

Ownership matrix	USQ# 20-0373-S
------------------	----------------

TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE2

2.0 IMPLEMENTATION2

3.0 STANDARD2

 3.1 Combustibles and Housekeeping.....2

 3.2 Construction.....7

 3.3 Portable Heaters9

 3.4 Electrical Utilities10

 3.5 Fire Protection at Construction/Demolition Sites11

 3.6 Occupancy13

 3.7 Building Ceiling Tiles.....14

 3.8 Leased Facilities14

 3.9 Portable Fire Extinguishers.....16

 3.10 Fire Marshal Permits.....17

4.0 DEFINITIONS20

5.0 SOURCES.....22

 5.1 Requirements22

 5.2 References.....22

TABLE OF ATTACHMENTS

ATTACHMENT A - OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS MATERIALS24

ATTACHMENT B - OCCUPANCY PERMIT CHECKLIST34

1.0 PURPOSE AND SCOPE

(5.1.1, 5.1.3, 5.1.4, 5.1.5)

This Standard defines processes that are credited as Defense in Depth controls from RPP-13033, “Tank Farm Documented Safety Analysis;” HNF-14755, “242-A Evaporator Documented Safety Analysis;” and HNF-12125, “222-S Laboratory Documented Safety Analysis;” and provides the fire protection and prevention requirements for:

- Managing combustibles during activities. The use of combustibles should always be guided by as low as reasonably achievable (ALARA) principles.
- General facility occupancy as well as specific requirements for construction and demolition tasks (both interior and exterior).
- Fire Marshal Permits as required in accordance with Section 3.4 of this Standard. Following review of the Permit request data describing the related activity and prior to the commencement of work, the Fire Marshal Permit is issued by the Tank Operations Contractor’s (TOC) Fire Marshal/Fire Protection Engineer (FPE) or designated representative.
- Where conflicts in the application of required codes and standards arise, the more restrictive requirements apply or an interpretation request may be made to the DOE-ORP Authority Having Jurisdiction. Interpretation requested shall be approved by TOC Fire Protection before being transmitted to DOE-ORP.
- Seasonal fire protection requirements. Seasonal requirements shall be used, as appropriate, throughout the year. During the months of warm weather, additional attention to outdoor housekeeping and control of ignition sources is necessary.

2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

3.0 STANDARD

The following applies to all TOC personnel and subcontractors activities and to the occupancy of facilities owned or leased by the TOC, as appropriate.

3.1 Combustibles and Housekeeping

(5.1.9)

A combustible control program is a required element of the fire protection program. Additional features may be required for nuclear, radiological, high-hazard, and mission-critical facilities.

3.1.1 Activities NOT Allowed

Exceptions may be made for events using off-Site catering services. Notify TOC FPE with event details and a course of action will be determined, which may include a need to issue a Fire Marshal Permit.

1. Any candle use (gel, paraffin, jar, floating, etc.).

2. Any indoor activity involving the use of solid or semi-solid fuel (e.g.: Sterno™, charcoal briquettes, etc.).
3. Any refuse burning activity unless authorized by a Fire Marshal Permit.
4. Any OIL filled turkey or deep fat frying.

When a Fire Marshal Permit has been obtained, the frying equipment may be used with water, NOT OIL, for cooking foods such as corn on the cob. Unless otherwise stated on the Permit, the equipment is to be removed from the Hanford Site within 48 hours of the Permitted activity.

3.1.2 Amount of Combustible Materials Allowed to Accumulate

1. Accumulation of combustible materials must be limited to the quantity required for current needs.
 - Accumulation of combustibles in excess of current needs/usage is considered storage of combustibles and shall be located in an appropriate storage area (i.e., storeroom, warehouse, cabinets, filing drawers, metal shelving, round basket, etc.)
 - Accumulation of combustibles shall be separated from ignition sources.
2. Combustible solid waste and residue from handling flammable and combustible liquids shall be stored in approved, closed, metal containers and shall be disposed of daily.

For additional information, see TFC-ESHQ-FP-STD-13.

3.1.3 Housekeeping Requirements for Controlling Combustibles

Combustible loading issue versus housekeeping issue:

Fire Protection Engineering principles use combustible loading in the form of fuel packages to identify radiant heat releases and required separation distances to prevent transition of one fire to an adjacent location. This can be calculated for indoor locations where the building geometry and the type of material involved are known.

In the case of outside locations, NFPA 1144, "Protection of Life and Property from Wildfire" assumes a worst case and simplifies this defensible distance to be 30 feet. At tank farms, the fences around the farms act as a barrier minimizing the combustibles entering into the farms. Structures outside the farms that represent a significant loss, either from monetary loss or program interruption, require the same diligence in maintaining the 30 feet of combustible free clearance.

Housekeeping issues are often being confused with fire protection combustible loading requirements. Housekeeping is a good management practice that is important to a well-run business. They are, however, subjective, and controls should be implemented using a graded approach.

1. Within the tank farm fenced area, waste or unused combustible material shall be placed in a designated, appropriately identified area until permanent removal is arranged.

2. Work room floors are to be maintained clean and dry to the extent practical.
3. Offices and desks shall be maintained ALARA.

This means binders and books in an orderly manner and paper/files not applicable to current tasks kept in closed cabinets. No under desk storage of combustible material unless it is on a shelf that is part of the desk. No stacks of paper or cardboard boxes on the floor in the path of egress.
4. Combustible waste shall be collected in metal containers provided with lids.

Noncombustible trash cans and lids are not required for office waste cans.
5. Combustible waste shall not be permitted to accumulate inside or adjacent to buildings.
6. Combustible materials shall not be stored in building stairwells or corridors.
7. Combustibles stored in closed metal cabinets are permitted in corridors IF the cabinets do not reduce the required exit width of the corridors.

3.1.4 Non-Combustible/Fire Retardant Materials

Non-combustible/fire retardant materials shall be used whenever possible.

3.1.5 Combustibles in Nuclear Facilities (Reactor and Non-Reactor)

NOTE 1: The area within a tank farm's fence line is considered to be a nuclear facility and subject to all the following requirements.

NOTE 2: Flammable liquids (including refueling) and vehicle use requirements are addressed in TFC-ESHQ-FP-STD-03.

1. Management shall ensure that the use of combustible materials is properly controlled and is ALARA.
2. Nuclear facilities (see definitions) shall have a documented, monthly, housekeeping inspection performed in accordance with NFPA 801, "Standard for Fire Protection for Facilities Handling Radioactive Materials."
 - a. Provisions for remedial action to correct conditions that increase fire hazards found during inspection shall be included.
 - b. Locate and identify unnecessary transient combustible materials.
 - c. Identify uncontrolled ignition sources.
 - d. Identify obstructions to the means of egress.
 - e. Facility management shall be responsible for the inspections and documentation.

