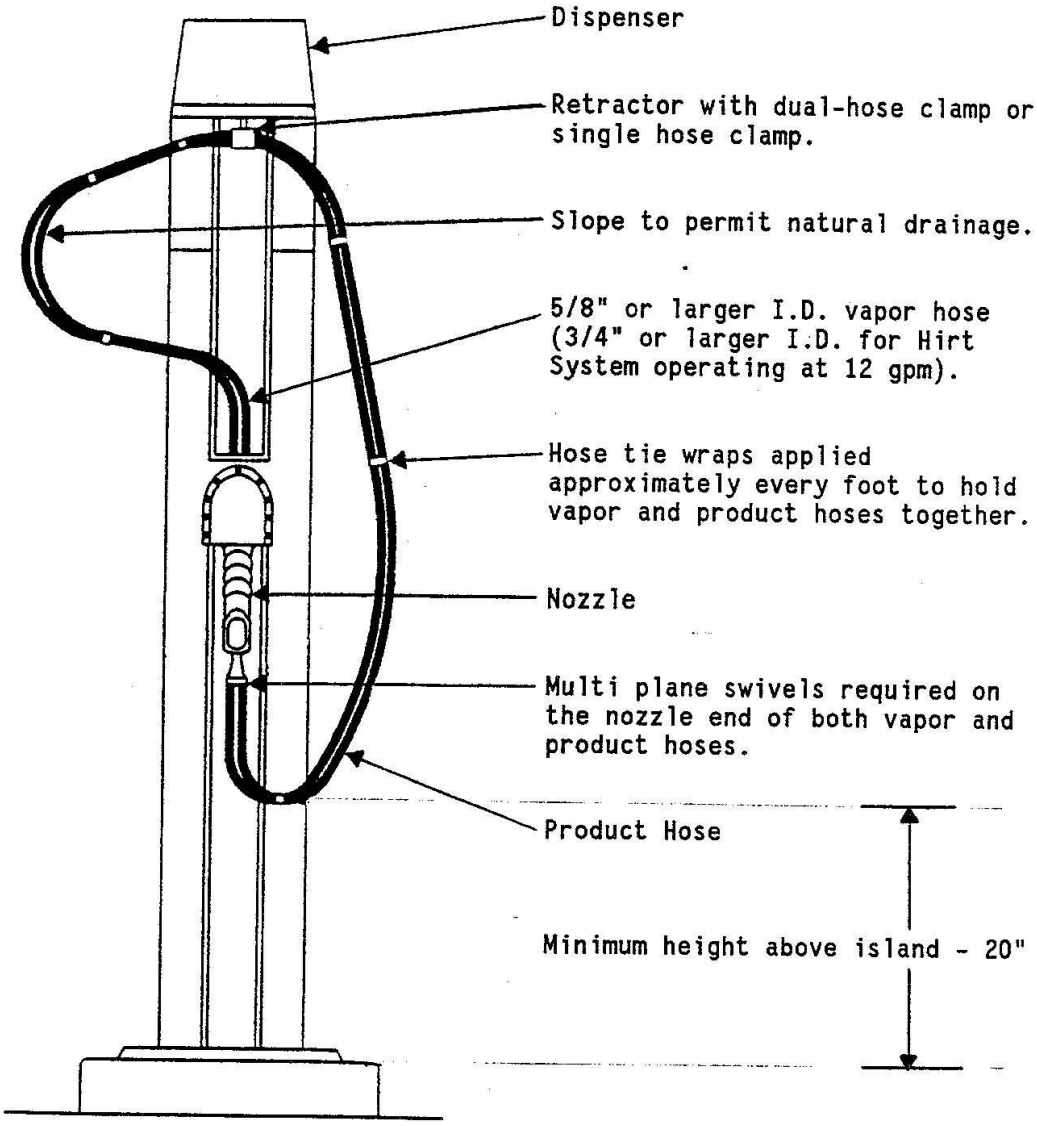
EXHIBIT 6
Executive Order G-70-52-AM
Dual and Coaxial Hose Dispenser-Mount High-Retractor Configuration



Notes:

