

California Environmental Protection Agency



Vapor Recovery Equipment Defects List

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Vapor Recovery Equipment Defects List

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GVR All Systems/any E.O.		
equipment	defects	verification procedure
(a) system	(1) any equipment defect which is identified in an Executive Order (E.O.) certifying a system pursuant to the Certification Procedures incorporated in Section 94011 of Title 17, California Code of Regulations	as set forth in the applicable E.O.
	(2) absence, improper installation, or disconnection of any component required to be used in the E.O.(s) that certified the system	direct observation
	(3) installation or use of any uncertified component	direct observation
	(4) dispensing rate greater than ten (10.0) gallons per minute (gpm) or less than the greater of five (5.0) gpm or the limit stated in the E.O. measured at maximum fuel dispensing	when determined as part of any ARB approved test method or direct measurement for 30 seconds minimum
	(5) phase I vapor poppet inoperative	direct observation
(b) nozzles	(1) nozzle automatic liquid shutoff mechanisms which malfunction in any manner	EPO No. 26-F-1/direct observation

note: Each defect in the tables in this list has a specific alphanumeric identification. Every identification has three parts: i) the Executive Order number for the table in which the defect appears (or GVR-general vapor recovery-for this "All Systems/any E.O." page only), ii) a sequential letter for the equipment with which the defect is associated, and iii) a sequential number for the defect itself. As the "equipment" column in the table changes, the defect number sequence that is associated with the specific equipment begins again with one ("1"). The same is true for the equipment letter: at the start of a new table the first identifying letter associated with the first equipment listed will be "a," the second "b," and so on. The Executive Order number (part i) is comprised of the characters which proceed the literal description of the system.

For example, the identification for the defect above which is written "installation or use of any uncertified component" is "GVR(a)(3)" and the last defect in the ~~next~~ next table on (page 3 ~~2~~) is "G-70-7175(di)(1)".

G-70-7 series Hasstech VCP-2 and VCP-2A		
equipment	defects	verification procedure
(a) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(3) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
(b) hoses	(1) any coaxial hose with a perforation exceeding one-eighth (0.13) inch diameter	direct measurement/ observation
	(2) any coaxial hose with slits or tears in excess of one-fourth (0.25) inch in length	direct measurement/ observation
(c) processing unit	(1) three consecutive unsuccessful attempts to ignite the incinerator which occur at least two hours after a bulk delivery *	direct measurement/ observation/system monitor observation
	(2) unit does not activate when the system pressure reaches or exceeds two (2.0) inches water column and occurs at least two hours after a bulk delivery *	direct measurement using storage tank pressure device
	(3) emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery *	Method 9
	(4) vapor processing unit inoperative *	direct observation
(d) collection unit	(1) vacuum producing device inoperative *	direct observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-14 series Red Jacket	G-70-17 series Emco Wheaton	G-70-23 series Exxon
G-70-25 series Atlantic Richfield	G-70-33 series Hirt	G-70-36 series OPW
G-70-38 series Texaco	G-70-48 series Mobil	G-70-49 series Union
G-70-52 series Red Jacket, Hirt	G-70-53 series Chevron	G-70-78 series EZ-flow rebuilds
G-70-107 series Rainbow rebuilds	G-70-125 series Husky Model V	G-70-127 series OPW 111V
G-70-134 series EZ-flow rebuilds	G-70-139 series Hirt AST	G-70-170 series EZ-flow rebuilds
equipment	defects	verification procedure
(a) nozzles	(1) any nozzle boot torn in one or more of the following manners: a triangular-shaped or similar tear one-half (0.50) inch or more on any side, or hole one-half (0.50) inch or more in diameter, or slit one (1.0) inch or more in length (2) any faceplate or flexible cone damaged in the following manner: for balance nozzles and for nozzles for aspirator and eductor assist type systems, damage such that the capability to achieve a seal with a fill pipe interface is affected for one-fourth (25%) of the circumference of the faceplate (accumulated) (3) flexible cone damaged in the following manner: for booted type nozzles for vacuum assist-type systems, more than one-fourth (25%) of the flexible cone missing (4) insertion interlock mechanism which will allow dispensing when the bellow is uncompressed	direct measurement/ observation direct measurement/ observation direct measurement/ observation direct observation/ GDF-09
(b) hoses	(1) any coaxial balance hose with 100 ml or more liquid in the vapor path (2) any hose with a visible opening	direct measurement direct observation
(c) processing unit	(1) vapor processing unit inoperative *	direct observation
(d) vapor return lines	(1) pressure drop through the vapor path exceeds by a factor of two or more requirements specified in the Executive Order(s) that certified the system	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

