

EXHIBIT 2 System Specifications

This exhibit contains the installation, maintenance and compliance standards and specifications that apply to the Balance Phase II EVR Systems installed at gasoline dispensing facilities (GDFs). All components must be installed, maintained, and operated in accordance with the specifications in the ARB Approved Installation, Operation and Maintenance Manual (IOM). Installation, maintenance and repair of system components, including removal and installation of such components in the course of any required tests, shall be performed by technicians certified by the appropriate manufacturer unless otherwise specified in the IOM. Additional certifications may be required in accordance with local District requirements.

Hanging Hardware

Nozzle

1. A vapor collection bellows shall be installed on the EMCO nozzle at the base of the spout, as shown in Figure 2B-1. A vapor collection sleeve shall be installed on the VST nozzle at the base of the spout, as shown in Figure 2B-2.
2. The EMCO Model A4005EVR and VST Model VST-EVR-NB (G2) nozzles have an integral vapor valve which prevents the loss of vapor from the underground storage tanks, ensures proper operation of the system and prevents the ingestion of air into the system. The performance of the nozzle vapor valve can be determined by items 2.1 or 2.2.
 - 2.1. The maximum allowable leak rate for the nozzle vapor path, as determined by TP-201.2B, shall not exceed 0.07 cubic feet per hour (CFH) at a pressure of two inches water column (2.00" WC)
 - 2.2. Verification of the integrity of the vapor valve can be performed on installed nozzles using the nozzle bag test procedure in Exhibit 7.
3. The gasoline flow rate of the nozzle shall be between six (6.0) and ten (10.0) gallons per minute as determined by the applicable provisions of section 6 or 7 of Exhibit 5 or by direct observation for 30 seconds minimum at the maximum hand held position.

Vapor Collection

1. The system pressure drop from the nozzle to the AST, as determined by TP-201.4 (Methodology 1) and Exhibit 6, shall not exceed the following:

0.35 inches WC at a flow rate of 60 CFH of Nitrogen; and
0.62 inches WC at a flow rate of 80 CFH of Nitrogen.

Coaxial Hoses

1. The maximum length of the hose assembly, including hose adaptor, whip hose, breakaway, and coaxial hose, measured at the base of the nozzle, shall be no more than eighteen (18) feet.
2. The liquid removal rate shall not be less than five milliliters per gallon (5.0 ml/gal) as determined by Exhibit 5 when tested with a gasoline flow rate between six (6.0) and ten (10.0) gallons per minute. Liquid removal requirement is applicable to all grades of gasoline.
3. All hoses shall have a permanent marking indicating the liquid pick-up location.
4. Any hose configuration is allowed when installed in accordance with IOM section 8.

Breakaway Couplings

1. The EMCO safe break couplings, Model A4119EVR, are non-reconnecting and shall be replaced following a drive-off.
2. The EMCO safe break couplings, Model A4119EVR (Reconnectable), can be reconnected following a drive-off after conducting a visual and functional assessment per the drive-off procedure.
3. The VST breakaways, Model VSTA-EVR-SBK (Reattachable), can be reconnected following a drive-off after conducting a visual and functional assessment per the drive-off procedure.

Flow Limiter

No flow limiter is allowed for this system.

Processor

Hirt VCS 100-2 VaporTek® Thermal Oxidizer

1. The processor vapor integrity shall demonstrate compliance with the static pressure decay criteria of TP-206.3 and Exhibit 4.
2. Unless there is maintenance or testing being conducted on the processor, the processor shall be on (power lamp is lit). The ball valve on the inlet of the processor shall be locked in the open position shown in Figure 2B-3 and the 3-Way Valve handle shall be pointing down in the Normal Operating Position (Opened to AST Ullage) shown in Figure 2B-4 during normal processor operation. The handles of the ball valves shall not be removed.

