

**Requirements Documents**

**HMIS-RD-FP-8589**

**Hanford Fire Marshal Permits**

Revision 1, Change 0

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Program: Requirements Management

Topic: Fire Protection

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**Use Type: Administrative**



- Tank Farms (WRPS) :  
Excluded from USQ  
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- CPCCo General Exclusion :  
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Rev. 1, Chg. 0

## **Change Summary**

### **Description of Change**

Rev 1-0: Incorporating new references to DOE O 420.1C Change 3 and 1066-2016

Publication correction 14455: Replaced Alternate SME

Publication correction 38167: Corrected WRPS USQ

## 1.0 PURPOSE AND SCOPE

This Level 1 Requirements Document provides the requirements for obtaining Fire Marshal permits for activities described within. This document implements requirements from DOE O 420.1C, Change 3, Facility Safety, DOE-STD-1066-2016, DOE Standard Fire Protection, DOE O 420.1C, Change 3, Implementation Direction (Attachment to Letter 21-NSD-001047\_RL)

and the National Fire Protection Association, (NFPA) 1, *Fire Code*. The purpose of the permit is to ensure the fire protection/prevention objectives and goals of the fire protection program are achieved and to serve as a tool for notifying the Hanford Fire Department of changing conditions and hazards on the Hanford Site. The requirements in this document are applied in the Hanford Mission Integration Solutions (HMIS), the Central Plateau Cleanup Company (CPCCo), Hanford Laboratory Management and Integration (HLMI) and Washington River Protection Solutions (WRPS).

This document partially implements the ISMS Core Function #3, Develop and Implement Hazard and Environmental Controls.

## 2.0 CONSTRUCTION/BUILDING MANAGER REQUIREMENTS

### 2.1 Obtaining/Approving Permits

NOTE: For the tables in this section under the requirement "type" column, "V" means verbatim and "I" means interpreted.

#	REQUIREMENT	TYPE V or I	SOURCE
1.	<p>The responsible manager (facility, building, project), supervisor-in-charge, work planner, etc. must ensure that a request for a permit is communicated to the responsible Fire Protection Engineer (FPE)/Deputy Fire Marshal (DFM) for the activities listed in Sections 2.2 and 2.3 of this Requirements Document (RD). The communication may be through the generation of a (<a href="#">Hanford Fire Marshal Permit Request Form</a>) or an e-mail by the requester to the responsible FPE/DFM. Verbal requests are acceptable when agreed to by the responsible FPE/DFM. The permit shall be obtained from the responsible FPE/DFM for the activities listed in Sections 2.2 and 2.3, before these activities commence.</p> <p>NOTE: <i>The Hanford Fire Marshal permit system can be found on the Hanford Intranet; HMIS/Emergency Services/Fire</i></p>	I	NFPA 1; 1.12.

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	<p><i>Marshal's web page or accessed via this web link: [URL Redacted]</i></p> <p>Once approved, Fire Marshal permits are automatically retained in the Integrated Document Management System (IDMS).</p>		
2.	The responsible facility manager for a hazard category 1, 2 or 3 DOE nuclear facility/complex shall ensure that an Unreviewed Safety Question (USQ) determination is performed in accordance with the established process prior to implementation of a new or revised fire marshal permit.	I	10 CFR 830.203
3.	<p>The responsible manager (facility, building, project) and a Fire Marshal authorized representative shall approve the fire marshal permit.</p> <p><i>NOTE: Conditions, operations, or materials hazardous to life or property pursuant to NFPA 1, Fire Code, Section 1.12, shall be the basis for permits issued through the HFM permit system. HFM permits shall be obtained and posted (or readily accessible) prior to the proposed activity or configuration.</i></p>	I	<p>DOE O 420.1C, Change 3, Facility Safety</p> <p>DOE O 420.1C, Change 3, Implementation Direction (Attachment to Letter 21-NSD-001047_RL) Fire Marshal Charter</p>
4.	A copy of the approved permit shall be posted or maintained readily accessible at each place of operation, carried by the permit holder or available upon request.	I	NFPA 1; 1.12.6.9
5.	After consultation with the permit requestor, the FPE/DFM is responsible for determining if the work activity requires a permit to be issued.	I	NFPA 1; 1.12

