



NG-LLC Mishap Response Plan.

Revision 1.0

1. Mishap response regulatory requirements

Paul T Breed or alternatively Paul A Breed will be the point-of-contact and alternate for all activities associated with accidents, incidents, or other mishaps related to operations at the 2007 Xprize Cup. He will:

- Represent Unreasonable Rocket as a member of the Emergency Response Team (ERT) and support the Holloman AFB Emergency Response Coordinator (ERC) by participating in the activities of the ERT during accidents, incidents, or mishaps.
- Ensure that the consequences of a mishap are contained and minimized.
- Assure that all data and physical evidence related to any accident, incident, or mishap is impounded to preclude loss of information essential to subsequent investigations.
- Identify and adopt preventive measures for avoiding recurrence of the event.
- Through the Spaceport ERC, report to and cooperate with FAA and National Transportation Safety Board (NTSB) investigations and act as the vehicle operator point of- contact for the FAA and NTSB.

2. Preflight Briefings

Before flying the vehicle the emergency responders should be briefed so there are no false alarms and the emergency responders have a clear idea of how to respond. Emergencies are a time of high stress and Unreasonable Rocket feels that such plans should be operationally very simple.

2.1. Briefing outline

- 2.1.1. During normal operation it is expected that we will have flames, dust and smoke from around the base of the vehicle during both take off and landing. This is normal.
- 2.1.2. If the vehicle is pressurized it is a hazard and has the potential to explode. Do not approach.
- 2.1.3. If the vehicle is un-pressurized it may burn, but is unlikely to explode.
- 2.1.4. If the telemetry link is intact the unreasonable Rocket operator will be able to tell you if it is pressurized.
- 2.1.5. If the telemetry is not intact the pressurization state can be determined remotely by viewing the vent caps.
- 2.1.6. The vent caps are operated by the separate flight abort system using COTS RC equipment.
- 2.1.7. The vehicle uses Ethanol for the fuel and Ethanol burns with a clear flame.

3. Mishaps

3.1.Preflight or post flight propellant spill.

Unreasonable Rocket uses Liquid oxygen and ethanol for our propellants. The response to a spill is the same for both propellants, stand back and let it evaporate.

3.2.Pressurant leak

Unreasonable Rocket uses Helium and Nitrogen for pressurants. Our pressurant storage bottles are DOT rated and a pressurant leak is a non event. This should require no action from the emergency response team.

3.3.Loss of data - unable to determine the status of vehicle

In the case of data loss the Unreasonable Rocket team will command the abort vents open and these can be visually verified as open from a distance. Once the vents are confirmed as open the vehicle is safe to approach.

3.4.Explosion on the pad w/ loss of data

The Unreasonable Rocket team will command the abort vents open and these can be visually verified as open from a distance. Once BOTH vents are confirmed as open the vehicle is safe to approach and emergency response team can approach and use normal fire fighting procedures to extinguish and remaining fire.

If the vehicle is physically in separate pieces it is constructed so any separation of components will vent all of the tanks. It is extremely unlikely (I'll never say anything is impossible) that any separated components can retain hazardous pressures.

3.5.Hard abort off pad landing w/ loss of data.

Hard abort off pad landing w/ explosive release etc.

The Unreasonable Rocket team will command the abort vents open and these can be visually verified as open from a distance. Once BOTH vents are confirmed as open the vehicle is safe to approach and emergency response team can approach and use normal fire fighting procedures to extinguish and remaining fire. If the vehicle is upside down it may be difficult to determine the vent status. If the vehicle is physically in separate pieces it is constructed so and separation of components will vent all of the tanks. If any pair of the tank sets is physically separated from the vehicle it is depressurized and safe to approach. Unreasonable Rocket recommends the following decision tree:

Unreasonable Rocket Mishap Response Flowchart.