3. 242-A Evaporator and Pump Room Transient Combustible Material Control is a Specific Administrative Control (SAC) implemented as a directed action Administrative Control. The SAC is applicable in Operation Mode as defined by HNF-14755, 242-A Documented Safety Analysis. The SAC requirements are:
 - a. The total heat of combustion of transient combustible materials within the evaporator room shall be $\leq 400,000$ BTU.
 - b. The total heat of combustion of transient combustible materials within the pump room shall be $\leq 56,000$ BTU.
 - c. No transient combustible liquid or transient flammable liquid shall be present in the evaporator room, including within the approved tool container.
 - d. No transient combustible materials shall be present within the following zones in the evaporator room and pump room.
 - A rectangular prism with side dimensions of at least 18 ft centered on dump valve HV-CA1-7 or up to the evaporator room wall, and with a vertical dimension from the floor to at least 9 ft above the valve.
 - A rectangular prism with side dimensions of at least 14 ft centered on dump valve HV-CA1-9 or up to the evaporator room wall, and with a vertical dimension from the floor to at least 7 ft above the valve.
 - A rectangular prism with side dimensions of at least 12 ft centered on feed valve HV-CA1-1 or up to the pump room wall, and with a vertical dimension from the floor to the bottom of the pump room cover blocks.
4. Wood used in a nuclear facility shall be pressure-treated fire retardant material (preferred approach) or treated with fire retardant paint/coating.
 - a. Wood shall be factory marked with Underwriters Laboratories (UL) classification of Fire Retardant (FR-S).
 - b. Individual unlabeled pieces of wood (e.g., from a bundle or made by cutting larger pieces) shall be marked FR-S.
 - c. Ordinary wood, other than scaffolding, fire retardant material, which includes pressure-treated wood with an Underwriters Laboratory (UL) classification of "FR S" or material treated with an UL listed or Factory Mutual (FM) approved fire retardant coating (paint).
 - d. Wood scaffolding shall be coated with a **CLEAR** fire retardant coating to satisfy the OSHA requirement that the boards are to be visible for inspection.
 - e. The fire retardant coating shall be applied in accordance with the manufacturer's instructions.
 - f. Noticeable degradation or damage to coating shall be repaired and coating reapplied.

5. Use of combustible materials in the construction of facilities and associated equipment shall be ALARA.
6. Selection of non-combustible substitutes for such common materials as wood, plastic insulation, and especially plastic finish materials. The reason for selection of these materials shall be justified and documented with the conclusion reviewed and approved by TOC FPE in the form of a Fire Marshal Permit. This shall be completed prior to using the material in question
7. The selection and use of new insulated electrical wire for installation in cable trays shall be reviewed and approved by the TOC FPE.
8. Essential uses of combustible materials (such as plastic electrical and electronic components) are normally acceptable.
9. Use of combustible, essential, permanent items (including laundry, personal protective equipment, and office materials) shall be maintained ALARA.
10. Interior finishes shall meet the DOE requirement of flame spread 25, or less, and smoke density 50, or less, unless otherwise exempted by the DOE.
11. The Sherwin Williams Company, ENVIROLASTIC®, polyurea coating and lining system used to coat tank farm pits and surface areas meets the DOE criteria (flame spread 10/smoke density 35) and is acceptable for such listed purposes when applied in accordance with manufacturer's instructions. After application, the coating is considered a stable component, not an additional combustible load.
12. Sheet plastic and tent fabric shall be tested and documented as meeting NFPA 701, tinted pink, or fire retardant (FR) stamped every 6 feet.
13. Documentation of meeting test requirements should be requested from the vendor at the time of the order and made available to the TOC FPE upon request.
14. Tent/fabric/membrane structures greater than 200 ft² and canopies greater than 400 ft² require a Fire Marshal Permit (see Section 3.4).
15. Foil-backed craft paper shall not be used as welding tarps.
16. Within the tank farm fenced area, a designated area shall be maintained for unused/waste combustible material staged to be removed from the farm and if needed, another designated area for staging combustibles/equipment for work in progress.
17. Combustibles shall be removed on a regular basis to keep inventory in the designated areas ALARA.

3.1.6 Fire Prevention Controls for Outside Locations

Annual weather pattern changes can cause some difficulty in accurately predicting the fire conditions. Additionally, fire conditions can change rapidly. The best defense is to be prepared for every potential situation. The following are some of the preventive actions.

1. ALL open burning requires a Hanford Fire Marshal Permit.
2. DO NOT throw lighted materials from your vehicle.
3. Smoking is not permitted in government vehicles, but when smoking in your private vehicle, use your ashtray and make certain other smokers do the same.
4. Off-road driving is restricted to properly equipped vehicles:
 - A means of communication
 - A shovel
 - A portable fire extinguisher (2A rated minimum)
 - A spark arrester and appropriate shielding for catalytic converters and mufflers on all gasoline fueled vehicles and diesel vehicles (2007 or newer).
5. Do not allow vehicles to idle while off-road.
6. A “defensible space” shall be maintained around buildings and structures. The space shall extend at least 30 feet.
7. Do not allow metallic objects with shiny, curved surfaces (light fixtures, riser extenders, “top-hats,” etc.) to be stored in a manner that reflected sun light could be concentrated and focused upon combustible materials, such as wooden pallets, plastic sheeting, or natural vegetation.
8. It is recommended that combustible material be removed immediately upon discovery when it is near electrical equipment (e.g., motor control centers, transformers) or other heat producing equipment. It should be removed from other locations within 72 hours.
9. Ground fuels shall be treated/removed, combustible materials (e.g., tumbleweeds) removed, and live vegetation within the defensible space shall be thinned/pruned and have dead materials removed.
10. Barbeques are allowed on Site in accordance with the Fire Marshal Bulletin AB06-001, current revision.
11. Call 911 (373-0911 for cell phones) if a fire occurs; even if the fire has been extinguished.

3.2 Construction (5.1.2)

3.2.1 Pre-Construction Requirements

1. The construction manager shall ensure that applicable permits are obtained prior to engaging in activities or processes governed by the Permits (see Section 3.4).

Fire Marshal Permits, Combustible Controls, and Construction/Occupancy Requirements	Manual Document Page Issue Date	TFC-ESHQ-FP-STD-01, REV C-8	ESHQ 8 of 36 August 6, 2020
--	--	------------------------------------	------------------------------------

2. Project Management shall ensure that the Hanford Fire Marshal’s Office is represented, as appropriate, at the project “kick-off” meeting where project scope and applicability of Fire Marshal Permits and fire prevention programs shall be discussed.
3. The Hanford Fire Marshal’s Office Construction/Demolition Fire Safety Inspection Checklist (A-6002-692) is available as guidance for items to be aware of and for areas of concern that should be addressed during construction or demolition activities. The TOC FPE is available to address any questions about the checklist and ensure the requirements are implemented.

3.2.2 Temporary Construction Enclosures

1. A review by the Hanford Site Selection Committee and the TOC FPE shall be initiated before the enclosure/offices, etc. are in place.
2. A Fire Marshal Permit for occupancy is required and will be issued after a walkdown and approval by the TOC FPE.
3. Separate construction-related structures, such as temporary offices and sheds having combustible construction or contents, from buildings under construction.
4. Automatic sprinkler system piping or other fire protection equipment shall not be used to structurally support temporary enclosures erected within a facility.
5. Construct the enclosure supporting structures of noncombustible or fire-retardant materials.
6. Use non-combustible or fire-retardant materials for enclosure walls, ceilings, and floors.
7. Ensure that fabrics or plastic films used are certified as conforming to the requirements of the large-scale test described in NFPA 701.
 - a. Fire retardant material includes pressure-treated wood with an Underwriters Laboratory (UL) classification of “FR-S” or material treated with an UL listed or Factory Mutual (FM) approved fire retardant coating (paint).

3.2.3 Sources of Ignition In-and-Around Temporary Enclosures

1. Fasten the enclosing material securely and ensure it cannot be blown against heaters or other sources of ignition.
2. Enclosures and the area extending for 10 feet around the exterior of the enclosures shall be posted as “no smoking” areas.