3. The processor shall be installed a minimum horizontal distance of 20 feet from the pressure/vacuum vent valve(s) and any fuel transfer point (i.e. nozzles or storage tank drop tubes) and the associated piping shall be sloped 1/8" per foot minimum toward the vent line(s), tank fitting, or low point which drains to the LCT (if an LCT is installed).
4. The VCS 100-2 VaporTek® Indicator Panel shall be installed at a location that is most likely to be occupied by the station attendant during normal station operation (e.g., cash register). If the site does not have an attendant, the GDF owner/operator or designee shall inform the district of the method selected for alarm notification. The district may require that such notification be on a 24/7 basis.
5. The processor shall activate when the processor is exposed to an atmospheric pressure input and the Processing lamp at the Indicator Panel shall light within three (3) minutes as determined by Exhibit 8.
6. When the processor is exposed to an atmospheric pressure input, the MALFUNCTION lamp at the Indicator Panel shall light within sixty two (62) minutes as determined by Exhibit 8.
7. If the MALFUNCTION lamp lights, the system is not in proper working order. The GDF owner/operator shall immediately take the following actions:
 - a. record the date and time the MALFUNCTION lamp lit in the station's maintenance and alarm records;
 - b. investigate the cause of the MALFUNCTION light as provided by section 10 of the Installation, Operations, and Maintenance Manual. Record results of inspections, maintenance, and/or testing conducted in the station's maintenance and alarm records; and if necessary,
 - c. record the date and time when the GDF owner/operator called the maintenance contractor for service.

Pressure/Vacuum Vent Valves for Storage Tank Vents

1. All P/V vent valves shall be an ARB certified P/V valve for a Phase I system.
2. At least one pressure/vacuum (P/V) vent valve shall be installed on each tank vent. The maximum number of P/V vent valves allowed and P/V vent valve performance specifications are listed in the applicable Phase I EVR Executive Order. Vent lines may be manifold to minimize the number of P/V vent valves and potential leak sources, provided the manifold conforms to all applicable fire regulations.

Warranty

Each manufacturer listed in Exhibit 1 shall include a warranty tag with the certified component(s). The manufacturer warranty tag, included with each component, shall be provided to the service station owner/operator at the time of installation.

Vapor Recovery Piping Configurations

NOTE: Vapor Return Piping shall meet the requirements specified in section 5.12 of CP-206.

1. Vapor Return and Vent Lines

For facilities installed after January 1, 2009, all vapor return and vent lines shall be a minimum nominal internal diameter of 2 inches from the dispensers or the vent stacks to the first manifold. All lines after the first manifold and back to the aboveground storage tank shall have a minimum nominal internal diameter of 3 inches.

Note: Facilities permitted by a local district prior to January 1, 2009 shall be required to meet the three inch diameter standard only upon facility modification which involves the addition, replacement, or removal of 50 percent or more of the buried vapor piping.

2. All vapor return lines shall have a minimum slope of 1/8 inch per foot from the dispenser riser to the riser of the LCT (if an LCT is installed). A slope of 1/4 inch or more per foot is recommended wherever feasible.

3. The vapor return piping from any fueling point to the aboveground storage tank shall be free of liquid or fixed blockage.

4. The dispenser shall be connected to the riser with either flexible or rigid material that is listed for use with gasoline. The dispenser-to-riser connection shall be installed so that any liquid in the lines will drain toward the LCT (if an LCT is installed). The internal diameter of the connector, including all fittings, shall not be less than one inch (1").

Note: The dispenser-to-riser connection is defined as the piping connection between the dispenser piping and the inlet of the dispenser riser. A vapor shear valve may also be part of the riser connection.

5. There is no length restriction for the vapor return piping of the system as long as the system complies with the maximum pressure drop requirement, item 1 of the Vapor Collection section.

6. No product shall be dispensed from any fueling point at a GDF installed with the Balance Phase II EVR System if there is a vapor line that is disconnected and open to the atmosphere.
7. Bulk Plant Operations are not allowed with this system.

Dispensers

1. The dispenser vapor piping must be sized adequately to meet the maximum pressure drop requirement, item 1 of the Vapor Collection section.
2. Dispenser vapor piping shall be installed so that any liquid in the lines will drain toward the dispenser riser.

Liquid Condensate Traps

1. Liquid condensate trap connections and fittings shall not leak. 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 aboveground storage tanks is subjected to a non-zero pressure. (Note: Leak detection solution will detect leaks only when positive gauge pressure exists).
2. The Liquid Level Sensor shall alarm within five (5) minutes when tested in accordance with Exhibit 9, Liquid Condensate Trap Compliance Test Procedure.
3. The Liquid Level Sensor audible alarm shall be installed at a location that is most likely to be heard by the station attendant during normal station operation (e.g. cash register). If the site does not have an attendant, the GDF owner/operator or designee shall inform the district of the method selected for alarm notification. The district may require that such notification be on a 24/7 basis.
4. The Liquid Evacuation System shall automatically evacuate gasoline when tested in accordance with Exhibit 9, Liquid Condensate Trap Compliance Test Procedure.
5. A metal tag specifying the capacity of the Liquid Condensate Trap shall be installed and maintained as specified in the Installation, Operation, and Maintenance Manual.

