

## HAZARDOUS AREA CLASSIFICATION FOR PUMPING STATIONS

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One of the first, (and most important consideration) in system design is area classification. Area classification, will at a minimum, dictate the required components necessary to meet code. NFPA 820 along with NEC defines the classifications for Wastewater Treatment and Collection Facilities. It is important to note NFPA 820 covers “Pumping Stations” which is a broad term and is inclusive of most waste water pump systems. For this reason NFPA is pertinent in nearly all in ground waste water pumping systems.

In general, residential collection systems serving 5 or less dwelling units are “Unclassified” and thus fire and explosion hazard is not applicable. NEC still applies for general guidance in these systems. For systems larger than 5 residential units sewers are categorized by usage type.

The type categories are:

- Storm Water Pumping Wet Well – serving storm sewer system.
- Residential Wastewater Pumping Wet Well – serving primarily residential wastewater.
- Wastewater Pumping Station Wet Well – serving a sanitary sewer or combined sewer.

A combined sewer is defined as a system containing domestic, commercial, industrial and storm wastewater. the, Wastewater Pumping Station Wet Well category, is the most diverse classification and usually applies to municipal wastewater pumping stations.

The area classifications for the above categorized pump station are as follows:

- Storm Water Pumping Wet Wells are classified as Class 1 Division 2, Group D.
- Residential Wastewater Pumping Wet Wells are classified as Class 1 Division 2, Group D without venting and can be declassified with venting creating 12 air changes per hour.
- Wastewater Pumping Station Wet Wells are classified as Class 1 Division 1, Group D without venting and can be classified as Class 1 Division 2, Group D with venting creating 12 air changes per hour.

It is not generally practical to ventilate a wet well at 12 changes per hour therefore in most all cases NEC article 500 applies to all the above wet well installations. Class 1 areas require FM rated pumps and intrinsically safe electrical sensing equipment, further, Class 1 Division 1 requiring explosion proof equipment. It is important to consider space classification in Electrical Design and selection of the wet well components.