### 2.2 New Activities That May Require a Fire Marshal Permit

1.	<b>Construction/Facility Modification/Demolition</b> – New construction projects, modifications to or relocation of existing facilities/structures, field remediation projects (dig sites) and demolition of facilities and structures, or portions thereof (includes using the <i>Construction/Demolition Fire Safety Inspection Checklist (A-6002-692)</i> . See HMIS-RD-FP-9717,	I	NFPA 1; 1.12
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	<i>Fire Prevention for Construction/Occupancy/ Demolition Activities.</i>		
2.	<b>Fire Alarm and Detection Systems</b> – The installation or modification of fire alarm and detection systems and related equipment.	I	NFPA 1; 1.12
3.	<b>Fuel Fired Equipment</b>	I	NFPA 1; 1.12
4.	<b>Hot Roofing Application</b>	I	NFPA 1; 1.12
5.	<b>Modification of a Means of Egress</b>	I	NFPA 1; 1.12
6.	<b>Occupancy/Operation</b> – Use, occupancy or operation of a new facility or re-start, re-occupancy or change in occupancy of an existing facility. Appendix B provides a guide for an occupancy checklist that can be used at the discretion of the facility fire protection engineer/deputy fire marshal.	I	NFPA 1; 1.12
7.	<b>Other</b> – Other activities, at the discretion of the Fire Marshal’s representative, and not meeting one of these distinct categories, yet falling under the scope of NFPA 1 permitting requirements. Examples could include exhibit and trade shows, combustible material storage and battery systems.	I	NFPA 1; 1.12
8.	<b>Planned Impairment</b> – A Permit may be issued for a planned impairment to a fire protection system.	I	NFPA 1; 1.12
9.	<b>Relocatable Structure, Placement, Relocation or Demobilization</b> – Construction, location, erection or placement of a relocatable structure. Note: Permits are not necessarily required for conex boxes. The requirement for permits will be at the discretion of the FPE/DFM based on factors such as hazards and occupancy.	I	NFPA 1; 1.12
10.	<b>Road Closure</b>	I	NFPA 1; 1.12
11.	<b>Suppression System</b> - The installation or modification of a fire suppression system.	I	NFPA 1; 1.12

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12.	<p><b>System Deactivation</b> – Deactivation of a fire protection system, including a fire suppression system, fire alarm and detection system, fire hydrant, or standpipe.</p> <p><i>NOTE: For the deactivation of fire hydrants a documented request to Fire Systems Maintenance to remove (snap-off) the hydrant must be in place as a condition of permit approval.</i></p>	I	NFPA 1; 1.12
13.	<p><b>Water Supply</b> – Installation or modification of water supplies, fire hydrants or underground mains.</p>	I	NFPA 1; 1.12

### 2.3 New/Existing Activities That May Require a Fire Marshal Permit

1.	<p><b>Chemicals and Chemical Waste</b> - <math>\geq</math> the quantities listed in <a href="#">Appendix A</a></p> <p><b>EXCEPTION:</b> <i>Analytical laboratory facilities operating in compliance with NFPA 45 are exempted due to equivalent compliance.</i></p>	I	NFPA 1; 1.12
2.	<p><b>Compressed Gas and LP Gas</b> – Storage, handling or use of compressed gases or liquefied petroleum gases. Installation or modification of any compressed gas system. The amounts requiring a permit are listed in <a href="#">Appendix A</a> relative to the specific hazard of the gas (e.g., flammable, etc.)</p> <p><b>EXCEPTION:</b> <i>Analytical laboratory facilities operating in compliance with NFPA 45 are exempted due to equivalent compliance.</i></p>	I	NFPA 1; 1.12
3.	<p><b>Designated Hot Work Area</b> – Designated area for cutting and welding operations.</p>	I	NFPA 1; 1.12
4.	<p><b>Explosives and Ammunition</b> - Includes explosive materials and operations.</p>	I	NFPA 1; 1.12
5.	<p><b>Flammable and Combustible Liquids</b> – Installation, storage, use, handling, or transportation of Class I flammable liquids and Class II or Class III combustible liquids as defined by <a href="#">Appendix A</a>.</p>	I	NFPA 1; 1.12
6.	<p><b>Off Road Travel</b> – A Permit may be issued to address compensatory measures for variances to standard Off-Road Travel requirements as defined in the most current edition of</p>	I	NFPA 1; 1.12