Standing Loss Control

The aboveground storage tank (AST) at the GDF shall meet the Standing Loss Control requirements contained in latest version of ARB's Executive Orders VR-301 and VR-302.

Phase I System

1. The Phase I system shall be an ARB-certified system that demonstrates compliance with the static pressure decay test criteria contained in Exhibit 4.

Maintenance Records

1. Each GDF operator owner shall keep records of alarms and maintenance performed at the facility. Such records shall be maintained on site in accordance with district requirements or policies. The records shall include alarm date and time, nature of the alarm, troubleshooting, maintenance or repair performed to validate and/or correct alarms, component, or system failures, date when maintenance or repair was conducted, name and Certified Technician Identification Number of individual conducting maintenance or test, affiliation, and telephone number. Additional information may be required in accordance with local district requirements. An example of a GDF maintenance and alarm form is shown in Figure 2B-5.
2. Maintenance shall be conducted in accordance with the Scheduled Maintenance section of the ARB approved Installation, Operation, and Maintenance Manual.

Vapor Recovery Equipment Defects

The following is deemed a defect for the affected fueling point(s) or system.

Grade Points – EMCO Nozzles

1. The grade point shall be removed from service when more than 0.4 square inches of a nozzle boot face material is missing (e.g., a triangular or similar shape in which greater than 7/16 inches of the boot face circumference is missing (accumulated)).
2. The grade point shall be removed from service when there is slit across seven (7) consecutive bellows convolutions as determined by direct measurements.
3. The grade point shall be removed from service when there is a 360 degree cut around the bellows convolution.

Grade Points – VST Nozzles

1. The grade point shall be removed from service when more than 30% of a nozzle face seal is missing (e.g., a triangular or similar shape in which greater than 2.5 inches of the faceplate circumference is missing (accumulated)).
2. The grade point shall be removed from service when more than 0.4 square inches of a nozzle vapor collection sleeve is missing (e.g., a rectangular shape of greater than nine/sixteenth (9/16) inches or more on each side, a circular shape of eleven/sixteenth (11/16) inches or more in diameter, or a triangular shape of seven/eighth (7/8) inches on the side.
3. The grade point shall be removed from service when the total slit length in the convolutions exceeds 18 inches as determined by direct measurements.

Grade Points – General

1. The grade point shall be removed from service when the dispensing rate is greater than ten (10.0) gallons per minute (gpm) or less than five (5.0) gpm as determined by the applicable provisions of section 6 or 7 of Exhibit 5 or by direct observation for 30 seconds minimum at the maximum hand held position.
2. The grade point shall be removed from service when a hose is found to have greater than 150 ml of gasoline in the vapor side as determined by sections 6.1 to 6.5 of Exhibit 5. Note: Prior to draining gasoline from the vapor side of the hose, use Emco tool P/N 494635EVR (for EMCO EVR nozzle) or VST tool P/N VST STP 100 (for VST EVR nozzle) and plug the fuel spout. **Do not activate dispenser when draining gasoline from the vapor side of the hose.**
3. The grade point shall be removed from service when the system pressure drop exceeds the following conditions as determined by Methodology 1 of TP-201.4 and Exhibit 6:
 - 0.95 inches WC at a flow rate of 60 CFH of Nitrogen; and
 - 1.52 inches WC at a flow rate of 80 CFH of Nitrogen.
4. The grade point shall be removed from service when any hose has a visible opening as determined by direct observation.
5. The grade point shall be removed from service when any nozzle lever has spring tension (live lever) when the vapor recovery sleeve or bellows is uncompressed as determined by the weekly interlock inspection procedure per IOM Section 2.
6. The grade point shall be removed from service when the nozzle automatic liquid shut-off mechanisms malfunction in any manner as determined by EPO No. 26-F (See Vapor Recovery Equipment Defects List) or direct observation.
7. The grade point shall be removed from service when any nozzle has a defective vapor valve as determined by Exhibit 7 or when the vapor valve has a leak rate that exceeds 0.07 cubic feet per minute at a pressure of two (2) inches WC as determined by TP-201.2B.
8. The grade point or system shall be removed from service when any component required by this Executive Order is absent, installed improperly or disconnected as determined by direct observation.