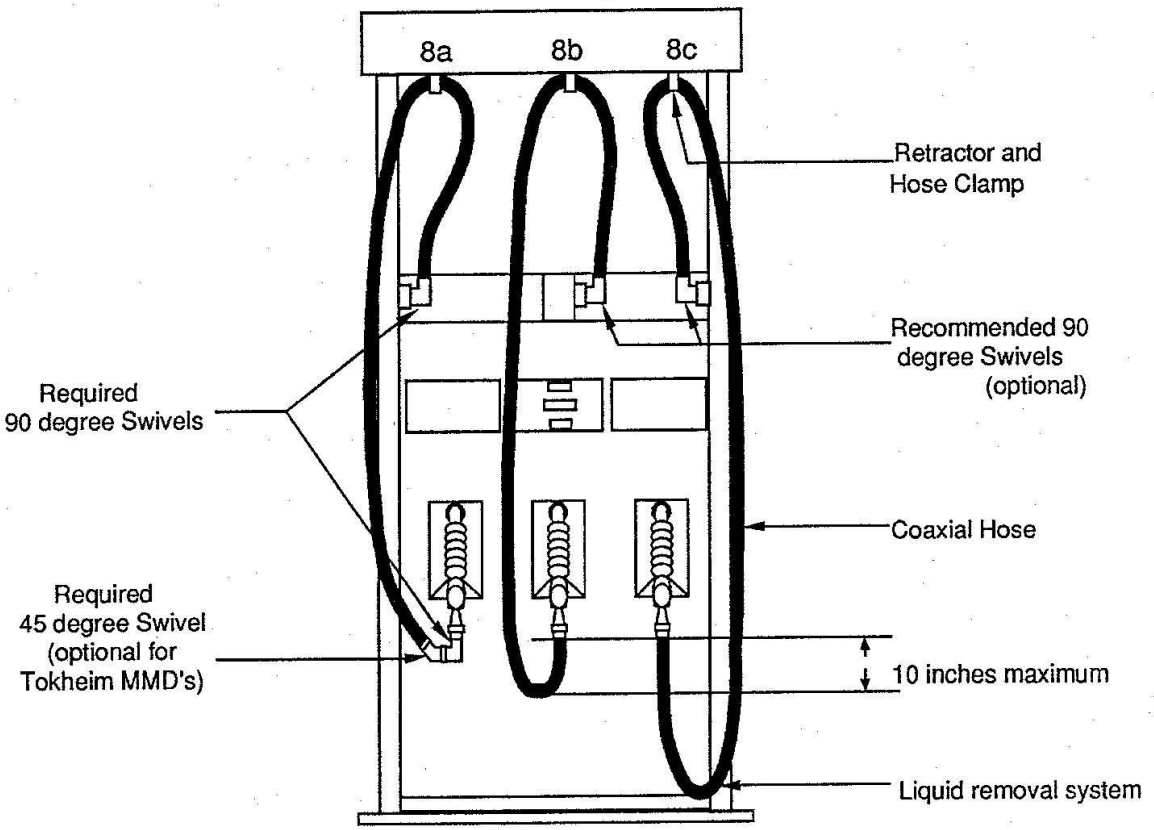
1. See Exhibit 2 for the component list.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm (12 gpm for dispensers with the Hirt system provided that 3/4" ID vapor hoses are used), and may be required on any gasoline dispenser at the discretion of the local air pollution control district.
3. Use appropriate hose ties.
4. Vapor return piping may be installed inside or outside dispenser cabinet.
5. Riser shall be 3/4 inch or larger inside diameter galvanized pipe.
6. The Emco Wheaton and EZ-flo A4000, A4001, A4002 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.
7. The coaxial hose dispenser-mount high-retractor configuration can be used for all new and existing installations. The dual hose dispenser-mount high-retractor configuration may not be used for new installations.
8. Nozzle and dispenser swivels are required with dual hoses and with hardwall coaxial hoses, and are optional with lightweight coaxial hoses.

EXHIBIT 7
Executive Order G-70-52-AM
Dual Hose Dispenser-Mount High-Retractor Configuration
For Existing Installations Only



Notes:
1. See Exhibit 2 for the component list.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm (12 gpm for dispensers for the Hirt System).
3. Hose swivels not required at dispenser end of hoses.
4. Riser must be 3/4 inch or larger inside diameter galvanized pipe.
5. Dual hose dispenser-mount high-retractor configuration not permitted on new installations.
6. The Emco Wheaton and EZ-flo A4000 and A4002 nozzles are permitted only when used in conjunction with certified vapor check valves.

