

**SOLID & HAZARDOUS WASTE DIVISION
STORAGE TANK PROGRAM (STP)
GUIDANCE DOCUMENT #21**

SUBJECT: **BIOFUEL BLEND COMPATIBILITY**

SCOPE: Wyoming Water Quality Rules and Regulations (WWQRR), Chapter 17, Section 12 requires storage tank system owners and/or operators to ensure that tank system(s) are made of, or lined with, materials compatible with the regulated substance stored.

INTRODUCTION: This document provides information for regulated storage tank system owners and/or operators intending to store biofuel blends in a tank system. A biofuel blend is defined as gasoline with a concentration of greater than 10% ethanol or diesel with a concentration of greater than 20% biodiesel. If an owner and/or operator cannot prove that all of the components of a tank system are compatible with the substance to be stored, the tank may not be used to store a biofuel blend.

GUIDELINES:

1. Equipment That Must Be Compatible. The STP regulates storage tank systems that include the tank and the connected piping to the shear/fire valve inside the dispenser. Suction piping systems are regulated from the tank to the check valve inside the dispenser. In the case of underground emergency power generator underground storage tanks (USTs), the regulated system includes the tank, ancillary equipment, and connected piping to the point where the piping enters the building/structure that houses the generator. Equipment that storage tank owners and/or operators must show compatibility with the product stored includes, but is not limited to:

- Tanks or internal tank lining
- Piping
- Line leak detectors
- Flexible connectors
- Drop tubes
- Spill and overfill prevention equipment
- Submersible turbine pumps and components
- Sealants (including pipe dope and thread sealant), fittings, gaskets, o-rings, bushings, couplings, and boots
- Containment sumps (including submersible turbine sumps and under-dispenser containment)
- Release detection floats, sensors, and probes
- Fill and riser caps
- Product shear valves

While the dispensers and vent equipment are not regulated by the STP, owners and/or operators should also determine if this equipment is compatible. The owner and/or operator of the storage tank system is/are responsible for cleaning up spills from this equipment because these spills are not eligible for cleanup using funds from the Corrective Action Account.

2. Verification of Compatibility: WWQRR, Chapter 17, Section 12(b), requires owners and/or operators to use API Recommended Practice (RP) 1626 to determine if their equipment is compatible with gasoline containing ethanol. RP 1626 accepts listing by a nationally recognized testing

laboratory (NRTL) or self-certification by the component manufacturer. The STP will only accept the following verification types that a component is compatible with a biofuel blend:

- A. The component is listed with an NRTL for use with the fuel blend concentration; or
- B. The component is certified by the manufacturer to be compatible with the biofuel blend ratio that will be stored. The component manufacturer must certify compatibility in writing and to what blend ratios the component is compatible. The written certification must be from the component manufacturer. Certification cannot be made by the installer or distributor.

3. Existing Single Wall Tank Systems: API recommends that double wall tanks and piping be used to store biofuel blends. An engineering evaluation should be performed prior to using an older, single wall tank system to store a biofuel blend.

4. Registration: Converting a tank system to store a biofuel blend is considered a “substantial modification.” “Substantial Modification” is defined in WWQRR, Chapter 17. All substantial modifications must be registered with the STP per WS 35-11-1419(a). Owners and/or operators must complete and submit the registration form (attached) prior to converting a regulated tank system to store a biofuel blend. All substantial modifications require an inspection by STP personnel.

5. Preparing Existing Tank Systems to Store Biofuel Blends: After all components have been shown to be compatible with the substance to be stored and the substantial modification has been registered with the STP, all liquid should be removed from the tank. The inside of the tank should be cleaned in accordance with API Publication 2015. Water, sludge, and scale left in a tank can clog filters, damage other system components, or possibly cause vehicle damage. The filters inside the dispensers must be changed to reflect the product to be stored.



WYOMING STORAGE TANK PROGRAM STORAGE TANK SYSTEM BIOFUEL INSTALLATION / CONVERSION REGISTRATION



INSTRUCTIONS: Part I of this form is to be submitted to the Wyoming Storage Tank Program (STP) along with the plan for new installations, or for conversions of existing systems from conventional motor fuels to blends greater than 10 percent ethanol or for diesel blends greater than 20 percent biodiesel. If a manufacturer or model/brand cannot be determined, write "UNK" in the corresponding box, write "HC" and the treatment material if a hard-coat treatment is used to achieve compatibility, write "NA" if the tank/piping system does not have the listed component. Use the comment section at the bottom of page one for "UNK" or "HC" explanations and attach analysis documentation for review. Part II shall be given by the contractor to the owner/operator for completion prior to system operation and retained on-site for inspector review. "Listed / Verified Components" shall be confirmed and documented by a Nationally Recognized Testing Laboratory (NRTL) for use with the specific gasoline-ethanol / biodiesel blends. Underwriter Laboratories is one of the recognized NRTL that tests and lists such components.

