Chapter 14: Decommissioning Stage II Vapor Recovery Piping

14.1 Introduction. This Chapter describes procedures to permanently disconnect Stage II vapor recovery systems that have been in active service. If a facility has vapor piping installed, but it is capped and has never been in service, then the procedures described here are not necessary.

NOTE: Verify that Stage II is no longer required at a specific facility before initiating decommissioning procedures.

14.2 Nature of the Procedure. The procedure described here involves capping off and disconnecting various Stage II components, but leaves the below grade Stage II vapor piping in place. It was common practice in the past to install vapor piping at new facilities that did not yet require the use of Stage II so that vapor recovery could easily be implemented at a later date. Many of these facilities with installed but inoperative vapor piping have been in service for many years without problems. Leaving inactive vapor piping in the ground will not increase hazards to human health or the environment or impair the operation of the storage system.

NOTE: Below grade Stage II vapor piping will in many cases remain connected to the tank and will contain vapors after it has been decommissioned.

Likewise, decommissioning the Stage II piping located inside a dispenser cabinet does not require the removal of the vapor piping provided the procedures described here are followed.

14.3 Qualifications. Competent personnel are required not only to install vapor recovery systems but also to decommission them. Only technicians who have received appropriate training, have all of the required tools, and possess the required regulatory and equipment manufacturer certifications should perform the Stage II decommissioning procedure.

14.4 Paperwork. In many jurisdictions, a permit must be obtained or a notification procedure must be followed before the decommissioning work is initiated. Also, facility operating permits or registration certificates may need to be updated to reflect that the Stage II vapor recovery system is no longer in service. Verify the regulatory paperwork requirements for a specific facility before beginning the work of decommissioning Stage II vapor recovery.

14.5 Applicability. The procedures described here are intended to be applied to the most common types of Stage II vapor recovery systems. There may be some Stage II systems that have characteristics or components that differ from those described here and may require different decommissioning procedures. It is the responsibility of the qualified technician responsible for decommissioning a Stage II system to determine the applicability of the following decommissioning steps:

- relieve any pressure in the tank ullage
- remove liquid from any below grade liquid collection points
- electrically and mechanically disconnect all vapor pumping or processing units
- disconnect all electrical components of the Stage II system so that no electrical hazards are created
- reprogram the dispenser electronics to reflect that Stage II vapor recovery is no longer in service
- securely cap the below grade vapor piping at a height below the level of the base of the dispenser
- securely cap the below grade vapor piping at the tank end if it is easily accessible
- securely cap both ends of the vapor piping inside the dispenser cabinet
- replace the Stage II hanging hardware with conventional hanging hardware
- install appropriate pressure/vacuum vent cap(s)
- remove any Stage II instructions from the dispenser cabinet
- conduct a pressure decay test

- verify that the storage system is left in a condition that will reliably prevent the release of any vapors or liquids from any component of the storage system associated with Stage II vapor recovery

14.6 Decommissioning Procedure. The decommissioning procedure should be carried out in the order described in the paragraphs that follow.

14.6.1 Relieve Pressure in the Tank Ullage. To reduce the volume of vapors that may be released when the vapor piping is disconnected at the dispenser, temporarily remove the pressure/vacuum vent cap. Leave the vent cap off until the procedure is completed. If there is a concern for precipitation entering the open vent riser during the decommissioning procedure, a standard (non-pressure/vacuum) vent cap may be temporarily installed.

14.6.2 Drain Liquid Collection Points. If there are any liquid collection points (see Section 5.14 of this Recommended Practice) present, open them and check for the presence of liquid. Pump out any fluid present using a gasoline-compatible hand pump or a properly grounded and bonded electric pump rated for use in Class I, Division I areas. Pump the fluid into an appropriately-sized container approved for use with gasoline. Set the container on the ground when gasoline is being pumped into it. Verify that the fluid is gasoline and carefully pour it into the lowest-grade gasoline tank. Use a metal funnel if the gasoline container is not equipped with a spout. Bond the gasoline container to the metal funnel or fill pipe before pouring the gasoline. If the liquid is contaminated or does not appear to be gasoline, dispose of it properly.

Most liquid collection points have a small diameter copper tube that leads back to the vacuum port of a submersible pump. Disconnect this tube at the submersible and cap it off using a compression or flare fitting so that it is vapor tight. If feasible, cap off the end of the copper tube in the liquid collection sump using a compression or flare fitting as well. Install a plug in the submersible pump to seal the vacuum port.

Replace the cap on the liquid collection sump. Take whatever steps are necessary (for example, apply thread sealant to threaded plugs or replace gaskets on snap caps) to produce a vapor tight seal between the cap and the sump.

14.6.3 Vacuum Assist Systems with Vapor Pumps for Each Fueling Position. If the Stage II vapor recovery system includes an electrically-operated vapor pump, open the electrical junction box and disconnect the wiring at the pump motor. Disconnect and cap off all wires using appropriately-sized wire nuts to insulate the wires. Carefully replace the wires in the electrical junction box for the motor. Replace the electrical junction box cover, making sure that all gaskets and seals are in good condition and properly positioned.