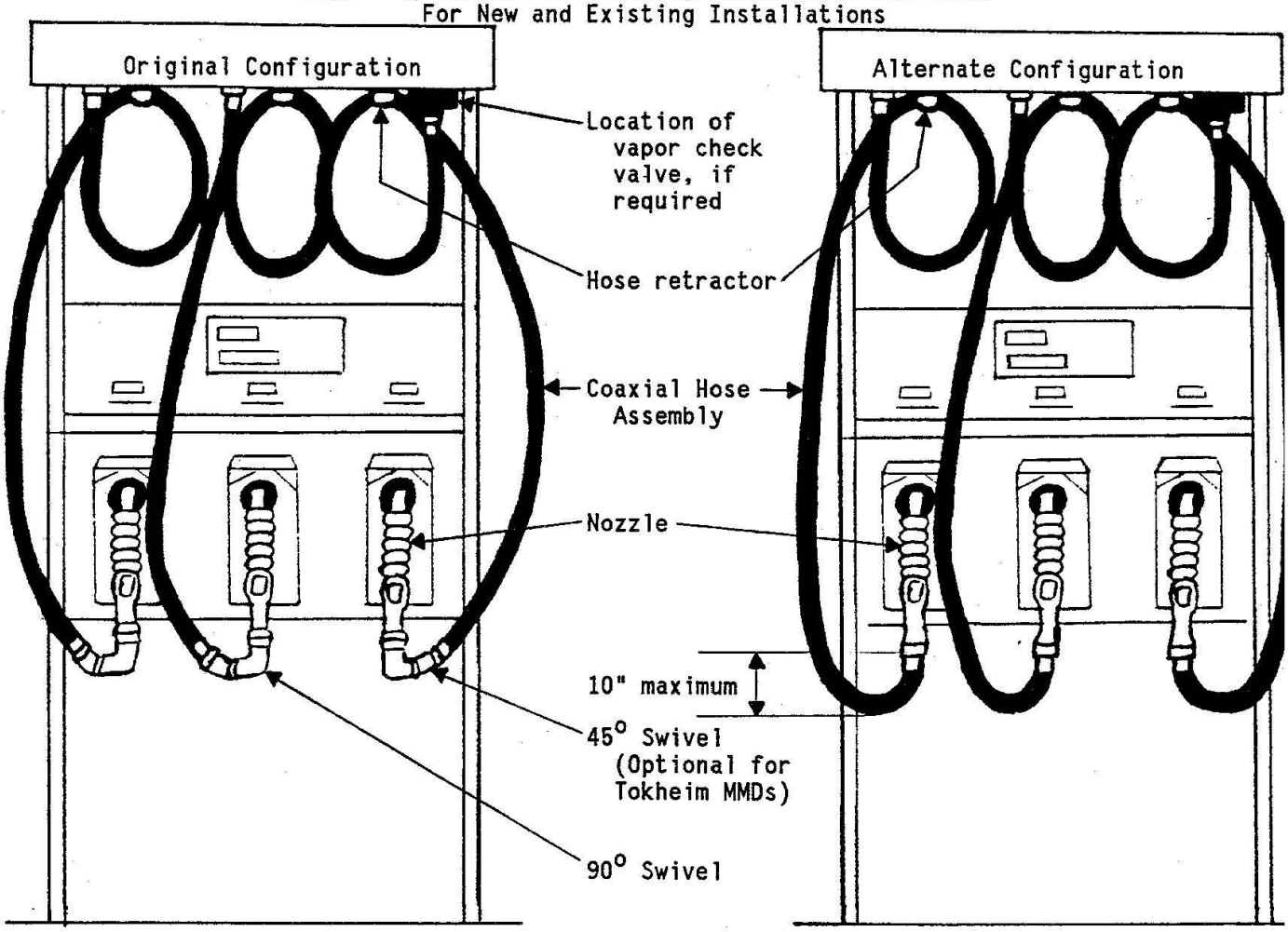
EXHIBIT 8
Executive Order G-70-52-AM
High-Retractor Dispenser - Coaxial Hose Configurations
For New and Existing Installations



Notes:

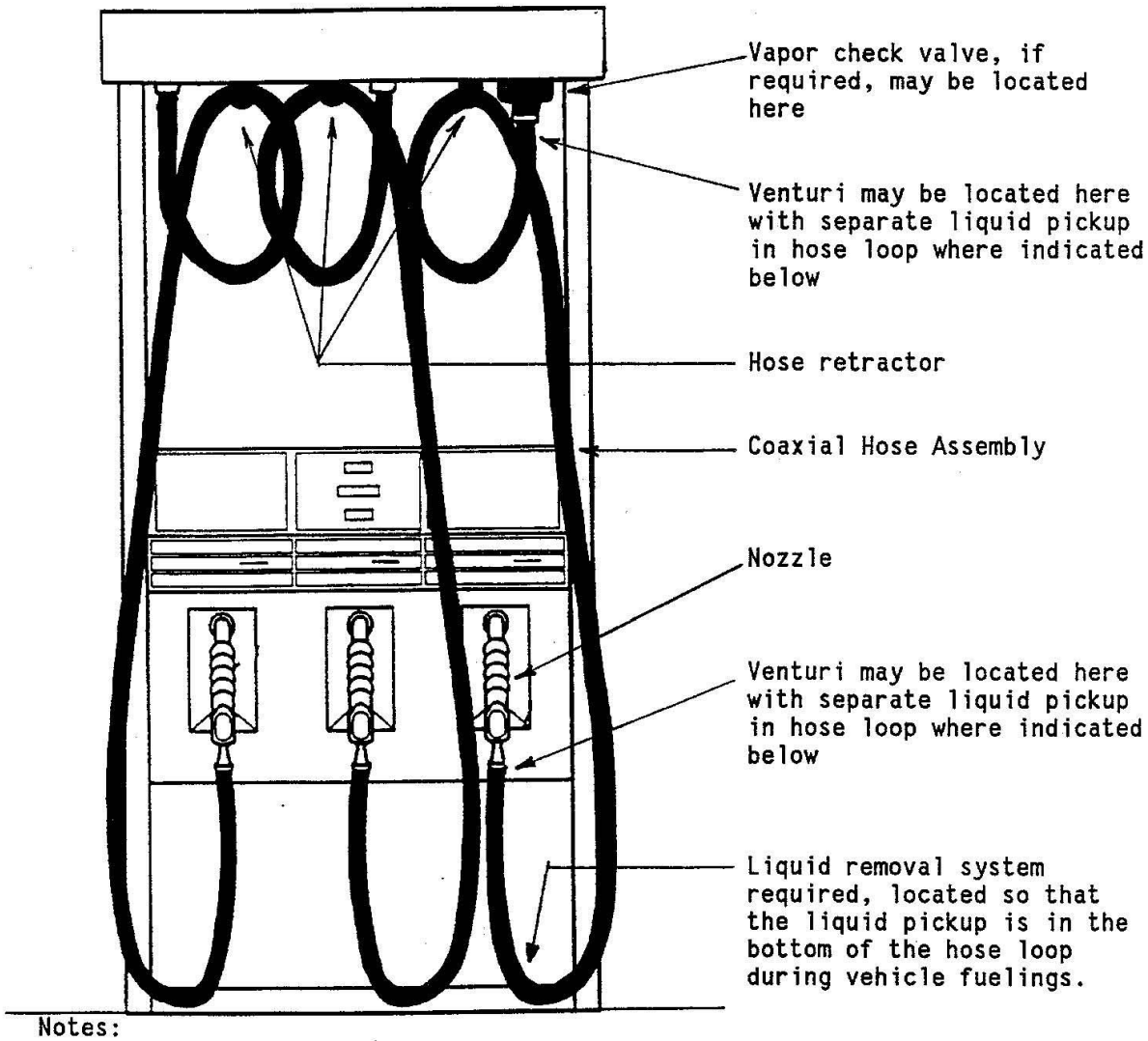
1. Use a 1 inch or larger diameter galvanized pipe for riser.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on any gasoline dispenser at the option of the local air pollution control district. Flow limiters are not recommended for configurations requiring liquid removal systems if flowrates are10 gpm or less for all nozzles.
3. For configuration 8a only, the maximum length of the hose assembly is 9 feet. For dispenser islands greater than 4 feet in width, the maximum length of the hose assembly shall not exceed the sum of one-half the dispenser width, in feet, plus 7 feet.
4. Retractor must retract coaxial hose to top of dispensers when not in use and hose must slope downward to dispenser to provide natural drainage from the retractor to the dispenser. Tension on retractor hose clamp must not be in excess of that required to return hose to top of dispenser.
5. For configuration 8c, the hose may not touch the island or the ground when not in use. In the case of a dogbone island where the wider ends protect the hose from damage by vehicle tires, the hose may touch the vertical face of the dogbone island at the option of the local air pollution control district.
6. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.
7. Configuration 8a with swivels is required with hardwall coaxial hoses.
8. Liquid removal system is required with configuration 8c and shall be located so that the liquid pickup is in the bottom of the hose loop during vehicle fuelings.