note: The identification scheme for defects listed in this table is the same three part alphanumeric identification (see page 1) as the other tables. However, the correct Executive Order number will be the one for the specific system in question. For example, the identification for the defect above which is written "any hose with a visible opening" will begin "G-70-" and end with "(b)(2)." On the Atlantic Richfield system it will be "G-70-25(b)(2)", on the Texaco system it will be "G-70-38(b)(2)", and so on.

G-70-118 series Amoco V-1		
equipment	defects	verification procedure
(a) system	(1) defective vapor valve	GDF-01/GDF-02
	(2) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(3) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(4) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(5) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
(b) Husky V-1 nozzle	(1) efficiency compliance device (ECD) damaged such that at least one eighth (13%) of the diameter is missing	direct measurement/ observation
	(2) less than two unblocked vapor holes	direct observation
(c) OPW 11 VAA nozzle	(1) any ECD damaged such that a slit from the outer to inner edge exists	direct measurement/ observation
	(2) less than three unblocked vapor holes	direct observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-150 series Marconi (Gilbarco) Vapor Vac		
equipment	defects	verification procedure
(a) system	(1) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) both booted and unbooted nozzle types connected to the same vapor pump	direct observation
	(5) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
(b) Catlow ICVN nozzle	(1) less than three unblocked vapor holes	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
	(3) efficiency compliance device slit from base to the rim	direct observation
(c) Emco Wheaton A4505 nozzle	(1) less than three unblocked vapor holes	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
	(3) one-eighth (13%) of vapor guard circumference missing	direct measurement/ observation
(d) Emco Wheaton A4500 nozzle	(1) less than three unblocked vapor holes	direct observation
(e) Husky V34 6250 nozzle	(1) a one and one-half (1.5) inch or greater slit in vapor splash guard	direct measurement/ observation
	(2) any hole greater than three-eighths (0.38) inch in vapor splash guard	direct measurement/ observation
	(3) defective vapor valve	GDF-01/GDF-02
(f) Husky V3 6201 nozzle	(1) all vapor holes blocked	direct observation
(g) OPW 11VAI nozzle	(1) less than four unblocked vapor holes	direct observation
(h) OPW12VW nozzle	(1) all vapor holes blocked	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
	(3) vapor escape guard with three-fourths (75%) of the circumference missing	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-153 series Dresser/Wayne Vac		
equipment	defects	verification procedure
(a) system	(1) any splash guard that interferes with the operation of a vapor escape guard (VEG) or vapor splash guard (VSG) unit (2) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard (3) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded (4) system not in compliance with the static pressure decay test criteria* (5) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH) (6) defective vapor valve	direct measurement/ observation TP201.5 or equivalent direct observation TP201.3 or equivalent TP201.4 or equivalent GDF-01/GDF-02
(b) OPW 11VAI and Husky V34 6200-4 nozzles	(1) less than two unblocked vapor holes (2) any VEG damaged such that at least one-eighth (13%) of the circumference is missing	direct observation direct measurement/ observation
(c) Husky V34 6200 nozzle	(1) less than two unblocked vapor holes	direct observation
(d) Husky V34 6200 and V34 6250 nozzles	(1) any VSG damaged such that at least a one and one-half (1.5) inch slit has developed (2) any VSG flange portion that does not make contact with or cover the entire fill pipe opening (3) any VSG with a hole greater than three-eighths (0.38) inch	direct measurement/ observation direct measurement/ observation direct measurement/ observation
(e) Emco Wheaton A4505 nozzle	(1) less than three unblocked vapor holes (2) any vapor guard (VG) damaged such that at least one-eighth (13%) of the circumference is missing	direct observation direct measurement/ observation
(f) Catlow ICVN and Richards Astrovac nozzles	(1) less than three unblocked vapor holes (2) any efficiency compliance device damaged with a slit from the base to the rim	direct observation direct observation
(g) OPW 12VW nozzle	(1) all vapor holes blocked (2) any VEG damaged such that at least three-quarters (75%) of the circumference is missing	direct observation direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-154 series Tokheim MaxVac		
equipment	defects	verification procedure
(a) nozzles	(1) defective vapor valve	GDF-01/GDF-02
(b) OPW 11VAI and Husky V34 6200-5 nozzles	(1) efficiency compliance device (ECD) damaged such that at least one-fourth (25%) of the circumference is missing	direct measurement/observation
(c) Husky V34 6200 and V34 6250 nozzles	(1) less than two unblocked vapor holes	direct observation
	(2) vapor splash guard (VSG) damaged such that at least a one and one-half (1.5) inch slit has developed	direct measurement/observation
	(3) VSG damaged such that greater than a three-eighths (0.38) inch hole has developed	direct measurement/observation
(d) Emco Wheaton A4505	(1) less than seven unblocked vapor holes	direct observation
(e) Catlow IGVN and Richards Astrovac	(1) less than four unblocked vapor holes	direct observation
	(2) any nozzle with an ECD damaged with at least one-fourth (25%) of the circumference missing	direct measurement/observation
(f) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria*	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-159 series Saber nozzle for Gilbarco (Marconi) Vapor Vac and WayneVac		
equipment	defects	verification procedure
(a) nozzles	(1) a fill guard damaged such that at least one-fourth (25%) of the outer edge of the guard is missing	direct measurement/ observation
	(2) less than four unblocked vapor holes on the Gilbarco (Marconi) systems	direct observation
	(3) less than two unblocked vapor holes on the WayneVac systems	direct observation
	(4) defective vapor valve on the WayneVac systems	GDF-01/GDF-02
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent

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G-70-163 series OPW Vapor EZ		
Equipment	defects	verification procedure
(a) nozzles	(1) efficiency compliance device damaged such that at least one-eighth (13%) of the diameter is missing	direct measurement/ observation
	(2) less than three unblocked vapor holes	direct observation
	(3) defective vapor valve	GDF-01/GDF-02
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent

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G-70-164 series Hasstech VCP-3A		
equipment	defects	verification procedure
(a) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(3) pressure drop through the system exceeds one half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
(b) OPW 11VAL steel spout	(1) less than six unblocked vapor collection holes	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
(c) OPW 11VAL aluminum spout	(1) less than four unblocked vapor collection holes	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
(d) Husky V3 6201 nozzle	(1) all vapor collection holes blocked	direct observation
(e) Husky V34 6200-8 nozzle	(1) all vapor collection holes blocked	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
(f) Emco Wheaton A4500 nozzle	(1) any visible puncture or tear of the vapor guard/vapor seal assembly	direct observation
	(2) less than three unblocked vapor collection holes	direct observation
(g) collection unit	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) dispensing when the collection unit is disabled *	direct observation/ system monitor observation
	(3) normal operating level at the inlet of the collection unit less than thirty (30) inches water column vacuum *	direct measurement/ observation
(h) processing unit	(1) emissions which exceed Ringelmann one-half (1/2) or ten percent (10%) opacity and not attributable to a bulk delivery *	Method 9
	(2) twenty (20) consecutive unsuccessful attempts to ignite the process unit *	direct measurement/ observation/system monitor observation
	(3) dispensing when the process unit is disabled *	direct measurement/ observation/system monitor observation
	(4) processing unit inoperative *	direct observation
(i) ECS 1 electronic control and status panel	(1) ratio of process unit/solenoid valve time less than nine tenths (0.90) *	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-165 series Healy Model 600		
equipment	defects	verification procedure
(a) nozzles	(1) any nozzle with a vapor guard missing, damaged such that a slit from the outer edge of the open end flange to the spout anchor clamp, or which has equivalent cumulative damage	direct observation
	(2) any nozzle which has fewer than four unblocked vapor collection holes	direct observation
	(3) defective vapor valve	EO G-70-183 Exhibit 2 vapor valve test or equivalent
	(4) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(5) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
(b) system	(1) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(2) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
(c) central vacuum unit	(1) dispensing when the central vacuum unit is disabled *	direct measurement/observation/system monitor observation
	(2) vacuum level outside of the range specified in G-70-165 for more than fifteen (15) seconds (Approval Letter 97-20), measured while dispensing is occurring *	direct measurement/observation/system monitor observation
	(3) product dispensed when the vapor return line valve is closed	direct measurement/observation/TP201.5

