Background

The Naval Research Laboratory (NRL) has a requirement for installation of a fire protection system in an Anechoic Chamber facility. The chamber is a testing site which is used to measure antenna characteristics and radar system performance levels over a frequency range of 1 - 100 GHz. The facility allows year-round testing which simulates a free-space environment. This is achieved with the placement of microwave absorbing material on all exposed walls inside the chamber. The chamber measures approximately 20' (width) x 17' (height) x 30' (length) and a control room measuring approximately 20' (width) x 8' (height) x 10' (length). The water tie in point, for the fire protection system, is located approximately 3 feet off the ground and approximately 40 feet from the chamber and requires interfacing into a 6 inch main. The water pressure at the point of connection for the sprinkler system is typically approximately 135 psi (pounds per square inch).

Fire Protection

1.0 The contractor shall comply with all codes and regulations set forth in NRL 5101.3C Fire Safety and Anechoic Chamber Operations Manual (Attachment 2) and any other applicable local Navy requirements. The contractor shall provide the government with a manufacturers Material Safety Data Sheet (MSDS) for all materials used. All anechoic chamber absorber, that may have to be installed must meet NRL 5101.3C and have had a period of at least 6 months (post manufacturing) to off-gas organic vapors.

2.0 The chamber and its contents shall be protected from fire hazards by the use of a pre-action telescoping sprinkler system. The design of the fire protection system shall be configured such that the detection of any possible combustion inside the chamber shall generate visual and audible alarms in the control room and surrounding areas.

3.0 The fire detection system shall consist of 3 separate stages.

3.1 The first stage must consist of the initial detection with visual and audible alarms.

3.2 The second stage must involve the use of telescoping sprinkler heads. After a period of 30-60 seconds from the start of the initial alarm sequence, the telescoping heads will drop into the chamber and fill with water through the action of the pre-action system.

3.3 In the third stage, the sprinkler heads must disperse the water into the chamber once the heat of the fire melts the fusible links. Once the links are melted, the heads will deluge the chamber cavity with water.

4.0 The contractor shall provide an abort switch to stop the pre-action sequence should there be a false alarm situation. The abort switch shall only prevent the staging from taking place as long as it is continually depresses and until the fire detection system can be reset.

5.0 The fire alarm panel shall be located in the control room area and integrated into the host buildings fire alarm system located in Bldg. A-59. A combination of ionization and photoelectric beam type smoke detectors shall be located in the ceiling of the chamber to detect the presence of smoke.

6.0 The telescoping sprinkler heads are only required in the anechoic chamber area. OSHA approved or UL approved sprinkler heads shall be utilized in the control room area.

7.0 The Contractor shall provide a standard commercial warranty.

8.0 The required delivery time is no later than 30 days after receipt of order.