System with Hirt Thermal Oxidizer

1. Unless there is maintenance or testing being conducted on the Hirt Thermal Oxidizer, the system shall be removed from service when the ball valve on the Thermal Oxidizer is not locked in the proper operating configuration (Figure 2B-3) as determined by direct observation.

2. Unless there is maintenance or testing being conducted on the Hirt Thermal Oxidizer, the system shall be removed from service when the Thermal Oxidizer Indicator Panel is not in the "power on" position (power lamp is lit).

**Figure 2B-1
EMCO Model A4005EVR Nozzle**

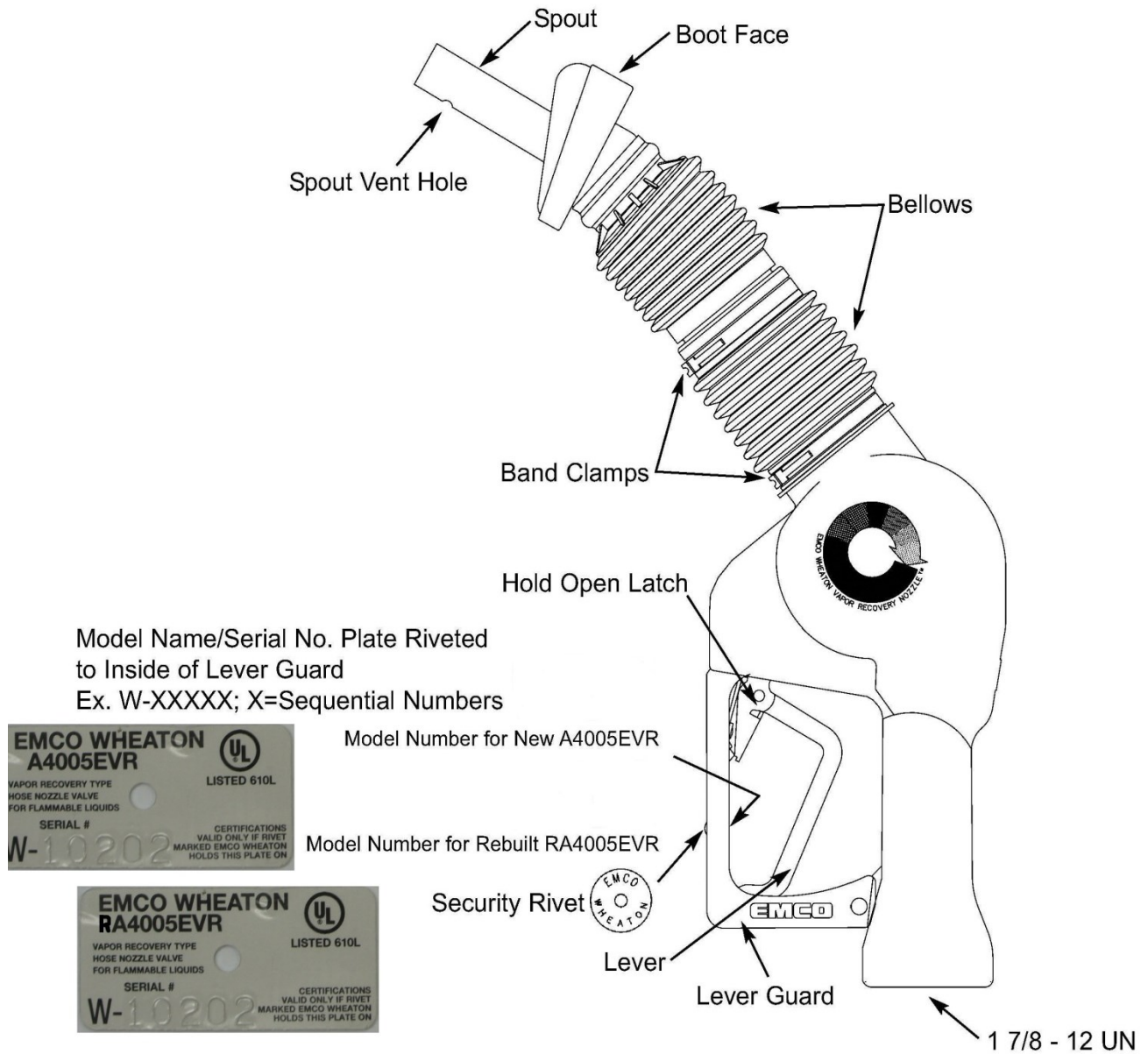


Figure 2B-2
VST Model VST-EVR-NB (G2) Nozzle

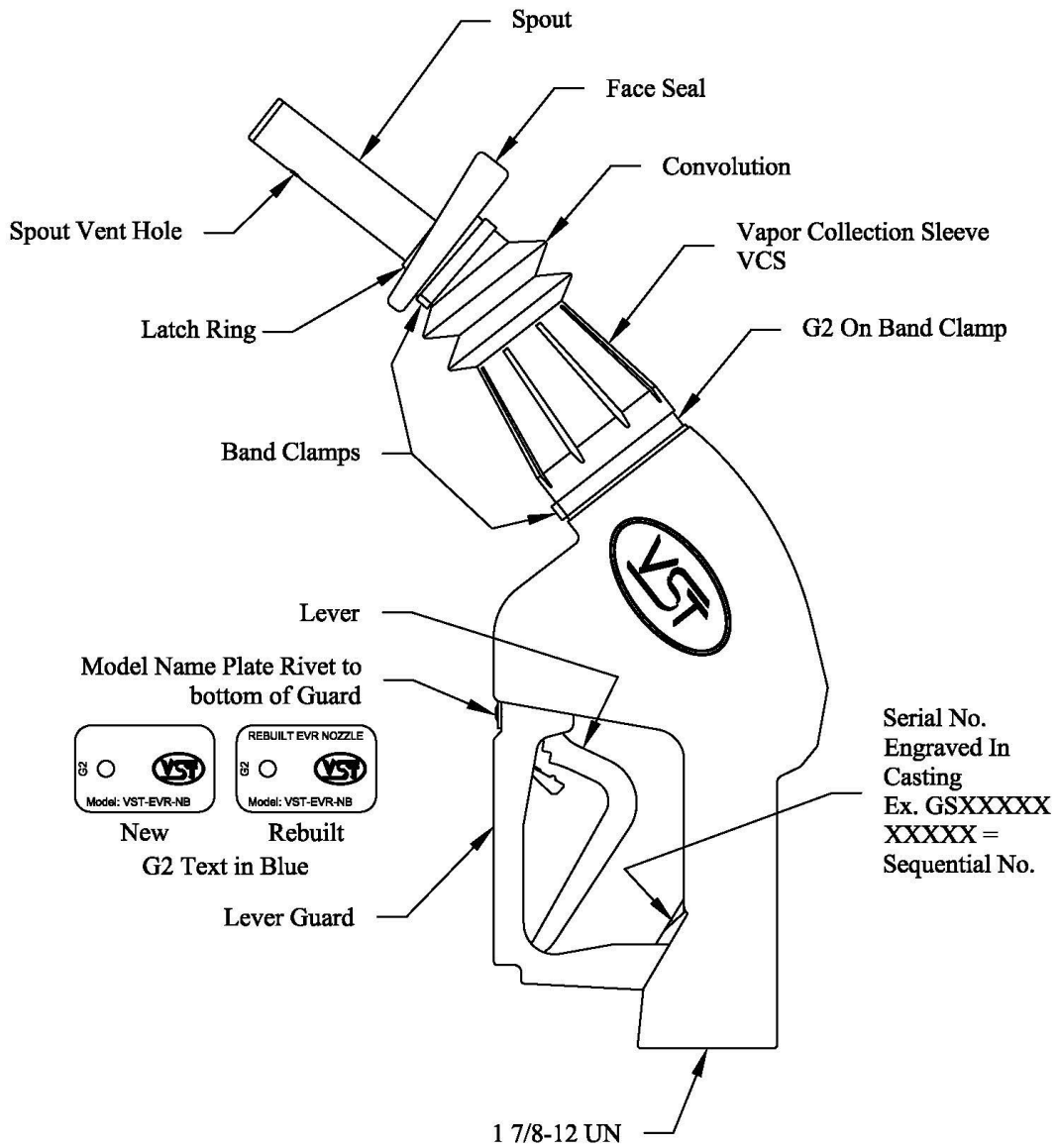


Figure 2B-3
Hirt VCS 100-2 VaporTek® Thermal Oxidizer
(shown in normal operation)