This posting is not required inside of buildings or radiological areas since these locations are already designated as “no smoking” areas.
3. Electric heaters may be utilized in temporary enclosures in accordance with manufacturer’s instructions.
4. Whenever possible; perform welding, cutting, open flame work, etc. in a designated area.

A Fire Marshal Permit is required before an area can be utilized as a Designated Hot Work Area.

5. Install, use, and maintain temporary heating equipment according to the manufacturer's instructions.

3.2.4 Restrictions for Storage of Combustibles In and Around Temporary Enclosures

1. Do not store combustible materials within the no smoking areas surrounding temporary enclosures.
2. Locate exhaust discharge from internal combustion engines and associated equipment away from combustible materials.

3.3 Portable Heaters

The portable heater requirements apply to all aspects of portable heater use, as appropriate. Obtain guidance from TOC FPE if there are any concerns or questions about the use of portable heaters.

A fire permit is required for all liquid fuel fired heaters and electric heaters over 1500 watts. Contact TOC FPE for assistance. For use in radiological areas or nuclear facilities, an Unreviewed Safety Question (USQ) is also required on the Permit.

Requirements for using portable heaters are:

1. Managers shall ensure that the heaters are used in accordance with the manufacturer's recommendations, including the following:
 - Maintain all portable heaters and associated support equipment in good operating condition.
 - Ensure all components of fuel fired heaters are intended for use with the heater; hoses, regulators, fuel tanks, heating elements, etc.
 - Maintain 3 feet clearance to combustible furnishings, surfaces, or materials, or in accordance with the manufacturer's instructions, whichever is greater.
 - Maintain adequate ventilation for fuel-fired heaters to prevent products of combustion build-up and to maintain stable flame quality.
 - Use correct/appropriate fuel and refueling practices.
2. Makes and models of portable heaters shall be approved and/or listed by a nationally recognized test laboratory with product evaluation (e.g., Underwriter's Laboratories [UL]) or be certified by the American Gas Association (AGA) for the intended application. Portable heaters shall not be modified for any other applications.
3. Compressed fuel gases for heaters shall be stored and handled in accordance with TFC-ESHQ-S-STD-025. Contact TOC FPE for assistance.

4. Fuel for heaters shall be stored and handled in accordance with TFC-ESHQ-FP-STD-03 or TFC-ESHQ-S-STD-25. Contact TOC FPE for assistance.
5. Fuel fired heaters shall be located outside a structure and the heat ducted indoors, unless otherwise permitted by the Hanford Fire Marshal.
6. Liquefied petroleum gas-fired heaters shall not be used indoors, except as permitted by the Hanford Fire Marshal. Examples where heaters may be permitted are:
 - In buildings undergoing construction, repairs, or modifications
 - As temporary heat in non-combustible industrial occupancies
 - In other buildings for temporary, emergency heating purposes when necessary to prevent damage to the building, building systems, or contents in the building. These fuel-fired heaters located inside structures shall be continuously attended when operational.
7. If heat tape is to be used as the primary heat source to prevent existing fire suppression system piping from freezing:
 - All new and/or replacement heat tape installed must be UL listed for use on fire protection systems as well as the piping material being protected.
 - The heat tape must be self-regulating.

Non-combustible insulation should be used over the pipe and heat tape.
WARNING: Heat tape on plastic pipe shall not have insulation covering the heat tape.
 - The fire system pipe temperature shall be monitored by a system that includes a mechanism to transmit a trouble alarm to the Hanford Fire Department if the pipe temperature drops below 40°F.
 - Heat tape shall not be used for new system designs.

An exception to the rule above is that heat tape, in compliance with the other requirements of this standard, may be used to protect fire system risers in unheated trailer crawl spaces from freezing.

3.4 Electrical Utilities

(5.1.7)

1. All construction-operation electrical wiring and equipment for heating, lighting, or power purposes shall be in accordance with NFPA 70®, “National Electric Code®” (NEC®)¹.

¹Registered trademark of the National Fire Protection Association.

2. Remove temporary wiring upon completion of construction or purpose for which the wiring was installed.

3.5 Fire Protection at Construction/Demolition Sites

This section is to identify any changes that the Hanford Fire Department should be aware of for medical and fire emergency response efforts (e.g., suppression/detection systems removed from service, entry restrictions, etc.).

3.5.1 General Requirements

1. The Hanford Fire Department must be notified of each facility planned for decontaminating and decommissioning so they can address the changes in areas, such as Pre-Incident Plans.
2. The following requirements shall apply to construction/demolition sites, as applicable.
 - Fire protection must be provided on all construction sites as required by applicable sections of NFPA 241, “Standard for Safeguarding Construction, Alteration, and Demolition Operations,” NFPA 1141, “Fire Protection in Planned Building Groups,” and 29 CFR 1926, “Construction.”
 - The TOC “Safety and Health Field Surveillance” database (down load from Software Distribution/Hanford Site Application) or Hanford Fire Marshal’s Office Construction/Demolition Fire Safety Inspection Checklist (A-6002-692) can be used to document construction walkdowns. Open deficiencies shall cause a PER to be generated.

Track any unsafe conditions identified until corrected.
 - Provide adequate portable firefighting equipment (fire extinguishers, hoses, etc.) and training for the use of the equipment.
 - All firefighting equipment shall be periodically inspected and maintained in operating condition.

Defective equipment shall be immediately replaced.
 - Where underground water mains and hydrants are to be provided, they should be installed, completed, and in service prior to accumulation of combustible materials on the project site and prior to the completion of any project structure whenever possible. They shall be completely functional and code compliant before occupancy.
 - Construction sites shall provide and maintain fire department vehicle access.
 - Emergency vehicle access roads shall have an unobstructed driving surface width of at least 20 feet during all weather conditions and be able to withstand the live loads of fire department apparatus.

- Where required, secure construction sites from unauthorized entry; however, maintain unobstructed access for Site emergency response vehicles to all areas and buildings.
- Factors to be considered in determining the need for security should include the hazards at the site, the chance of arson or accidental fires, and the exposure fire risk.
- Vehicle parking, storage of construction material, and established access routes due to security fencing shall not impede unobstructed emergency vehicle access.
- Provide the site/project with two-way radio communications, telephone service, fire alarm box, or other means for the purpose of emergency notification.
- Projects with multiple level buildings shall consider the limitations of the Site fire department when determining the need for dry standpipes during construction.

3.5.2 Decommissioning of Fire Protection Features

1. A Fire Marshal Permit is required for the deactivation.
2. An analysis shall be performed by a qualified FPE.
3. The analysis needs to demonstrate that existing fire protection systems are not needed to prevent such an event from occurring or an event is not possible. See TFC-ESHQ-FP-STD-06.
4. The deactivation permit and analysis package must be submitted to the Hanford Fire Marshal's Office for review and concurrence before any fire protection features are removed from service. The deactivation "package" shall be prepared and include all information required by Hanford Fire Department Standard Operating Policy 4.10, "Deactivation of Facility Fire Protection Features."

3.5.3 Non-Emergency Use of Fire Hydrants

These requirements apply to all TOC-managed facilities, operations, and activities. Fire hydrant/water supply tests are exempt from these requirements.