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-169 series Franklin Electric Intellivac		
equipment	defects	verification procedure
(a) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(5) defective vapor valve	GDF-01/GDF-02
(b) OPW 11VAI nozzle	(1) efficiency compliance device damaged such that at least one-fourth (25%) of the circumference is missing	direct measurement/ observation
	(2) fewer than two unblocked vapor collection holes	direct observation
(c) Husky V34 6250 nozzle	(1) any nozzle with a vapor splash guard (VSG) damaged such that at least one and one-half (1.5) inch slit has developed	direct measurement
	(2) any VSG damaged such that greater than a three-eighths (0.38) inch hole has developed	direct measurement

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-175 series Hasstech VCP-3A AST		
equipment	defects	verification procedure
(a) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(3) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
(b) OPW 11VAI steel spout	(1) less than six unblocked vapor collection holes	direct observation
(c) OPW 11VAI aluminum spout	(1) less than four unblocked vapor collection holes	direct observation
(d) Emco Wheaton A4500 nozzle	(1) fewer than three unblocked vapor collection holes	direct observation
	(2) any visible puncture or tear of the vapor guard/vapor seal assembly	direct observation
(e) Husky V3 6201 nozzle	(1) all vapor collection holes blocked	direct observation
(f) Husky V34 6200-8	(1) all vapor collection holes blocked	direct observation
	(2) defective vapor valve	GDF-01/GDF-02
(g) collection unit	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) dispensing when the collection unit is disabled *	direct observation/ system monitor observation
	(3) normal operating level at the inlet of the collection unit less than thirty (30) inches water column vacuum *	direct measurement/ observation
(h) processing unit	(1) twenty (20) consecutive unsuccessful attempts to ignite the processing unit *	direct measurement/ observation/ system monitor observation
	(2) emissions which exceed Ringelmann one-half (1/2) or ten percent (10%) opacity and not attributable to a bulk delivery *	Method 9
	(3) dispensing when the processing unit is disabled *	direct measurement/ observation/ system monitor observation
	(4) processing unit inoperative *	direct observation
(i) ECS-1 electronic control and status panel	(1) ratio of process unit/solenoid valve time less than nine tenths (0.90) *	direct measurement/ observation

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G-70-177 series Hirt VCS400-7		
equipment	defects	verification procedure
(a) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(3) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(4) processing unit inoperative *	direct observation
(b) OPW 11VA-29 nozzle	(1) defective vapor valve	GDF-01/GDF-02
	(2) less than five unblocked vapor collection holes	direct observation
(c) hoses	(1) any visible puncture or tear equivalent to a diameter of 0.136 inches or greater	direct measurement/observation

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G-70-179 series Catlow IGVN-VI		
equipment	defects	verification procedure
(a) nozzles	(1) efficiency compliance device damaged such that at least three-fourths (75%) of the diameter is missing	direct measurement/observation
	(2) any nozzle which has less than four unblocked vapor collection holes	direct observation
	(3) defective vapor valve	GDF-01/GDF-02
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent

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G-70-181 series Hirt VCS400-7 AGT (AST)		
equipment	defects	verification procedure
(a) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(3) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(4) processing unit inoperative *	direct observation
(b) OPW 11VA-29 nozzle	(1) defective vapor valve	GDF-01/GDF-02
	(2) less than five unblocked vapor collection holes	direct observation
(c) hoses	(1) any visible puncture or tear equivalent to a diameter of 0.136 inches or greater	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-183 series Healy/Franklin Vac Assist		
equipment	defects	Verification procedure
(a) nozzles	(1) a vapor guard damaged such that a slit exists from the outer edge of the open end flange to the spout anchor clamp	direct observation
	(2) any nozzle which has less than four unblocked vapor collection holes	direct observation
	(3) defective vapor valve	EO G-70-183 Exhibit 2 vapor valve test or equivalent
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent

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G-70-186 series Healy Model 400 ORVR		
equipment	defects	verification procedure
(a) nozzles	(1) any operating pressure range at the nozzle boot/fill pipe interface less than one-half (0.50) inch water column vacuum or greater than one-fourth (0.25) inch water column pressure	EO G-70-186 Exhibit 5 test
	(2) defective vapor valve	EO G-70-191 Exhibit 2 vapor valve test or equivalent
(b) central vacuum unit	(1) product dispensed when the central vacuum unit is inoperative or disabled *	direct measurement/ observation/TP201.5 or equivalent system monitor observation
	(2) system does not achieve an operating vacuum of sixty-five (65) inches water column for three consecutive dispensings under normal operating conditions *	direct measurement/ observation/system monitor observation
	(3) system operates at a vacuum less than sixty-five (65) inches water column over a one hour period *	direct measurement/ observation/system monitor observation
	(4) vacuum level dropping below sixty (60) inches water column for more than three seconds after the system has reached sixty-five (65) inches water column, while dispensing is occurring *	direct measurement/ observation/system monitor observation
	(5) vacuum level above ninety (90) inches water column while dispensing is occurring *	direct measurement/ observation/system monitor observation
	(6) product dispensing when the non-restrictive ball valve installed in the vapor return line is closed *	direct measurement/ observation
(c) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(3) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(4) any venting through system monitor vent in excess of ten hours in any calendar day not attributable to a Phase I fuel delivery *	observation/system monitor observation

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G-70-187 series Healy Model 400 ORVR AGT (AST)		
equipment	defects:	verification procedure
(a) nozzles	(1) any operating pressure range at the nozzle boot/fill-pipe interface less than one-half (0.50) inch water column vacuum or greater than one-fourth (0.25) inch water column pressure	EO G-70-187 Exhibit 5 test
	(2) defective vapor valve	EO G-70-191 Exhibit 2 vapor valve test or equivalent
	(3) any nozzle boot with a concatenation of all tears greater than one-half (0.50) inch in length	direct measurement/observation
(b) central vacuum unit	(1) product dispensed when the central vacuum unit is inoperative or disabled *	direct measurement/observation/TP201.5 or equivalent system monitor observation
	(2) system does not achieve an operating vacuum of sixty-five (65) inches water column for three consecutive dispensing episodes *	direct measurement/observation/system monitor observation
	(3) system does not achieve an operating vacuum of sixty-five (65) inches water column within a one hour period for any single dispensing episode *	direct measurement/observation/system monitor observation
	(4) vacuum level dropping below sixty (60) inches water column for more than three seconds after the system has reached sixty-five (65) inches water column, while dispensing is occurring *	direct measurement/observation/system monitor observation
	(5) vacuum level above ninety (90) inches water column while dispensing is occurring *	direct measurement/observation/system monitor observation
	(6) product dispensing when the non-restrictive ball valve installed in the vapor return line is closed *	direct measurement/observation
(c) system	(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(2) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(3) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(4) any venting through system monitor vent in excess of ten hours in any calendar day not attributable to a Phase I fuel delivery *	direct measurement/observation/system monitor observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-188 series Catlow ICVN w/Gilbarco (Marconi) VaporVac System		
equipment	defects	verification procedure
(a) nozzles	(1) ECD damaged such that at least three-fourths (75%) of the diameter is missing	direct measurement/ observation
	(2) defective vapor valve	GDF-01/GDF-02
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent

~~* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).~~

G-70-191 series Healy ORVR		
equipment	defects	verification procedure
(a) nozzles	(1) any Healy model 800 nozzle with a vapor collection boot which has one-half (50%) of the mini-boot faceplate or greater missing	direct measurement/ observation
	(2) defective vapor valve	EO G-70-191 Exhibit 2 vapor valve test or equivalent
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(5) <u>inoperative vapor pumps *</u>	<u>direct observation in accordance with the Healy IOMM</u>

