VERMONT

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

UST PIPING INSTALLATION CHECKLIST (Part A)

Facility ID# : _____

Facility Name: _____

Physical Address: _____

_____

Owner Of Tank(s): _____

Address: _____

_____

_____

Type of System (check one):

Suction ☐ Pressurized ☐

Gravity ☐ Supply and Return ☐

Type Of Primary Piping:

Steel ☐ Fiberglass ☐ Flexible ☐ Other ☐

Type Of Secondary Piping:

Steel ☐ Fiberglass ☐ Flexible ☐ Other ☐

Manufacturer: _____

Installation Company: _____

_____

Company Address (Street/State/Zip):

_____

_____

Installation Foreman: _____

BEFORE COMPLETING THIS CHECKLIST, PLEASE READ CERTIFICATION ON PAGE 6.

Installation foreman must answer each question to verify the use of proper installation procedures. Please provide accurate figures and dimensions in the as-built map of the piping layout. **Questions marked with "[PHOTO]" must include photographs.** The photographs must be clear and in focus. Each picture will be numbered with the corresponding section of this checklist, and detailed descriptions are to be provided on the back of each picture. This checklist, **PART A**, and the **Testing Forms, PART B**, photographs, the as-built diagram, and a copy of the piping manufacturer's completed installation checklist are to be submitted within 15 days of completion of the piping installation to:

Hazardous Materials Program – Storage Tanks Section
Waste Management and Prevention Division
Vermont Department of Environmental Conservation
1 National Life Drive – Davis 1
Montpelier, VT 05620-3704

Note: Electronic submittals are encouraged; send installation checklists to: susan.thayer@vermont.gov.

As the installer, you are **required** to be certified by the piping manufacturer (listed on page 1). Have you been certified by the piping manufacturer to install their product? (check yes/no) ☐**YES** ☐**NO**

Certification#: _____ **Date**: _____/_____/_____
Note: Please provide a copy of certification with checklist.

Name of Certifier: _____

A. PRE-INSTALLATION CHECK

1. Have you reviewed the construction permit issued to the tank permittee? ☐**YES** ☐**NO**

2. Has the pipe trenching been planned to prevent piping runs across tanks whenever possible? ☐**YES** ☐**NO**

3. Have you notified the state UST Program for a final inspection? ☐**YES** ☐**NO**

B. BACKFILL

1. Please describe backfill used (i.e. particle size, type of material, etc.):

_____

_____

2. Is this backfill acceptable to the manufacturer? ☐**YES** ☐**NO**

   a. Is backfill free of debris (rock, ice, snow, organic material, broken concrete, etc.)? **[PHOTO]** ☐**YES** ☐**NO**

   b. Has a filter fabric been used to prevent backfill migration? **[PHOTO]** ☐**YES** ☐**NO**

   c. How much backfill was used as the base for the piping trench? _____

3. Are there any piping crossovers? **[PHOTO]** ☐**YES** ☐**NO**

C. LAYOUT

1. Draw a diagram that shows the complete piping layout, including any product return piping, vent lines, and any unavoidable crossovers (note crossovers are highly discouraged). **Illustrate piping layout with photos as well.**
Are the diagram and necessary photographs attached? **[PHOTO]** ☐**YES** ☐**NO**

2. What is the minimum depth of burial for the entire piping run? (The depth measured from the top of the piping to the surface of the finished grade.) _____ **inches**.
Where does this point occur? _____

3. Have all sags and low spots in the piping run been corrected to ensure a uniform slope from the dispensers back to the tanks? ☐**YES** ☐**NO**

4. What is the slope in fractions of an inch per foot of piping run? _____**" per foot**
Note: Piping slope should have a minimum of 1/8" per foot.

5. Is there any section of piping that slopes away from the tank to a sump other than the tank-top sump? ☐**YES** ☐**NO**

If so, which section? _____

6. Are there any manifolded tanks? ☐**YES** ☐**NO**

a. If yes, which tank is the Prime tank? _____

b. Which tank(s) is the Secondary tank? _____

7. Remote fills are not allowed unless specifically stated in the permit. Are any remote fills installed? ☐**YES** ☐**NO**

a. If yes, which tanks? _____

b. Is the fill pipe secondarily contained? ☐**YES** ☐**NO**

D. SPILL CONTAINMENT AND OVERFILL PREVENTION.

1. Has a containment manhole or other method of spill containment been installed at each fill port? ☐**YES** ☐**NO**

a. Manufacturer and construction: _____

b. Size: _____ **gallons.**
Note: Minimum size allowed is 15 gallons unless variance is granted by UST Section

c. Is there a drain valve in any of the containment devices? ☐**YES** ☐**NO**
Note: Drain valves are not allowed.