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	the Hanford Fire Marshal Advisory Bulletin AB07-001, <i>OFF-ROAD VEHICLE TRAVEL</i> .		
7.	<b>Portable Heaters</b> – Electric heaters over 1500 watts and fuel fired heaters.		NFPA 1; 1.12

## 2.4 Enforcement

1.	<p>The Fire Marshal may issue Fire Prevention Findings for non-compliance with applicable Permit requirements to the appropriate building or facility manager and cooperate with them in order to correct the non-compliant situation. Findings that affect a hazard category 1, 2, or 3 nuclear facility/complex shall also be provided to the project Nuclear Safety organization.</p> <p><i>NOTE: The intent of the Finding is to identify deficient items that present a danger to life or property and require timely resolution. The Fire Marshal may elevate unresolved or delinquent Findings to the appropriate contractor senior management and/or DOE if efforts to resolve the non-compliant situation in a reasonable period of time are unsuccessful.</i></p>	I	<p>, DOE O 420.1C, Change 3, Facility Safety</p> <p>Fire Marshal's Charter</p>
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## 3.0 RECORD IDENTIFICATION

All records are generated, received, processed, and maintained by HMIS in accordance with HMIS-PRO-RM-10588, *Records Management Processes*.

**Records Capture Table**

Name of Record	Submittal Responsibility	Retention Responsibility
Hanford Fire Marshal Permits and Occupancy Permit Checklists, as applicable.	Fire Protection Engineers/ Deputy Fire Marshal's	Fire Marshal permits, once approved, get automatically retained in the Integrated Document Management System (IDMS).

## 4.0 REFERENCES

### 4.1 Source Requirements

National Fire Protection Association (NFPA) 1, *Fire Code*

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Authority, Responsibilities, and Duties of the Hanford Fire Marshal (Fire Marshal's Charter)  
DOE Approval Letter 10-SED-0010, dated December 3, 2009  
10 CFR 830, *Nuclear Safety Management*  
DOE O 420.1C, Change 3, Facility Safety  
*DOE-STD-1066-2016, DOE Standard Fire Protection*  
*DOE O 420.1C, Change 3, Implementation Direction (Attachment to Letter 21-NSD-001047\_RL)*

#### **4.2 Working References**

HMIS-RD-FP-9717, *Fire Prevention for Construction/Occupancy/Demolition Activities*  
HMIS-RD-FP-9900, *Hot-Work Performance Requirements*  
HMIS-RD-EI-15332, *Environmental Protection Requirements*  
HMIS-PRO-RM-10588, *Records Management Processes*  
NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*  
NFPA 30, *Flammable and Combustible Liquids Code*  
NFPA 400, *Hazardous Materials Code*

#### **4.3 Forms**

A-6002-692, *Construction/Demolition Fire Safety Inspection Checklist*

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**APPENDIX A**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
<b>Aerosol</b>	Level 1 Level 2 Level 3  *In no case shall the combined net weight (wt) of a level 2 and level 3 aerosol product exceed 1000 lbs. per control area. The level 3 aerosol shall not contribute more than 500 lbs. to this total. Reference Fire Marshal bulletin FMAB-18-001.	No Limit  *1000 lbs. net wt  *500 lbs. net wt
<b>Cellulose Nitrate Plastic</b>	Cellulose Nitrate Plastic (Pyroxylin) is a plastic substance, material or compound, having cellulose nitrate as a base, or whatever name known, when in the form of blocks, slabs, sheets, tubes or fabricated shapes..	>25 pounds
<b>Combustible Fiber</b>	Readily ignitable and free-burning fibers, such as cotton, sisal, henequen, ixtle, jute, hemp, tow, cocoa fiber, oakum, baled waste, baled waste paper, kapok, hay, straw, excelsior, Spanish moss or other like materials.	>100 cubic feet
<b>Combustible Liquids</b>	A liquid having a flash point at or above 100°F. Combustible liquids are subdivided as follows. The category of combustible liquids does not include compressed gases or cryogenic fluids. <ul style="list-style-type: none"> <li>• CLASS II liquids are those having flash points at or above 100°F and below 140°F.</li> <li>• CLASS III-A liquids are those having flash points at or above 140°F and below 200°F</li> </ul>	- >25 gallons inside - >60 gallons outside (except fuel oil used in conjunction with oil burning equipment)
<b>Corrosive Gases</b>	Corrosive - a chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. A chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described in Appendix A to CFR 49, Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term does not refer to action of inanimate surfaces.  <i>Example:</i> ammonia	>200 cubic feet
<b>Corrosive Liquids</b>	A liquid which, when in contact with living tissue, will cause destruction or irreversible alteration of such tissue by chemical action. Examples include acidic, alkaline or caustic materials.	55 gallons