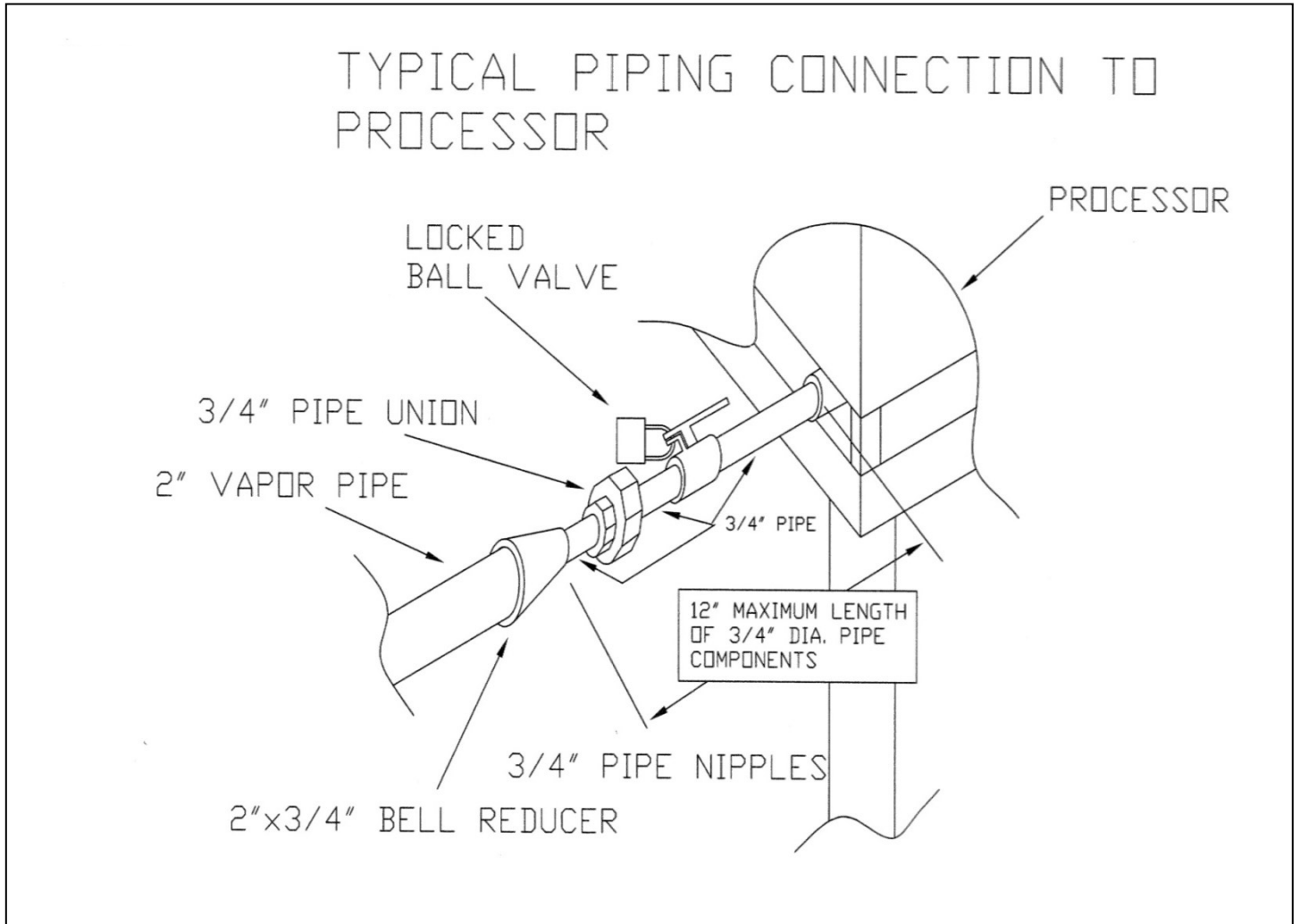


Figure 2B-4
Hirt VCS 100-2 VaporTek® Thermal Oxidizer
(3-Way Valve shown in normal operation)