2. Is fill port spill containment double walled? ☐**YES** ☐**NO**

Comments: _____

3. Select which overfill protection device is used and answer the questions that apply to that device:

☐ **Automatic Shutoff Device** (not suitable for loose fill or pressurized delivery)

-Is the device installed at a distance no more than 95% of tank capacity? ☐**YES** ☐**NO**

☐ **Electronic Overfill Alarms** (This method is the only overfill protection device that is effective for loose fill or pressurized deliveries.)

-Is it on an electrical circuit that is active all the time? ☐**YES** ☐**NO**

-Is there an audible and visible alarm such that the delivery driver can hear it and see it? ☐**YES** ☐**NO**

-Is it set to activate at not more than 90% capacity of tank? ☐**YES** ☐**NO**

☐ **Vent Whistle** (Allowed only on tanks receiving fuel deliveries by peddle truck)

-What distance is the vent pipe from the fill port? _____ **feet.**

-Is the whistle set to stop at not more than 90% capacity of tank? ☐**YES** ☐**NO**

-Is the whistle audible during deliveries? ☐**YES** ☐**NO**

☐ **Manual overfill prevention** (Only for tanks never receiving more than 25 gallons at one time)

4. Has a drop tube been installed in each fill pipe (only if overfill is not automatic shutoff device)? ☐**YES** ☐**NO**

E. RELEASE DETECTION METHODS FOR PIPING & DISPENSERS

1. Indicate how many of each type of containment sump is installed:
   _____ Tank-top STP (required for all STPs)
   _____ Tank-top piping sump (non-pressurized)
   _____ Tank-top manifold sump on secondary tank (required for all manifold piping)
   _____ Dispenser (required for all new installations, including exempt suction)
   _____ Other (i.e., intermediate sump at pipe transition)
   Explain:_____
   _____

2. Are any of the containment sumps double walled? ☐**YES** ☐**NO**

3. If so, indicate which sumps and how many
   _____ Tank-top STP (required for all STPs)
   _____ Tank-top piping sump (non-pressurized)
   _____ Tank-top manifold sump on secondary tank (required for all manifold piping)
   _____ Dispenser (required for ALL NEW installations, including Exempt Suction)
   _____ Other (i.e., intermediate sump at pipe transition)

4. Are all tank-top fittings (fill pipes, other risers) connected to the tank with vapor-proof fittings and equipped with vapor-proof caps? ☐**YES** ☐**NO**

5. What type of leak detection will be used to monitor the piping?

☐ Manual interstitial monitoring
☐ Electronic interstitial monitoring
☐ Exempt suction system with dispenser sump that is monitored
☐ Electronic ☐ Manual/Visual
Note: Exempt suction systems require dispenser sumps and leak detection monitoring

a. If electronic, is every sump (including dispenser sumps) equipped with a sensor? **☐YES ☐NO**

b. If sumps are equipped with sensors, can positive shutdown be initiated? **☐YES ☐NO**

c. If electronic, are the sensors installed properly (at lowest point where liquid will accumulate first)? **☐YES ☐NO**

Make/Model of electronic monitoring system: _____

d. If exempt suction, is a vertical check valve installed at the dispenser end of the piping run? **☐YES ☐NO**

6. Is each pressurized line equipped with a line leak detector? **☐YES ☐NO**

7. What type of line leak detectors (LLDs) are installed?
☐ Electronic ☐ Mechanical

8. **LLD Manufacturer/Model**: _____

Shear Valves (For Pressurized Piping Only)

9. Is a shear valve installed on each pressurized line? **☐YES ☐NO**

10. Is each shear valve anchored to the dispensing island? **☐YES ☐NO**

11. Is each shear valve installed anchored at the proper height in relation to the base or the dispensing island grade? **☐YES ☐NO**

12. Does each shear valve close when the mechanism deployed/tested? **☐YES ☐NO**

F. CORROSION PROTECTION

Note: Steel piping must have cathodic protection. Piping constructed of corrosion-resistant materials does not require cathodic protection.

1. Is cathodic protection required for the piping? **☐YES ☐NO**

a. If yes, what method of cathodic protection is installed?_____

b. If factory-installed tank anode is also being used to protect piping, is it sufficient? ☐**YES** ☐**NO**

2. Is all metal/corrodible ancillary equipment, including flex connectors and risers, isolated from contact with soil or cathodically protected? ☐**YES** ☐**NO**

G. AS-BUILT OF PIPING INSTALLATION SHOWING PIPING RUNS TO DISPENSERS

1. Accurate as-built drawings with scale and dimensions must be included in the Piping Checklist submittal. Failure to include as-built will result in a returned checklist.

