

# OSFM INTERPRETATIONS

**NUMBER:** 96-13

**ADOPTION DATE:** March 8, 1996

**REVISION DATE:** November 29, 1999

**TITLE:** Waste water and Water Treatment Facilities.

## **RULE or CODE SECTION:**

1991 Uniform Fire Code, State of Oregon 1992 Amendments,  
Section 2.301(b) Alternate Materials and Methods.  
Section 2.302 Technical Assistance  
Section 80.301(m) Ventilation  
Section 80.303 (1 through 11) Toxic and Highly Toxic Compressed Gases  
Section 80.401(c)2 Design and Construction

## **CONCERN or ISSUE:**

New technology in regard to Chlorine Treatment facilities has caused concern with industry and Oregon communities. The current fire and life safety requirements for Chlorine Treatment facilities were developed when pressurized systems were prevalent. New installations using vacuum systems may, in some cases, require less stringent requirements.

## **HISTORY or BACKGROUND:**

Chlorine is classified in the Fire Code as a toxic compressed gas and therefore falls under Article 80, hazardous Materials section. As such, various systems are required to handle fire and accidental release of gases. Refer to attached reference information.

## **CONCLUSION:**

Alternatives to OUFC 80.303 should be considered, based on the prevailing conditions for each installations. Section 2.301(b) of the Fire Code and ORS 476.035 allow the State Fire Marshal to make adjustments, variances or exceptions to specific requirements of the Fire Code when the State Fire Marshal determines that application of the requirements are impossible, impractical or create unnecessary hardship or consequences inconsistent with the general purpose of this code.

If an adjustment, variance or exception to the Fire Code is granted, the agreement between the requesting party and the State Fire marshal shall list and define the conditions and agreements of the specific variance.

Failure on the part of the requesting party to comply with any of the conditions and agreements for the life of the variance shall immediately void the agreement, and all Fire Code requirements in effect at that time shall be satisfied.

### **General:**

Section 80.303(a) 6 D(iii) specifies the performance that must be considered in order to accomplish the required safety parameters of the Fire Code. The purpose is to design a system which will maintain the gas within a designated area until dissipation below the ½ I.D.L.H. (Immediate Danger to Life and Health) level is reached and which will prevent conditions developing from a release of gases which would endanger responders as well as the general public and the environment.

### **Treatment Systems:**

In order to evaluate the request for exclusion of treatment systems from chlorine system designs, the State Fire Marshal requires a 360 degree plume analysis be performed by a specialist as specified in section 2.302 of the Fire Code.

When using plume analysis models, the State Fire Marshal does not indicate specific models to follow; however, it is highly recommended that more than a single model be used. All models used must consider prevailing ambient conditions of the installation including wind, temperature, relative humidity, topography, etc.

The technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire-safety specialty organization acceptable to the chief. The report shall analyze the fire-safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, and recommend necessary changes.

**Gas/Smoke Detection:**

These systems shall be signed to insure that individuals understand what the emergency light/alarm is indicating. If treatment systems have been modified using the plume analysis, signage shall be provided at gates and fence lines to prevent individuals from entering the area which is maintained for gas dissipation.

While gas detection is the only system required to be transmitted to a constantly monitored control station, it is advisable to provide additional monitoring of fire extinguishing and smoke detection systems.

**Automatic Fire Extinguishing:**

An automatic fire extinguishing system is required as per the UFC Section 80.303 3(a) and (b).

**Ventilation:**

Continuous mechanical ventilation shall be provided at a rate of 1 c.f.m./sq.ft. of floor area as per UFC 80.301(m).

**NOTE:** Natural ventilation is not allowed.

Leaking containers which discharge toxic gases and lite when beyond the threshold limit value shall cause the alarm to sound and provide containment of the product or dissipation below ½ I.D.L.H.

**Shock Padding:**

Seismic design shall be in accordance with UFC Section 80.401(c)2.

**Approved by:** Robert Panuccio \_\_\_\_\_  
State Fire Marshal

**Date:** 11 - 29 - 99 \_\_\_\_\_