Stage I Vapor Control Requirements Instructions for Form S2

Mecklenburg County Air Quality (MCAQ) Form S2 contains specific equipment/process-related information on the facility being permitted. One Form S2 is to be completed for each Air Quality Permit application when new equipment is to be installed or existing, permitted equipment is to be modified.

LOCATION, OPERATION, and PROJECTED GASOLINE THROUGHPUT

FACILITY NAME: List the gasoline dispensing facility (GDF) name.

LOCATION: List the address of the facility.

WHEN DID/WILL THE GASOLINE DISPENSING OPERATION START?: List the potential start date for a new, modified, or reconstructed facility.

DOES THE OWNER AND/OR OPERATOR HAVE ANY OTHER AIR QUALITY PERMITS ISSUED BY MECKLENBURG COUNTY?: If the Owner and/or Operator has any other Air Quality Permits issued by Mecklenburg County, list the Permit Numbers.

PROJECTED MONTHLY GASOLINE THROUGHPUT: Total volume of gasoline loaded into or dispensed from all storage tanks at the GDF during a month. To calculate this number, sum the volume of gasoline loaded into **or** dispensed from (but not both) all storage tanks during the past 365 days, then divide that sum by 12. NOTE: This applies to **any** sequential 365-day time period, not just a calendar year.

PROJECTED/ACTUAL ANNUAL LOADING OF GASOLINE INTO STORAGE TANKS: List the projected/actual annual loading of gasoline into storage tanks for the facility. This applies to both previously unpermitted facilities and previously permitted Stage I gasoline dispensing facilities that are requesting equipment changes. Per MCAPCO Regulation 2.0928 – "Gasoline Service Stations Stage I", gasoline dispensing facilities exceeding 50,000 gallons annual throughput must have an Air Quality Permit.

EMISSION SOURCES

INDICATE TYPE OF STORAGE TANK: List if the tank is an above ground storage tank (AST) or an underground storage tank (UST).

TANK CAPACITY: List the tank capacity (in gallons) for each gasoline storage tank(s).

PRODUCT STORED: List the type of product to be stored in each tank [i.e., regular, mid-grade, premium, , or non-ethanol (E-0)].

ORIGINAL INSTALLATION DATE OF TANK: List the original or proposed installation date of each storage tank.

STAGE I VAPOR CONTROL/VAPOR BALANCE SYSTEM INSTALLATION DATE: List the initial installation date of the Stage I vapor control/vapor balance equipment.

GASOLINE STORAGE TANK AND/OR PRESSURE/VACUUM VALVE REPLACEMENT DATE:
If gasoline storage tank(s), submerged fill pipes, or pressure/vacuum valve(s) were replaced, list the dates.

INSIGNIFICANT ACTIVITY SOURCE(S)

INSIGNIFICANT ACTIVITY DESCRIPTION - List exempted insignificant activity sources.

Per MCAPCO Regulation 1.5211
(g) The following activities do not need a permit or permit modification under this Article; however, they will appear on Appendix B, under Insignificant Activities.

(1) **activities exempted because of category**
(D) storage tanks:
- (i) storage tanks used solely to store fuel oils, kerosene, Diesel, crude oil, used motor oil, lubricants, cooling oils, natural gas, or liquefied petroleum gas;
- (ii) storage tanks used to store gasoline for which there are no applicable requirements;
- (iii) storage tanks used solely to store inorganic liquids;
- (iv) storage tanks or vessels used for the temporary containment of materials resulting from an emergency response to an unanticipated release of hazardous materials;

(K) miscellaneous
- (xi) sources for which there are no applicable requirements.

STAGE I VAPOR CONTROL/VAPOR BALANCE SYSTEM COMPONENTS

Coaxial Poppeted Vapor Control/Balance Adaptor - Delivery of product and the recovery of vapors occurs through a single coaxial fitting on the storage tank. To accommodate this tube within a tube arrangement, the two hoses from the tanker hook onto a coaxial coupling (adapter) or delivery elbow. The fill tube is usually spring loaded (moveable) which allows for it to be pushed down approximately 1 inch when securing the coupling. In its resting position, it maintains a vapor seal against the fitting, similar to the dry break seal with a dual system. Product is delivered through the inner drop tube while vapor is recovered in the space between the walls of the tubes at the top of the tank. **NOTE: Coaxial vapor controls cannot be installed as new equipment.**

Dual Poppeted Vapor Control/Balance Adaptor - Delivery of product to the facility's stationary storage tank and recovery of displaced vapor occurs through two separate openings in the tank. Product is dropped through the submerged fill pipe while the vapor is forced up a riser pipe. Vapor control/balance riser pipe openings are fitted with a spring-loaded poppet valve that maintains a tight seal when a vapor control/balance hose is not connected.

