

**State of California  
AIR RESOURCES BOARD**

**Executive Order VR-105-C  
EMCO Wheaton Retail Phase I Vapor Recovery System**

WHEREAS, the California Air Resources Board (ARB) has established, pursuant to California Health and Safety Code sections 25290.1.2, 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 May 26, 2006 incorporated by reference in title 17, California Code of Regulations, section 94011;

WHEREAS, ARB 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, EMCO Wheaton Retail (EMCO) requested and was granted certification of the EMCO Wheaton Retail Phase I Vapor Recovery System (EMCO system) pursuant to the Certification Procedure on October 20, 2006 by Executive Order VR-105-A; and last modified on May 30, 2008 by Executive Order VR-105-B;

WHEREAS, the Certification Procedure provides that the ARB 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 EMCO Wheaton Phase I Vapor Recovery System, including modifications, conforms with all 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 (October 8, 2003)**;

NOW THEREFORE, IT IS HEREBY ORDERED that the EMCO 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 applicable to the EMCO system as installed in a gasoline dispensing facility (GDF). Exhibit 3 contains the manufacturing specifications.

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, the Division of Occupational Safety and Health of the Department of Industrial Relations, and the Division of Water Quality of the State Water Resources Control Board are made conditions of this certification.

IT IS FURTHER ORDERED that EMCO Wheaton shall provide a warranty for the vapor recovery system and components to the initial purchaser. The warranty shall be passed on to each subsequent purchaser within the warranty period. The manufacturer of components listed in Exhibit 1 not manufactured by EMCO Wheaton shall provide a warranty to each of their components certified herein. The warranty shall include the ongoing compliance with all applicable performance standards and specifications, and shall comply with all warranty requirements in Section 16.5 of the Certification Procedure. EMCO Wheaton or other manufacturers may specify that the warranty is contingent upon the use of trained installers.

IT IS FURTHER ORDERED that each certified component manufactured by EMCO Wheaton and Husky shall be performance tested by the manufacturer as provided in Exhibit 3.

IT IS FURTHER ORDERED that the certified EMCO system shall be installed, operated and maintained in accordance with the **ARB-Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System** as certified by Executive Order VR-105-C. A copy of this Executive Order and manual shall be maintained at each GDF where a certified EMCO system is installed.

IT IS FURTHER ORDERED that all equipment listed in Exhibit 1, unless exempted, shall be clearly identified with a permanent identification showing the manufacturer'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 be made a condition of certification. The owner or operator of the EMCO 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 following test procedures: TP-201.3, **Determination of 2 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities (March 17, 1999)**, TP-201.1B, **Static Torque of Rotatable Phase I Adaptors (October 8, 2003)** and TP-201.1D, **Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves (October 8, 2003)**. 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. Alternate test procedures, including most recent versions of test procedures listed above, may be used if determined by the ARB Executive Officer or Executive Officer delegate, in writing, to yield equivalent results. Testing the pressure/vacuum (P/V) vent valve will be at the option of the local districts. If P/V vent valve testing is required by the district, the test shall be conducted in accordance with **TP-201.1E, Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003** and Exhibit 2.

IT IS FURTHER ORDERED that the EMCO system shall be compatible with gasoline in common use in California at the time of certification. Any modifications to comply with future California gasoline requirements shall be approved in writing by the Executive Officer or Executive Officer delegate.

IT IS FURTHER ORDERED that the certification for the Husky Model 4885 Pressure/Vacuum Vent Valve is revoked because it fails to conform to the specifications as described in CP-201 and Exhibit 2. The Husky Model 4885 Pressure/Vacuum Vent Valve shall not remain in use after May 31, 2012.

IT IS FURTHER ORDERED that the certification of the EMCO Wheaton Phase I Vapor Recovery System is valid through November 1, 2010.

IT IS FURTHER ORDERED that Executive Order VR-105-B issued on May 30, 2008, is hereby superseded by this Executive Order. EMCO Wheaton Phase I Vapor Recovery Systems certified under Executive Orders VR-105-A through B may remain in use at existing installations. This Executive Order shall apply to new installations or major modification of the Phase I system of existing gasoline dispensing facilities.

Executed at Sacramento, California, this 14<sup>th</sup> day of September 2009.

  
William V. Loscutoff, Chief  
Monitoring and Laboratory Division

Attachments:

- Exhibit 1 EMCO Wheaton Phase I Vapor Recovery System Equipment List
- Exhibit 2 Installation, Maintenance and Compliance Standards and Specifications
- Exhibit 3 Manufacturing Performance Standards and Specifications

## Exhibit 1

### EMCO Wheaton Phase I Vapor Recovery System Equipment List

<u>Equipment</u>	<u>Manufacturer/Model Number</u>
<b>Pressure/Vacuum Vent Valve</b>	FFS PV-Zero Husky 5885
<b>Spill Container</b>	EMCO A1004EVR Multi-port Configuration and Direct Burial Configuration
<b>Drain Valve</b>	EMCO Wheaton Retail 494118
<b>Drop Tube Overfill Prevention Device</b>	EMCO Wheaton Retail A1100EVR
<b>Riser Seal</b>	EMCO Wheaton Retail 494096
<b>Product Adaptor</b>	EMCO Wheaton Retail A0030-124S
<b>Vapor Adaptor</b>	EMCO Wheaton Retail A0076-124S
<b>Dust Caps</b>	EMCO Wheaton Retail A0097-005 (product) EMCO Wheaton Retail A0099-X (vapor) X = 002, no chain or 003, with chain CompX CSP1-634LPC (product) CompX CSP3-1711LPC (vapor) CompX CSP2-634LPC (product) CompX CSP4-1711LPC (vapor) OPW 634LPC (product) OPW 1711LPC (vapor)
<b>Tank Gauge Port Components</b>	EMCO Wheaton Retail A0097-010 (Cap) EMCO Wheaton Retail A0030-014 (Adaptor)
<b>Extractor Assembly<sup>1</sup></b>	EMCO Wheaton Retail A0079-X X = 043, 044, 050, 051, 052, 150 or 152

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<sup>1</sup> If these components are installed or required by regulations of other agencies, only those components and model numbers specified above shall be installed or used.

