

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM
STAGE II VAPOR RECOVERY
MISSOURI PERFORMANCE EVALUATION TEST PROCEDURES
HUSKY BALANCE SYSTEM
MOPETP APPROVAL APCP-0001-001-98**

The Missouri Department of Natural Resources has established, pursuant to Missouri Air Conservation Law 643.010 through 643.620 and State regulations 10 CSR 10-5.220, "Control of Petroleum Liquid Storage, Loading and Transfer," the authority to approve systems and components designed to control gasoline vapor emissions displaced during the bulk fuel deliveries at gasoline dispensing facility storage tanks (Stage I systems, a subpart of the total Stage II system) and for systems and components designed to control gasoline vapor emissions from motor vehicle fueling operations (Stage II vapor recovery).

The Husky Corporation has requested approval of the Husky Balance System and specifically the Husky Balance nozzles, #5010 V (Husky V short) & 5210 V (Husky V long), for Stage II vapor recovery applications in Missouri. The OPW Fueling Components, Gilbarco Inc., Dayco Products, Inc. and Goodyear Tire and Rubber Company have also requested approval of their components listed in Exhibit 1. These components were tested as part of the Husky Balance System.

Husky, OPW, Gilbarco, Dayco and Goodyear have successfully completed California Air Resources Board (CARB) Certification testing and procedures for each of their vapor recovery product components prior to their application for Missouri approval.

The Balance system was CARB certified before it was subjected to Missouri approval testing and procedures. The CARB certification shall be incorporated by this reference, and all conditions, orders, limitations and testing requirements included in the CARB certification are a part of this Missouri approval.

I, Roger D. Randolph, Director of the Air Pollution Control Program (APCP), find that Husky, OPW, Gilbarco, Dayco and Goodyear have completed the required testing of components listed in Exhibit 1 under the Missouri Performance Evaluation Test Procedures. The tested system is a vapor recovery system that is at least 95% efficient for attendant and/or self-serve use at gasoline dispensing facilities.

Therefore, the Husky Balance system is approved and recognized to be at least 95 percent efficient in attended and/or self-serve mode. Exhibit 1 of this order contains a list of the equipment approved for specific use with the Husky Balance system. Exhibit 2 contains installation and performance specifications for the equipment listed in Exhibit 1.

The maximum dispensing rate for installations of the Husky Balance system shall not exceed ten (10) gallons per minute in compliance with the limitation imposed by the United States Environmental Protection Agency as specified in the Federal Register, Volume 58, Number 55, page 16019.

The following are conditions of approval: The Husky Balance system shall be installed only in facilities that are capable of demonstrating on-going compliance. Compliance is demonstrated by application for Construction and/or Operating Permits and successful passage of all testing and vapor integrity requirements of the State Air Pollution Control Program and cooperating Local Agencies with jurisdiction over the installation. The owner or operator of the installation shall conduct and assure passage of a Static Pressure Decay test at least once for each Operating Permit renewal. The APCP Director or his designate may require this or any other applicable test in order to demonstrate compliance. *CARB certification requires Static Pressure Decay tests once in each twelve (12) month period for some systems.*

The test shall be conducted in accordance with MOPETP MO/TP-201.3 "Determination of 2 Inch (WC) Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities." Further, the owner or operator of the installation shall conduct and assure passage of Dynamic Pressure Performance Tests once in each twelve (12) month period. This test shall be conducted in accordance with MOPETP MO/TP-201.4 "Determination of Dynamic Pressure Performance of Vapor Recovery Systems at Dispensing Facilities." Alternative test procedures may be used if determined by the staff director to yield comparable results.

All components of the Husky Balance system shall be 100 percent performance checked at the factory, including checks of the integrity of the vapor path and the proper functioning of all automatic shut-off mechanisms.

The approved Balance components shall, at a minimum, be operated in accordance with the manufacturers' recommended maintenance intervals and shall use the manufacturers' recommended operation, installation and maintenance procedures.

The approved Balance system components shall be performance tested during installation for ability to dispense gasoline and collect vapors in the presence of the station operator, owner or designated person. The owner, operator, or designated person shall be provided with copies of the installation and maintenance manuals for the components to be maintained at the gasoline dispensing facility. The owner, operator or designated person shall be provided with instructions in the proper use of the components in the Balance system, their repair and maintenance and where and how the system and/or component replacements can be readily obtained.

The approved Balance system components shall be warranted in writing for at last one year from the time of sale to the user and each subsequent user. The warranty will state that the vapor recovery system components are designed, built and equipped to conform at the time of original installation or sale with the applicable regulations and are free from defects in materials and workmanship that would cause the vapor recovery system to fail to conform with applicable regulations. Copies of the manufacturers' warranty for the system components shall be made available to the station manager, owner, operator or designated person.

Any alteration of the equipment, parts, design, or operation of the systems or components as tested in the MOPETP and thereby approved, is prohibited, and deemed inconsistent with this approval, unless the alteration has been approved by the Staff Director of the APCP or the Staff Director's designate.