1. Non-emergency tie-ins to fire hydrants are forbidden without a Non-emergency Hydrant Tie-In Permit (A-6003-681).
2. The Site form must be prepared by the requester with assistance from and approval by the water purveyor.
3. The completed form shall be forwarded to the Hanford Fire Marshal for final approval.
 - a. The user shall observe any precautions specified on the tie-in permit to prevent damage to the fire hydrant or hoses (e.g., freezing weather precautions).

4. Configuring an approved non-emergency tie-in installation shall be performed in accordance with TFC-OPS-MAINT-C-01.
5. The user shall provide and use an approved fire hydrant wrench to open and close a fire hydrant.

Pipe wrenches shall NOT be used to open/close a hydrant.
6. Fire hydrants and hoses shall be depressurized when not in used.
7. Hoses shall be routed to avoid presenting a hazard to employees or vehicles.
8. The user shall ensure that the hydrant is fully open or fully closed, in order to prevent the drip valve from causing drain washout.

3.6 Occupancy (5.1.8)

3.6.1 Exits

1. Every building exit and path to an exit shall be kept clear and unobstructed at all times.
2. Required exits shall not be locked in any way that prevents an individual from using the exit to leave the building.
3. Exterior building stairs shall be kept clean and unobstructed.
4. Exit doors shall not require more than one action to open.
5. Fire doors shall not be blocked open.
6. Emergency egress lighting shall be installed in accordance with NFPA 101®.
7. Emergency lights that are defective shall be repaired or replaced within 24 hours, or portable lighting shall be provided at the affected area(s) until the permanent lights are restored to service.

3.6.2 Facilities Used by Mobility-Impaired Persons

1. Facilities used by persons with impaired mobility must have accessible exits designed to accommodate those persons.
2. These facilities must have the same number of exits designed to accommodate the unimpaired by NFPA 101®.
3. In general, most new facilities must provide access for persons with impaired mobility, but there could be cases where a facility's operation would pose a direct threat to persons with specific disabilities. In these cases, it may not be reasonable to design the facility for accessibility where a direct threat exists.
4. Existing facilities must have accessible exits according to this section if a person with impaired mobility is assigned to a building or must enter a building to perform their job.

3.6.3 Minimum Clearance Between Storage and Sprinkler Heads

At least 18 in. vertical clearance shall be maintained between the top of storage and sprinkler head deflectors.

This does not apply to storage shelves and cabinets located against the wall.

3.7 Building Ceiling Tiles

The emphasis on ceiling tiles being in place in buildings with fire protection suppression systems is because the sprinkler is set off by heat. Since heat rises, the heat will bypass the sprinkler going into the space above the missing tile. The fire will be well established before the sprinkler finally gets enough heat to melt the fusible link or break the glass bulb initiating water flow. Once a fire is well established, the chances of a sprinkler system controlling the fire and preventing total loss are almost zero. Statistics indicate that most fires with unimpaired suppression systems are controlled with four sprinkler heads or less, so getting the system to activate as soon as possible is a necessity.

1. Ceiling tiles shall be maintained in place in structures with fire protection suppression systems.

Cracked ceiling tiles can be utilized as long as there are no holes or gaps when the tile is fitted together in the supporting strut.

2. If equipment installation or maintenance requires removal of ceiling tiles, the WRPS FPE shall be notified for any compensatory measures that may be required.
3. Removal of perforated metal ceiling tiles in 222-S Building requires notification of intent to remove, location of tiles to be removed, and expected duration the tiles will be out of the grid to TOC FPE.

This notification is commonly documented in work packages or other project or work related documents.

4. Ceiling tiles shall be replaced immediately after the installation or maintenance task is finished.

EXCEPTION: Ceiling tiles in structures without fire protection suppression systems are not covered under this standard but are recommended to be in place for the comfort of the occupants.

3.8 Leased Facilities

Facilities leased for use by TOC personnel shall comply with this section. A graded approach will be used in application of fire protection requirements to leased facilities, with emphasis on DOE criteria for personnel safety and protection of DOE programs and property. The graded approach will be applied to each leased facility on a case-by-case basis and may consider the following: 1) facility hazard; 2) DOE liability; 3) mission importance; and 4) remaining facility lifetime. Prior to signing any lease agreement, DOE heads of field elements should implement the actions set forth below:

1. Prior to occupancy by TOC personnel, perform a fire protection assessment of the facility to verify the adequacy of life safety and fire protection features of the space, including limiting the loss of government-owned equipment to limits established by DOE and potential mission interruption.
2. Communicate to the owner all fire protection deficiencies within the facility/structure. Closure of deficiencies that potentially impact life safety, and DOE-owned equipment and associated mission objectives shall be tracked until their resolution. Any pre-leasing agreements should describe the process in which fire protection deficiencies within the leased space will be corrected and funded before occupancy (such as installing special extinguishing systems), or after occupancy (such as general maintenance upgrades).
3. As necessary, participate with the local jurisdiction's fire department to develop a pre-incident plan for leased facilities that are physically situated outside DOE site boundaries and are not under the jurisdiction of a site's FPP (i.e., off-site).
4. Participate with the local jurisdiction or building owner on coordination of evacuation exercises for off-site facilities.
5. Define the frequency of DOE/owner-conducted fire protection assessments. In general, the owner would be responsible for off-site lease assessments in accordance with local jurisdictions and the contractor responsible for leased facilities within the jurisdiction of a site's FPP.
6. Specify in the lease agreement the DOE/owner responsibilities for ITM of facility fire protection systems in accordance with local jurisdiction building and fire code requirements. In general, the owner would be responsible for off-site assessments with local jurisdictions and the DOE contractor organization would be responsible for assessments of leased facilities within the jurisdiction of a site's FPP.
7. For off-site facilities, verify that the leased building's hazardous materials control areas, as defined in the local jurisdiction's building code, have been documented. When applicable, the lease agreement should specify the way in which the maximum allowable quantities of hazardous materials will be apportioned to the DOE contractor and to any other tenants in the building. Hazardous materials control for leased facilities under the jurisdiction of a site-wide FPP shall be in accordance with Section 5.1.4 of this standard.
8. Verify that all fire protection assessments and ITM records are accessible to the local AHJ, the facility owner, and DOE contractor.
9. Leased facilities should not be used for hazard category 1, 2, or 3 nuclear facilities unless specifically approved by the responsible DOE field element with concurrence from the DOE Central Technical Authority (CTA), and shall meet all construction and operating requirements that a new DOE-owned facility would be required to meet, including the applicable requirements of DOE Standard 1066-2012.

3.9 Portable Fire Extinguishers

The location and type of portable fire extinguishers shall be in accordance with the requirements of NFPA 10. The Tank Operations Contractor (TOC) FPE shall approve initial location and any relocation/removal of portable fire extinguishers.