**Table 1**  
**Components Exempt from Identification Requirements**

<b>Component Name</b>	<b>Manufacturer</b>	<b>Model Number</b>
Riser Seal	EMCO	494096
Sump / Sump Lids / Spill Container Covers	Varies	Varies

**Emco Wheaton Retail  
Phase I EVR System Components  
Permanent ID Information**

**Spill Containment**



Model A1004EVR Multi-port and Direct Burial Configurations

**Drain Valve**



Drain Valve p/n 494118

**Drop Tube w/ Overfill Prevention Valve**



Model A1100EVR Overfill Prevention Valve



## Emco Wheaton Retail Phase I EVR System Components Permanent ID Information

### Rotatable Product Adapter



A0030-124S Swivel Fill Adapter

### Rotatable Vapor Adapter



A0076-124S Swivel Vapor Adapter

### Tank Gauge Port Adapter



A0030-014 ATG Probe Adapter

**Emco Wheaton Retail  
Phase I EVR System Components  
Permanent ID Information**

**Dust Caps**



A0097-005 Fill Adapter Cap



A0099-002 & 003 Vapor Adapter Caps

**Tank Gauge Port Cap**

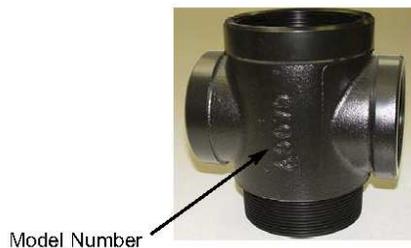


A0097-010 ATG Probe Adapter Cap



**Emco Wheaton Retail  
Phase I EVR System Components  
Permanent ID Information**

**Extractor Assembly**



Model Number



A0079-043, 044, 050, 051 & 052 Cross Style Extractor

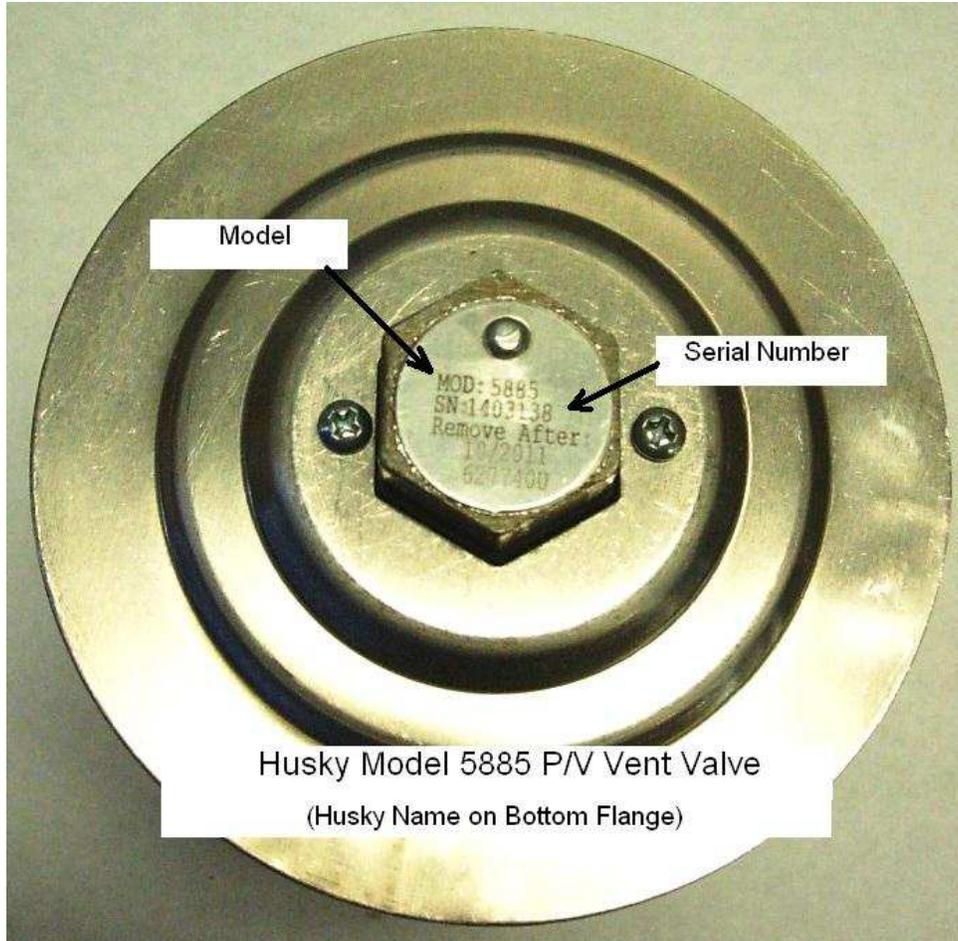


Model Number



A0079-150 & 152 Tee Style Extractor

**EMCO Wheaton Retail  
Phase I EVR System Components  
Permanent ID Information**



**EMCO Wheaton Retail  
Phase I EVR System Components  
Permanent ID Information**



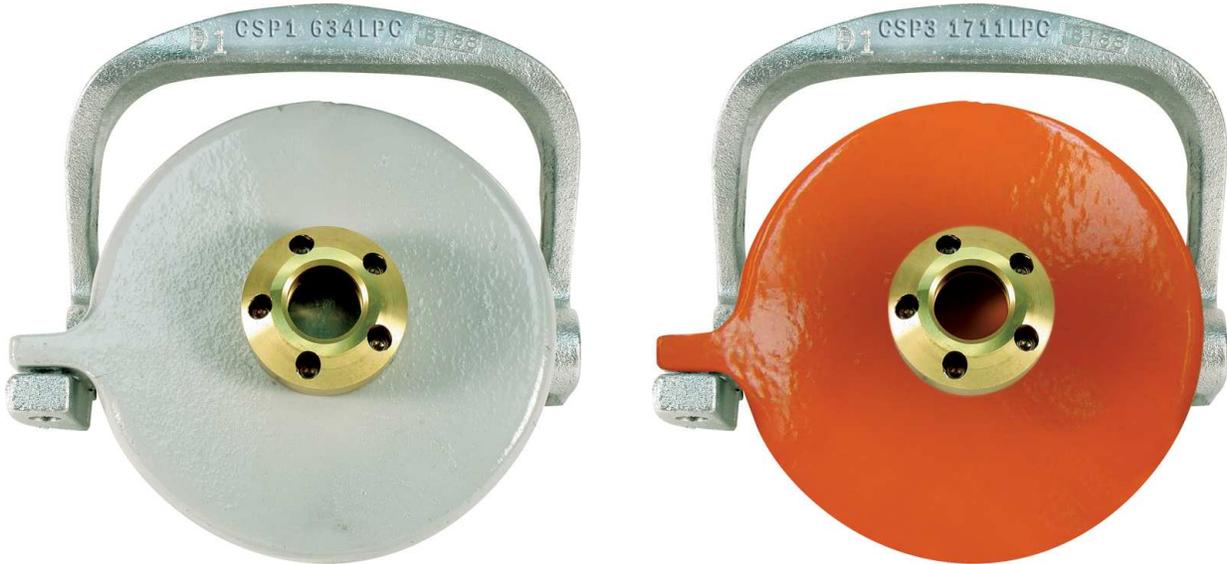
**OPW 634LPC Product Dust**



**OPW 1711LPC Vapor Dust**

**EMCO Wheaton Retail**

**Phase I EVR System Components  
Permanent ID Information**



**CompX CSP1-634LPC Product Dust Cap    CompX CSP3-1711LPC Vapor Dust Cap**



**CompX Tank Commander Lid  
Locks onto CSP1-634LPC and CSP3-1711LPC Dust Caps**

**EMCO Wheaton Retail**

**Phase I EVR System Components  
Permanent ID Information**



CompX CSP2-634LPC Product Dust Cap

CompX CSP4-1711LPC Vapor Dust Cap



CompX Tank Commander Lid  
Locks onto CSP2-634LPC and CSP4-1711LPC Dust Caps

**EMCO Wheaton Retail**

**Phase I EVR System Components  
Permanent ID Information**



**FFS PV-Zero P/V Vent Valve**  
(Model and Serial Number on White Tag)

## Exhibit 2

### Installation, Maintenance, and Compliance Specifications

This exhibit contains the installation, maintenance and compliance standards and specifications applicable to an EMCO Wheaton System installed in a gasoline dispensing facility (GDF).

#### General Specifications

1. Typical installations of the EMCO Wheaton System are shown in Figures 2A, 2B, 2C and 2D.
2. The EMCO Wheaton System shall be installed, operated and maintained in accordance with the ***ARB Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System***.
3. Any repair or replacement of system components shall be done in accordance with the ***ARB Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System***.
4. The EMCO Wheaton System shall comply with the applicable performance standards and performance specifications in CP-201.
5. Maintenance and repair of system components, including removal and installation of such components in the course of any required tests, shall be performed by EMCO Certified Technicians.

