State of California

AIR RESOURCES BOARD

Executive Order G-70-36

Relating to the Certification of the
OPW Balance Phase II Vapor Recovery
System for Service Stations

Pursuant to the authority vested in the Air Resources Board (ARB) by Health and Safety Code Section 41954; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516;

IT IS ORDERED AND RESOLVED: That the OPW Balance Phase II vapor collection and disposal system is hereby certified to be 90 percent effective for attendant and/or self-serve use at gasoline service stations in conjunction with Phase I vapor recovery systems which have been certified by the Air Resources Board. Alternate piping arrangements for the system hereby certified are described in Exhibits 1 and 2 attached. A listing of certified system components is hereby presented in Exhibit 3 attached hereto.

IT IS FURTHER ORDERED AND RESOLVED: That compliance with the applicable certification requirements and rules and regulations of the Division of Measurement Standards, the State Fire Marshal's Office, and the Division of Industrial Safety of the Department of Industrial Relations is made a condition of this certification.

IT IS FURTHER ORDERED AND RESOLVED: That the system certified hereby shall perform in actual use with the same effectiveness as the certification test system. Compliance with this performance criterion shall be a condition of this certification, and failure to meet this criterion shall constitute grounds for revocation, suspension, or modification of this certification.

IT IS FURTHER ORDERED AND RESOLVED: That any alteration to the equipment, parts, design, or operation of the system certified hereby, is prohibited, and deemed inconsistent with this certification, unless such alteration has been approved by the undersigned.

IT IS FURTHER ORDERED AND RESOLVED: That in order for vapor return hoses longer than specified in this certification to be used the system shall incorporate a liquid blockage detector which is acceptable to the undersigned.

Executed at Sacramento, California, this 13th day of April, 1979.

Thomas C. Austin
Executive Officer

EXHIBIT 1
Executive Order G-70-36
OPW Balance Phase II
Vapor Recovery System
Manifolded Vapor Return Lines