1. Portable fire extinguishers shall be conspicuously marked and identifiable.
2. Portable fire extinguishers shall not be obstructed or obscured from view, and clear access to the portable fire extinguishers shall always be maintained.
3. Portable fire extinguishers shall be mounted on hangers or stored in cabinets (except for wheeled types).
4. Fire extinguishers used for hot work shall be supplied by the project. They shall not be removed from a building to support the hot work, except in an emergency.
 - Annual hands-on training shall be provided for employees designated to use a portable fire extinguisher as part of an emergency action plan or a fire watch (such as for a welding/cutting operation).
 - Portable fire extinguishers used for welding/cutting operations are not required to be secured at the location of the welding or cutting.
5. Vehicles/forklifts not being used off road are not required to have a fire extinguisher. If a decision is made to supply a fire extinguisher as a safety precaution, the fire extinguisher shall be maintained in accordance with TFC-ESHQ-FP-STD-04 testing and inspection requirements. Vendor supplied fire extinguishers shall be replaced with fire extinguishers supplied by WRPS Purchasing and tagged by the Hanford Fire Department.
6. Portable fire extinguishers provided for vehicles shall be mounted or otherwise safely secured and shall be readily accessible.
7. Portable fire extinguishers shall be inspected and maintained in accordance with TFC-ESHQ-FP-STD-04:
 - Inspection forms shall be maintained according to TFC-PLN-13.
 - Portable fire extinguishers shall be maintained fully charged and operable at all times and are required to be retested or removed from service before their hydrostatic test date.
 - Immediate corrective action shall be taken for portable fire extinguishers identified as having a deficiency (e.g., empty, not mounted, missing, broken seal, etc.).
8. Employees shall receive general fire extinguisher training as required in TFC-PLN-13. Fire extinguisher training shall emphasize general employee direction in the event of a fire is to evacuate, call 911/373-0911, and attempt use of a fire extinguisher if practicable.

This training is provided:

- On initial employment (received in HGET).
 - Annual refresher training for employees to include a portable fire extinguisher video (received in HGET).
 - Annual hands-on training for employees designated to use a portable fire extinguisher as part of an emergency action plan or a fire watch (such as for a welding/cutting operation).
9. The TOC fire protection engineer shall approve all portable fire extinguisher purchase orders. New Halon fire extinguishers shall not be requested or purchased (in accordance with DOE directive).

3.10 Fire Marshal Permits (5.1.6)

The person in charge of, or planning, the task/job (e.g., construction/building manager, field work supervisor, planner) must ensure that a request is submitted for the applicable Permit. A Permit is required for the activities listed below, as a minimum, before the activity commences or the design is released.

1. A fire permit may be obtained by completing the “Hanford Fire Marshal Permit Request Form. The link to this form is found at <http://msc.ms.rl.gov/firepermit/adm-permitteditor.cfm>. This procedure is found on the Hanford server in the Mission Support Alliance site.
2. Contact TOC Fire Protection for assistance in obtaining a fire permit or requesting information on whether a fire permit is required.

If the work package requires an USQ, the Fire Marshal Permit also requires an USQ. This can be accomplished by obtaining the Permit before the work package USQ review is performed and submitting it as part of the package, or if the work package review was performed without the permit, the FPE will submit the permit for USQ before it is officially issued.

3.10.1 Obtaining a Fire Permit

1. Complete the Hanford Fire Marshal Permit Request Form and submit the Request Form to the TOC Fire Marshal.
2. A minimum of two working days is required for the Hanford Fire Marshal Permit to be issued. If a USQ is required extra time will be required.
3. The Permit must be in place before activities are initiated.

Hot Work Permits are not obtained through the Hanford Fire Marshal’s Office, but the Hanford Fire Marshal’s Office should be notified of the hot work activity as part of the hazard communication effort. (See TFC-ESHQ-FP-C-01 for hot work requirements.)

4. The TOC Fire Marshal will provide approval for permit requests, determine required precautions, and provide hazard communication with the Hanford Fire Department.
5. A copy of the Permit shall be posted or otherwise readily accessible (e.g., work package) at each place of operation. The copy may also be carried by the Permit Holder.
6. The Permit Holder is responsible for implementing and ensuring requirements are adhered to.
7. Attachment B provides a checklist for occupancy permits to be used at the discretion of the facility FPE. Use this permit prior to issuing an occupancy permit for all new or modified buildings or structures, relocated buildings or structures, or buildings or structures turned over to WRPS by another contractor.

Buildings and structures include relocatable structures such as tents, greenhouses, connex boxes, hazardous material storage lockers, construction trailers, and similar non-permanent structures.

3.10.2 Activities Requiring a Fire Marshal Permit (5.1.7)

Item	REQUIREMENT	SOURCE
1. *	Automatic Suppression System - The installation, modification, or permanent deactivation of automatic suppression systems.	NFPA 1 (2012); Table 1.12.8(a)
2.	Chemicals – Greater than the quantities listed in Attachment A. Exception – The Analytical Laboratory facilities operating in compliance with NFPA 45 are exempted from this item due to equivalent compliance.	NFPA 1 (2012); Table 1.12.8 (a), (b), (c), & (d)
3.	Combustible Material Storage – To store more than 2,500 ft ³ gross volume	NFPA 1 Table 1.12.7(a)
4. *	Compressed Gas – Storage, handling, or use of compressed gases. Installation or modification of any compressed gas system. The amounts requiring a permit are listed in Attachment A relative to the specific hazard of the gas (e.g., flammable, etc.). NOTE: This includes liquid petroleum (LP) gas (over 120 gallon water capacity) installation or modification of the system, use, or storage location. Exception: The Analytical Laboratory facilities operating in compliance with NFPA 45 are exempted from this item due to equivalent compliance.	NFPA 1: Table 1.12.7(a)
5. *	Construction/Demolition - New construction projects; modifications to, or relocation of, existing facilities/structures; and demolition of facilities and structures or portions thereof.	NFPA 1: 1.14

Item	REQUIREMENT	SOURCE
6.	<p>Cutting and Welding (Designated Area) – Designated cutting and welding operations. (TFC-ESHQ-FP-C-01 for requirements)</p> <p>NOTE: Permit is issued annually. If the area is to be continued as a Designated Hot Work Area, the FPE will require notification for walk down before renewal will be issued.</p>	NFPA 1: Table 1.12.7(a)
7.	<p>Exhibit & Trade Shows - When these activities are conducted within the Hanford Site.</p>	NFPA 1: Table 1.12.7(a)
8. *	<p>Explosives – Includes purchase, sell, disposal, use, possession, storage, or transportation of explosive by or for the TOC.</p>	NFPA 1: Table 1.12.7(a)
9. *	<p>Fire Alarm and Detection Systems - The installation, modification, or permanent deactivation of fire alarm and detection systems and related equipment.</p>	NFPA 1: Table 1.12.7(a)
10.	<p>Fire Hydrants and Water Control Valves- The installation, modification, or deactivation of a fire hydrant or use for non-fire protection purposes.</p> <p>NOTE: The permitting of this activity is done through the Hanford Water Utilities’ Office with concurrence by the Hanford Fire Marshal’s Office.</p>	NFPA 1; Table 1.12.7(a)
11. *	<p>Flammable and Combustible Liquids –</p> <ul style="list-style-type: none"> • Installation, storage, use, handling, or transportation of Class I and Class II flammable liquids or Class III combustible liquids. (See Attachment A) • To install, alter, clean, repair, line with a protective coating, remove, abandon, place temporarily out of service, or otherwise dispose of a flammable or combustible liquid tank 	NFPA 1: Table 1.12.7(a)
12. *	<p>Portable Heaters – To use any portable heater in any TOC facility or area. Heaters shall be NRTL listed, maintained an adequate distance from combustibles, and used in accordance with manufacturer’s instructions. (USQ required on all units used in a nuclear facility or radiologic area.) This requirement applies to:</p> <ul style="list-style-type: none"> • Electric Portable Heaters: Greater than 1500 watts. • Fuel Fired Portable Heaters: All fuel fired (compressed gas or diesel) portable heaters. 	TFC-ESHQ-FP-STD-01; 3.2.3 and 3.3