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-193 series Hill-Vac AST		
equipment	defects	verification procedure
(a) system	(1) fillpipe gauge pressure less than negative one (-1.0) inch or greater than two (2.0) inches water column	direct measurement/ observation
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
(b) nozzles	(1) a boot with any tear exceeding one-half (0.50) inch	direct measurement/ observation
	(2) faceplate damage such that the fillpipe interface is adversely affected for twenty-five percent (25%) or more of the circumference of the faceplate	direct measurement/ observation
(c) jet pump	(1) dispensing of gasoline when either jet pump is disabled	direct observation
	(2) failure to achieve operating vacuum of thirty-five (35) inches water column within five seconds after the system is activated, for three consecutive dispensing episodes	direct measurement/ observation
	(3) a vacuum level below fifteen (15) inches water column for more than three seconds after the system has reached thirty-five (35) inches water column while dispensing	direct measurement/ observation
	(4) a vacuum level above eighty-five (85) inches water column measured while dispensing to non-ORVR vehicles	direct measurement/ observation
	(5) product dispensing when any ball valve installed at the vapor return line connection to each Healy Model 100 jet pump is closed	direct measurement/ observation
(d) Liquid drop out pot	(1) opening drain valve at anytime other than when repair operations are underway	direct observation
	(2) product dispensing when any ball valve installed at the liquid drop pot in the liquid removal line is closed	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-196 series SaberVac		
equipment	Defects	verification procedure
(a) Husky 605104 nozzle	(1) vapor splash guard (VSG) with a one and one-half (1.5) inch or larger slit	Direct measurement/ observation
	(2) VSG with a three-sixteenths (0.19) inch or larger hole	Direct measurement/ observation
	(3) the VSG flange portion doesn't make contact with entire fillpipe opening	direct observation
	(4) defective vapor valve	GDF-01/GDF-02
(b) system	(1) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard as described in G-70-196	as described in G-70-196
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) underground storage tank gauge pressure greater than two inches water column over an extended period as defined by E.O. G-70-196-Exhibit 2 *	direct measurement/ observation
	(5) pressure drop through system exceeding one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)	TP201.4 or equivalent
	(6) dispensing of product from any fueling point associated with a disconnected vapor line	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

<u>G-70-200 series Oldcastle Buried Vapor Return Piping AST</u> <u>G-70-201 series Oldcastle Trenched Vapor Return Piping AST</u>		
<u>equipment</u>	<u>defects</u>	<u>verification procedure</u>
<u>(a) nozzles</u>	<u>(1) any nozzle boot torn in one or more of the following manners: a triangular-shaped or similar tear one-half (0.50) inch or more on any side, or hole one-half (0.50) inch or more in diameter, or slit one (1.0) inch or more in length</u>	<u>direct measurement/ observation</u>
	<u>(2) any faceplate or flexible cone damaged in the following manner: for balance nozzles and for nozzles for aspirator and eductor assist type systems, damage such that the capability to achieve a seal with a fill pipe interface is affected for one-fourth (25%) of the circumference of the faceplate (accumulated)</u>	<u>direct measurement/ observation</u>
	<u>(3) flexible cone damaged in the following manner: for booted type nozzles for vacuum assist-type systems, more than one-fourth (25%) of the flexible cone missing</u>	<u>direct measurement/ observation</u>
	<u>(4) insertion interlock mechanism which will allow dispensing when the bellow is uncompressed</u>	<u>direct observation/ GDF-09</u>
<u>(b) hoses</u>	<u>(1) any coaxial balance hose with 100 ml or more liquid in the vapor path</u>	<u>direct measurement</u>
	<u>(2) any hose with a visible opening</u>	<u>direct observation</u>
<u>(c) processing unit</u>	<u>(1) vapor processing unit inoperative *</u>	<u>direct observation</u>

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

<u>G-70-202 series Gilbarco Vapor Vac AST</u>		
<u>equipment</u>	<u>defects</u>	<u>verification procedure</u>
<u>(a) system</u>	<u>(1) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded</u>	<u>direct observation</u>
	<u>(2) both booted and unbooted nozzle types connected to the same vapor pump</u>	<u>direct observation</u>
	<u>(3) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard</u>	<u>TP201.5 or equivalent</u>
<u>(b) Catlow ICVN nozzle</u>	<u>(1) less than three unblocked vapor holes</u>	<u>direct observation</u>
	<u>(2) defective vapor valve</u>	<u>GDF-01/GDF-02</u>
	<u>(3) efficiency compliance device slit from base to the rim</u>	<u>direct observation</u>
<u>(c) Emco Wheaton A4505 nozzle</u>	<u>(1) less than three unblocked vapor holes</u>	<u>direct observation</u>
	<u>(2) defective vapor valve</u>	<u>GDF-01/GDF-02</u>
	<u>(3) one-eighth (13%) of vapor guard circumference missing</u>	<u>direct measurement/observation</u>
<u>(d) Emco Wheaton A4500 nozzle</u>	<u>(1) less than three unblocked vapor holes</u>	<u>direct observation</u>
<u>(e) Husky V34 6250 nozzle</u>	<u>(1) a one and one-half (1.5) inch or greater slit in vapor splash guard</u>	<u>direct measurement/observation</u>
	<u>(2) any hole greater than three-eighths (0.38) inch in vapor splash guard</u>	<u>direct measurement/observation</u>
	<u>(3) defective vapor valve</u>	<u>GDF-01/GDF-02</u>
<u>(f) Husky V3 6201 nozzle</u>	<u>(1) all vapor holes blocked</u>	<u>direct observation</u>
<u>(g) OPW 11VAI nozzle</u>	<u>(1) less than four unblocked vapor holes</u>	<u>direct observation</u>
<u>(h) OPW12VW nozzle</u>	<u>(1) all vapor holes blocked</u>	<u>direct observation</u>
	<u>(2) defective vapor valve</u>	<u>GDF-01/GDF-02</u>
	<u>(3) vapor escape guard with three-fourths (75%) of the circumference missing</u>	<u>direct measurement/observation</u>