Reprogram the dispenser electronics as required to disable vapor pump motor control circuits and to indicate that Stage II vapor recovery is no longer active. This step is necessary to prevent error codes and avoid dispenser malfunction. Consult the dispenser manufacturer's literature to determine how to reprogram the dispenser electronics. Only properly-trained technicians should reprogram the dispenser electronics.

Drain liquid that may be present in the vacuum pump by temporarily disconnecting the vacuum tubing at the bottom of the pump. There is no need to remove the vacuum pump.

14.6.4 Vacuum Assist Systems with a Centrally-Located Vapor Pump. If the Stage II vapor recovery system includes a centrally-located vacuum pump operated by liquid flow, completely remove the vacuum pumping mechanism. After removing the vacuum generating mechanism, thread a plug into the tank top bung to create a vapor-tight seal. Cap the vapor piping that was attached to the vapor pump using a threaded plug, threaded cap, or glued fitting if the piping is fiberglass. Do not use any type of rubber cap held in place by a hose clamp to seal the vapor piping. The vapor piping must be sealed so that it is vapor tight.

14.6.5 Cap the Below-Grade Vapor Piping at the Base of the Dispenser. Disconnect the below grade vapor piping from the dispenser at a point that is at or below the level of the base of the dispenser. This may require the removal of the vapor shear valve. Cap the below grade portion of the vapor piping using a threaded plug, threaded cap, or glued fitting if the piping is fiberglass. Do not use any type of rubber cap held in place by a hose clamp to seal the vapor piping. The vapor piping must be sealed so that it is vapor tight.

14.6.6 Disconnect Vapor Piping at the Tank Top. If the Stage II vapor piping connection to the tank is located in a tank-top sump and is easily accessible, disconnect the piping at the tank top connection. If the piping is fiberglass, it may need to be cut to be disconnected. Be extremely careful when disconnecting or cutting vapor piping inside a sump because gasoline vapors will be released into the sump. Plug both the tank and vapor piping openings with vapor-tight threaded plugs, caps, or glued fittings.

WARNING: Be extremely careful when cutting or disconnecting vapor piping inside a sump. Eliminate all sources of ignition. Follow confined space entry procedures. Plan ahead and have all the components required to cap off both ends of the vapor piping ready to install so that the amount of time the vapor piping is open is kept to a minimum.

WARNING: Many tanks will have both the tank vent piping and the vapor recovery piping connected to the low-grade product at the same tank opening. Be absolutely sure that the piping disconnected and capped off is the Stage II vapor piping and not the tank vent piping.

14.6.7 Cap the Dispenser Cabinet Vapor Piping. Cap the lower end of the vapor piping that is in the dispenser cabinet using a threaded plug or cap. Do not use any type of

rubber cap held in place by a hose clamp to seal the vapor piping. The dispenser vapor piping must be sealed so that it is vapor tight.

14.6.8 Replace Hanging Hardware. Replace all the Stage II hanging hardware with conventional (non-Stage II) hanging hardware. This applies to both balance and vacuum-assist hanging hardware. Before disconnecting the Stage II hanging hardware from the dispenser, drain product in the hanging hardware into an appropriate container placed on the ground.

If the dispenser fuel outlet fitting is coaxial, install an adaptor fitting supplied by the dispenser manufacturer or an approved equivalent to convert the coaxial fuel outlet to a non-vapor recovery fitting. The adaptor must effectively isolate the vapor piping in the dispenser from the fuel handling components of the non-Stage II hanging hardware.

If there are separate dispenser outlets for fuel and vapor, install an adaptor fitting supplied by the dispenser manufacturer or an approved equivalent that will convert the straight thread of the fuel outlet to the National Pipe Thread (NPT) standard that is required for conventional hanging hardware. Install a threaded plug or cap in the vapor inlet opening to create a vapor-tight seal.

14.6.9 Replace the Pressure/Vacuum Vent Cap(s). Install the required number of pressure/vacuum vent caps on the vent riser(s). Consult local requirements to determine the appropriate pressure and vacuum relief pressures for the vent cap(s).

14.6.10 Remove Stage II Operating Instructions from Dispensers. Many jurisdictions require Stage II operating instructions to be posted on dispensers to inform customers about the operation of the system. If present, carefully remove these instructions, taking care not to damage the dispenser finish.

14.6.11 Conduct Pressure Decay Test. Conduct a pressure decay test according to the procedures described in Chapter 8 of this Recommended Practice to verify that the

Stage I vapor recovery system and all vapor piping and fittings still connected to the storage system are tight.

14.6.12 Conduct a final visual check to verify that the entire storage system is in a condition that will reliably prevent the release of any vapors or liquids from any component of the storage system associated with Stage II vapor recovery.

14.6.13 Complete the Checklist in Appendix C of this document. Many authorities having jurisdiction require that all work conducted on a vapor recovery system be documented. The checklist presented in Appendix C provides a convenient means of documenting which decommissioning steps for the Stage II vapor recovery system were conducted at a specific facility. Complete the checklist and provide a copy to the facility operator. Retain a copy for your records.