

## **Meeting the Requirements of *NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities***

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### **SUBMISSION TYPE**

30 minute presentation

### **KEYWORDS**

NFPA 820, Wastewater Treatment, Collection Facilities, Fire Protection, Explosion Prevention, NEC Area Classifications

### **ABSTRACT**

The current 2016 edition of *NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities* will be reviewed. The purpose of NFPA 820 is to describe the measures required in order to prevent fires and explosions due to the possible accumulation of flammable gases in wastewater plants and collection systems. These measures are meant to insure the safety of personnel and protection of equipment.

NFPA 820 is a fairly recent standard first introduced in 1990 as a recommended practice and then as a standard in 1995. New editions are typically released every four years. An emphasis will be placed on the proper installation of instrumentation, control panels, and electrical gear.

Before getting in into the specifics of the standard, background material helpful to understanding NFPA 820 will be presented including National Electrical Code (NEC) area classifications (e.g., what Class 1, Division 1, Group D means) and lower explosive limit (LEL). The factors that determine the risk and likelihood of an explosion or fire and the detection and protection requirements will be presented. Combustible gas detection and ventilation are critical systems for the prevention of fires and explosions. Alarm requirements for these systems, including new requirements in the 2016 edition, will be described.

NFPA 820 contains three tables listing locations or processes in a collection system or wastewater treatment plant. Collection system assets are presented in one table while wastewater plants are divided into two tables—one for liquid stream treatment and the other for solids treatment. These tables list the applicable fire and explosion hazards, the ventilation requirements, the NEC classified area rating and its boundaries, the required building materials of construction, and the required fire protection measures for these locations. The tables for a few specific areas in a wastewater treatment plant/collection system will be reviewed to help in utilizing the standard.

Recommendations, lessons learned, and pitfalls to avoid from the owner's perspective will be part of the presentation.

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## **ABOUT THE AUTHOR**

**Paul J. McGuire, P.E.** *Paul has been a Senior Project Engineer for the NEORSD for the past ten years specializing in project management and instrumentation and controls (I&C). NEORSD is comprised of a collection system and three wastewater treatment plants serving one million customers in Cleveland and more than 60 surrounding communities. Paul has thirty years I&C experience in various industries including industrial and municipal wastewater treatment with a control systems vendor, an engineering design firm, and a control system integrator. He has a BSEET degree from Cleveland State and is a senior member of ISA. Contact: mcguirep@neorsd.org*