Exhibit 9 (a and b)
Executive Order G-70-52-AM
High-Hang Coaxial Hose Configuration with Retractor
For New and Existing Installations



Notes:
1. Use a 1 inch or larger inside diameter galvanized pipe for riser.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on all gasoline dispensers at the option of the local air pollution control district.
3. For dispenser islands less than 4 feet in width, the maximum length of the hose assembly is 9-1/2 feet. For dispenser islands greater than 4 feet in width, the maximum length of the hose assembly shall not exceed the sum of one-half the dispenser island width, in feet, plus 7-1/2 feet.
4. Retractor must retract coaxial hose to top of dispensers when not in use.
5. Tension on retractor hose clamp must not be in excess of that required to return hose to top of dispenser.
6. Original configuration required with hardwall hoses.
7. 90 degree swivel is not required if hose stiffener at nozzle is 24" in length (Hose stiffeners pertain only to B.F. Goodrich hoses).
8. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.

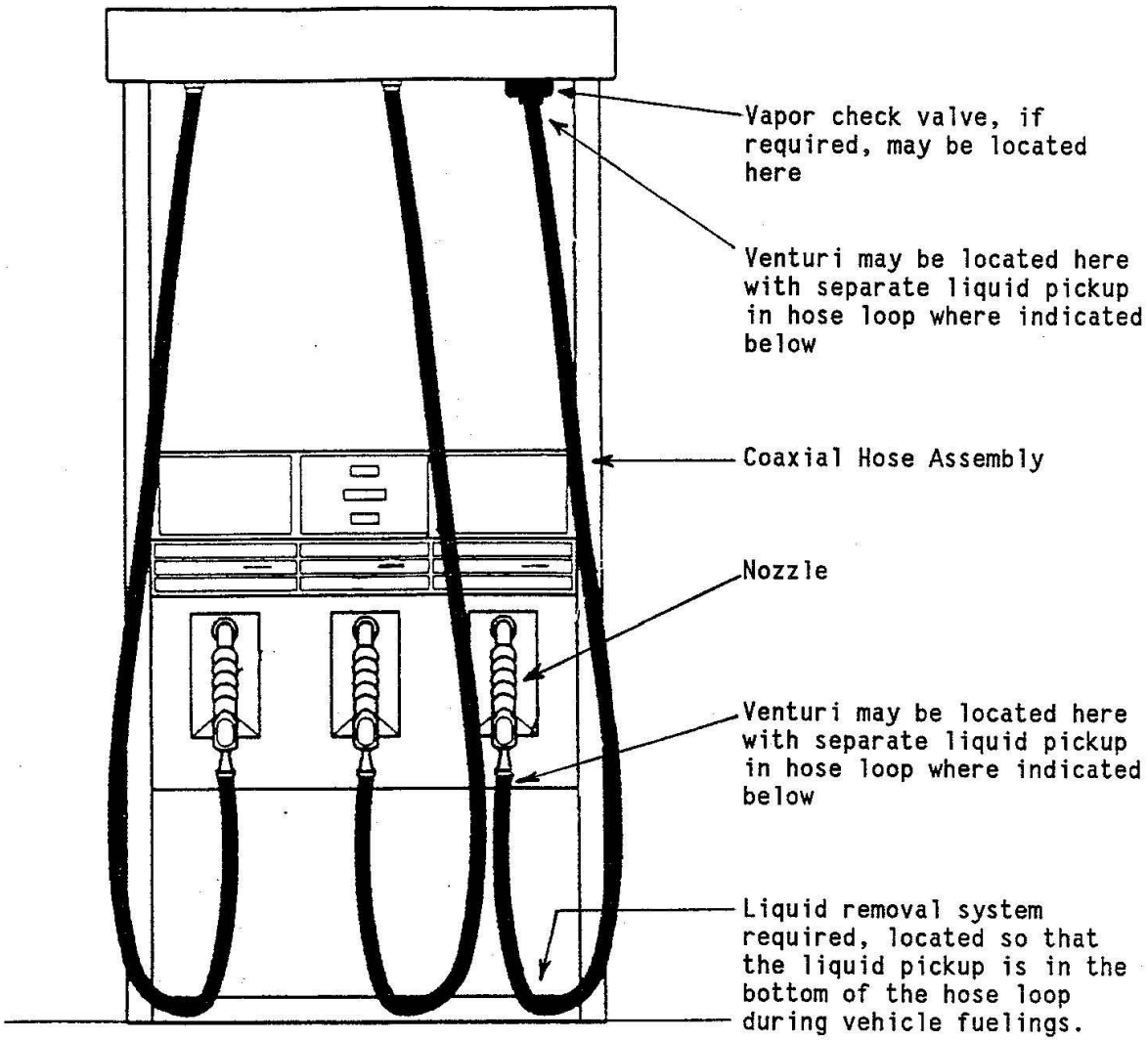
Exhibit 9c
Executive Order G-70-52-AM
High-Hang Coaxial Hose Configuration With Liquid Removal System
For New and Existing Installations