Roger D. Randolph, Director
Air Pollution Control Program

OCT -9 1998

Date

Attachments: Exhibit 1, 2

EXHIBIT 1

**HUSKY BALANCE SYSTEM
COMPONENTS BY MANUFACTURER
MOPETP APPROVED COMPONENTS**

Manufacturer	Model	Component Name
Husky Corp.	5010 V short	Nozzles
	5210 V long	
	4620	Pressure / Vacuum Valve
	3360 VR	Breakaways
OPW Corp.	233 VM-6045	Vapor Valve
	633T-8076	Fill Adapter
	634TT-7085	Fill Cap
	53-VSS-0046	Float Vent Valve
	61SO-400C	Overfill Protection Drop Tube
	1-2100 (Plugged)	Spill Bucket
	1611AV-1620	Vapor Recovery Adapter
	1711T-7085	Vapor Recovery Cap
Gilbarco Corp.	Advantage Series 5+1 B7D	Dispensers
Dayco Corp.	V2000 Petroflex 2000 Model 7574BTF	Vapor Recovery Hoses
	2000 Petroflex 2000 Model 7574BTN	
Goodyear Corp.	Maxxim Permier Plus	
	Maxxim Permier	

The above components of the Husky Balance system are approved for use in gasoline dispensing facilities which require approved Balance Vapor Recovery systems. As additional Balance Vapor Recovery Equipment components become MOPETP approved, all approved Balance components will be available for use in all future Balance Systems. The Balance system and various components approval is contingent upon compliance with all CARB certification requirements and the following Missouri MOPETP requirements. The MOPETP requirements are listed on

**Performance & Installation
Specifications
EXHIBIT 2**

Husky Nozzles

Husky nozzles generally performed very well in the MOPETP tests. Various bench leak tests were conducted on the nozzles throughout the testing period. Results of the July 21, 1997, testing indicated slight leaking of nozzles from O-rings. These 1.5" ID, 0.070 cross section, National Buna-N C9-70 compound, Husky # 000395, rings were apparently shrinking, causing the slight leak. These were replaced with a larger size, 2" ID, 0.070 cross section, National Buna-N C9-70 compound, Husky # 002095, in all nozzles. This modification cured the leaks. Therefore, approved Husky nozzles # 5010 V and 5210 V must have the larger # 002095 O-rings. Husky nozzles must be manufactured, sold, and installed exactly as tested at the MOPETP site.

OPW

OPW Fill Adapters, tested in the Husky Balance MOPETP, showed a tendency to become loosened during bulk fuel deliveries. It is cautioned that these components must be kept tight to avoid system leaks. Failure to keep these tight may expose station owners to additional violations and leak tests. OPW components must be manufactured, sold, and installed exactly as tested at the MOPETP site.

GILBARCO DISPENSERS

Gilbarco Advantage Series 5+1 B7D dispensers must employ the same materials and methods as those used for the replaced manifold vapor lines in the dispensers at the MOPETP site. Back pressure is a critical issue in Balance systems. Dispensers should be installed with close attention to issues affecting back pressure and to choosing hanging components which will result in acceptable total system back pressure. System back pressure standards are equal to or less than 0.16" WC for 40 scfh, equal to or less than 0.35" WC for 60 scfh, equal to or less than 0.62" WC for 80 scfh. Advantage Series 5+1 B7D dispensers were MOPETP tested at 0.50, 0.124, 0.227" WC respectively. Although it is not required to hit these figures exactly, it is generally expected that the dispenser alone will be responsible for no more than 1/3rd of the acceptable system back pressure. Gilbarco dispensers must be manufactured, sold, and installed exactly as tested at the MOPETP site.

DAYCO HOSES

V2000 Petroflex 2000 Model 7574BTF and 2000 Petroflex 2000 Model 7574BTF

2000 Petroflex 2000 Model 7574BTF hoses were tested with the Husky VLX nozzles. However, the Husky VLX nozzles have been removed from the request for approval by Husky, as they are discontinuing the production of these nozzles. The 2000 Petroflex 2000 Model 7574BTF hoses can be used only with an approved nozzle with Venturi for liquid removal or for approved Balance system dispensers which do not require liquid removal. At present time there are no such dispenser or nozzles approved. They are included in this approval only for use as whip hoses or in expectation of future compatible component approvals.

The V2000 Petroflex 2000 Model 7574BTF hoses are approved for use in the Balance systems. Hoses must be installed such that the slurpie tube for liquid removal is adjusted to the appropriate point for the length of the hose and the specific facility needs. The hoses should be used with components with back pressures such that the total system back pressures will be within the established criteria. The Dayco hoses must be manufactured, sold and installed exactly as tested at the MOPETP site.

GOODYEAR HOSES

Goodyear hoses Maxxim Premier were tested with the Husky VLX nozzles. However the Husky VLX nozzles have been removed from the request for approval by Husky, as they are discontinuing the production of these nozzles. The Goodyear Maxxim Premier hoses can be used only with an approved nozzle with Venturi for liquid removal or for approved Balance system dispensers which do not require liquid removal. At present time, there are no such dispenser or nozzles approved. They are included in this approval only for use as whip hoses or in expectation of future compatible component approvals. The Goodyear Maxxim Premier Plus vapor recovery hoses are approved for installation in Balance Systems. Hoses must be installed such that the slurpie tube for liquid removal is adjusted to the appropriate point for the length of the hose and the specific facility needs. The hoses should be used with components with back pressures such that the total system back pressures will be within the established criteria. The Goodyear hoses must be manufactured, sold and installed exactly as tested at the MOPETP site.

**Performance & Installation
Specifications
*Continued***

GENERAL GUIDELINES

At this time, several Balance system vapor recovery equipment manufacturers are conducting MOPETP tests for approval. As additional Balance system components are approved, those components will be approved as alternates to these components. The APCP foresees a wide selection of Balance system components available within the next year. These various approved components will be available to “mix and match” to other approved Balance components.

Back pressure is a critical issue in Balance systems. It has been estimated that for each additional 0.1” WC back pressure the system will loose 1% efficiency. Careful judgement should be taken to ensure that the components selected will result in total system back pressures within the acceptable limits. An example would be that during the Husky Balance MOPETP, one hose manufacturer had to be eliminated due to excessive hose back pressure. The general guideline for back pressure sharing is 1/3rd for the hanging gear, 1/3rd for the dispenser, 1/3rd for the underground plumbing and UST.