#### 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 determination of the following P/V valve performance specifications shall be at the option of the districts:
  - a. The leak rate of each P/V valve shall not exceed 0.05 cubic feet per hour (CFH) at 2.0 inches of H<sub>2</sub>O positive pressure and 0.21 CFH at -4.0 inches negative pressure as determined by TP-201.1E, **Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003)**.
  - b. The positive pressure setting is 2.5 to 6.0 inches of H<sub>2</sub>O and the negative pressure setting is 6.0 to 10.0 inches of H<sub>2</sub>O as determined by TP-201.1E, **Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003)**.

3. Compliance determination of the P/V valve performance specifications in items 2a and 2b for the FFS PV-Zero P/V vent valve shall be conducted with the valve remaining in its installed position on the vent line(s). The PV-Zero section of the ***ARB-Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System*** outlines the equipment needed to test the valve in its installed position.
4. 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 vent pipes may be connected, or more than one P/V valve may be installed on the manifold.
5. Each P/V valve shall have permanently affixed to it a yellow or gold-colored label with black lettering stating the positive and negative cracking pressures and leak rates.

Positive pressure setting: 2.5 to 6.0 inches H<sub>2</sub>O  
Negative pressure setting: 6.0 to 10.0 inches H<sub>2</sub>O  
Positive Leak rate: 0.05 CFH at 2.0 inches H<sub>2</sub>O  
Negative Leak rate: 0.21 CFH at -4.0 inches H<sub>2</sub>O

### **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). Use EMCO Wheaton Torque Test Tool Part Number 494240 or any torque test tool stated in TP-201.1B. Compliance with this requirement shall be demonstrated in accordance with TP-201.1B, **Static Torque of Rotatable Phase I Adaptors (October 8, 2003)**.
2. The vapor adaptor poppet shall not leak when closed. Compliance with this requirement shall 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**

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

### **Spill Container Drain Valve**

The spill container drain valve shall be configured to drain liquid directly into the drop tube and shall be 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<sub>2</sub>O. Compliance with this requirement shall be demonstrated in accordance with TP-201.1D, **Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves (October 8, 2003)**.

### **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 2G.
2. The vapor recovery riser may be offset up to 20 inches horizontal distance with use of commercially available, four (4) inch diameter steel pipe fittings.

### **Tank Gauge Port Components**

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. Figure 2E shows a typical installation of tank gauge port components.

### **Connections and Fittings**

All connections and fittings not specifically certified with an allowable leak rate shall not leak. The absence of vapor leaks shall be verified with 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.)

### **Maintenance Records**

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 maintenance or test date, repair date to correct test failure, maintenance or test performed, affiliation, telephone number, name and Certified Technician Identification Number of individual conducting maintenance or test. An example of a Phase I Maintenance Record is shown in Figure 2H.