Notes:

1. Use 1 inch or larger inside diameter galvanized pipe for riser.
2. The maximum length of the hose assembly, including any breakaway valve, vapor check valve or pigtail hose, shall not exceed 13 feet.
3. An ARB certified liquid removal system must be installed and maintained according to the manufacturer's current specifications.
4. A flow limiter is required on all dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on all gasoline dispensers at the option of the local air pollution control district.
5. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.
6. The hose may not touch the island or the ground when not in use. In the case of a dogbone island where the wider island ends protect the hose from damage by vehicle tires, the hose may touch the vertical face of the dogbone island at the option of the local air pollution control district.
7. Retractor must retract coaxial hose to top of dispensers when not in use.
8. Tension on hose clamp must not be in excess of that required to return hose to top of dispenser.

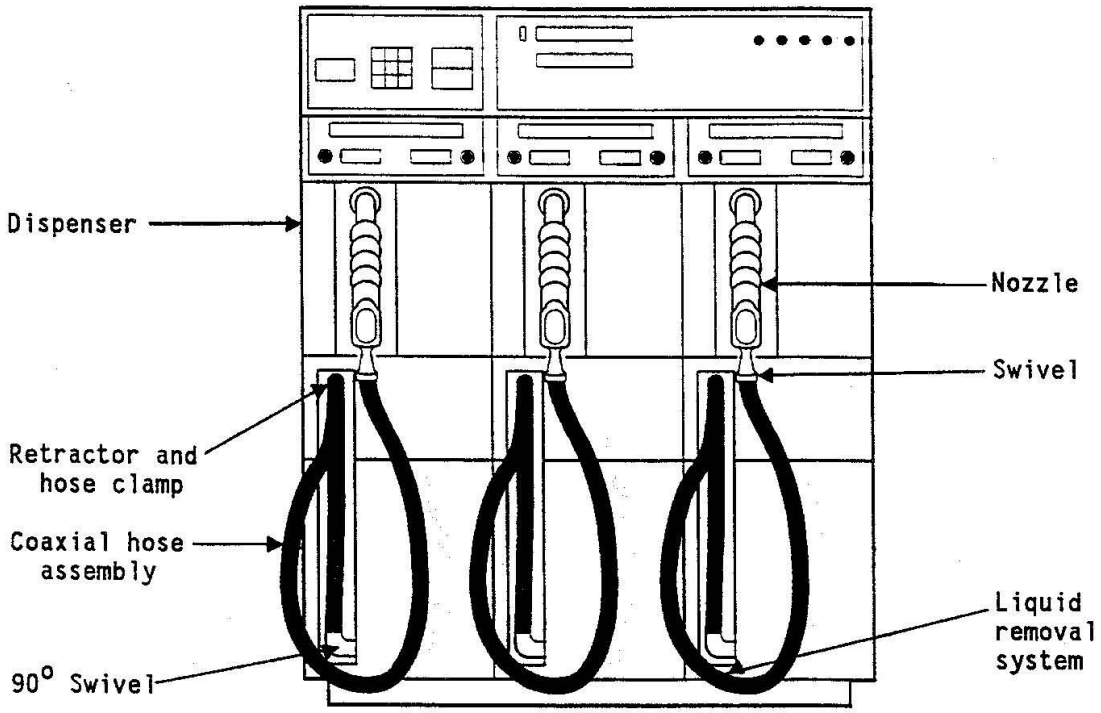
EXHIBIT 10
Executive Order G-70-52-AM
High-Hang Coaxial Hose Configuration With Liquid Removal System
For New and Existing Installations



