State of California

AIR RESOURCES BOARD

Executive Order G-70-36-C

Relating to the Modification of 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 certification Executive Order G-70-36-B issued on January 22, 1980, for the OPW balance Phase II vapor collection and disposal system is hereby modified to

1. Include the B.F. Goodrich co-axial hose assembly, described in Exhibits 4 and 5, as an alternate hose configuration, and

2. To include the OPW-11VC slim handle nozzle as an alternate nozzle for the OPW-7VC.

The system is certified to be at least 95 percent effective in self-serve and/or attendant use at gasoline service stations in conjunction with Phase I vapor recovery systems which have been certified by the Air Resources Board. The system is described in Exhibits 1, 2, 3, 4, and 5 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 the applicable 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 the OPW-7VC, OPW-11VCC, and OPW-11VC nozzles shall be 100 percent performance checked at the factory including checks of proper functioning of all automatic shut-off mechanisms.

IT IS FURTHER ORDERED AND RESOLVED: That during installation of the OPW-7VC, OPW-11VCC, and OPW-11VC nozzles they shall be performance tested for ability to dispense gasoline without difficulty in the presence of the station manager or other responsible individual. The station manager, owner or operator shall also be provided with instructions on the proper use of the nozzles, their repair and maintenance, and where nozzle replacements and nozzle components can be readily obtained. A copy of the nozzle warranty shall be made available to the station manager, owner or operator.

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 4th day of March, 1980.