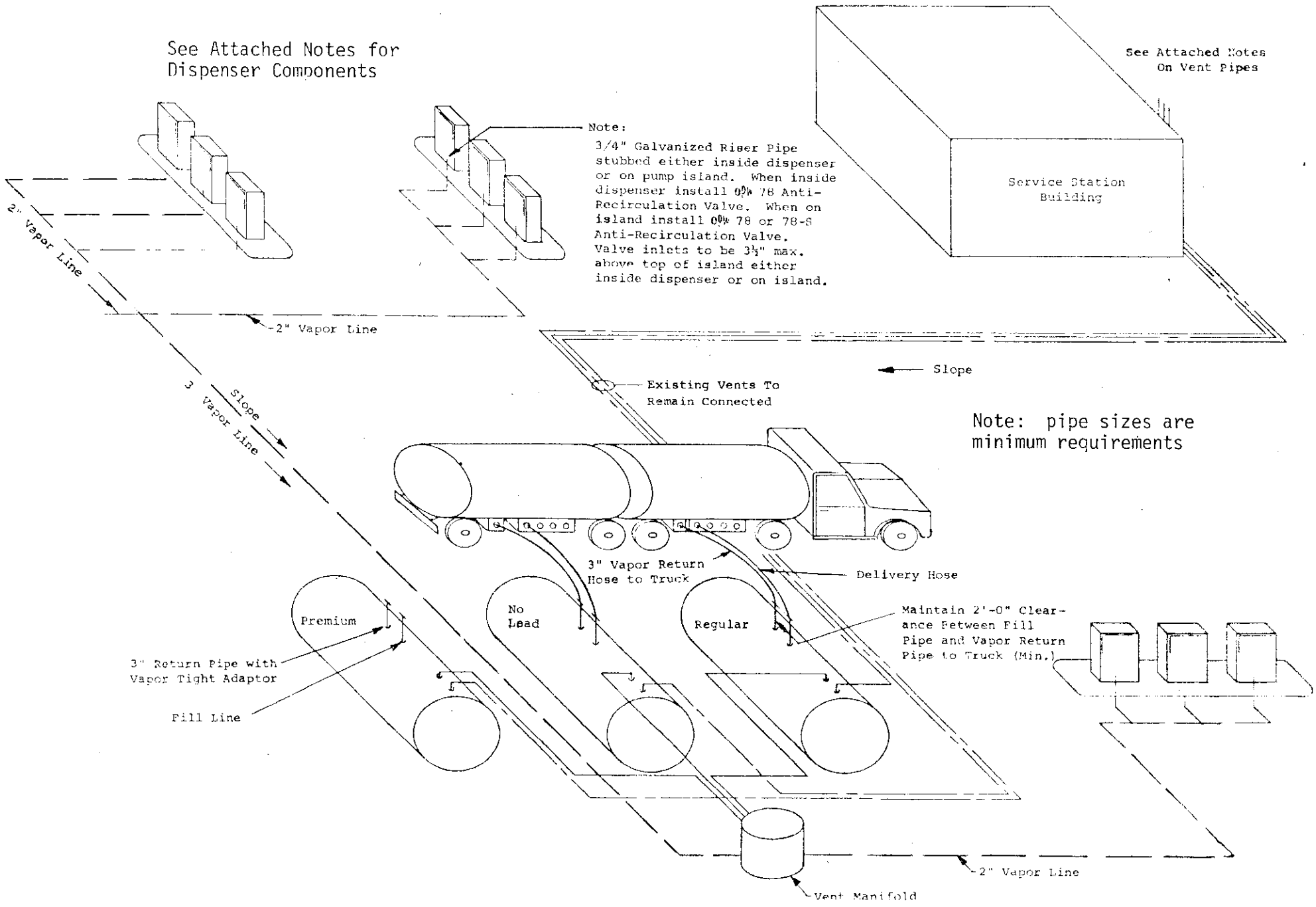

EXHIBIT 2
Executive Order G-70-36
OPW Balance Phase II
Vapor Recovery System
Individual Vapor Return Lines

