Emergency Procedures

Emergency procedures for the ScanEagle are resolved via automatic logic and emergency procedure checklists. The following is a brief overview of basic safety-related considerations implemented during execution of the major emergency types. In each condition, appropriate coordination between ground and aerial observers (Chase Plane), ATC, Emergency Response Agencies (as required) and local air traffic via published frequencies. A listing of emergency response agencies (fire, medical, police/sheriff, etc.) telephone numbers shall be included in all flight operations checklists of Mission Commanders, PICs and observers.

Emergency Procedures

1. Launch Failures:
    The UAV is launched in a manner such that, in the unlikely event of a failed launch for any reason, it is pointed in a safe direction away from personnel, structures, or though-ways.

2. Engine Failures:
    In the unlikely event of an in-flight engine failure, the UAV is immediately directed to a pre-determined flight plan over a designated ditch point. The UAV autonomously flies back and forth over this area until makes a belly landing. For this COA submission, a dirt runway has been cleared and can be secured on both sides to prevent passers-by accessing the runway during an emergency event.

3. Lost Comm/Data Link: (*for greater detail and explanation, see Loss of Link attachment*)
    If communications are lost with the UAV, the vehicle proceeds via a pre-determined flight path to its designated emergency hold point where it maintains position for a pre-designated period of time. This hold point is located in the immediate vicinity of the GCS, so that while the UAV is holding, additional attempts can be made to re-establish communications with the vehicle. If communications are not re-established, the UAV determines the real-time winds, determines the best direction to approach the pre-designated ditch point and executes a belly landing on the emergency ditch point.

4. Recovery:
    The recovery flight path is predicated on prevailing winds. Should a missed approach occur, the UAV returns to the hold point and attempts another approach to recover when commanded to do so.

5. Emergency Hold:
    An emergency holding pattern location has been established and pre-programmed in to the UAV. If any emergency occurs, the UAV is sent to the holding pattern. Should a lost communications condition occur between the UAV and the GCS, the UAV intercepts a pre-planned route to the emergency hold pattern where an attempt is made to control of the communications/data link.

6. Emergency Landing:
    Should an autonomous Skyhook recovery not be possible, an emergency ditching site will have already been established to recover the UAV; one that poses a minimal hazard to all personnel.

7. Observers :
    Observers, both Ground Observers (GO) and Aerial Observers (AO), positioned via a Chase Plane, are present for all flight operations, and have direct two-way radio communications to the Pilot in Command (PIC) of the aircraft in the GCS. Both the PIC, GO, and AO hold Class II FAA Medical Certificates and are trained/tested in applicable items of FAR part 91. The GO and AO continuously monitor the UAV and scans the surrounding air space for other aircraft, providing see an avoid capability for all the UAV operations in the desired area. Aerial Observers will have redundant means of communication aboard the Chase Plane and will be able to communicate directly with ATC/FSS/Local Traffic if a communication failure occurs.

8. UAV health and status:
    The UAV transmits health and status of the air vehicle and it's systems to the GCS, and all systems are monitored real-time by the UAV operator. Should the air vehicle parameters become degraded at any time, the operator will be notified by both visual and audible alarms, and will make appropriate immediate actions, initiating the emergency procedures as required.