Thomas C. Austin
Executive Officer

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

See Attached Notes *and Exhibits*
for Dispenser Components

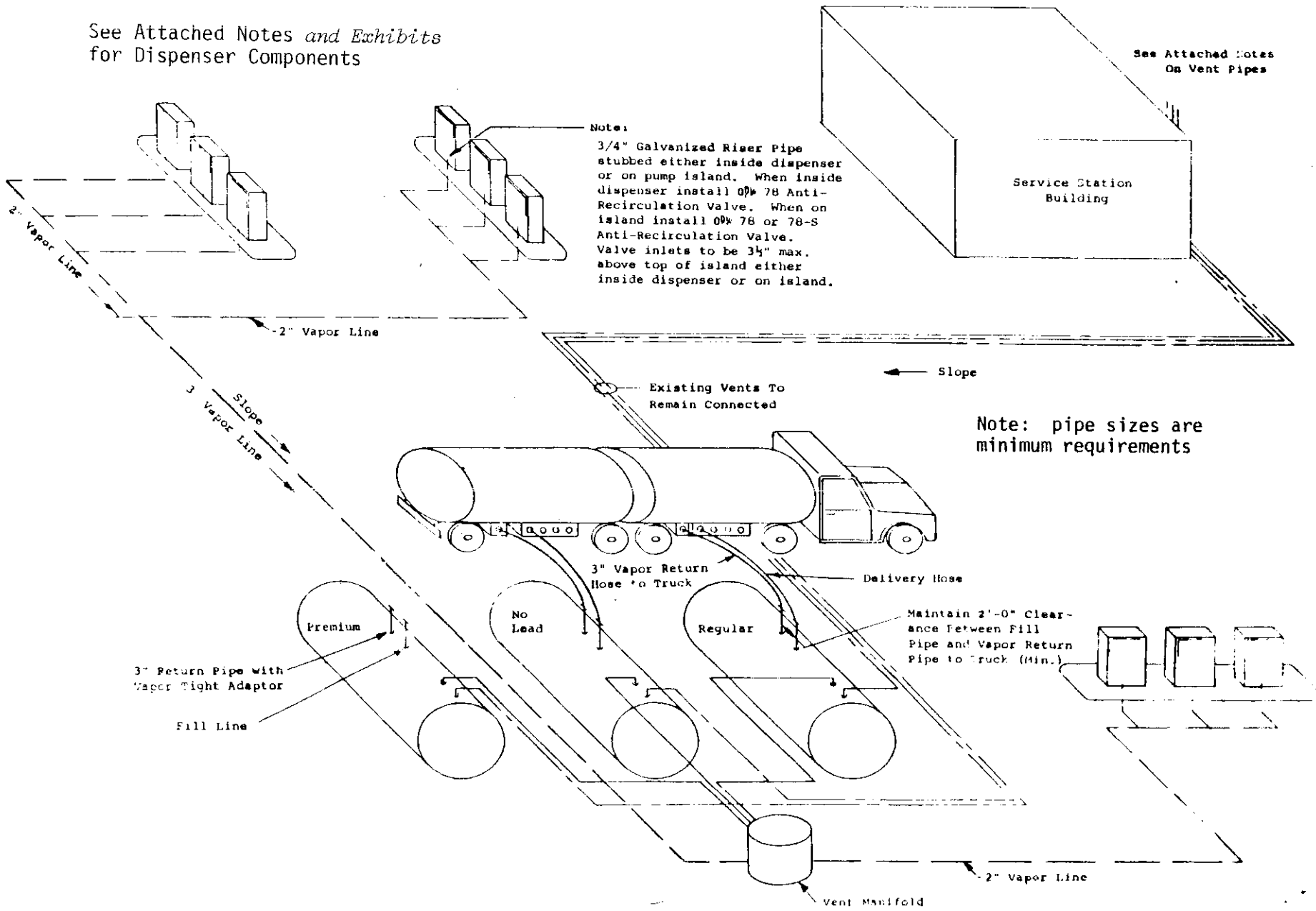

EXHIBIT 2
Executive Order G-70-36-C
OPW Balance Phase II
Vapor Recovery System
Individual Vapor Return Lines