**Table 2-1  
Gasoline Dispensing Facility Compliance Standards and Specifications**

<b>Component / System</b>	<b>Test Method</b>	<b>Standard or Specification</b>
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 pound-inch average static torque
Overfill Prevention Device	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H <sub>2</sub> O
Spill Container Drain Valve	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H <sub>2</sub> O
P/V Vent Valve <sup>1</sup>	TP-201.1E	Positive pressure setting: 2.5 to 6.0 inches H <sub>2</sub> O Negative pressure setting: 6.0 to 10.0 inches H <sub>2</sub> O Positive Leak rate: 0.05 CFH at 2.0 inches H <sub>2</sub> O Negative Leak rate: 0.21 CFH at -4.0 inches H <sub>2</sub> O
Vapor Recovery System	TP-201.3	As specified in TP-201.3 and/or CP-201
All connections and fittings certified without an allowable leak rate	Leak Detection Solution or bagging	No Leaks

**Table 2-2  
Maintenance Intervals for System Components<sup>2</sup>**

<b>Manufacturer</b>	<b>Component</b>	<b>Maintenance Interval</b>
Husky	Pressure/Vacuum Vent Valve	Annual
FFS	Pressure/Vacuum Vent Valve	Annual
EMCO Wheaton	Tank Gauge Port Components	Annual
EMCO Wheaton	Dust Caps	Annual
CompX Security Products	Dust Caps	Annual
OPW	Dust Caps	Annual
EMCO Wheaton	Overfill Prevention Device	Annual
EMCO Wheaton	Rotatable Phase I Product and Vapor Adaptors	Annual
EMCO Wheaton	Spill Container Drain Valve	Quarterly
EMCO Wheaton	Spill Container	Quarterly and After Each Delivery

<sup>1</sup> Compliance determination is at the option of the district.

<sup>2</sup> Maintenance must be conducted within the interval specified from the date of installation and at least within the specified interval thereafter.

