Attachment 11 Emergency Procedures

Insitu Insight A-20 Emergency Procedures

Emergency procedures for the Insight A-20 are resolved via automatic logic and emergency procedure checklists. Portions of the checklists are automated within the Control Station and the Pilot-In-Charge is extensively trained on emergency procedures. The following is a brief overview of the basic safety-related considerations implemented during the execution of the major emergency types.

For this COA request, a shipbased operation, the preset parameters will be updated approximately every 15 minutes depending upon ship speed. All emergency procedures will occur within the approved COA area.

Major Emergency Types & Procedures	
Emergency	**Procedure**
Launch Failures	The UAS is launched in a direction and manner such that, in the unlikely event of a failed launch for any reason, the air vehicle will not incur damage to private or public property or personnel. The launch range is clear of all obstructions to a minimum distance of 300 feet.
Engine Failure	In the unlikely event of an in-flight engine failure, the UAS is immediately directed to a pre-determined flight plan over a designated recovery site – or ditch point. The UAS autonomously flies back and forth over this "emergency runway" until it makes a belly-landing.
Lost Communications / Data Link	If communications are lost with the UAS, the vehicle proceeds via a pre-determined flight path to a predetermined flight plan over its designated emergency site, where it maintains position for a pre-designated period of time. This position is located in the immediate vicinity of the control station, so that while the UAS is holding, additional attempts can be made to re-establish communications with the vehicle. If communications are not re-established, the UAS determines the real-time winds, determines the best emergency runway to use – based upon the winds and other priorities related to the runways that are given to it prior to launch – and then, after all timers have expired, it executes a belly-landing.
Recovery	The recovery flight path direction is predicated upon prevailing winds and obstacles. Should a missed approach occur, the UAS returns to the hold point and attempts another approach to recovery when instructed.
Emergency Hold	An emergency holding location has been established and pre-programmed into the UAS. If any emergency occurs, the UAS is sent to this holding pattern. Should a lost communications condition occur between the UAS and control station, the UAS intercepts a pre-planned route to the emergency hold pattern where an attempt is made to regain control of the communications / data link.
Emergency Landing	Should an autonomous SkyHook recovery not be possible, an emergency landing site will have already been established to recover the UAS.

UAS Health and Status	The UAS transmits the health and status of the air vehicle and its systems to the GCS, and all systems are monitored real-time by the PIC. Should the air vehicle parameters become degraded at any time, the PIC will be notified by both visual and audible alarms, and they will take the appropriate immediate action(s), and initiate emergency procedures as required.

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