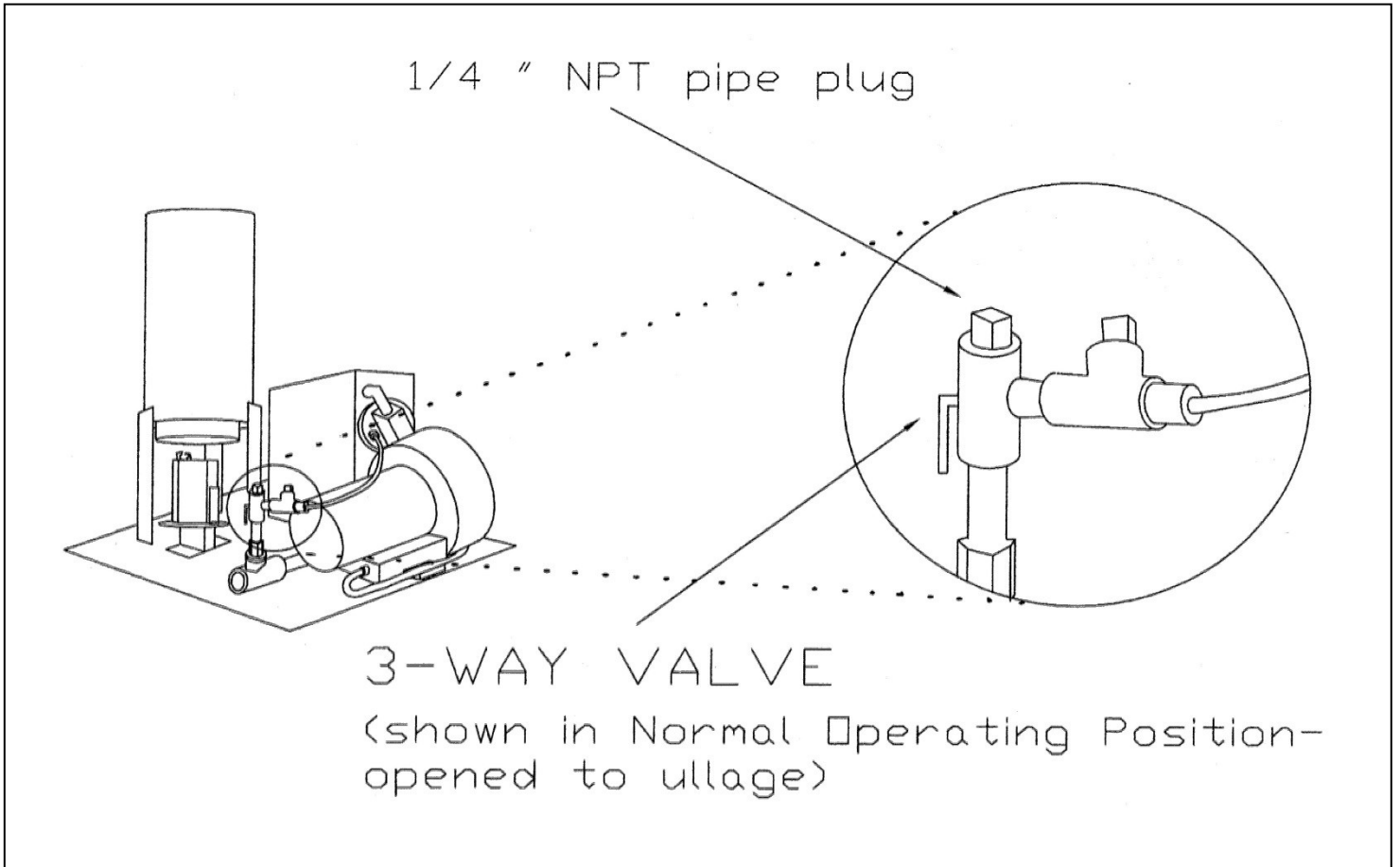


Figure 2B-5
Example of a GDF Maintenance Record and Alarm History Form

Date of Maintenance/ Test/Inspection/Failure /alarm history (including date and time of maintenance call)	Repair Date To Correct Test Failure	Maintenance/Test/Inspection Performed and Outcome/Action Taken in Response to Alarm	Affiliation	Name and Technician ID Number of Individual Conducting Maintenance or Test	Telephone Number