

January 2007  
**Program Letter**

## **Submersible and Containment Sump Product Compatibility**

As more tank systems are being converted or installed for E-85 motor fuels questions of E-85 compatibility with the submersible pump and sump and dispenser containment have surfaced. The following information reflects the assessment of compatibility and the department's position on the respective compatibility.

### **Dispenser and Submersible Containments.**

For several years now the installation and use of polyethylene or fiberglass sumps have been used as secondary containments of equipment and pipe fittings under dispensers and on top of tanks for the submersible installation. These sumps have been designed to serve as liquid tight, isolation chambers preventing ground water and sub-surface water entry into the sump and any leaking product from inside the sump escaping into the environment. The sumps are made to be compatible with petroleum products for short term protection only as they are **not** designed to be storage vessels for any product or water for extended periods and are to be used as secondary containment only.

Because the sumps are only designed for secondary containment and not for product storage, sump sensors are not initially required unless the site is using interstitial monitoring for piping leak detection via a sump sensor. However, because inspectors are finding that in operational practice water and leaks are going unnoticed or unchecked for months and could potentially lead to additional damage or additional release points into the ground. Consequently, inspectors are pointing out that the sump is no longer being managed as secondary containment.

All manufactures have very similar requirements that state *"Any liquid present in the sump must be promptly removed and disposed of properly. Damage or leaks in piping, sumps, and fittings must be repaired promptly."* One manufacture states *"Any leaks that are detected but not acted upon immediately to correct are considered negligence on the part of the Purchaser/End User and void manufactures obligation under the warranty."*

If the sump is not liquid tight, it has either been installed incorrectly or not maintained properly and will not serve the process in which it was intended. This is why a few years ago hydrostatic testing of all sumps being installed became so important. The hydrostatic test only helps to insure that the sumps and sump fittings are being installed correctly to prevent accidental releases and to serve as liquid tight secondary containment.

All of the major sump manufactures have maintenance requirements listed in the installation instructions or warranty that requires station owners/managers to do one of the following:

- Conduct regularly or monthly visual inspections checking for the presence of petroleum product or water in every sump.
- Install third party approved liquid sensors in every sump.

Typically the manufactures warranty for sumps is one year. A few manufactures have at one

time or another offered long term warranties of 10 – 30 years if the entire piping system was all from the same manufacture. A point that needs to be made is that in all of the extended warranties, it is required that regular/monthly inspections be conducted or have third party approved sensors.

Concluding the discussion on containment sump compatibility, the department recognizes that the containment sump is not intended to store product and therefore does not require the containment sump to be listed or approved for E-85 compatibility. In situations where the operator's containment sump management is obviously not in compliance with the manufacturer's instructions the inspector will address accordingly.

### **Submersible Compatibility Identification**

There are two brands of submersibles that are typically used across the country and are usually identified by the color the submersible is painted. FE Petro submersibles are painted blue and Red Jacket submersibles are painted Red. In the past when a station owner wanted a new submersible a salesman would ask: "what color, what size diameter are the storage tanks and what horse power do they need." As the world of technology develops new petroleum products the manufactures of submersibles have had to develop submersible components that will be compatible. And, as the size of petroleum bulk plants, dispensing stations, and truck stops continue to grow not only in size, so do the number of dispensers, number and length of piping runs, and increasing storage tank capacities.

The following information has been designed to help identify what type of submersible have been installed and product compatibility using the manufactures codes in the model numbers.

#### **FE Petro –**

- Submersibles can be ordered specifically in standard lengths to match tank diameters or can be ordered in "VL" - variable lengths to allow length adjustments that make the submersible universal in size for easier installation with various sized tanks.
- "STP" models are normally designed for use with gasoline/diesel fuel with ethanol or methanol blends up to 15%. These submersibles can be converted for compatibility.
- "STPAG" models are designed for use with gasoline and diesel fuel with 0% - 100% ethanol or methanol.
- All "IST" models are designed for use with gasoline / diesel fuel with 0% - 100% ethanol or methanol.

Page three of this document will express the different FE Petro variations.

#### **Red Jacket –**

- Submersibles can be ordered specifically in standard lengths to match tank diameters or can be ordered in variable lengths to allow a length adjustment that makes the submersible universal in size for easier installation with various sized tanks.
- "P" or "X" models are normally designed for use with gasoline/diesel fuel with ethanol or methanol blends up to 10%. These submersibles can be converted for compatibility.
- Submersible models that have "AG" as the first letters of the model number are designed for use with gasoline / diesel fuel with 0% - 100% ethanol or methanol.

Page four of this document will express the different Red Jacket variations.