Figure 2A

Typical Multi-Port Product Side Installation of EMCO System

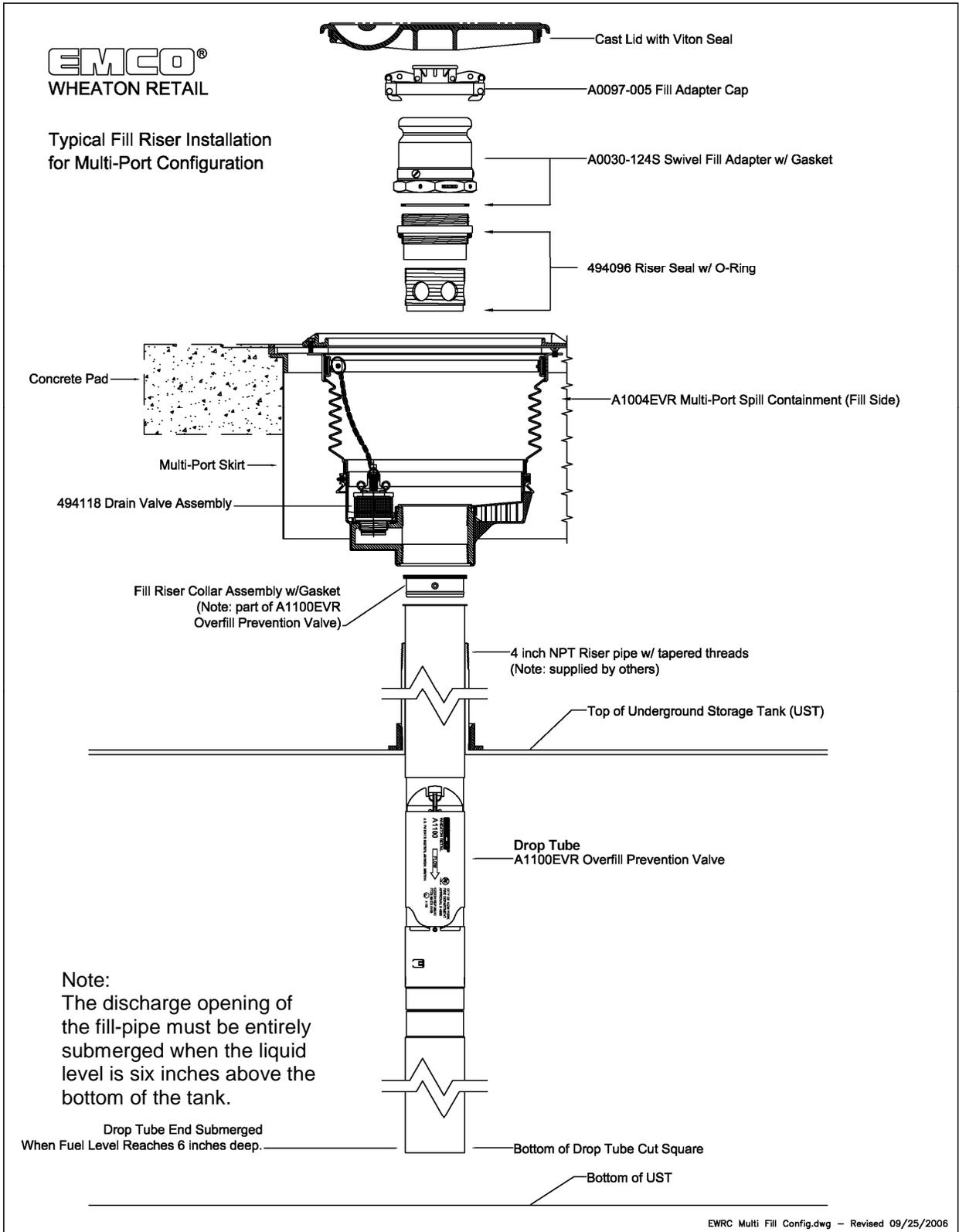


Figure 2B

Typical Multi-Port Vapor Recovery Installation of EMCO System