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<b>Corrosive Solids</b>	<p>A solid which, when in contact with living tissue, will cause destruction or irreversible alteration of such tissue by chemical action.</p> <p><i>Examples:</i> acidic, alkaline or caustic materials.</p>	500 pounds
<b>Cryogens</b>	<p>A fluid that has a normal boiling point below <math>-130^{\circ}\text{F}</math>.</p> <p><i>Examples (flammable):</i> hydrogen, methane</p> <p><i>Examples (oxidizing):</i> fluorine and liquid oxygen</p> <p><i>Examples (corrosive):</i> fluorine</p>	<p><u>Inside</u></p> <p>Corrosive - &gt;1 gal.</p> <p>Flammable - &gt;1 gal.</p> <p>Toxic/Highly Toxic - &gt;1 gal.</p> <p>Nonflamm. - 60 gal.</p> <p>Oxidizer (incl. O<sub>2</sub>) - 10 gal.</p> <p><u>Outside</u></p> <p>Corrosive - &gt;1 gal.</p> <p>Flammable - 60 gal.</p> <p>Toxic/Highly Toxic - &gt;1 gal.</p> <p>Nonflamm. - 500 gal.</p> <p>Oxidizer (incl. O<sub>2</sub>) - 50 gal.</p>

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Chemical	Definition/Description	Minimum Amount Requiring Permit
<b>Explosives</b>	<p>Explosives are defined as: Any chemical compound or mechanical mixture that is designed to function as an explosive, or chemical compound that functions through self-reaction as an explosive, and that, when subjected to heat, impact, friction, shock, or other suitable initiation stimulus, undergoes a very rapid chemical change with the evolution of large volumes of highly heated gases that exert pressures in the surrounding medium. The term applies to materials that either detonate or deflagrate.</p> <p><i>Examples:</i> dynamite, TNT, nitroglycerine, C-3, C-4, black powder, smokeless powder, propellant explosives, ammunition and display fireworks</p>	See NFPA 1, Chapter 65, Section 65.9.2.
<b>Flammable Gas</b>	<p>Any material which is a gas at 68°F or less at 14.7 psia of pressure (a material has a boiling point of 68°F or less at 14.7 psia) which:</p> <ol style="list-style-type: none"> <li>1. Is ignitable at 14.7 psia when in a mixture of 13 percent or less by volume with air, or</li> <li>2. Has a flammable range at 14.7 psia with air of at least 12 percent, regardless of the lower limit.</li> </ol>	<p>200 cubic feet</p> <p>(except cryogenic fluids and Liquefied Petroleum Gas (LPG))</p>
<b>Flammable Liquids</b>	<p>A liquid having a flash point below 100°F and having a vapor pressure not exceeding 40 psia at 100°F. The category of flammable liquids does not include compressed gases or cryogenic fluids. Class I liquids are flammable liquids and include those having flash points below 100°F. Class I liquids are subdivided as follows:</p> <ul style="list-style-type: none"> <li>• Class I-A liquids include those having a flash point below 73°F and having a boiling point below 100°F.</li> <li>• Class I-B liquids include those having a flash point below 73°F and having a boiling point at or above 100°F.</li> <li>• Class I-C liquids include those having a flash point at or above 73°F and below 100°F</li> </ul>	<p>&gt;5 gal. Inside</p> <p>&gt;10 gal. Outside</p> <p>See NFPA 1, Table 1.12. 8(a) for exception.</p>