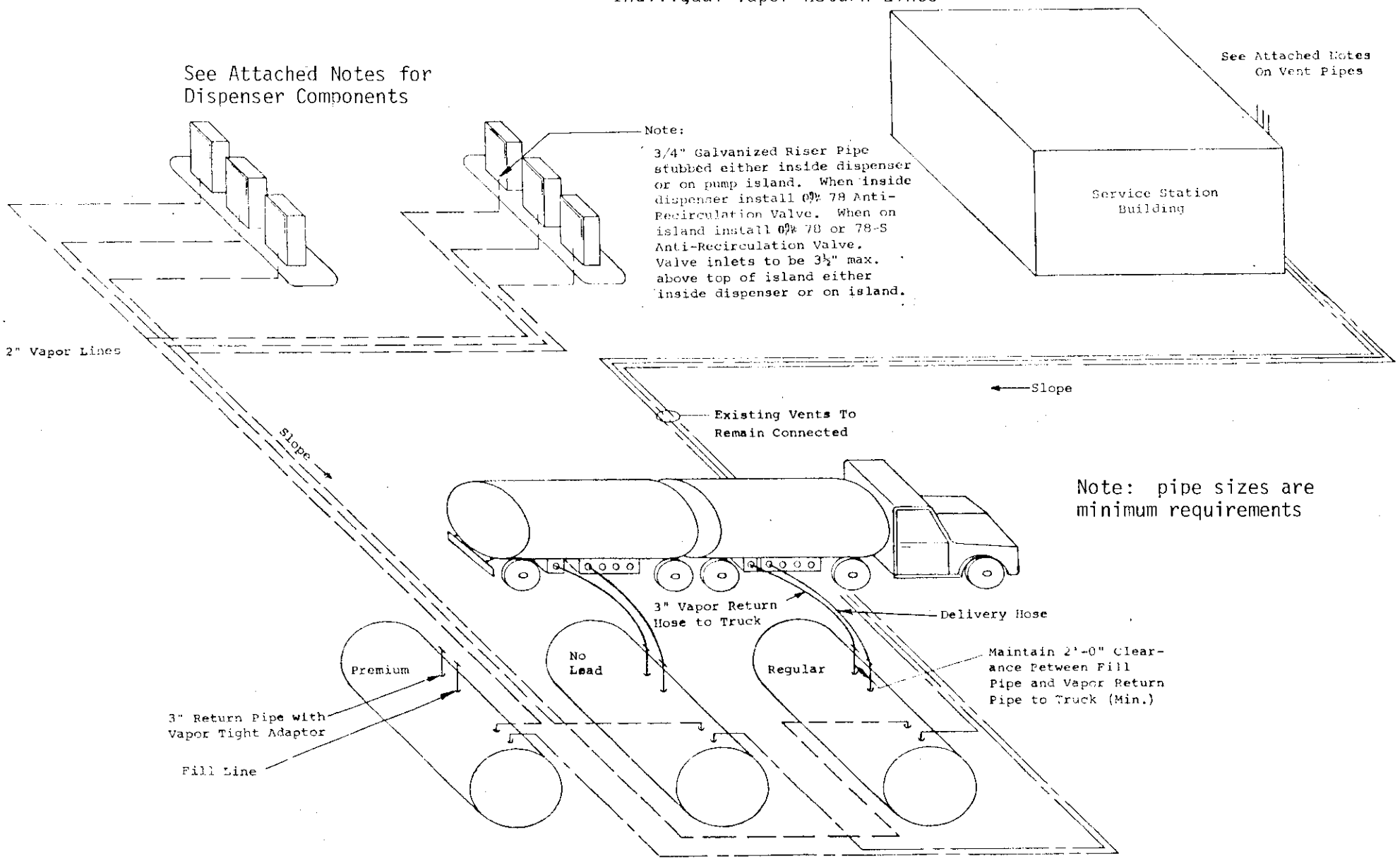

Exhibit 3

OPW Balance

Phase II Vapor Recovery System
for Service Stations
Component List

Item	Manufacturer and Model	State Fire Marshal Identification Number	Substitute Equipment	
			Manufacturer and Model	State Fire Marshal Identification Number
1a. Nozzle, leaded fuel	OPW 7-V Model C-22 OPW 7-V Model C-24	GVRC 001:008:18		
1b. Nozzle, unleaded fuel	OPW 7-V Model C-47 OPW 7-V Model C-49	GVRC 001:008:19		
2. Vapor hose	3/4 inch I.D. X 8 feet		5/8 inch I.D. X 8 feet	
3. Riser	3/4 inch or larger diameter Galvanized Pipe			
4. Anti-Recirculation Valve	OPW 78, 78-S, 78-E, or 78-ES	GVRC 001:008:13	Emco Wheaton A008-001	GVRC 001:007:4
5. Nozzle Swivel	State Fire Marshal approved 0.495 in. I.D. minimum			
6. Island Swivel	State Fire Marshal approved 0.495 in. I.D. minimum			

Pressure Drop Through the System
(Includes Nozzle, Anti-Recirculation Valve, Vapor Hose, and Underground Piping)

Flow (CFH)	Pressure Drop (inches H_2O)
20	0.2
60	0.4
100	0.9

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Notes to Accompany Exhibits 1, 2 and 3

1. Vent pipes shall be adequately supported throughout their length and when they are supporting weights in addition to their own, additional supports may be required - anchor to building or other structure.
2. Tank vent pipes two inches or less in nom. inside diameter shall not be obstructed by any device unless the tank and its associated piping and other equipment is protected to limit back pressure development to less than the maximum working pressure of the tank, piping and other equipment by the installation of an approved pressure/vacuum vent, rupture disc or other venting devices installed in the tank vent pipes.

3. Tank vent pipes shall terminate into the open atmosphere and shall be not less than 12 feet above the adjacent ground level. The outlet shall vent upward or horizontally and be located to eliminate the possibility of vapors accumulating or traveling to a source of ignition or entering adjacent buildings.

4. All vapor return and vent piping shall be provided with swing joints at the base of the riser to each dispensing unit, at each tank connection, and at the base of the vent riser where it fastens to a building or other structure. When a swing joint is used in a riser containing a shear section the riser must be rigidly supported.

5. Each vapor hose shall be located such that the center line of the hose fitting, at the anti-recirculation valve (if externally mounted) or at the dispenser cabinet swivel mounting (if valve is internally mounted), is not

more than 3-1/2 inches above the top surface of the island and is as close as possible to the top surface of the island.

6. For dispenser islands greater than 5 feet in width, each vapor hose length shall not be longer than the sum of one-half the dispenser island width, in feet, plus 6 feet.

7. For only those non-retail outlets which fuel special vehicles, the installation of vapor recovery hoses longer than eight feet are allowed provided the following conditions are met:

   a. The non-retail outlet fuels special vehicles such as large trucks, large skip loaders, off-the-road equipment, etc. where reaching the fill pipe requires longer hoses.

   b. The vapor return hose length is no longer than required.

   c. The vapor return hoses are arranged to be self-draining or provisions are made to drain the hoses after each refueling or the system incorporates an approved liquid blockage detection system arranged to cease dispensing when a blockage occurs.

   d. The Executive Officer of the Air Resources Board has approved the plans for compliance with conditions b and c.

8. State Fire Marshal approved swivels (and offsets if necessary) for this system shall be selected and installed on hoses to prevent hose kinking.

9. Product hose length shall be selected for each dispenser to provide for full extension of the vapor return hose.

10. If any OPW 78 series anti-recirculation valve is internally mounted in any dispenser, the top of the anti-recirculation valve shall not be higher than the top surface of the dispenser island and a vapor recovery piping shear section which meets State Fire Marshal requirements shall be installed.

11. On dual dispensers dispensing the same product from both sides, the vapor return lines may be connected to a single OPW 78 series anti-recirculation valve mounted internally in the dispenser.

12. For those dispensers classified as non-commercial by the Division of Measurement Standards and are not required to be tested and sealed by Weights and Measures officials, the use of anti-recirculation valves is optional. However, the use of anti-recirculation valves is recommended by the Division of Measurement Standards in any installation where the user utilizes the gallonage figures.