Part I

1. OWNER INFORMATION	2. PROJECT INFORMATION	3. CONTRACTOR INFORMATION
Contact Person	Facility Name	
Company Name	Site Address	Mailing Address
Mailing Address	City	City, State, Zip Code
City, State, Zip Code	County	Contact Person
Telephone Number () ()		Telephone Number () ()
Fax Number () ()		Fax Number () ()

4. Tank Information Fuel blend to be stored - Ethanol Blend _____ Biodiesel Blend _____

Tank Orientation: Underground Aboveground New Tank Existing Tank → Date Installed: _____ Facility ID #: _____

Tank leak detection method: Automatic tank gauging Inventory control Interstitial monitoring
 Statistical Inventory Reconciliation (SIR) Other _____

Component:	Equipment Manufacturer	Model/Brand	NRTL Listed or Verified by Manufacturer for Fuel to be stored
<i>Note: Tanks with interior linings will not be approved for alternative fuel storage unless documentation is provided for confirmation of compatibility.</i>			
Tank construction material			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Spill bucket			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Overfill / Auto shut-off / Ball float			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Drop tube			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
STP/Suction pump / O-rings / Gaskets			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Leak detection probes			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Sump monitoring sensors			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified

5. Pipe Information: New Existing Mixed (New/Existing) **Manuf. Make/Model** _____ **Existing Pipe Install Date:** _____

Configuration: Single wall Double wall **Type:** Steel Fiberglass Flexible Other _____ **Sumps:** Submersible Pipe Connections

Pipe fitting / valve material			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Gaskets / seals			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Pipe sealant / adhesive			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Flex connector			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Elec. Line leak detector			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Mech. Flow restrictor			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified

6. Dispenser Information: **Dedicated Disp. Hose:** Yes No **Blending dispenser:** Yes No **Containment sump under dispenser:** Yes No

Dispenser / Suction Pump			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Dispenser piping			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Dispenser Sump			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Dispenser sump sensor			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Gaskets/seals			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Blending valve			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Check valve			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Meter			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Emergency valve			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Fuel filters			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Break-away device			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Nozzle(s)/Swivel(s)			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified
Hose(s) and hose fittings			<input type="checkbox"/> Listed <input type="checkbox"/> Manufacturer Verified

Additional Comments: _____

I certify by signature that I have personally examined and/or am familiar with the information submitted to verify system biofuel compatibility, and the information is true, accurate, and complete.

Signature of licensed tank installer

Date

Part II

Responsibilities of Tank Owner/Operator before Blends of Greater than 10 percent Ethanol or 20 percent Biodiesel is Transferred to the Tank

- Determine equipment compatibility - Part I of this form (**Submit copy of Part I, along with proof that all storage tank system components are compatible, to DEQ STP prior to installation or delivery of bio-fuel.**)
- Check for water in the tank, due to the possibility of phase separation with ethanol blends. All water must be removed!
- All visible fittings and connections at the top of the tank are tight (no vapors escape and no water enters).
- Verify the appropriate vent top/cap (pressure vacuum / updraft) is present for the type of product being stored. Stage I Vapor Recovery installed and operational if required.
- Sump and spill containment covers secured to prevent water from entering. Spill buckets should not have drain back mechanisms. Water infiltration problems fixed if necessary.
- The tank has been cleaned of all water and sediment per API Publication 2015.
Company providing service: _____ Telephone: _____
- Fill labeling and Dispenser Labeling- Identify fill port and paint access cover according to API RP 1637 and dispensers labeled in accordance with Wyoming Department of Agriculture requirements.

First Delivery

- Tank filled to 80 percent capacity (recommended by the Renewable Fuels Association or RFA) and kept as full as possible for 7 to 10 days.
- Conduct a precision test of the tank system (0.1 gph leak rate) with ATG system within seven days after tank is filled to make sure system is tight and leak detection equipment is operating properly. Report any "Fail" results.
- Test for water (use alcohol compatible paste if you stick your tanks) at the beginning of each shift for the first 48 hours after delivery (RFA). If there is water in the tank, remove it, find out how it got there and fix it so it doesn't occur again.
- Have dispenser calibrated prior to any retail sales.
- Prior to dispensing, notify DEQ STP and DOT Fuel Tax Administration that ethanol or biodiesel has been delivered and the dispensing system is going operational.

Ongoing Maintenance Responsibilities

- Check for water daily with your stick or ATG system. No level of water in the tank is acceptable.
- If product seems to pump slowly, check and replace filters.
- Calibrate dispenser meter at the time of conversion and two weeks after conversion to verify meter accuracy. Particulate materials may cause excessive meter wear, which would require more frequent meter calibration (API RP 1626)
- Conduct daily, visual inspections of the dispenser and dispenser sump (secondary containment) beneath the dispenser (if one is installed) and all the other items on the inspection form. This form must be kept with compliance records for the lifetime of the tank system.

Tank Owner Signature

Company

(Note: By signing, signer is acknowledging that all the above preparatory items have been conducted, and awareness of ongoing responsibilities.)

Print Tank Owner Name

Date

A tank with any "unknowns" in Part I will not be approved for service for gasoline-ethanol blends exceeding 10 percent ethanol or diesel blends exceeding 20 percent biodiesel.

Any Questions Regarding this Form Should Be Directed to DEQ STP Personnel at:

(307)777-7097, (307)777-7095, or (307)777-7077. Forms can be faxed to (307)777-5973