Has the drawing been attached to this checklist? ☐**YES** ☐**NO**

ADDITIONAL COMMENTS:_____

_____

_____

_____

_____

_____

CERTIFICATION

I certify under penalty of law that this document, photographs, and any other attachments were prepared under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment for knowing violations. I am aware that release detection must be conducted and documented at least weekly, and that all release detection documentation must be kept for 3 years.

_____ _____/_____/_____

****Required**** Signature of tank owner or authorized agent Date

_____ _____/_____/_____

****Required**** Signature of authorized agent for contractor Date

UST TESTING FORMS (Part B)

BEFORE COMPLETING, PLEASE READ CERTIFICATION ON PAGE 6.

Testing Forms PART B should be submitted with **Piping Installation Checklist PART A**. Any portion or combination of these forms can be used for compliance testing independently of the Piping Installation Checklist **PART A**. This cover page must be included with the submittal of the testing forms. Photographs may be used to illustrate test methods and results. Failing test results must be reported to the Storage Tanks Section. Test results are to be submitted within 15 days of completion of testing to:

Hazardous Materials Program – Storage Tanks Section
Waste Management and Prevention Division
Vermont Department of Environmental Conservation
1 National Life Drive – Davis 1
Montpelier, VT 05620-3704

Note: Electronic submittals are encouraged; send installation checklists to: susan.thayer@vermont.gov.

VERMONT

State of Vermont
Department of Environmental Conservation
Waste Management & Prevention Division
One National Life Drive, Davis 1
Montpelier, VT 05620-3704

AGENCY OF NATURAL RESOURCES

State of Vermont
Department of Environmental Conservation
TESTING REPORT FORMS

Facility ID #: _____

Facility Name: _____ Testing Company: _____

Facility Physical Address: _____ Company Address: _____

_____ _____

Owner of Tank(s): _____ Technician: _____

This cover page must be included with the submittal of the testing forms. If submitting multiple test forms, only one cover page is required per submission.

Photographs may be used to illustrate test method and results. Failing test results must be reported to the Tank Program by emailing wendy.edwards@vermont.gov or calling 802-522-0261.

Test results are to be submitted within 15 days of completion of testing to: wendy.edwards@vermont.gov

If electronic submission is not possible you can mail in the forms, call for directions.

VERMONT

PIPING TIGHTNESS TESTING

DATE: _____/_____/_____

1. Have you tested the primary and secondary lines according to the manufacturer's recommendations?**[PHOTO]** (Photos must show pressure gauge readings for each line tested)

☐ **YES** ☐ **NO**

2. List product, pressure, and time each line held the recorded pressure (e.g., regular NL/ 60psi/ 20 hrs):

a. _____ b. _____ c. _____ d. _____

e. _____ f. _____ g. _____ h. _____

3. List the test pressure and length of time each line held the recorded pressure for each secondary line:

a. _____ b. _____ c. _____ d. _____

e. _____ f. _____ g. _____ h. _____

4. List the test pressure and length of time each line held the recorded pressure for each vent line:

a. _____ b. _____ c. _____ d. _____

e. _____ f. _____ g. _____ h. _____

Notes:

CERTIFICATION

I hereby certify that I'm qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____

VERMONT

LINE LEAK DETECTOR TESTING

Facility ID # _____ Test Date: _____

1. Tank ID Number				
2. LLD Manufacturer				
3. LLD Model Number				
4. LLD Mechanical or Electronic?	M ☐ E ☐	M ☐ E ☐	M ☐ E ☐	M ☐ E ☐
5. Tested Leak Rate (gallons/hour)				
Test Results	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Complete the following if any of the LLD tests failed

1. Replaced LLD Manufacturer				
2. LLD Model Number				
3. LLD Mechanical or Electric?	M ☐ E ☐	M ☐ E ☐	M ☐ E ☐	M ☐ E ☐
4. Tested Leak Rate (gallons/hour)				
Test Results	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Pass/Fail criteria: It is considered a failure if the leak rate is greater than 3 gallons per hour at 10 lbs per square inch line pressure. The affected LLD or piping system with failure shall be taken out of service until replaced/repaired and retested.

Certification - I hereby certify that I am qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____

VERMONT

TANK TOP SUMP TIGHTNESS TESTING

Facility ID # _____ Test Date: _____

1. Tank ID Number				
2. Has liquid and debris been removed, and the sump been cleaned?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
3. Visual inspection (No cracks, loose parts or separation of boots, fittings, or flanges)?	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐
4. Height from bottom to top of highest penetration				
5. Starting water level (measured from bottom)				
6. Ending water level				
7. Test start time				
8. Test end time				
9. Test period (minimum test time: 1 hour)				
10. Water level change				
Test Results:	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Pass/Fail criteria: If the water level changes less than 1/8 (0.125) inch, the containment sump passes the integrity test. If the water level changes 1/8 (0.125) inch or greater, the containment sump fails the integrity test.