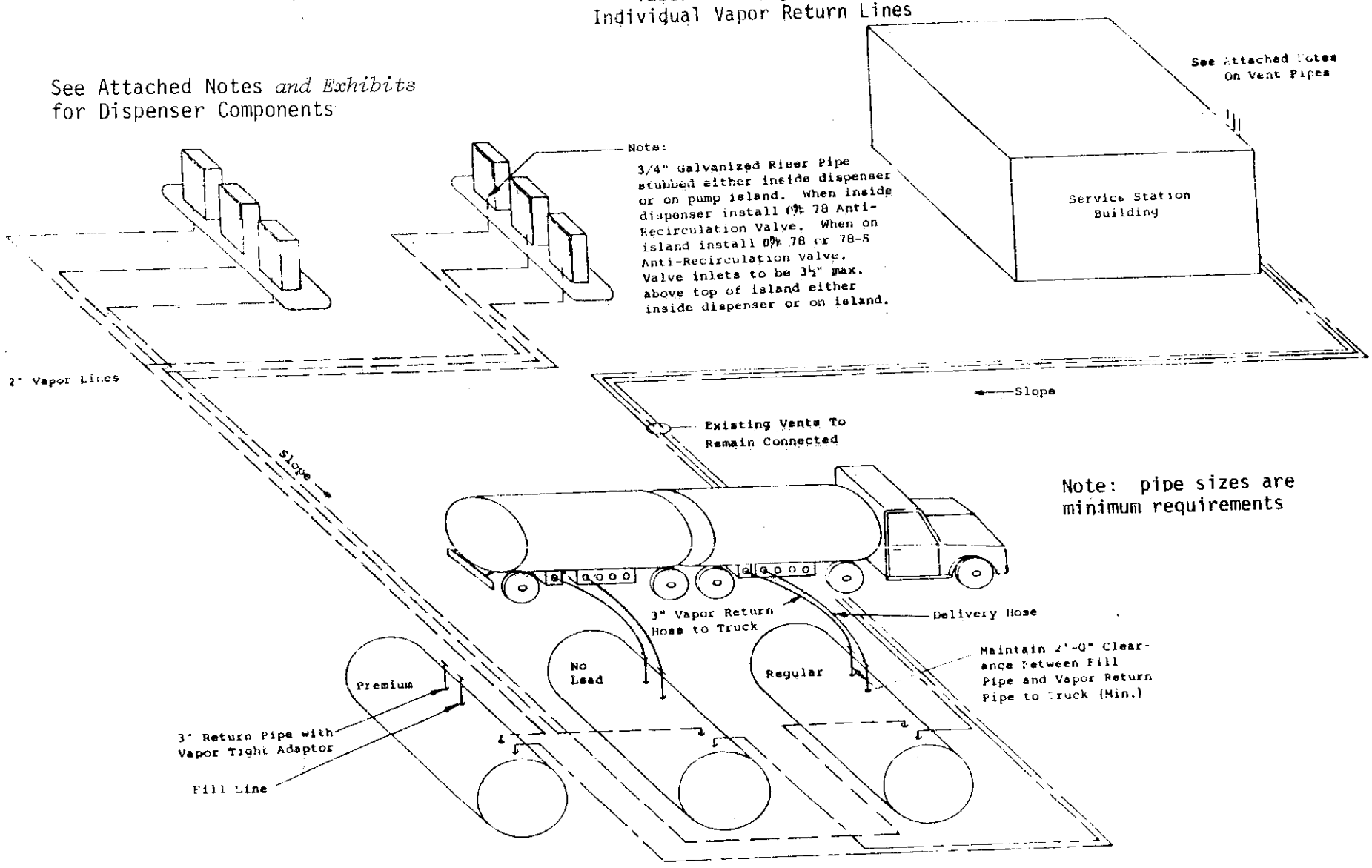

Exhibit 3
Executive Order G-70-36-C
OPW Balance

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	*OPW-11V Model C-22* *OPW-11V Model C-24*	*GVRC 005:008:26*
1b. Nozzle, unleaded fuel	OPW 7-V Model C-47 OPW 7-V Model C-49	GVRC 001:008:19	*OPW-11V Model C-47* *OPW-11V Model C-49*	*GVRC 005:008:26*
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 A 94-001* *Emco Wheaton A 95-001* Emco Wheaton A008-001	*GVRC 005:007:8* *GVRC 005:007:9* 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, Swivels, and Underground Piping)

Flow (CFH)	Pressure Drop (inches H_2O)
20	less than 0.15
60	less than 0.45
100	less than 0.95

*Pressure drop test to be conducted with drybreak to underground tank open.

EXHIBIT 4

Executive Order G-70-36-C

OPW Balance Phase II Vapor Recovery System

Alternate Hose Configuration

B.F. Goodrich Co-Axial Hose Assembly

(See Exhibit 5 for Componenet List)

(See Exhibit 3 for Pressure Drop Requirements)

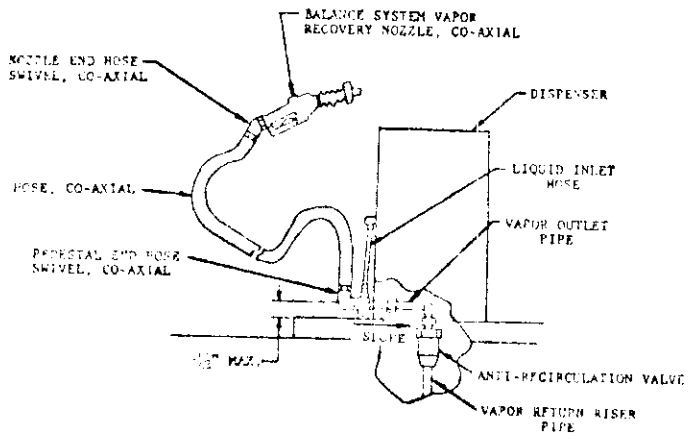

EXHIBIT 5

Executive Order G-70-36-C

OPW Balance Phase II Vapor Recovery System

Alternate Hose Configuration

B.F. Goodrich Co-Axial Hose Assembly

Component List

(See Exhibit 3 for Pressure Drop Requirements)

ITEM		MANUFACTURER AND MODEL	STATE FIRE MARSHAL IDENTIFICATION NUMBER	SUBSTITUTE EQUIPMENT	
				MANUFACTURER AND MODEL	STATE FIRE MARSHAL IDENTIFICATION NUMBER
1a.	Nozzle, leaded fuel	OPW 11-V Model CC-22 OPW 11-V Model CC-24	GVRC 005:008:25 GVRC 005:008:25		
1b.	Nozzle, unleaded fuel	OPW 11-V Model CC-47 OPW 11-V Model CC-49	GVRC 005:008:25 GVRC 005:008:25		
2.	Hose	B.F. Goodrich Co-Axial 1-1/4" Vapor 1/2" Fluid Hose, 8 feet long	GVRC 005:014:1		
3.	Riser	3/4" or larger diameter Galvanized Pipe			
4.	Anti-Recirculation Valve	OPW 78, 78-S, 78-E or 78-ES	GVRC 001:008:13	Emco Wheaton A 94-001 Emco Wheaton A 95-001 Emco Wheaton A 006-001	GVRC 005:007:8 GVRC 005:007:9 GVRC 001:007:4
5.	Nozzle Swivel	OPW 43-C-1-7/8"	GVRC 005:008:27		
6.	Pedestal Swivel	OPW 36-CE-1-7/8"	GVRC 005:008:28		

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Notes to Accompany Exhibits 1, 2, 3, 4, and 5

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 is 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. *(Does not apply to co-axial hose configuration, Exhibits 4 and 5).*

10. If any OPW 78 series *or Emco Wheaton 494-001* 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. 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 Measured 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.