

Excerpt from: Conceptual Fire Hazard Analysis, CD-1, Document No.: SRW-50.04-10-001, Revision A, July 2010

The K-Area will be provided with a dedicated, looped, underground Fire Water Supply System (FWSS). The FWSS will be provided with one (1) electric-driven and one (1) diesel-driven fire pump, each rated at 2,500gpm at 140psi. They take suction from a 500,000-gallon, on-grade fire protection water tank. The fire pumps discharge into a 12" un-looped underground piping network. The fire water tank and Pumphouse are located south of the PIDAS. A new (redundant) firewater tank and Pumphouse are planned to be constructed on the west side of the 105-K building. The existing FWSS system design includes a total of 27 fire hydrants strategically located throughout the KAC.

S&P/PuP will be equipped using two (2) automatic fire suppression system types. The fire suppression system types will be FM-200 Gaseous Fire Suppression in areas where Safety Class suppression is required by the DSA. These systems shall be designed and installed to meet NFPA 2001, *Standard on Clean Agent Fire Suppression Systems*.

Fire Suppression is required in all Material Storage Areas and the receiving dock areas. The fire suppression system types to be utilized will be automatic water-based fire suppression using NFPA 13, *Installation of Automatic Sprinkler Systems* or NFPA 750, *Standard on Water Mist Systems* depending on the system classification and the area hazards. The proposed safety classification for these areas will be Safety Significant except in the NDA/Shuffler room and the CRT/CPA area where it has been determined that the fire suppression system will be designated as Safety Class system because the MAR in conjunction with the combustible loading.

All areas used for PDC will be required to be protected by fire suppression per DOE 420.1B, *Facility Safety*. Depending on the type of systems installed the system will either be required to be installed per NFPA 13, *Installation of Automatic Sprinkler Systems* or NFPA 750, *Standard on Water Mist Systems*. The suspected functional classifications of the areas will be SS.

FM-200 systems are to be switched over to a water-based fire suppression system in Phase 2 for the S&P/PuP areas and Material Storage Areas which are required in Phase 1A and Phase 1B. The areas in Phase 1A and Phase 1B will also have the piping for the water-based suppression system installed for convenience but will not be activated or functional until Phase 2 when the sand filter comes on line.

All support facilities will have an NFPA 13, *Installation of Automatic Sprinkler Systems* compliant wet-pipe fire suppression system installed which will be fed from the KAC Fire Water System. It is suspected that the fire sprinkler systems used to protect the fan house and diesel generator buildings will be designated as Safety Significant Systems.

APPENDIX K – USE OF F/H LABORATORY STRATEGY

F/H Lab - all of the renovation scope is in 772-F; this facility currently meets the requirements of the standard. Accordingly, major upgrades to the 772-F fire detection and suppression system will not be required. New gloveboxes will require installation of fire detection and/or suppression in accordance with the standard, but no further upgrade requirements are expected. Specific requirements to comply with the standard will be evaluated during conceptual design.