Notes:

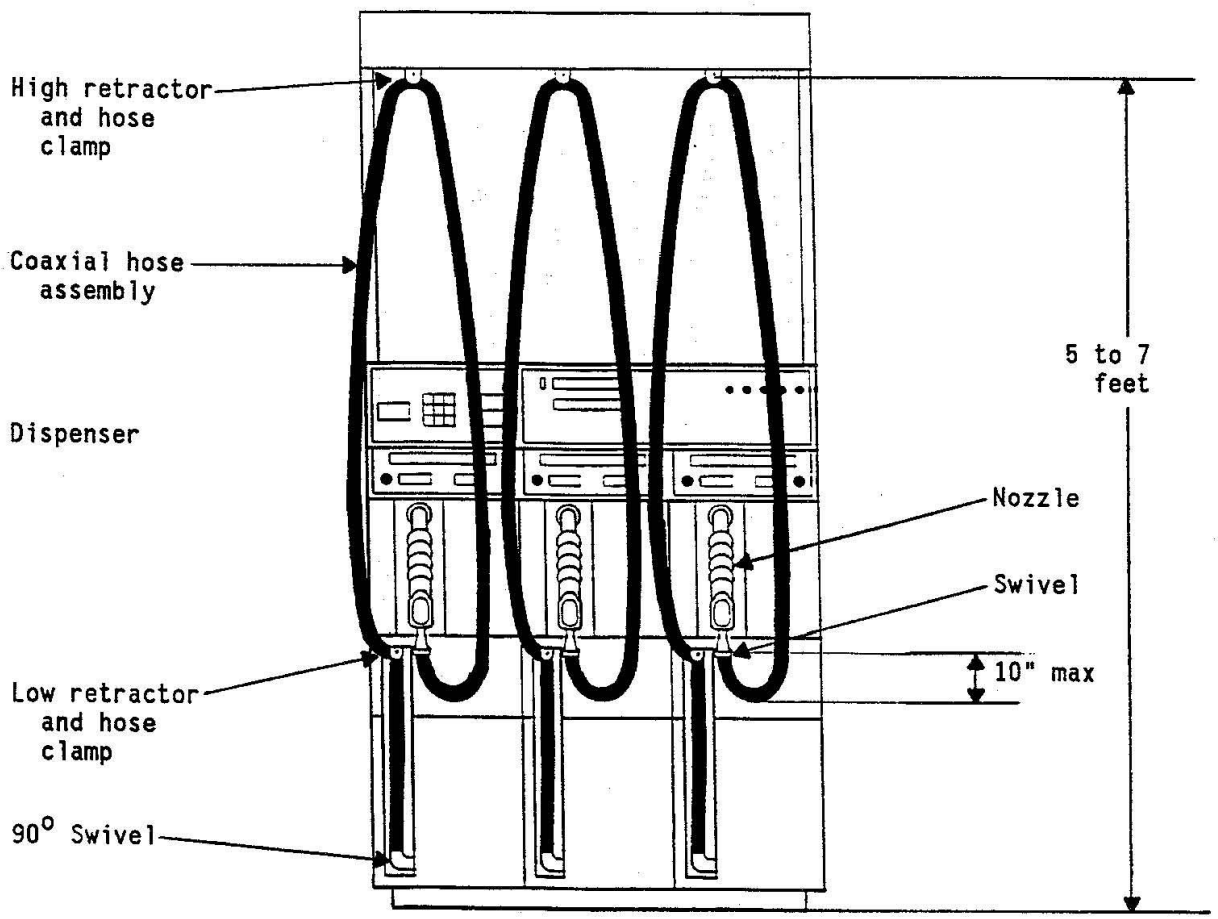
1. Use 1 inch or larger inside diameter galvanized pipe for riser.
2. The maximum length of the hose assembly is 10-1/2 feet.
3. An ARB certified liquid removal system must be installed and maintained according to the manufacturer's current specifications.
4. A flow limiter is required on all dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on all gasoline dispensers at the option of the local air pollution control district.
5. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.
6. The hose may not touch the island or the ground when not in use. In the case of a dogbone island where the wider island ends protect the hose from damage by vehicle tires, the hose may touch the vertical face of the dogbone island at the option of the local air pollution control district.