Manifold - The gasoline storage tanks are connected by a common header from which a single pipe leads to a pressure/vacuum vent.

Pressure/Vacuum Release Valve Performance Specifications - The release valve shall be installed on all vent pipes for Stage I Vapor recovery to prevent the tanks from venting vapors between loading and to protect the tanks from physical damage or permanent deformation caused by routine increases in internal pressure or vacuum.

Submerged Fill Pipes:
While gasoline is transferred from one tank to another, agitation or splashing will cause aeration of the liquid and thereby increase the formation of vapor. This is minimized by using a submerged fill pipe to deliver product under the surface of liquid in the tank. The fill pipe is usually an aluminum sleeve fitted inside the drop tube.

STAGE I VAPOR CONTROL/VAPOR BALANCE SYSTEM REQUIREMENTS

TANK CAPACITIES WITH NO VAPOR CONTROL/VAPOR BALANCE REQUIREMENTS

Mark the box if the following gasoline storage tanks are at the facility:

- gasoline storage tanks with a capacity of < 250 gallons that are constructed after January 10, 2008
- gasoline storage tanks with a capacity of < 2,000 gallons that are constructed before January 10, 2008
- gasoline storage tanks equipped with floating roofs, or the equivalent

MANIFOLDED VAPOR CONTROL/VAPOR BALANCE LINE SIZE AND GASOLINE LOADING

Mark the box indicating the internal diameter of the vapor control lines. Lines which are ≤ 2.5 inches in diameter may only load one (1) gasoline storage tank at a time. Lines which are ≥ 3.0 inches in diameter may load two (2) gasoline storage tanks at a time.

SUBMERGED FILL PIPE DISTANCE REQUIREMENTS

Mark the box for the submerged fill pipe distances above the bottom of the gasoline storage tank.

- ≤ 12 inches from the bottom of the gasoline storage tank, allowed if installed by November 9, 2006
- ≤ 6 inches from the bottom of the gasoline storage tank, required if installed after November 9, 2006
- Submerged fill pipes not meeting the above distance requirements are allowed if the owner or operator can demonstrate that the liquid level in the tank is always above the entire opening of the fill pipe. MCAQ will review the facility documentation to determine compliance via this alternative method.

If cut on a slant, measure the submerged fill pipe distance from the bottom of the gasoline storage tank to the top of the slant cut.

VAPOR CONTROL/VAPOR BALANCE SYSTEM ADAPTOR VALVES

Mark the box indicating the type of vapor control/vapor balance system adaptor valve(s) that will be/are installed.

- Dual point/poppeted vapor control/vapor balance adaptor

NOTE: Existing installed coaxial vapor adaptor(s) may continue to be used until they are required to be replaced; however, coaxial vapor adaptor(s) may not be installed as new equipment.

VENT PIPES

Mark the box indicating how the vent pipe(s) will be configured at the facility. List the correlating tanks associated with the vent pipes.

- Vent pipes on gasoline storage tanks with vapor controls and projected/actual average monthly gasoline dispensing total for the facility < 100,000 gallons can have pressure release valves or restrictors;
- Projected/actual average monthly gasoline dispensing total for the facility ≥ 100,000 gallons, the pressure release valve will meet 40 CFR 63, Subpart CCCCCC, 63.11118, Table 1 (g) performance specifications.