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Chemical	Definition/Description	Minimum Amount Requiring Permit
<b>Flammable Solids</b>	<p>A solid substance, other than one which is defined as a blasting agent or explosive, that is liable to cause fire through friction or as a result of retained heat from manufacture, which has an ignition temperature below 212°F, or which burns so vigorously or persistently when ignited that it creates a serious hazard. Flammable solids include finely divided solid materials which when dispersed in air as a cloud could be ignited and cause an explosion.</p> <p><b>Examples (organic):</b> camphor, cellulose nitrate and naphthalene</p> <p><b>Examples (Inorganic):</b> decaborane, lithium amide, phosphorous heptasulfide, phosphorous sesquisulfide, potassium sulfide, anhydrous sodium sulfide and sulfur.</p>	100 pounds
<b>Highly Toxic Gases, Liquids and Solids (including pesticides and fumigants)</b>	<p>A material which produces a lethal dose or lethal concentration which falls within any of the following categories:</p> <ol style="list-style-type: none"> <li>1. A chemical that has a median lethal dose (LD<sub>50</sub>) of 50 mg/kg or less of body weight when administered orally to albino rats weighing between 200 g and 300 g each.</li> <li>2. A chemical that has a median lethal dose (LD<sub>50</sub>) of 200 mg/kg or less of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the base skin of albino rabbits weighing between 2 kg and 3 kg each.</li> <li>3. A chemical that has a median lethal dose concentration (LC<sub>50</sub>) in air of 200 parts per million by volume or less of gas or vapor, or 2 mg/L or less of mist, fume or dust, when administered by continuous inhalation for one hour, or less if death occurs within one hour, to albino rats weighing between 200 g and 300 g each.</li> </ol> <p>Mixtures of these materials with ordinary materials, such as water, might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation that is required for the precise categorization of this type of material shall be performed by experienced, technically competent persons.</p>	Any Amount

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Chemical	Definition/Description	Minimum Amount Requiring Permit
<b>Inert and Simple Asphyxiant Gases</b>	<p>Inert Gas – Any gas that is nonflammable, nonreactive, and noncontaminating.</p> <p>Simple Asphyxiant Gas - A gas that does not provide sufficient oxygen to support life and that has none of the other physical or health hazards Asphyxiants work by displacing oxygen from the ambient atmosphere thus reducing available oxygen inhaled in the lungs which is used by the hemoglobin in the blood to oxygenate the tissues. As a result, the victim slowly suffocates.</p> <p><i>Examples:</i> nitrogen (N<sub>2</sub>), helium (He), neon (Ne), argon (Ar), methane (CH<sub>4</sub>), propane (CH<sub>3</sub>CH<sub>2</sub>CH<sub>3</sub>), and carbon dioxide (CO<sub>2</sub>).</p>	6,000 cubic feet
<b>Liquefied Petroleum Gases</b>	A material having a vapor pressure not exceeding that allowed for commercial propane gas that is composed predominantly of following hydrocarbons, either by mixtures: propane, propylene, butane (normal butane or isobutane) and butylenes.	<ol style="list-style-type: none"> <li>1. &gt;125 gallons (water capacity)</li> <li>2. To install or modify LP Gas systems.</li> </ol>
<b>Nitrate Film</b>	See explosive materials-not in general use today.	Any Amount
<b>Oxidizing Gases</b>	<p>A gas that can support combustion in other materials, thereby causing fire either by itself or through the release of oxygen or other gases.</p> <p><i>Examples:</i> oxygen, ozone, oxides of nitrogen fluorine and chlorine</p>	504 cubic feet
<b>Oxidizing Liquids</b>	<p>A liquid that can support combustion in other materials, thereby causing fire either by itself or through the release of oxygen or other gases.</p> <p><i>Examples:</i> bromine, hydrogen peroxide, nitric acid, perchloric acid, sulfuric acid</p>	Class 4 - Any Amount Class 3 - 1 gal. Class 2 -10 gal. Class 1 - 55 gal.
<b>Oxidizing Solids</b>	<p>A solid that can support combustion in other materials, thereby causing fire either by itself or through the release of oxygen or other gases.</p> <p><i>Examples:</i> chlorates, chromates, chromic acid, iodine, nitrates, perchlorates, peroxides</p>	Class 4 – Any Amount Class 3 - 10 pounds Class 2 -100 pounds Class 1 - 500 pounds
<b>Organic Peroxide Liquids and Solids</b>	An organic compound that contains the bivalent –O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms have been replaced by an organic radical. Organic peroxides can present an explosion hazard (detonation or deflagration) or they	Unclassified Detonable – Any amount Class I – Any Amount