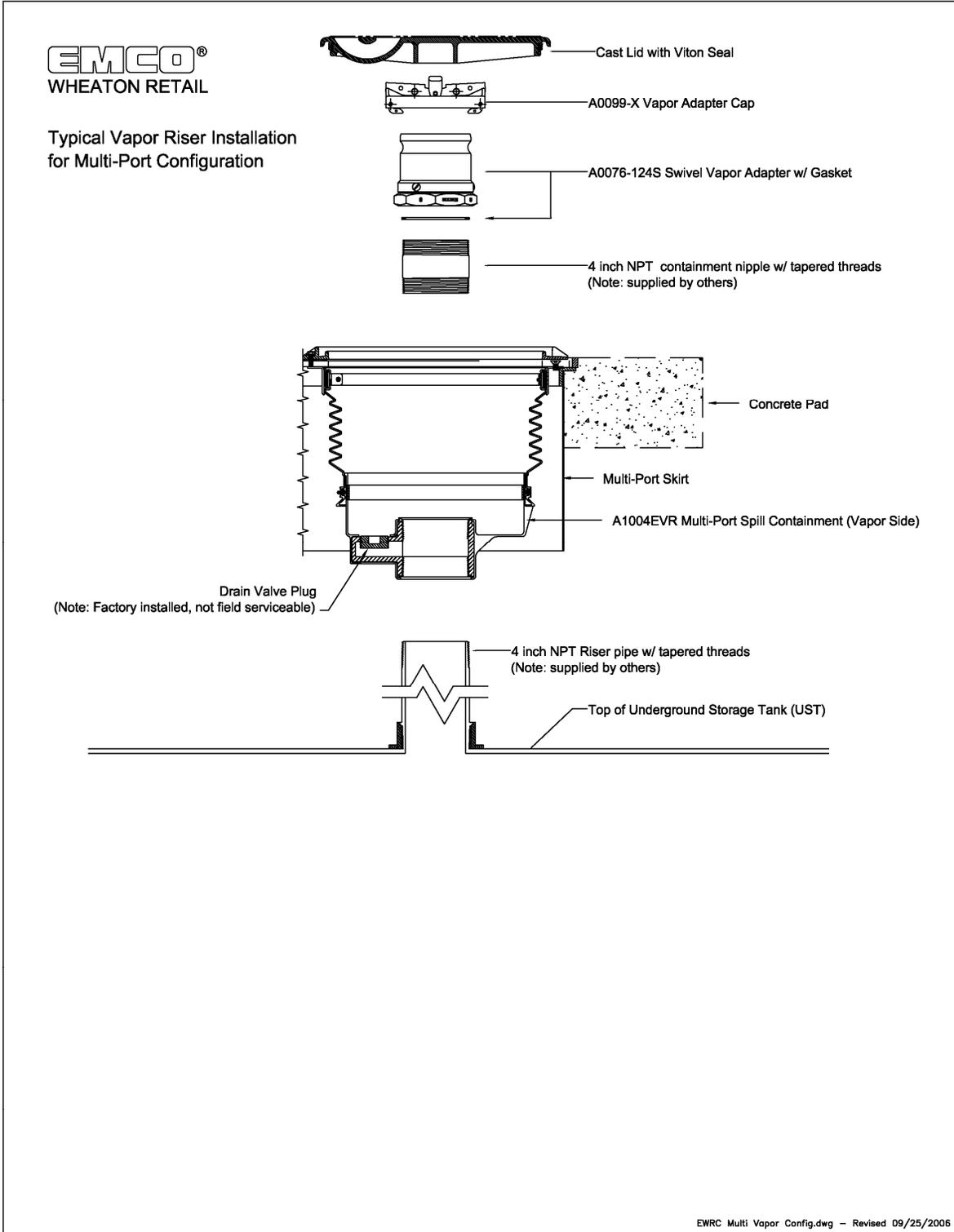


Figure 2C

Typical Direct Burial Product Side Installation of EMCO System

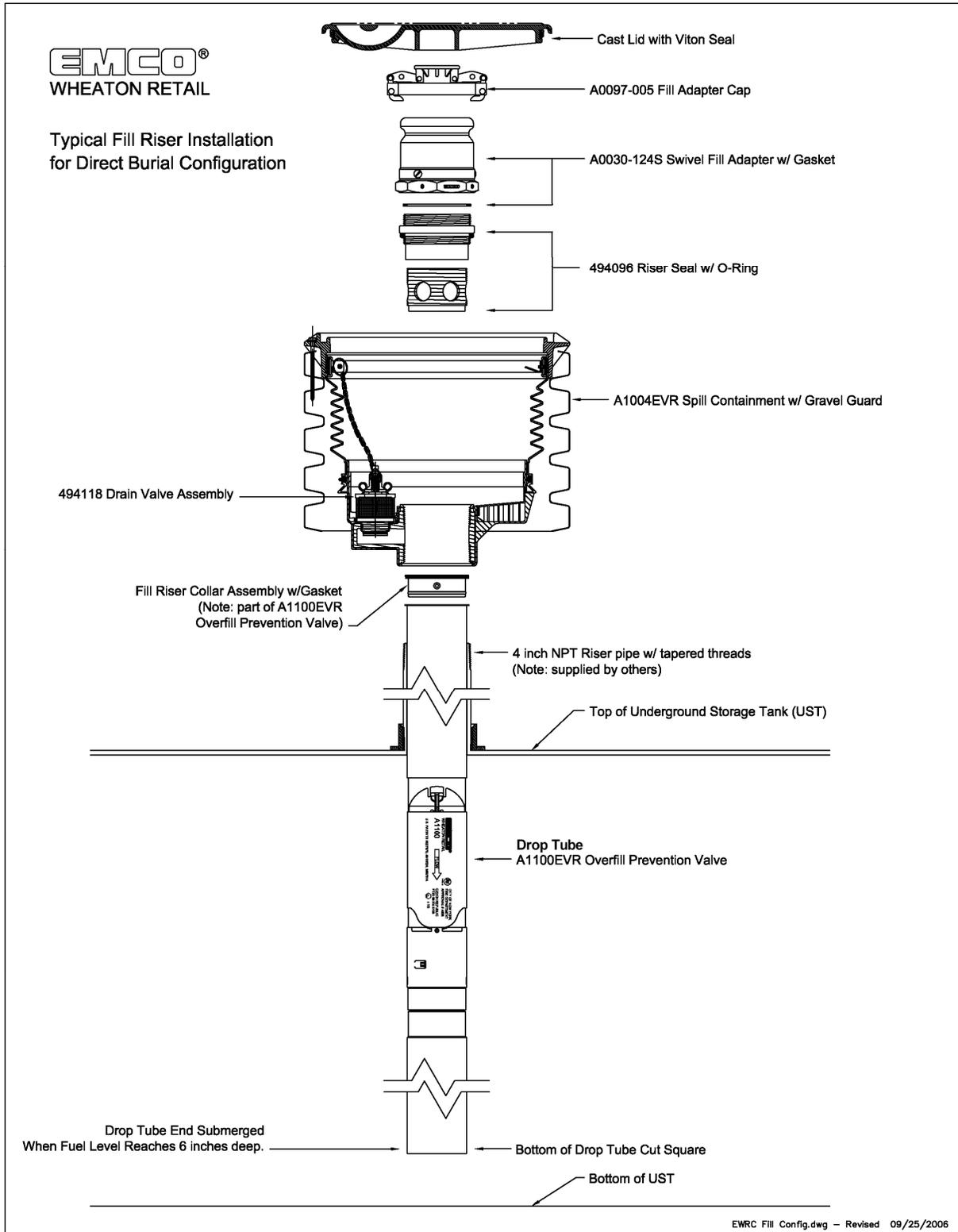