G-70-204 series Gilbarco Vapor Vac/OPW Vaporsaver		
equipment	defects	verification procedure
(a) system	(1) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH) *	TP201.4 or equivalent
	(2) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	(3) system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	(4) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	(5) defective vapor valve	GDF-01/GDF-02
(b) Catlow ICVN nozzle	(1) less than three unblocked vapor holes	direct observation
	(2) efficiency compliance device slit from base to the rim	direct observation
(c) Emco Wheaton A4505 nozzle	(1) less than three unblocked vapor holes	direct observation
	(2) one-eighth (1/8) of vapor guard circumference missing or equivalent cumulative damage	direct measurement/observation
(d) Husky V34 6250 nozzle	(1) a one and one-half (1.5) inch or greater slit in vapor splash guard or equivalent cumulative damage	direct measurement/observation
	(2) any hole greater than three-eighths (3/8) inch in vapor splash guard or equivalent cumulative damage	direct measurement/observation
(e) OPW12VW nozzle	(1) all vapor holes blocked	direct observation
	(2) vapor escape guard with three-fourths (3/4) of the circumference missing or equivalent cumulative damage	direct measurement/observation
(f) vapor processor	(1) vapor processor inoperative <u>for more than 24 consecutive hours</u> *	direct observation/ G-70-204 Exhibit 2

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

<u>G-70-209 series Dresser/Wayne Vac/Arid Technologies Permeator</u>		
<u>equipment</u>	<u>defects</u>	<u>verification procedure</u>
<u>(a) system</u>	<u>(1) any splash guard that interferes with the operation of a vapor escape guard (VEG) or vapor splash guard (VSG) unit</u>	<u>direct measurement/ observation</u>
	<u>(2) any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard</u>	<u>TP201.5, G-70-209 Exhibit 5, or equivalent</u>
	<u>(3) any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded</u>	<u>direct observation</u>
	<u>(4) system not in compliance with the static pressure decay test criteria *</u>	<u>TP201.3 or equivalent</u>
	<u>(5) pressure drop through the system exceeds one-half (0.50) inch water column at sixty cubic feet per hour (60 CFH)</u>	<u>TP201.4 or equivalent</u>
	<u>(6) defective vapor valve</u>	<u>GDF-01/GDF-02</u>
<u>(b) permeator</u>	<u>(1) permeator inoperative for more than 24 consecutive hours</u>	<u>direct observation/</u>
<u>(c) OPW 12VW nozzle</u>	<u>(1) all vapor holes blocked</u>	<u>direct observation</u>
	<u>(2) any VEG damaged such that at least three-quarters (75%) of the circumference is missing</u>	<u>direct measurement/ observation</u>
<u>(d) Husky V34 6250 nozzle</u>	<u>(1) any VSG damaged such that at least a one and one-half (1.5) inch slit has developed</u>	<u>direct measurement/ observation</u>
	<u>(2) any VSG flange portion that does not make contact with or cover the entire fill-pipe opening</u>	<u>direct measurement/ observation</u>
	<u>(3) any VSG with a hole greater than three-eighths (0.38) inch</u>	<u>direct measurement/ observation</u>
<u>(e) Emco Wheaton A4505 nozzle</u>	<u>(1) less than three unblocked vapor holes</u>	<u>direct observation</u>
	<u>(2) any vapor guard (VG) damaged such that at least one-eighth (13%) of the circumference is missing</u>	<u>direct measurement/ observation</u>
<u>(f) Catlow ICVN and Richards Astrovac nozzles</u>	<u>(1) less than three unblocked vapor holes</u>	<u>direct observation</u>
	<u>(2) any efficiency compliance device damaged with a slit from the base to the rim</u>	<u>direct observation</u>