EXHIBIT 11
Executive Order G-70-52-AM
Low-Profile Dispenser with Retractor and Liquid Removal System
For New and Existing Installations



Notes:
1. Use 1 inch or larger inside diameter galvanized pipe for riser.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on all gasoline dispensers at the option of the local air pollution control district.
3. An ARB certified liquid removal system must be installed and maintained according to manufacturer's specifications.
4. Retractor must retract coaxial hose to dispenser when not in use. The hose must fit snugly against the dispenser from the low retractor to the 90° swivel.
5. Tension on retractor hose clamp must not be in excess of that required to return hose to dispenser.
6. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.
7. The hose may not touch the island or the ground when not in use. In the case of a dogbone island where the wider island ends protect the hose from damage by vehicle tires, the hose may touch the vertical face of the dogbone island at the option of the local air pollution control district.

EXHIBIT 11a
Executive Order G-70-52-AM
Low-Profile Dispenser with Retractors
For New and Existing Installations



Notes:
1. Use 1 inch or larger inside diameter galvanized pipe for riser.
2. A flow limiter is required on dispensers that have a maximum flowrate in excess of 10 gpm. A flow limiter may be required on all gasoline dispensers at the option of the local air pollution control district.
3. Low retractor must be present and must retract hose to dispenser when not in use. Hose must fit snugly against dispenser from low retractor to 90 degree swivel.
4. High retractor must retract hose fully when hose is not in use and must provide natural drainage from high retractor to the 90° swivel.
5. Tension on retractor hose clamp must not be in excess of that required to return hose to dispenser.
6. The Emco Wheaton and EZ-flo A4001 and A4003 nozzles are permitted only when used in conjunction with approved vapor check valves.

EXHIBIT 1[1]
Equipment List
Hanging Hardware

Component	*Manufacturer / Model*
Nozzle	VST Model VST-EVR-NB, VST-EVR-NB (Rebuilt) Or VST Model VST-EVR-NB (G2), VST-EVR-NB (G2 Rebuilt) Or EMCO Models A4005EVR, RA4005EVR (Rebuilt) (Figure 1A-1)
Coaxial Curb Hose	VST Model VDV-EVR Series or VDVP-EVR Series Or Veyance Model Maxxim Premier Plus *("NV" stamped on nozzle end)* (Figure 1A-2)
Coaxial Whip Hose	VST Model VSTA-EVR Series or VSTAP-EVR Series Or Veyance Model Maxxim Premier Plus (Figure 1A-2)
Breakaway Coupling	VST Model VSTA-EVR-SBK, VSTA-EVR-SBK (Reattachable)[2] Or EMCO Model A4119EVR Or OPW Model 66CLP (Figure 1A-2)

Allowable Hanging Hardware Combinations

	Nozzle		Hose		Breakaway		
Processor	VST	EMCO	VST	Veyance	VST	EMCO	OPW
VST Membrane	●		●	●	●	●	●
Veeder Root Vapor Polisher	●	●	●	●	●	●	●
FFS Clean Air Separator	●	●	●	●	●	●	●
Hirt VCS 100	●	●	●	●	●	●	●
VST Green Machine	●		●	●	●	●	●

[1] The local air district may require a permit application when changing between alternate components.
[2] The lower half of the VST reattachable breakaway, identified with a VST logo, cannot be used on the VST non-reattachable or rebuilt breakaways (previously certified by Executive Orders VR-203 A to O).