Figure 2D

Typical Direct Burial Vapor Recovery Installation of EMCO System

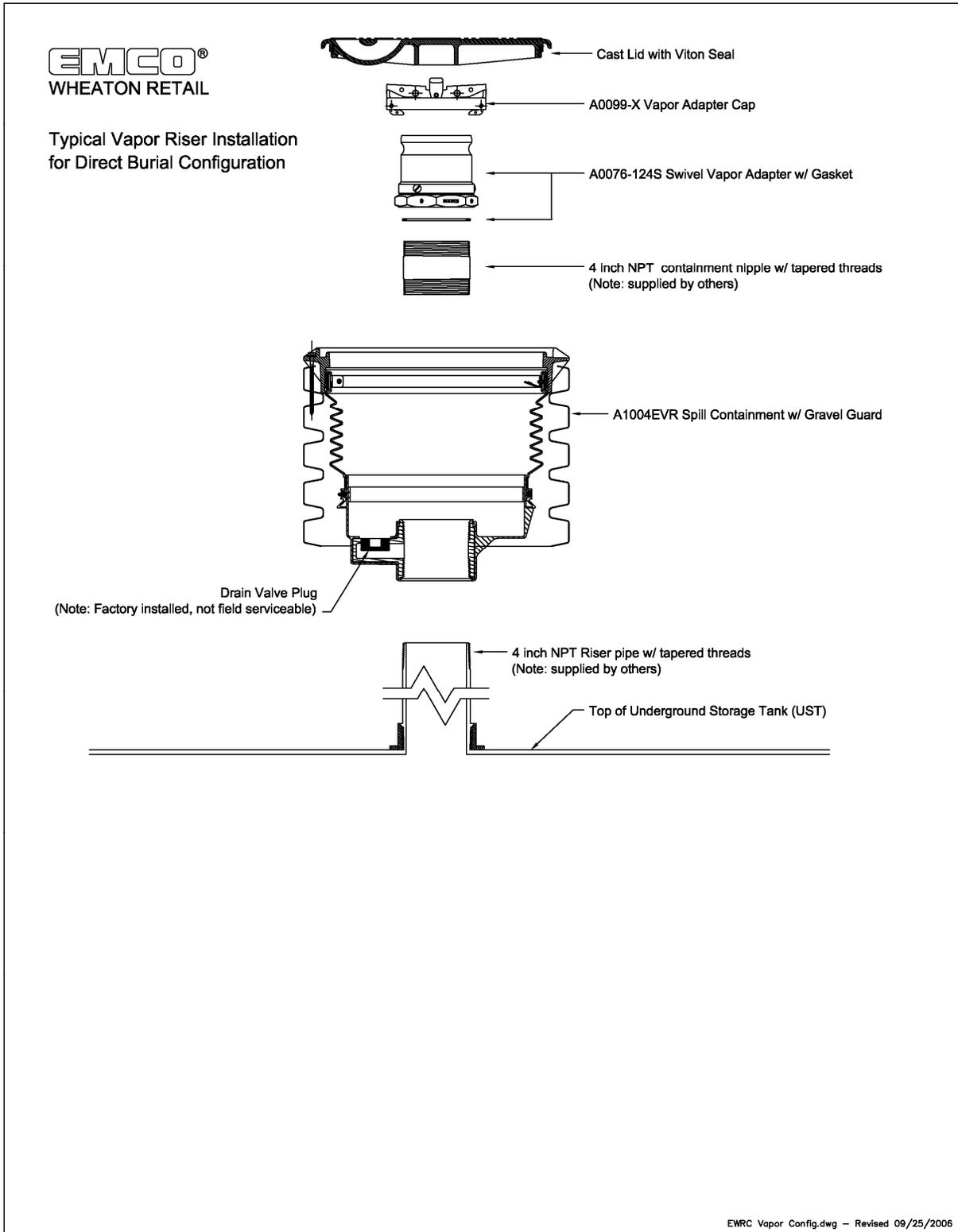
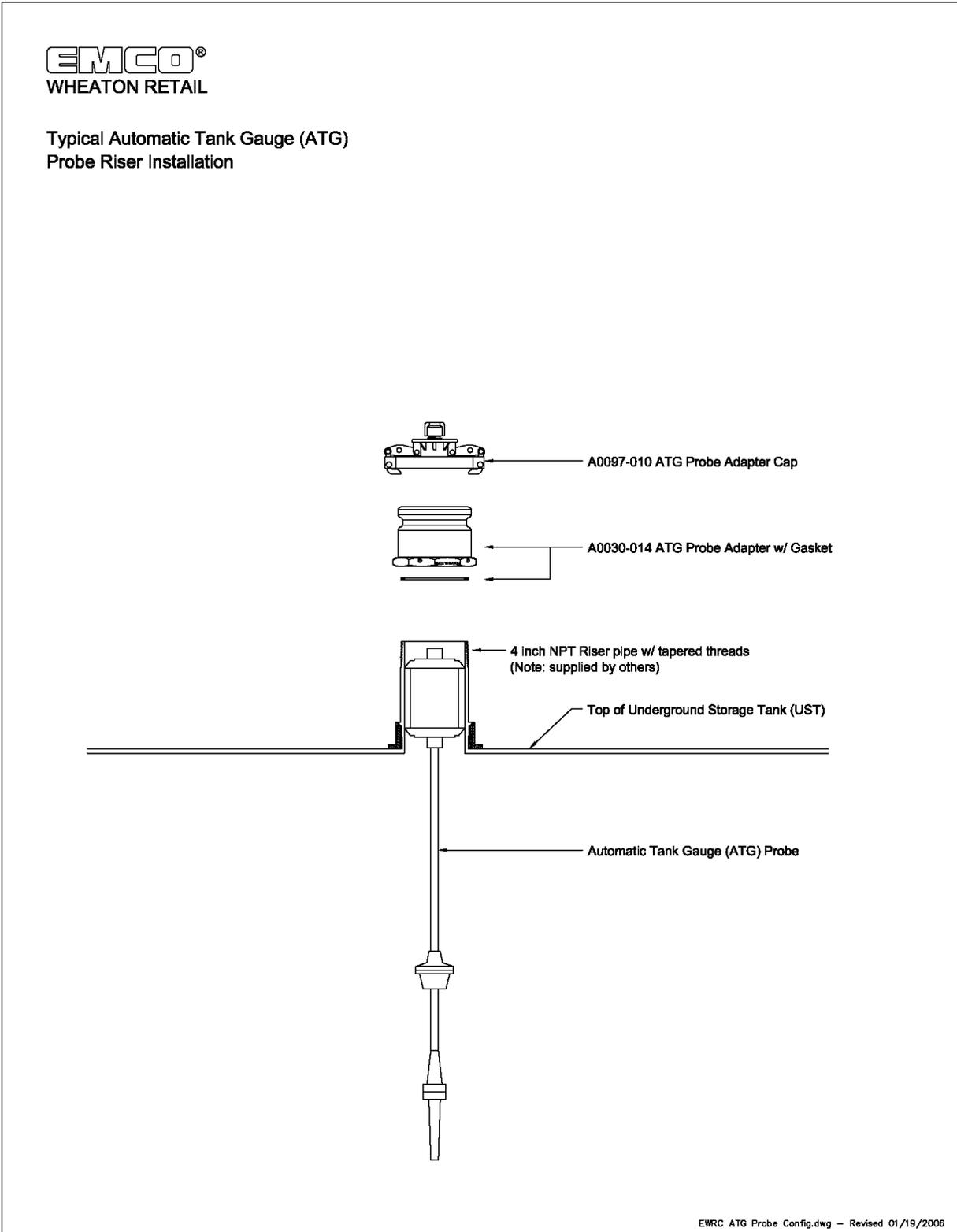