Item	REQUIREMENT	SOURCE
13.	General Storage – To store materials indoors or outdoors, representing a broad range of combustibles, including plastics, rubber tires, and roll paper	NFPA 1, Table 1.12.7 (a)
14. *	Hazardous Materials – To store, transport on site, dispense, use, or handle hazardous materials in excess of the amounts listed in Attachment A.	NFPA 1, Table 1.12.7(a)
15. *	Industrial Ovens - Operation of industrial ovens and furnaces.	NFPA 1; Table 1.12.7(a)
16.	Membrane Canopies, Structures, and Tents – To erect or operate an air-supported membrane structure or any tent/structure having an area in excess of 200 ft ² or a canopy in excess of 400 ft ² . (See Section 3.1.5, items 12 through 14) Membrane material shall meet NFPA 701 testing requirements. Documentation shall be made available upon request.	NFPA 1; Table 1.12.7(a)
17.	Occupancy - The use and occupancy of a new facility and the re-occupancy or change of use and occupancy of an existing facility, including portable structures. <ul style="list-style-type: none"> • All mobile units (e.g., conex boxes, office trailers, construction trailers, hazardous storage units, cargo containers, etc.) require a number. NFPA 1: 1.12.20(a) Before the occupancy permit is requested, get the number assigned in accordance with MSC-PRO-2827. • Attachment B, Occupancy Permit Checklist, shall be completed prior to issuing an occupancy permit. 	NFPA 1; 10.3
18.	Open Burning/Fires – All open burning and fires have to meet the safeguards of the issued Permit.	NFPA 1; Table 1.12.7(a)
19.	Other - Other activities not meeting one of these distinct categories yet falling under the scope of NFPA 1 permitting requirements	NFPA 1; Table 1.12.7(a)
20.	Tar Kettles – To place a tar kettle, a permit must be obtained prior to the placement of a tar kettle.	NFPA 1; Table 1.12.7(a)
21.	Torch-Applied Roofing Systems – For the use of a torch for application of roofing materials.	NFPA 1; Table 1.12.7(a)

*Permits requiring an USQ evaluation ALL the time.

NOTE: All Permits authorizing an activity in a nuclear facility require a USQ evaluation.

4.0 DEFINITIONS

Construction.

1. Construction does not include “routine” work.
2. Construction does include any building structure/trailer (walls, ceiling fixtures, HVAC, Fire Protection System) new project, modification, relocation, or deactivation/demolition.
3. This does not include wire runs or piping runs other than for fire protection. The focus is to ensure that Fire Protection and Life Safety Features (systems, exits, egress paths, etc.) are not impacted. Any question about the activities impact should be discussed with the TOC FPE.
4. Construction does include erection of any structure larger than a set of trailer entry steps.

Combustible material (NFPA 1 (2012 Edition), Section 3.3.57). A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn; a material that does not meet the definition of noncombustible or limited-combustible.

Limited-combustible material (NFPA 5000™ (2012 Edition), Section 4.5.10). Building construction material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), where tested in accordance with NFPA 259 and includes: (1) materials having a structural base of noncombustible material with a surfacing not exceeding a thickness of 1/8 in. (3.2 mm) that has a flame spread index not greater than 50; and (2) materials, in the form and thickness used, other than as described in (1), having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion.

Noncombustible material (NFPA 5000™, Section 3.3.340.11). A material that, in the form in which it is used and under the conditions anticipated will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136 are considered noncombustible materials.

Nuclear facility:

204-AR	222-S	242-A
242-S	242-T	244-AR
A-Tank Farm	AN-Tank Farm	AP-Tank Farm
AW-Tank Farm	AX-Tank Farm	AY-Tank Farm
AZ-Tank Farm	B-Tank Farm	BX-Tank Farm
BY-Tank Farm	C-Tank Farm	S-Tank Farm
SX-Tank Farm	SY-Tank Farm	T-Tank Farm
TX-Tank Farm	TY-Tank Farm	U-Tank Farm

5.0 SOURCES

5.1 Requirements

- 5.1.1 10 CFR 851, “Worker Safety and Health Program.”
- 5.1.2 29 CFR 1926, “OSHA Construction Industry Regulations.”
- 5.1.3 DOE O 420.1C, “Facility Safety.”
- 5.1.4 DOE STD 1066-2012, “Fire Protection.”
- 5.1.5 MGT-ENG-IP-05 R3, “Fire Protection Program.”
- 5.1.6 NFPA 1, “Fire Code®.”
- 5.1.7 NFPA 70, “National Electrical Code®.”
- 5.1.8 NFPA 101, “Life Safety Code®.”
- 5.1.9 NFPA 801, “Standard for Fire Protection for Facilities Handling Radioactive Materials.”

5.2 References

- 5.2.1 29 CFR 1910, “OSHA General Industry Regulations.”
- 5.2.2 HNF-12125, “222-S Laboratory Documented Safety Analysis.”
- 5.2.3 HNF-14755, “242-A Evaporator Documented Safety Analysis.”
- 5.2.4 Hanford Fire Department Standard Operating Policy 4.10, “Deactivation of Facility Fire Protection Features.”
- 5.2.5 MSC-PRO-FPROP-2827, “Facility and Mobile Office Number Management.”
- 5.2.6 MSC-RD-FP-8589, “Hanford Fire Marshal Permits.”
- 5.2.7 NFPA 10, “Standard on Portable Fire Extinguishers.”
- 5.2.8 NFPA 45, “Standard for Fire Protection of Laboratories Using Chemicals.”
- 5.2.9 NFPA 241, “Standard for Safeguarding Construction, Alteration, and Demolition Operations.”
- 5.2.10 NFPA 259, “Test Method for Potential Heat of Building Materials.”
- 5.2.11 NFPA 701, “Standard Methods of Fire Tests for Flame-Resistant Textiles and Films.”
- 5.2.12 NFPA 1141, “Fire Protection in Planned Building Groups.”
- 5.2.13 NFPA 1144, “Standard for Reducing Structure Ignition Hazards from Wildland Fire.”

Fire Marshal Permits, Combustible Controls, and Construction/Occupancy Requirements	Manual Document Page Issue Date	ESHQ TFC-ESHQ-FP-STD-01, REV C-8 23 of 36 August 6, 2020
--	--	---

- 5.2.14 NFPA 5000, “Building Construction and Safety Code®.”
- 5.2.15 RPP-13033, “Tank Farms Documented Safety Analysis.”
- 5.2.16 TFC-ESHQ-EP-C-01, “Emergency Management.”
- 5.2.17 TFC-ESHQ-FP-C-01, “Controls for Safe Hot Work.”
- 5.2.18 TFC-ESHQ-FP-STD-03, “Flammable/Combustible Liquids.”
- 5.2.19 TFC-ESHQ-FP-STD-04, “Fire Protection System Inspection, Testing, Maintenance, and Discrepancies Management.”
- 5.2.20 TFC-ESHQ-FP-STD-06, “Fire Hazard Analysis and Fire Protection Assessment Requirements.”
- 5.2.21 TFC-ESHQ-FP-STD-13, “Fire Protection Requirements for Hazardous Material and Used Waste Absorbing Material Storage.”
- 5.2.22 TFC-ESHQ-S-STD-25, “Storing, Using, Handling, and Transporting Compressed and Liquefied Gases.”
- 5.2.23 TFC-OPS-MAINT-C-01, “Tank Operations Contractor Work Control.”
- 5.2.24 TFC-PLN-13, “Fire Protection Program.”
- 5.2.25 TO-600-300, “Perform Closeout Inspection in Evaporator Room and Pump Room.”