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	<p>can be shock sensitive. They can also decompose into various unstable compounds over an extended period of time.</p> <p><b>Examples:</b></p> <p>Unclassified detonable organic peroxides – Organic peroxides that are capable of detonation.</p> <p>Class 1 – acetyl cyclohexane sulfonyl 60-65% concentration by weight, fulfonyl peroxide, diisopropyl peroxydicarbonate 100%</p> <p>Class 2 – acetyl peroxide 25%, t-butyl hydroperoxide 70%, peroxyacetic acid 43%</p> <p>Class 3 – benzoyl peroxide 78%, cumene hydroperoxide 86%, decanoyl peroxide 98.5%</p> <p>Class 4 – benzoyl peroxide 70%, t-butyl hydroperoxide 70%, decumyl peroxide 98%,</p> <p>Class 5 – benzoyl peroxide 35%, 1,1-di-tbutyl peroxy 3,5,5-trimethylcyclohexane 40%</p>	<p>Class II - Any Amount</p> <p>Class III - 10 pounds</p> <p>Class IV - 20 pounds</p>
<b>Pyrophoric Gases</b>	<p>A gas with an autoignition temperature in air at or below 130°F.</p> <p><b>Examples:</b> diborane, phosphine, silane</p>	Any Amount
<b>Pyrophoric Liquids</b>	<p>A liquid chemical that spontaneously ignites in air at or below a temperature of 130°F.</p> <p><b>Examples:</b> diethyl aluminum chloride, diethyl beryllium, diethyl phosphine, diethyl zinc, dimethyl arsine, triethyl aluminum etherate, triethyl bismuthine, triethyl boron, trimethyl aluminum and trimethyl gallium.</p>	Any Amount
<b>Pyrophoric Solids</b>	<p>A solid chemical that spontaneously ignites in air at or below a temperature of 130°F.</p> <p><b>Examples:</b> cesium, hafnium, lithium, white or yellow phosphorus, plutonium, potassium, rubidium, sodium and thorium.</p>	Any Amount

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<b>Toxic Gases</b>	<p>A gas with a median lethal concentration (LD<sub>50</sub>) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for one hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each.</p> <p><i>Examples:</i> arsine, cyanogen, diborane, fluorine, germane, hydrogen cyanide, nitric oxide</p>	Any Amount
<b>Toxic Liquids</b>	<p>A liquid material which produces a lethal dose or a lethal concentration within any of the following categories:</p> <ol style="list-style-type: none"> <li>1. A material that has a median lethal dose (LD<sub>50</sub>) of 50 milligrams or less per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.</li> <li>2. A material that has a median lethal dose (LD<sub>50</sub>) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.</li> </ol> <p><i>Examples:</i> acrolein, acrylic acid, hydrazine, hydrocyanic acid, tromethane, tetraethylstannane</p>	10 gal.
<b>Toxic Solids</b>	<p>A solid material which produces a lethal dose or a lethal concentration within any of the following categories:</p> <ol style="list-style-type: none"> <li>1. A material that has a median lethal dose (LD<sub>50</sub>) of 50 milligrams or less per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.</li> <li>2. A material that has a median lethal dose (LD<sub>50</sub>) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.</li> </ol>	100 pounds