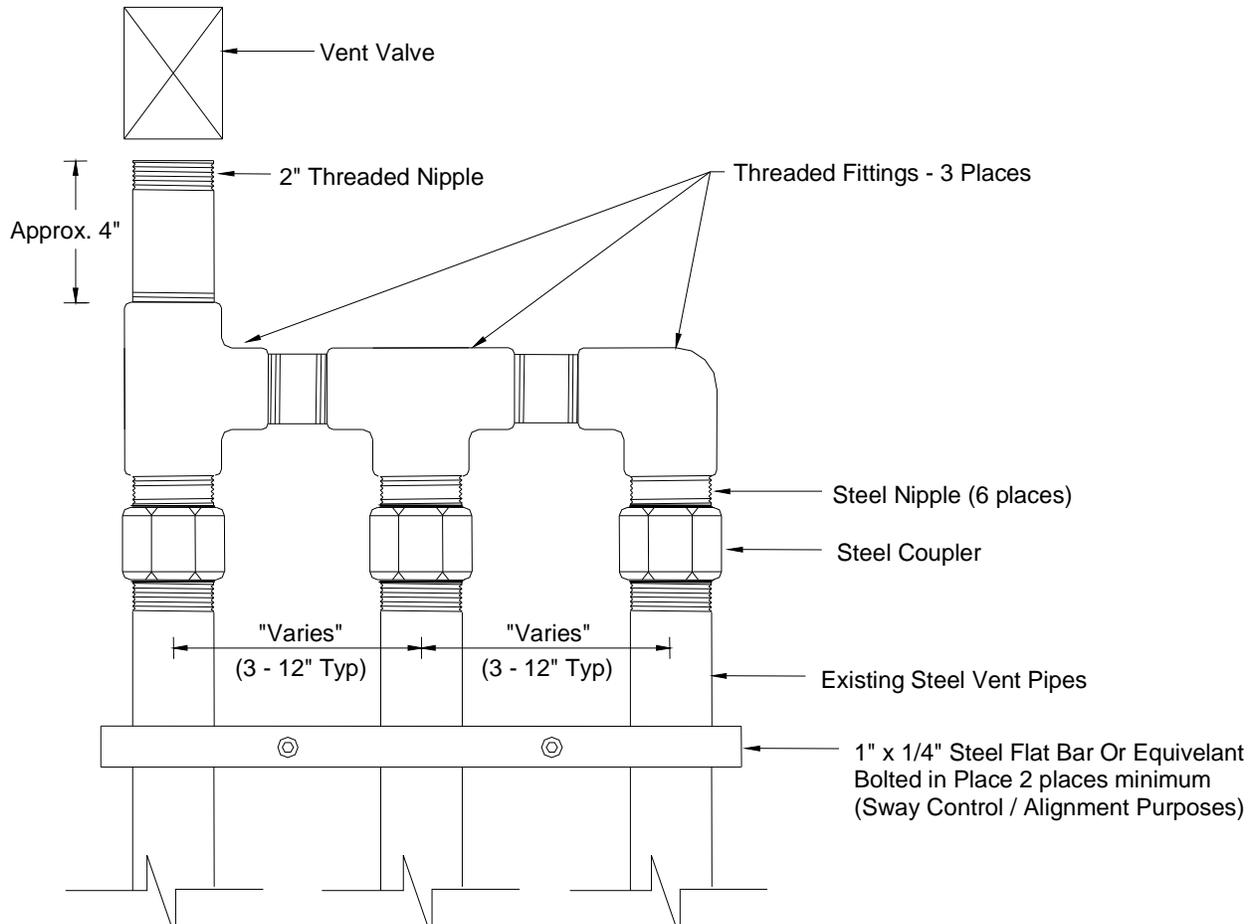
Figure 2E

Typical Automatic Tank Gauge Probe Riser Installation of the EMCO System



**Figure 2F**

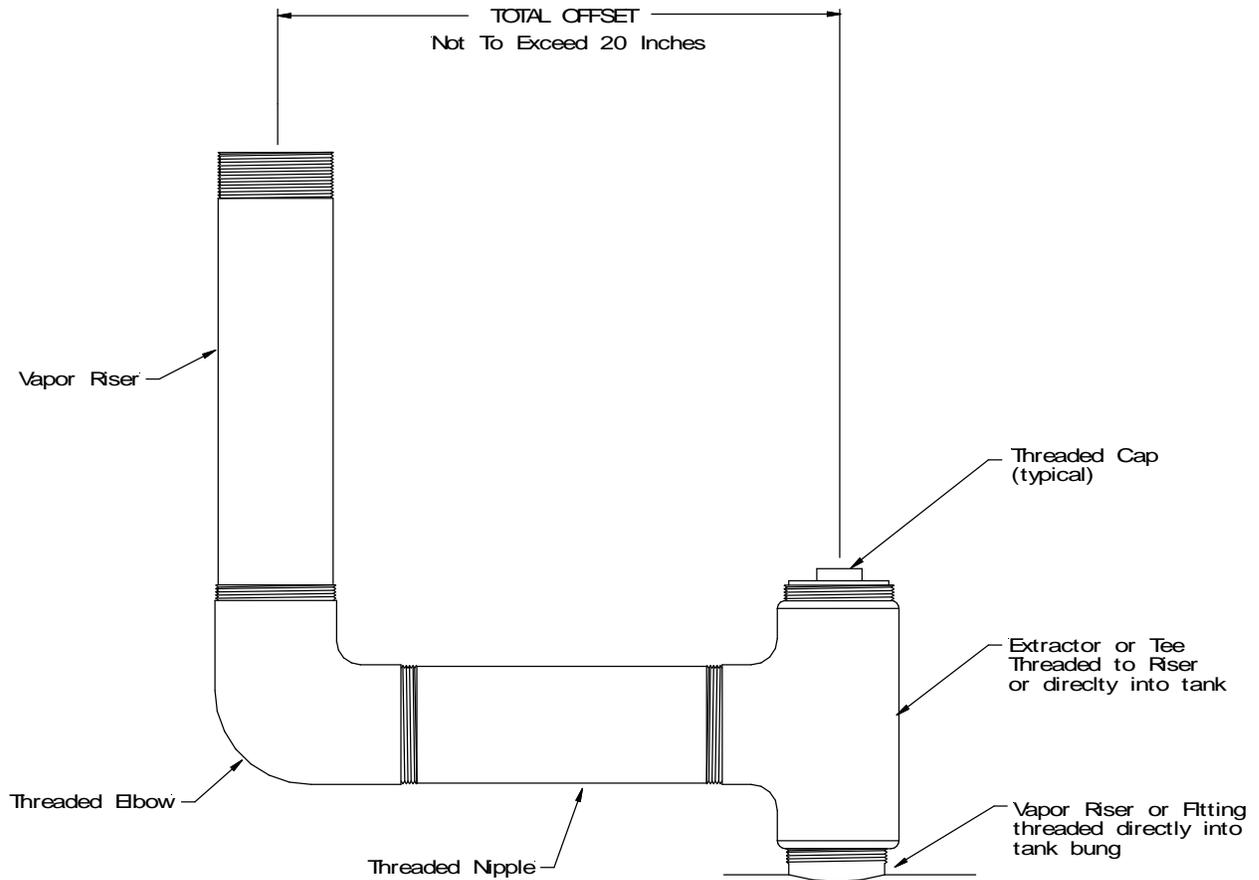
**Typical Vent Pipe Manifold**



**Note:** 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 vent pipes may be connected, or more than one P/V valve may be installed on the manifold.

**Figure 2G**

**Typical 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 2H**

**Example of a GDF Maintenance Record**

<b>Date of Maintenance/ Test/Inspection/Failure</b>	<b>Repair Date To Correct Test Failure</b>	<b>Maintenance/Test/Inspection Performed and Outcome</b>	<b>Affiliation</b>	<b>Name and Certified Technician Identification Number of Individual Conducting Maintenance or Test</b>	<b>Telephone Number</b>

## Exhibit 3

### Manufacturing Performance Standards and Specifications

The EMCO Wheaton System and all components shall be manufactured in compliance with the applicable Phase I 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 EMCO Wheaton 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 tested at the factory for cracking pressure and leak rate at each specified pressure setting and shall be done in accordance with **TP-201.1E, Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves** (October 8, 2003).
2. Each P/V valve shall be shipped with a card or label stating the performance specifications listed in Table 3-1, and a statement that the valve was tested to, and met, these specifications.
3. 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 and leak rate standards listed in Table 3-1. The lettering of the positive and negative pressure settings and leak rate standards on 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 tested at the factory to, and met, the specifications listed in Table 3-1 and shall have affixed to it a card or label listing these performance specifications and a statement that the adaptor was tested to, and met, such specifications. (Reference EMCO test procedures TP-157 and TP-158)

### **Spill Container and Drain Valves**

Each spill container drain valve shall be tested at the factory to, and met, the following specification listed in Table 3-1 and shall have affixed to it a card or label listing the following performance specification and a statement that the drain valve was tested to, and met, such performance specification.

### **Drop Tube Overfill Prevention Device**

Each Drop Tube Overfill Prevention Device shall be tested at the factory to, and met, the specification listed in Table 3-1 and shall have affixed to it a card or label listing the performance specification and a statement that the device was tested to, and met, such performance specification.

**Table 3-1  
Manufacturing Component Standards and Specifications**

<b>Component</b>	<b>Test Method</b>	<b>Standard or Specification</b>
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 lb-inch average static torque
Rotatable Phase I Adaptors	Micrometer	Cam and Groove Standard (CP-201)
Spill Container Drain Valve	TP-201.1D	Leak rate $\leq 0.17$ CFH at 2.00 inches H <sub>2</sub> O
Overfill Prevention Device	TP-201.1D	Leak rate $\leq 0.17$ CFH at 2.00 inches H <sub>2</sub> O
Pressure/Vacuum Vent Valve	TP-201.1E	Positive Pressure: 2.5 to 6.0 inches H <sub>2</sub> O Negative Pressure: 6.0 to 10.0 inches H <sub>2</sub> O Leak rate: $\leq 0.05$ CFH at +2.0 inches H <sub>2</sub> O $\leq 0.21$ CFH at -4.0 inches H <sub>2</sub> O