ATTACHMENT A - OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS MATERIALS

Chemical	Definition/Description	Minimum Amount Requiring Permit
Carcinogen	<p>A substance that causes the development of cancerous growths in living tissue. A chemical is considered to be a carcinogen if:</p> <ul style="list-style-type: none"> • It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen, or • It is listed as a carcinogen or potential carcinogen in the latest edition of the Annual Report on Carcinogens published by the National Toxicology Program, or • It is regulated by OSHA as a carcinogen. <p>Examples: Asbestos, benzene, beryllium, carbon tetrachloride, chloroform, diazomethane, P-dioxane, ethylene dichloride, and vinyl chloride.</p>	10 pounds
Cellulose Nitrate	(Pyroxylin) is a plastic substance, material, or compound, and cellulose nitrate film.	NFPA 1 (2012), Table 1.12.8 (d) 25 pounds
Combustible Fiber	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.	NFPA 1 (2012), Table 1.12.8 (d) >100 cubic feet
Combustible Liquids	<p>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.</p> <ul style="list-style-type: none"> • CLASS II liquids are those having flash points at or above 100°F and below 140°F. • CLASS III-A liquids are those having flash points at or above 140°F and below 200°F • CLASS III-B liquids are those liquids having flash points at or above 200°F. 	<p>>25 gallons inside</p> <p>>60 gallons outside (except fuel oil used in conjunction with oil burning equipment)</p> <p>Other processing, storage, and uses as determined by NFPA 1, Table 1.12.8(a)</p>

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Corrosive Gases	<p>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.</p> <p>Examples: Ammonia.</p>	<p>NFPA 1 (2012), Table 1.12.8 (b)</p> <p>>200 cubic feet</p>
Corrosive Liquids	<p>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.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>55 gallons</p>
Corrosive Solids	<p>A solid which, when in contact with living tissue, will cause destruction or irreversible alteration of such tissue by chemical action.</p> <p>Examples: Acidic, alkaline, or caustic materials.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>500 pounds</p>
Cryogenics	<p>A fluid that has a normal boiling point below 150°F</p> <p>Examples (flammable): Hydrogen, methane.</p> <p>Examples (oxidizing): Fluorine and liquid oxygen.</p> <p>Examples (corrosive): Fluorine.</p>	<p>NFPA 1 (2012), Table 1.12. 8(c)</p>
Explosives	<ol style="list-style-type: none"> 1. A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperatures, or 2. A material or chemical, other than a blasting agent, that is commonly used or intended to be used for the purpose of producing an explosive effect and is regulated by Article 77. <p>Examples: Dynamite, TNT, nitroglycerine, C-3, C-4, black powder, smokeless powder, propellant explosives, and display fireworks.</p>	<p>Any amount</p> <p>NFPA 1 (2012), Table .12.8(d)</p>

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Flammable Gas	<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> <ul style="list-style-type: none"> • Is ignitable at 14.7 psia when in a mixture of 13 percent or less by volume with air, or • Has a flammable range at 14.7 psia with air of at least 12 percent, regardless of the lower limit. 	<p>200 cubic feet</p> <p>NFPA 1 (2012), Table 1.12.8(a)</p>
Flammable Liquids	<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 include those having flash points below 100°F and are subdivided as follows:</p> <ul style="list-style-type: none"> • Class I-A liquids include those having a flash point below 73°F and having a boiling point below 100°F. • Class I-B liquids include those having a flash point below 73°F and having a boiling point at or above 100°F. • Class I-C liquids include those having a flash point at or above 73°F and below 100°F. 	<p>>5 gal. inside</p> <p>>10 gal. outside</p> <p>Other processing, storage, and uses as determined by NFPA 1 (2012), Table 1.12.8(a)</p>
Flammable Solids	<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, or as, a cloud could be ignited and cause an explosion.</p> <p>Examples (organic): Camphor, cellulose nitrate, and naphthalene.</p> <p>Examples (inorganic): decaborane, lithium amide, phosphorous heptasulfide, phosphorous sesquisulfide, potassium sulfide, anhydrous sodium sulfide and sulfur.</p>	<p>NFPA 1 (2012) Table 1.12.8 (d)</p> <p>100 pounds</p>

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
<p>Highly Toxic Gases, Liquids, and Solids (including pesticides and fumigants)</p>	<p>A material which produces a lethal dose or lethal concentration which falls within any of the following categories:</p> <ul style="list-style-type: none"> • A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each • A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram 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 and 3 kilograms each • A chemical that has a median lethal dose concentration (LD50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour, or less if death occurs within an hour, to albino rats weighing between 200 and 300 grams each. <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>	<p>NFPA 1 (2012) Table 1.12.8 (b) or Table 1.12.8 (d)</p> <p>Any amount</p>
<p>Inert and Simple Asphyxiant Gases</p>	<p>An asphyxiant is a substance that can cause unconsciousness or death by suffocation (asphyxiation). Asphyxiants themselves are not toxic materials. They work by displacing so much oxygen from the ambient atmosphere that the hemoglobin in the blood cannot pick up enough oxygen from the lungs to fully oxygenate the tissues. As a result, the victim slowly suffocates.</p> <p>Examples: Nitrogen (N₂), helium (He), neon (Ne), argon (Ar), methane (CH₄), propane (CH₃CH₂CH₃), P-10, and carbon dioxide (CO₂).</p>	<p>NFPA 1 (2012) Table 1.12.8 (a)</p> <p>6,000 cubic feet</p>

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Irritant Liquids	An irritant is a substance which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. Examples: Diphenylaminechloroarsine, xylyl bromide, and chloracetophene.	55 gal.
Irritant Solids	An irritant is a substance which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.	500 pounds
Irritant Gases	An irritant is a substance which is not corrosive but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.	200 cubic feet
Liquefied Petroleum Gases	A material that is composed predominantly of the following hydrocarbons or mixtures of them: propane, propylene, butane (normal butane or isobutene) and butylenes.	NFPA 1 (2012) Table 1.12.8 (d) >120 gal. (water capacity)
Magnesium	The pure metal and alloys of which the major part is magnesium.	>10 pounds
Nitrate Film	See explosive materials - not in general use today.	Any amount
Oxidizing Gases	A material other than a blasting agent or explosive that irritates or promotes combustion other materials, thereby causing fire either of itself or through the release of oxygen or gases. Examples: oxygen, ozone, oxides of nitrogen fluorine and chlorine.	NFPA 1 (2012) Table 1.12.8 (b) 504 cubic feet
Oxidizing Liquids	Same as above. Examples: bromine, hydrogen peroxide, nitric acid, perchloric acid, sulfuric acid.	NFPA 1 (2012), Table 1.12.8 (d) Class 4 - any amount Class 3 - 1 gal. Class 2 - 10 gal. Class 1 - 55 gal.