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	<p><i>Examples:</i> acrolein, acrylic acid, hydrazine, hydrocyanic acid, tromethane, tetraethylstannane</p> <p><i>Examples:</i> phenylmercury, arsenic pentoxide, calcium cyanide, aflatoxin B, barium chloride, cadmium chloride, chromium oxide, mercury chloride</p>	
<b>Unstable (Reactive) Gases</b>	A gas that in the pure state or as commercially produced will vigorously polymerize, decompose, condense, become self-reactive or otherwise undergo a violent chemical change, under conditions of shock, pressure or temperature.	Any Amount
<b>Unstable (Reactive) Solids</b>	A solid material that in the pure state or as commercially produced will vigorously polymerize, decompose, condense, become self-reactive or otherwise undergo a violent chemical change, under conditions of shock, pressure or temperature	Class 4 – Any Amount Class 3 - Any Amount Class 2 - 50 pounds Class 1 - 100 pounds
<b>Unstable (Reactive) Liquids</b>	<p>A liquid material that in the pure state or as commercially produced will vigorously polymerize, decompose, condense, become self-reactive or otherwise undergo a violent chemical change, under conditions of shock, pressure or temperature.</p> <p><i>Examples:</i></p> <p>Class 4 – acetyl peroxide, dibutyl peroxide, dinitrobenzene, ethyl nitrate, peroxyacetic acid, trinitrobenzene</p> <p>Class 3 – hydrogen peroxide &gt;52%, hydroxylamine, paranitroaniline, perchloric acid</p> <p>Class 2 – acrolein, acrylic acid, hydrazine, methacrylic acid, sodium perchlorate, styrene</p> <p>Class 1 – acetic acid hydrogen peroxide 35% to 52%, paraldehyde, tetrahydrofuran</p>	Class 4 - Any Amount Class 3 - Any Amount Class 2 - 5 gal. Class 1 - 10 gal.

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Chemical	Definition/Description	Minimum Amount Requiring Permit
<b>Water-Reactive Liquids</b>	<p>A material which explodes; violently reacts; produces flammable, toxic or other hazardous gases; or evolves enough heat to cause self-ignition or ignition of nearby combustibles upon exposure to water or moisture.</p> <p><i>Examples:</i></p> <p>Class 3: triethylaluminum, isobutylaluminum, trimethylaluminum, bromine pentafluoride, bromine trifluoride</p> <p>Class 2: calcium carbide, calcium metal, cyanogen bromide, lithium hydride, potassium metal, sodium metal, sodium peroxide, sulfuric acid</p> <p>Class 1: acetic anhydride, sodium hydroxide, sulfur monochloride, titanium tetrachloride</p>	<p>Class 3 - Any Amount</p> <p>Class 2 - 5 gal.</p> <p>Class 1 - 10 gal.</p>
<b>Water-Reactive Solids</b>	Same definition as Water – Reactive Liquids above.	<p>Class 3 - Any Amount</p> <p>Class 2 - 50 pounds</p> <p>Class 1 - 100 pounds</p>

**APPENDIX B**

<b>OCCUPANCY PERMIT CHECKLIST</b>				
<b>Building:</b>		<b>FPE/DFM:</b>		
<b>Occupancy Type:</b>				
<b>Item/Inspection Criteria</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments/Deficiencies</b>
<b>Identification</b>				
Facility Identified per HMIS-RD-FP-10606				
Identification Visible from Street				
<b>Construction</b>				
Building Construction Complete				
Electrical Inspected				
<b>Portable Fire Extinguishers (PFX)</b>				
Mounted				
a. At the Correct Height				
b. Not Obstructed				
c. Location Sign (if applicable)				
Inspection Tag				
Operable				
Appropriate Type (based on hazards)				
Appropriate Quantity of PFXs				
Notification Made to HFD <sup>1</sup>				
<b>Fire Protection Systems (Active)</b>				
<u>Suppression Systems</u>				
Certificate of Completion				
In Service				
Acceptable Fire Flow				
<u>Alarm Systems</u>				
ATP Complete				

**NOTE:** Employees may print off this document for reference purposes but are responsible to check HMIS PS to ensure the most current version is used to prevent unintended use of obsolete versions.

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In service				
<b>Fire Protection Systems (Passive)</b>				
Fire Doors and Hardware in place, Operable				
Fire Wall Penetrations Sealed				
<b>Life Safety Review Complete (including, but not limited to)</b>				
Appropriate Signs Installed (exit, no exit, etc.)				
Exit Path Unobstructed, Illuminated				
Exit Discharge Stairs/Handrails Compliant				
<b>Emergency Lighting</b>				
Provided				
Operable				
Illuminates Exit Path				
<b>Pre-Incident Plan</b>				
In Place				
Accurate				
Current or notification made to HFD Operations				
<b>Point of Contact Person</b>				
Assigned				
<b>Emergency Building Access</b>				
Unobstructed				

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<b>Wildfire Exposure</b>				
Defensible Space Adequate				

<sup>1</sup> Send notification of number and location of PFXs to HFD via [HFDE@rl.gov](mailto:HFDE@rl.gov) (^HFD Extinguishers).