the launch safety rules must identify the conditions under which the flight safety system, including the functions of the flight safety system crew, must terminate flight to ensure public safety. These flight termination rules must implement the flight safety analysis of subpart C of this part and include each of the following:

(1) The flight safety system must terminate flight when valid, real-time data indicate the launch vehicle has violated any flight safety limit of §417.213;

(2) The flight safety system must terminate flight at the straight-up-time required by §417.215 if the launch vehicle continues to fly a straight up trajectory and, therefore, does not turn downrange when it should;

(3) The flight safety system must terminate flight when all of the following conditions exist:

(i) Real-time data indicate that the performance of the launch vehicle is erratic;

(ii) The potential exists for the loss of flight safety system control of the launch vehicle and further flight has the potential to endanger the public.

(4) The flight termination rules must incorporate the data-loss flight times and planned safe flight state of §417.219, including each of the following:

(i) The flight safety system must terminate flight no later than the first data-loss flight time if, by that time, tracking of the launch vehicle is not established and vehicle position and status is unknown; and

(ii) Once launch vehicle tracking is established and there is a subsequent loss of verified tracking data before the planned safe flight state and verified tracking data is not received again, the flight safety system must terminate flight no later than the expiration of the data-loss flight time for the point in flight that the data was lost.

(5) For any gate established under §417.217, both of the following apply:

(i) The flight safety system must terminate flight if the launch vehicle is performing erratically immediately prior to entering the gate.

(ii) The flight termination rules may permit the instantaneous impact point or other tracking icon to cross the gate only if there is no indication that the launch vehicle's performance has become erratic and the launch vehicle is either flying parallel to the nominal trajectory or converging to the nominal trajectory.

(6) For any hold-and-resume gate established under §417.218;

(i) The flight safety system must terminate flight if the launch vehicle is performing erratically immediately prior to entering a hold gate.

(ii) The flight termination rules may permit the instantaneous impact point or other tracking icon to cross a hold gate only if there is no indication that the launch vehicle's performance has become erratic and the vehicle is either flying parallel to the nominal trajectory or converging to the nominal trajectory.

(iii) The flight termination rules of paragraphs (d)(1), (d)(3), and (d)(4) of this section apply after the instantaneous impact point or other tracking icon exits a resume gate.

(e) *Flight safety system safing.* For a launch that uses a flight safety system, the launch safety rules must ensure that any safing of the flight safety system occurs on or after the point in flight where the flight safety system is no longer required by §417.107(b).

(f) *Launch crew work shift and rest rules.* For any operation with the potential to have an adverse effect on public safety, the launch safety rules must ensure the launch crew is physically and mentally capable of performing all assigned tasks. These rules must govern the length, number, and frequency of work shifts, including the rest afforded the launch crew between shifts.

### §417.115 Tests.

(a) *General.* All flight, communication, and ground systems and equipment that a launch operator uses to protect the public from any adverse effects of a launch, must undergo testing as required by this part, and any corrective action and re-testing necessary to ensure reliable operation. A launch operator must—

(1) Coordinate test plans and all associated test procedures with any launch

site operator or local authorities, as required by local agreements, associated with the operation; and

(2) Make test results, test failure reports, information on any corrective actions implemented and the results of re-test available to the FAA upon request.

(b) *Flight safety system testing.* A launch operator must only use a flight safety system and all flight safety system components, including any onboard launch vehicle flight termination system, command control system, and support system that satisfy the test requirements of subpart D of this part.

(c) *Ground system testing.* A launch operator must only use a system or equipment used to support hazardous ground operations identified by the ground safety analysis required by § 417.405 that satisfies the test requirements of paragraph (a) of this section.

**§ 417.117 Reviews.**

(a) *General.* A launch operator must—

(1) Review the status of operations, systems, equipment, and personnel required by part 417;

(2) Maintain and implement documented criteria for successful completion of each review;

(3) Track to completion and document any corrective actions or issues identified during a review; and

(4) Ensure that launch operator personnel who oversee a review attest to successful completion of the review's criteria in writing.

(b) A launch operator must conduct the following reviews:

(1) *Hazardous operations safety readiness reviews.* A launch operator must conduct a review before performing any hazardous operation with the potential to adversely affect public safety. The review must determine a launch operator's readiness to perform the operation and ensure that safety provisions are in place. The review must determine the readiness status of safety systems and equipment and verify that the personnel involved satisfy certification and training requirements.

(2) *Launch safety review.* For each launch, a launch operator must conduct a launch safety review no later than 15 days before the planned day of flight, or as agreed to by the FAA during the application process. This review must determine the readiness of ground and flight safety systems, safety equipment, and safety personnel to support a flight attempt. Successful completion of a launch safety review must ensure satisfaction of the following criteria:

(i) A launch operator must verify that all safety requirements have been or will be satisfied before flight. The launch operator must resolve all safety related action items.

(ii) A launch operator must assign and certify flight safety personnel as required by § 417.105.

(iii) The flight safety rules and flight safety plan must incorporate a final flight safety analysis as required by subpart C of this part.

(iv) A launch operator must verify, at the time of the review, that the ground safety systems and personnel satisfy or will satisfy all requirements of the ground safety plan for support of flight.

(v) A launch operator must accomplish the safety related coordination with any launch site operator or local authorities as required by local agreements.

(vi) A launch operator must verify the filing of all safety related information for a specific launch with the FAA, as required by FAA regulations and any special terms of a license. A launch operator must verify that information filed with the FAA reflects the current status of safety-related systems and processes for each specific launch.

(3) *Launch readiness review for flight.* A launch operator must conduct a launch readiness review for flight as required by this section within 48 hours of flight. A person, identified as required by § 417.103(b)(1), must review all preflight testing and launch processing conducted up to the time of the review; and review the status of systems and support personnel to determine readiness to proceed with launch processing and the launch countdown. A decision to proceed must be in writing and signed by the person identified as required by § 417.103(b)(1), and any launch site operator or Federal launch range. A launch operator, during the launch