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Oxidizing Solids	<p>A material other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.</p> <p>Examples: chlorates, chromates, chromic acid, iodine, nitrates, perchlorates, peroxides.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>Class 4 - Any amount</p> <p>Class 3 - 10 pounds</p> <p>Class 2 - 100 pounds</p> <p>Class 1 - 500 pounds</p>
Organic Peroxide Liquids and Solids	<p>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 can be shock sensitive. They can also decompose into various unstable compounds over an extended period of time.</p> <p>Examples:</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>NFPA 1 (2012), Table 1.12.8 (b)</p> <p>Class I - Any amount</p> <p>Class II - Any amount</p> <p>Class III - 10 pounds</p> <p>Class IV - 20 pounds</p>

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Other Health Hazards	<p>A hazardous material which affects target organs of the body, including, but not limited to, those materials which produce liver damage, kidney damage, damage to the nervous system, act on the blood to decrease hemoglobin function, deprive the body tissue of oxygen, or affect reproductive capabilities, including mutations (chromosomal damage) or teratogens (effects on fetuses).</p> <p>Examples: carbon tetrachloride, nitrosamines, halogenated hydrocarbons, uranium, mercury, carbon disulfide, carbon monoxide, cyanides, silica, asbestos, lead, PBCP.</p>	<p>Liquids - 55 gal.</p> <p>Solids - 500 pounds</p>
Pyrophoric Gases	<p>A material that will spontaneously ignite in air at or below a temperature of 130°F.</p> <p>Examples: diborane, phosphine, silane.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>Any amount</p>
Pyrophoric Liquids	<p>A material that will spontaneously ignite in air at or below a temperature of 130°F.</p> <p>Examples: diethyl aluminum chloride, diethyl beryllium, diethyl phosphine, diethyl zinc, dimethyl arsine, triethyl aluminum etherate, triethyl bismuth, triethyl borane, trimethyl aluminum and trimethyl gallium.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>Any amount</p>
Pyrophoric Solids	<p>A material that will spontaneously ignite in air at or below a temperature of 130°F.</p> <p>Examples: cesium, hafnium, lithium, white or yellow phosphorus, plutonium, potassium, rubidium, sodium and thorium.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>Any amount</p>
Sensitizer Liquids	<p>A material that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.</p>	55 gal.
Sensitizer Solids	<p>A material that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.</p>	500 pounds

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Sensitizer Gases	A material that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.	200 cubic feet
Toxic Gases	<p>A material which produces a lethal dose or a lethal concentration within any of the following categories:</p> <ul style="list-style-type: none"> • A material that has a median lethal dose (LD50) 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. • A material that has a median lethal dose (LD50) 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. • A material that has a median lethal concentration (LD50) in air 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>Examples: arsine, cyanogen, diborane, fluorine, germane, hydrogen cyanide, nitric oxide.</p>	<p>NFPA 1 (2012), Table 1.12.8 (b)</p> <p>Any amount</p>
Toxic Liquids	<p>Same as above.</p> <p>Examples: acrolein, acrylic acid, hydrazine, hydrocyanic acid, tromethane, tetraethylstannane.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>10 gal.</p>

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS
MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Toxic Solids	Same as above. Examples: phenylmercury, arsenic pentoxide, calcium cyanide, aflatoxin B, barium chloride, cadmium chloride, chromium oxide, mercury chloride.	NFPA 1 (2012), Table 1.12.8 (d) 100 pounds
Unstable (Reactive) Gases	A material, other than an explosive, which, in the pure state or as commercially produced, will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor or in the presence of contaminants or in contact with non-compatible materials.	NFPA 1 (2012), Table 1.12.8 (d) Class 4 - Any amount Class 3 - Any amount Class 2 - 50 pounds Class 1 - 100 pounds
Unstable (Reactive) Liquids	A material, which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature. Examples: Class 4 – acetyl peroxide, dibutyl peroxide, dinitrobenzene, ethyl nitrate, peroxyacetic acid, trinitrobenzene. Class 3 – hydrogen peroxide >52%, hydroxylamine, paranitroaniline, perchloric acid. Class 2 – acrolein, acrylic acid, hydrazine, methacrylic acid, sodium perchlorate, styrene. Class 1 – acetic acid hydrogen peroxide 35% to 52%, paraldehyde, tetrahydrofuran.	NFPA 1 (2012), Table 1.12.8 (d) Class 4 - Any amount Class 3 - Any amount Class 2 - 5 gal. Class 1 - 10 gal.

ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS MATERIALS (cont.)

Chemical	Definition/Description	Minimum Amount Requiring Permit
Water Reactive Liquids	<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>Examples:</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>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>Class 3 - Any amount</p> <p>Class 2 - 5 gal.</p> <p>Class 1 - 10 gal.</p>
Water Reactive Solids	<p>Same as above.</p>	<p>NFPA 1 (2012), Table 1.12.8 (d)</p> <p>Class 3 - Any amount</p> <p>Class 2 - 50 pounds</p> <p>Class 1 - 100 pounds</p>

ATTACHMENT B - OCCUPANCY PERMIT CHECKLIST

Building:			Date:	
Occupancy:		FPE:		
Item/Inspection Criteria	Yes	No	N/A	Comments/Deficiencies
Identification				
Facility Identified per MSC-RD-10606				
Identification Visible from Street				
Construction				
Building Construction Complete				
Electrical Inspected				
Structural Inspected (Balance of Facilities Design Authority)				
Construction/Design Drawings				
Approved ECN				
Design Meets Approved ECN				
As-Built Drawings: Status				
Portable Fire Extinguishers				
Mounted (Red/White Backer Board)				
HFD Bar-Code				
Inspection Tag				
Operable				
Fire Protection Systems (Active)				
Suppression Systems				
Type of System				
Certificate of Completion				
Backflow Preventer				
In Service				
Alarm Systems				
ATP Complete				
In service				
Fire Protection Systems (Passive)				
Fire Barrier Wall Meets Approved Design (UL, AGA, or approved equ)				
Fire Doors and Hardware in Place, Listed, Operable				
Fire Wall Penetrations Sealed				

ATTACHMENT B - OCCUPANCY PERMIT CHECKLIST (cont.)

Item/Inspection Criteria	Yes	No	N/A	Comments/Deficiencies
Life Safety Review Complete (including, but not limited to)				
Appropriate Signs Installed (exit, no exit, etc.)				
Exit Path Unobstructed, Illuminated				
Exit Discharge Stairs/Handrails and Landing Compliant				
Exit Path Identified				
Emergency Lighting				
Provided				
Operable				
Illuminates Exit Path				
Pre-Incident Plan				
In Place				
Accurate				
Current				
Point of Contact Person				
Assigned				
Trained				
Emergency Building Access				
Unobstructed				
Emergency Response Information (Ref: TFC-ESHQ-EP-C-01)				
Facility Emergency Response Information Boards in Place				
Evacuation Routes Identified				
Staging Areas Identified (Signs in place)				
Emergency/Shift Office Numbers Listed				
Utility Disconnect Information Listed				
Building Hazards/Hazards from Nearby Facilities				
Emergency Signals/Response Actions				
Building Emergency Director/Building Warden Assigned				

ATTACHMENT B - OCCUPANCY PERMIT CHECKLIST (cont.)

Item/Inspection Criteria	Yes	No	N/A	Comments/Deficiencies
Security				
Asset Protection Agreement (APA) in place				
Medco key system, proxy system, etc... installed				
Wildfire Exposure				
Defensible Space Adequate (NFPA 1144)				
Relocatable Structures				
Site Selection Committee Approval				
Exposures?				
Stairs/Landings/Hand-Guardrails?				
Skirting (Modular/Trailers Only)?				
NFPA 701/ASTM E-84 Compliant (Fabric Covered Structures)?				
Steel Structure (Fabric Covered Structures)?				
Anchored/Foundation?				
Suppression System?				
Building/Structure Number?				