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

<u>VR-201 series Healy Phase II EVR System</u>		
<u>Equipment</u>	<u>defects</u>	<u>verification procedure</u>
<u>(a) nozzles</u>	<u>(1) defective vapor valve</u>	<u>TP-201.2B or equivalent or VR-201 Exhibit 7</u>
	<u>(2) any fueling point whose V/L ratio is determined to be at or below 0.80</u>	<u>VR-201 Exhibit 5</u>
<u>(b) system</u>	<u>(1) inoperative vapor pumps *</u>	<u>direct observation in accordance with the Healy Phase II EVR System Including Veeder-Root ISD IOMM</u>
<u>(b) clean air separator</u>	<u>(1) clean air separator static pressure performance failure *</u>	<u>VR-201 Exhibit 4</u>
	<u>(2) clean air separator not in the proper operating configuration *</u>	<u>direct observation shown in VR-201 Figure 2B-5</u>
<u>(c) dispenser</u>	<u>(1) any dispenser with a dispenser piping test valve in the closed position</u>	<u>direct observation</u>

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

<u>VR-202 series Healy Phase II EVR System with Veeder-Root ISD</u>		
<u>Equipment</u>	<u>defects</u>	<u>verification procedure</u>
<u>(a) nozzles</u>	<u>(1) defective vapor valve</u>	<u>TP-201.2B or equivalent or VR-202 Exhibit 7</u>
	<u>(2) any fueling point whose V/L ratio is determined to be at or below 0.80</u>	<u>VR-202 Exhibit 5</u>
<u>(b) system</u>	<u>(1) inoperative vapor pumps *</u>	<u>direct observation in accordance with the Healy Phase II EVR System Including Veeder-Root ISD IOMM</u>
<u>(c) clean air separator</u>	<u>(1) clean air separator static pressure performance failure *</u>	<u>VR-202 Exhibit 4</u>
	<u>(2) clean air separator not in the proper operating configuration *</u>	<u>direct observation shown in VR-202 Figure 2B-5</u>
<u>(d) dispenser</u>	<u>(1) any dispenser with a dispenser piping test valve in the closed position</u>	<u>direct observation</u>

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

Defect Identification Methods Used In the Verification Procedure Column

1. TP201.5: Determination (by Volume Meter) of Air to Liquid (A/L) Volume Ratio of Vapor Recovery Systems of Dispensing Facilities, Adopted April 12, 1996
2. TP201.4: Determination of Dynamic Pressure Performance of Vapor Recovery Systems of Dispensing Facilities
3. TP201.3: Determination of Two-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities
4. GDF-01: Bag Test for Multi-Nozzle Vacuum Assist Systems
5. Method 9: 40 Code Federal Regulations Part 60 Appendix A: Reference Method 9/ EPA Section 3.12 Visible Determination of the Opacity of Emissions from Stationary Sources
6. G-70-186-187 Exhibit 5: Fillneck Vapor Pressure Regulation Fueling Test
7. EPO No. 26-F-1: Vapor Recovery Systems Field Compliance Testing
- ~~8. Storage Tank Pressure Device: described and shown in TSD Appendix 6~~
98. GDF-02: Bag Test for Single-Nozzle Vacuum Assist Systems
409. GDF-09: Phase II Balance System Nozzle Insertion Interlock Operation Determination
10. G-70-191 Exhibit 2: Specifications for the Healy ORVR Phase II Vapor Recovery System (4.a-4.d)
11. G-70-204 Exhibit 2: System Specifications/Vaporsaver (1.A-1.D)
12. G-70-209 Exhibit 5: Determination (by Volume Meter) of Air to Liquid Volume Ratio of Vapor Recovery Systems of Dispensing Facilities
13. VR-201 Exhibit 4: Determination of Static Pressure Performance of the Healy Clean Air Separator
14. VR-201 Exhibit 5: Vapor to Liquid Volume Ratio for Healy Phase II EVR System
15. VR-201 Exhibit 7: Nozzle Bag Test Procedure
16. VR-202 Exhibit 4: Determination of Static Pressure Performance of the Healy Clean Air Separator
17. VR-202 Exhibit 5: Vapor to Liquid Volume Ratio for Healy Phase II EVR System
18. VR-202 Exhibit 7: Nozzle Bag Test Procedure