Proper disposal of test liquids: **Test liquids must be managed and disposed of in accordance with the VT Hazardous Waste Rules**

Certification - I hereby certify that I am qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____

VERMONT

DISPENSER/SUMP TIGHTNESS TESTING

Facility ID # _____ Test Date: _____

Number of Dispensers: _____

1. Dispenser ID# (if applicable)				
2. Has liquid and debris been removed, and the sump been cleaned?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
3. Visual inspection (No cracks, loose parts or separation of boots, fittings, or flanges)?	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐
4. Height from bottom to top of highest penetration				
5. Starting water level (measured from bottom)				
6. Ending water level				
7. Test start time				
8. Test end time				
9. Test period (minimum test time: 1 hour)				
10. Water level change				
Test Results:	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Pass/Fail criteria: If the water level changes less than 1/8 (0.125) inch, the containment sump passes the integrity test. If the water level changes 1/8 (0.125) inch or greater, the containment sump fails the integrity test.

Proper disposal of test liquids: **Test liquids must be managed and disposed in accordance with the VT Hazardous Waste Rules**

Certification - I hereby certify that I am qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____

VERMONT

SPILL BUCKET CONTAINMENT TESTING

Facility ID # _____ Test Date: _____

1. Tank ID Number				
2. Spill Bucket Size (gallons)				
3. Spill Bucket Type (Single/Double Walled)				
4. Has liquid and debris been removed, and the spill bucket cleaned?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
5. Visual inspection (No cracks, loose parts, or separation of the bucket from the fill pipe)	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐
6. Starting water level (measured from bottom)				
7. Ending water level				
8. Test start time				
9. Test end time				
10. Test period (minimum test time: 1 hour)				
Test Results	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Pass/Fail criteria: If the water level changes less than 1/8 (0.125) inch, the spill containment passes the integrity test. If the water level changes 1/8 (0.125) inch or greater, the spill containment fails the integrity test.

Proper disposal of test liquids: **Test liquids must be managed and disposed in accordance with the VT Hazardous Waste Rules**

Certification - I hereby certify that I am qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____

VERMONT

TRANSITION SUMP TIGHTNESS TESTING

Facility ID # _____ Test Date: _____

1. Tank ID Number				
2. Has liquid and debris been removed, and the sump been cleaned?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
3. Visual inspection (No cracks, loose parts or separation of boots, fittings, or flanges)?	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐
4. Height from bottom to top of highest penetration				
5. Starting water level (measured from bottom)				
6. Ending water level				
7. Test start time				
8. Test end time				
9. Test period (minimum test time: 1 hour)				
10. Water level change				
Test Results:	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Pass/Fail criteria: If the water level changes less than 1/8 (0.125) inch, the containment sump passes the integrity test. If the water level changes 1/8 (0.125) inch or greater, the containment sump fails the integrity test.

Proper disposal of test liquids: **Test liquids must be managed and disposed in accordance with the VT Hazardous Waste Rules.**

Certification - I hereby certify that I am qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____

VERMONT

OVERFILL PREVENTION EQUIPMENT TESTING (Complete section that applies)

Facility ID # _____ Test Date: _____

Automatic Shutoff Device Inspection

1. Tank ID Number				
2. Overfill Device Brand/Model				
3. Drop tube removed from tank?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
4. Drop tube and float mechanisms free of debris?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
5. Float moves freely with binding and poppet moves into flow path?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
6. Bypass valve in the drop tube open and free of blockage (if present)?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
7. Flapper adjusted to shut off flow at 95% capacity	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Test Results:	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Ball Float Valve Inspection (existing ball floats only, not allowed on installs). If Ball floats are not functional, they must be repaired by another overfill prevention device compatible with the UST system.

1. Tank top fittings vapor tight/leak free?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
2. Ball float cage free of debris?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
3. Ball float free of holes, cracks and moves freely in cage?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

VERMONT

Ball Float (continued)

4. Vent Hole in pipe open and near top of tank?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
5. Ball float pipe proper length to restruck flow at 90 % capacity?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Test Results:	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Electronic Overfill alarm Inspection

1. Fuel float level agrees with stick reading?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
2. Is the overfill alarm(s) set to activate when the tank is NO MORE than 90% full?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
3. Does the audible and visual alarm activate when gauge float is activated at NO MORE than 90@ full?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
4. Are the audible and visual alarms at a reasonable distance to where the delivery driver would be able to detect during deliver?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
5. Ball float pip proper length to restrict flow at 90% capacity?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Test Results:	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐	Pass ☐ Fail ☐

Notes:

Certification - I hereby certify that I am qualified to test the equipment identified in this document and tested for proper operation in accordance with the manufacturer's requirements.

Technician Name (Print): _____

Technician Signature: _____