SECTION S

STAGE I GASOLINE DISPENSING FACILITY

S2

Facility Name:	Address:
When did/will the gasoline dispensing operation start? (Enter date):	
Does the Owner and/or Operator have any other Air Quality Permits issued by Mecklenburg County? ☐ Yes ☐ No If Yes, list the Permit Numbers:	
Projected/Actual Monthly Gasoline Throughput (in gallons):	Projected/Actual Annual Gasoline Throughput (in gallons):

EMISSION SOURCE(s)

Indicate Type of Storage Tank: Above ground (AST) or Underground (UST)	Tank Capacity (in gallons)	Product Stored	Original Installation Date of Tank	Stage I Vapor Control/Vapor Balance System Installation Date	Storage Tank, Submerged Fill Pipe, and/or Pressure Vacuum Valve Replacement Date (if applicable)

INSIGNIFICANT ACTIVITY SOURCE(s)

Insignificant Activity Description i.e., Diesel fuel or kerosene storage tanks, (if present)	Insignificant Activity Applicable Regulation
	MCAPCO 1.5211(g)(1)(D)(i) – Diesel fuel storage tank
	MCAPCO 1.5211(g)(1)(D)(i) – kerosene fuel storage tank
	MCAPCO 1.5211(g)(1)(K)(xi) – Diesel Exhaust Fluid (DEF) tank

STAGE I REQUIREMENTS

THE FOLLOWING MANAGEMENT PRACTICES ARE REQUIRED FOR ALL STAGE I GASOLINE DISPENSING FACILITIES.

1. Minimize gasoline spills
2. Clean up spills as expeditiously as practicable
3. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use
4. Minimize gasoline sent to open waste collection systems, such as oil/water separators

TANK CAPACITIES WITH NO VAPOR CONTROL/VAPOR BALANCE CONTROL REQUIREMENTS. MARK AND LIST IF PRESENT.

☐	gasoline storage tanks with a capacity of < 250 gallons that are constructed after January 10, 2008
☐	gasoline storage tanks with a capacity of < 2,000 gallons that are constructed before January 10, 2008
☐	gasoline storage tanks equipped with floating roofs, or the equivalent

MANIFOLDED VAPOR CONTROL / VAPOR BALANCE LINE SIZE AND GASOLINE LOADING

Gasoline storage tanks with manifolded vSubmerged fill pipes are not the proper distance above the bottom of the UST.apor control shall have poppeted vapor control adaptor valves. Mark the appropriate box indicating the internal diameter of the vapor control lines:

☐	≤ 2.5 inches [*i.e., no more than one (1) gasoline storage tank may be loaded at a time]*
☐	≥ 3.0 inches [*i.e., two (2) gasoline storage tanks may be loaded at a time]*

SUBMERGED FILL PIPE DISTANCE REQUIREMENTS FROM THE BOTTOM OF THE TANK
(If cut on a slant, measure distance from the top of the slant) (Excluding tanks with capacities of < 250 gallons)

☐	≤ 12 inches from the bottom of the gasoline storage tank, allowed if installed on or before November 9, 2006
☐	≤ 6 inches from the bottom of the gasoline storage tank, required if installed after November 9, 2006
☐	Submerged fill pipes are not the proper distance above the bottom of the UST. Facility will ensure and demonstrate that the liquid level in the tank will always be above the entire opening of the fill pipe.

VAPOR CONTROL/VAPOR BALANCE SYSTEM ADAPTOR VALVES

Vapor Control/Vapor Balance System Adaptor Valve	☐ Dual Point/Poppeted Vapor Control/Vapor Balance Adaptor **NOTE:** Existing installed coaxial vapor adaptor(s) may continue to be used until they are required to be replaced; however, coaxial vapor adaptor(s) may not be installed as new equipment.

VENT PIPES	
Vent pipes on gasoline storage tanks with Stage I controls shall have pressure release valves or restrictors. Mark the boxes indicating the vent pipe configuration and type of pressure release valve / restrictor or pressure / vacuum valve present:	
Individual Vent Pipe(s)	☐ List affected gasoline storage tank(s): _____
Manifolded Vent Pipe(s)	☐ List affected gasoline storage tanks: _____
Pressure Release Valve or Restrictor:	☐ Allowed if projected average monthly gasoline loading total for the facility < 100,000 gallons
Pressure/Vacuum Valve (P/V Valve):	☐ Required if projected average monthly gasoline loading total for the facility ≥ 100,000 gallons. The pressure release valve will meet 40 CFR 63, Subpart CCCCCC, 63.11118, Table 1, (g) performance specifications.