

§417.119

readiness review, must poll the FAA to verify that the FAA has identified no issues related to the launch operator's license. During a launch readiness review, the launch operator must account for the following information:

- (i) Readiness of launch vehicle and payload.
- (ii) Readiness of any flight safety system and personnel and the results of flight safety system testing.
- (iii) Readiness of safety-related launch property and services to be provided by a Federal launch range.
- (iv) Readiness of all other safety-related equipment and services.
- (v) Readiness of launch safety rules and launch constraints.
- (vi) Status of launch weather forecasts.
- (vii) Readiness of abort, hold and recycle procedures.
- (viii) Results of rehearsals conducted as required by §417.119.
- (ix) Unresolved safety issues as of the time of the launch readiness review and plans for their resolution.
- (x) Additional safety information that may be required to assess readiness for flight.
- (xi) To review launch failure initial response actions and investigation roles and responsibilities.

§417.119 Rehearsals.

(a) *General.* A launch operator must rehearse its launch crew and systems to identify corrective actions needed to ensure public safety. The launch operator must conduct all rehearsals as follows:

- (1) A launch operator must assess any anomalies identified by a rehearsal, and must incorporate any changes to launch processing and flight needed to correct any anomaly that is material to public safety.
- (2) A launch operator must inform the FAA of any public safety related anomalies and related changes in operations performed during launch processing or flight resulting from a rehearsal.
- (3) For each launch, each person with a public safety critical role who will participate in the launch processing or flight of a launch vehicle must participate in at least one related rehearsal that exercises his or her role during

14 CFR Ch. III (1–1–07 Edition)

nominal and non-nominal conditions so that the launch vehicle will not harm the public.

(4) A launch operator must conduct the rehearsals identified in this section for each launch.

(5) At least one rehearsal must simulate normal and abnormal preflight and flight conditions to exercise the launch operator's launch plans.

(6) A launch operator may conduct rehearsals at the same time if joint rehearsals do not create hazardous conditions, such as changing a hardware configuration that affects public safety, during the rehearsal.

(b) *Countdown rehearsal.* A launch operator must conduct a rehearsal using the countdown plan, procedures, and checklist required by §417.111(l). A countdown rehearsal must familiarize launch personnel with all countdown activities, demonstrate that the planned sequence of events is correct, and demonstrate that there is adequate time allotted for each event. A launch operator must hold a countdown rehearsal after the assembly of the launch vehicle and any launch support systems into their final configuration for flight and before the launch readiness review required by §417.117.

(c) *Emergency response rehearsal.* A launch operator must conduct a rehearsal of the emergency response section of the accident investigation plan required by §417.111(h)(2). A launch operator must conduct an emergency response rehearsal for a first launch of a new vehicle, for any additional launch that involves a new safety hazard, or for any launch where more than a year has passed since the last rehearsal.

(d) *Communications rehearsal.* A launch operator must rehearse each part of the communications plan required by §417.111(k), either as part of another rehearsal or during a communications rehearsal.

§417.121 Safety critical preflight operations.

(a) *General.* A launch operator must perform safety critical preflight operations that protect the public from the adverse effects of hazards associated with launch processing and flight of a launch vehicle. The launch operator

must identify all safety critical preflight operations in the launch schedule required by § 417.17(b)(1). Safety critical preflight operations must include those defined in this section.

(b) *Countdown.* A launch operator must implement its countdown plan, of § 417.111(l), for each launch. A launch operator must disseminate a countdown plan to all personnel responsible for the countdown and flight of a launch vehicle, and each person must follow that plan.

(c) *Collision avoidance.* A launch operator must coordinate with United States Strategic Command to obtain a collision avoidance analysis, also referred to as a conjunction on launch assessment, as required by § 417.231. A launch operator must implement flight commit criteria as required by § 417.113(b) to ensure that each launch meets all the criteria of § 417.107(e).

(d) *Meteorological data.* A launch operator must conduct operations and coordinate with weather organizations, as needed, to obtain accurate meteorological data to support the flight safety analysis required by subpart C of this part and to ensure compliance with the flight commit criteria required by § 417.113.

(e) *Local notification.* A launch operator must implement its local agreements and public coordination plan of § 417.111(i).

(f) *Hazard area surveillance.* A launch operator must implement its hazard area surveillance and clearance plan, of § 417.111(j), to meet the public safety criteria of § 417.107(b) for each launch.

(g) *Flight safety system preflight tests.* A launch operator must conduct preflight tests of any flight safety system as required by section E417.41 of appendix E of this part.

(h) *Launch vehicle tracking data verification.* For each launch, a launch operator must implement written procedures for verifying the accuracy of any launch vehicle tracking data provided. For a launch vehicle flown with a flight safety system, any source of tracking data must satisfy the requirements of § 417.307(b).

(i) *Unguided suborbital rocket preflight operations.* For the launch of an unguided suborbital rocket, in addition to meeting the other requirements of

this section, a launch operator must perform the preflight wind weighting and other preflight safety operations required by §§ 417.125, 417.233, and appendix C of this part.

§ 417.123 Computing systems and software.

(a) A launch operator must document a system safety process that identifies the hazards and assesses the risks to public health and safety and the safety of property related to computing systems and software.

(b) A launch operator must identify all safety-critical functions associated with its computing systems and software. Safety-critical computing system and software functions must include the following:

(1) Software used to control or monitor safety-critical systems.

(2) Software that transmits safety-critical data, including time-critical data and data about hazardous conditions.

(3) Software used for fault detection in safety-critical computer hardware or software.

(4) Software that responds to the detection of a safety-critical fault.

(5) Software used in a flight safety system.

(6) Processor-interrupt software associated with previously designated safety-critical computer system functions.

(7) Software that computes safety-critical data.

(8) Software that accesses safety-critical data.

(9) Software used for wind weighting.

(c) A launch operator must conduct computing system and software hazard analyses for the integrated system.

(d) A launch operator must develop and implement computing system and software validation and verification plans.

(e) A launch operator must develop and implement software development plans, including descriptions of the following:

(1) Coding standards used;

(2) Configuration control;

(3) Programmable logic controllers;

(4) Policy on use of any commercial-off-the-shelf software; and

(5) Policy on software reuse.