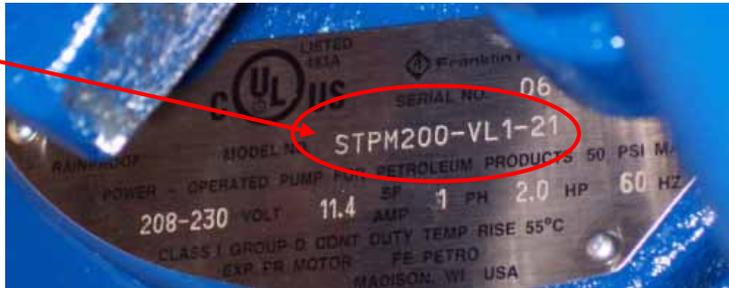
### FE Petro – Franklin Fueling Systems

- Submersibles are painted blue
- Each submersible has a product identification plate located on top of the submersible. See *picture below*.
- Standard “STP” models – STP will be the first letters of the model number.
  - 0% - 15% ethanol or methanol approved.
- Standard “STP” models can be ordered to be compatible from the factory. If this submersible assembly is compatible, it will have the letters “AG” in the middle of the model number. (Example STPAG150-VL2 shown below)
- “IST” models – “IST” will be the first letters of the model number
  - All “IST” models are 0% - 100% ethanol or methanol compatible.

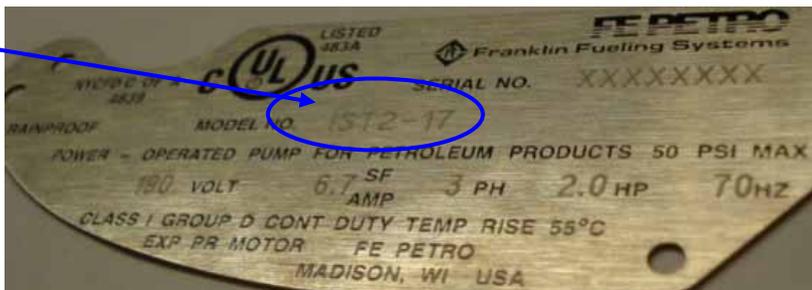
If an existing “STP” model submersible is to be converted for ethanol/methanol use it must have the following done:

- Motor changed to a “AG” model motor
- If the submersible is a **non “VL”** – “variable length” model, the entire extractable needs to be changed. Since the extractable is changing it will have a new identification plate showing the letters “AG” in the model number.
- If the submersible **is a “VL”** model – “variable length” the internal o-rings are to be change with FE Petro compatible orings in addition to the motor. Note: Identification plate will remain unchanged and the conversion will need to be verified with installer.

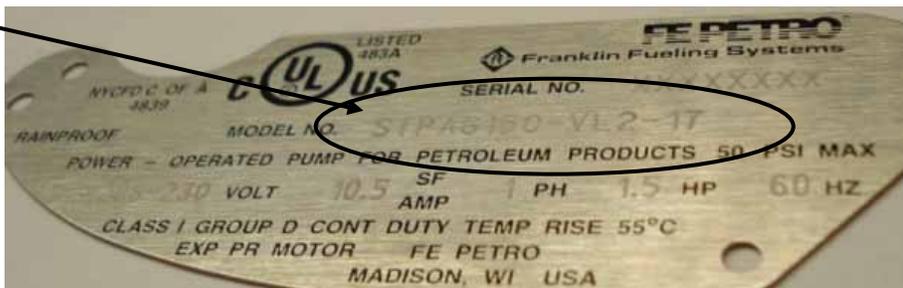
*Picture shows a non-compatible STP 2 h.p. submersible that is variable length.*



*Picture shows an IST model. All IST models are AG.*



*Picture shows a STP model that has been ordered or converted to AG.*



**Red Jacket – Veeder Root**

- Submersibles are painted red.
- Each submersible has a product identification plate located on top of the submersible.
- Standard “P and X” models. P or X will be the first letters of the model number.
  - 0% - 10% ethanol or methanol approved. (Example P75S1T2)
- “AG” models – AG will be the first letters of the model number
  - All “AG” models 0% - 100% ethanol or methanol compatible. (Example AGP75S1RJ2)

**Conversions requirements** - If an existing “P or X” model submersible is to be converted for ethanol/methanol use it must have the following done:

- Motor changed to a AG model motor
- Entire packer assembly/retractable must be changed. Since the extractible is changing it will have a new identification plate showing the letters “AG” in the model number.

*Submersible model AGP75S1RJ2*



*Submersible model P75S1T2*

