



### PRODUCT BULLETIN - SUPPLEMENT

#### WHAT ARE THE REQUIREMENTS OF THE AIR FORCE T.O. 1-1-3 CONCERNING FUEL CELL ENTRY AND HOW CAN THE LIFE•LINE SYSTEM MEET THOSE REQUIREMENTS?

##### AIR FORCE T.O. 1-1-3

The Air Force's Aircraft Fuel Tank/Cell Entry Requirements, paragraphs 2-27(5)(a) through (d), specifically discuss the attendant requirements (liabilities) and training. The standard requires that:

*&2-27(5)(a) The Entry Authority or Designated Alternate shall provide a fully qualified Fuel System Repair specialist to act as an attendant for all entries. Attendants will be knowledgeable of the following: the emergency response plan and procedures, proper use of communication equipment procedures for summoning rescue team and the summoning of emergency equipment, recognition of entry behavioral signs of potential exposure caused by chemicals used in the tank, and the duties of an attendant as in 2-29d(5)(b). Under certain exceptional circumstances, other than fuel cell repair specialists may be selected as attendants in accordance with paragraph 2-8j(2).*

Whether monitoring one entry from just outside the confined space, or monitoring several entries from a main monitoring center, attendants must know the hazards involved in each entry. This can be learned in general from the required attendant training, and specifically from the entry permit posted at each confined space entrance. (The Life•line system will even print the appropriate entry permit for each confined space prior to entry.) Life•line will allow the attendant or other supervisory personnel to input specific information about a location into Life•line's software. By simply querying the system, an attendant would be informed about the hazards associated with that area and/or any special equipment or procedures that are needed for a safe entry.

*&2-27(5)(b) The attendant will be stationed at the entrance and remain outside the entered tanks. Duties of the attendant include: monitoring of the activities inside and outside the tank for detection of hazards, monitoring of individuals in the tank for signs of over exposure, limiting entry into the tank to Field Permit authorized personnel only and preventing unauthorized personnel from entering the tank, evacuating all entered tanks in the event of an emergency or other hazardous situations within or outside the tank(s) which would endanger the entrant(s), evacuating the tank for any condition which would cause the attendant to focus attention away from the tank, and implementing the Emergency Response plan if needed.*

The attendant at the main monitoring center is able to warn either specific entrants or all entrants to evacuate the permit space(s) immediately with either the global alarm or voice communication feature. The area outside the spaces(s) may be guarded by barriers or by a roving monitor if the area is not in view of the attendant at the main monitoring center.

Life•line is a continuous-monitoring system. The system is designed to prevent hazard exposure, not detect behavioral effects that indicate that a problem has already developed. The gas detection monitor in the confined space is polled approximately every 30 seconds, and the results uploaded to the main monitoring center. The portable Life•line monitor also checks on its user at preset regular time intervals by initiating an audible and visual status query.

The entrant must log his portable Life•line monitor into the system before entering a permit space. The system display indicates the name of the entrant, the specific permit space entered, the time of entry, and the training level accomplished by the entrant. A potential entrant without the training necessary for that particular space will be denied entry. Additionally, a log of all activity (all log-on, log-off and work location changes) is kept as a permanent and printable record within the system and is always available for immediate viewing.

An individual standing outside a permit entry space cannot carry out this requirement with nearly the effectiveness of the Life•line monitoring system. The communications capability of Life•line are far in excess of what is required by Air Force T.O. 1-1-3. The attendant may either communicate with the "global alarm" feature which sends an evacuation alarm to all users of the system, or he can selectively communicate with the entrants using a voice communication option.

The attendant at the main monitoring center will not enter the permit space. Life•line's training dictates that the attendant shall have no duties other than monitoring the Life•line system. If there is some need for an individual to be in a permit space (as in an emergency rescue), that person would not be the attendant and thus could enter the permit space to attempt a rescue, if qualified and if that was part of the employer's rescue procedure.

*&2-27(5)(c) Attendants may monitor more than one tank entry if capable of performing the duties listed in paragraph 2-29d(5)(b).*

*&2-27(5)(d) The use of electronic or video personnel monitors are encouraged and may reduce the number of attendants required to monitor tank entries. These devices, when used properly, provide nearly continuous monitoring of personnel inside large airframe tanks. If used, sufficient attendants to control the area around the space and prevent unauthorized entry will be required. Such devices must meet NFPA requirements for use in Class I environments.*

Continuous monitoring of the entrant enhances the querying process and automatic response capability of the portable Life•line monitor by updating information on the user's status at approximately 30 second intervals. Regardless of the interval of the query period set to interactively check on the user, this continuous monitoring will additionally perform the following functions: respond to a user requesting help; analyze gas concentrations; respond to gas alarms; evaluate battery condition; determine whether the user is within communications range; assess the status of the main monitoring center; respond to voice communication requests; and check for any other equipment failures that could impair the system. This continuous monitoring and automatic response feature is silent to the operator but listening to his every request.

The area outside the spaces(s) may be guarded by barriers or by a roving monitor if the area is not in view of the attendant at the main monitoring center.

The Life•line Portable Monitor is rated intrinsically safe for use in the following hazardous locations: Class I, Groups A, B, C, and D; Class II, Groups E, F and G. The Life•line portable monitor has also obtained an "entity rating" to further expand its use. An intrinsically safe entity rating means that the Life•line portable monitor can be used with other intrinsically safe equipment (such as gas detectors) that also bear an entity rating.