

Range Safety Variance Process

According to NPR 8715.5, *Range Safety Program*, a *variance* is documented and approved permission to perform some act or operation contrary to established requirements and *tailoring*, *deviations*, and *waivers* are types of variances. The variance process for operations at Kennedy Space Center and Vandenberg Air Force Base is outlined in KDP-KSC-P-3829, signed in June of 2006.

The objective of the process is to effectively apply the NASA procedural review process with consideration given to the unique relationships between NASA/Kennedy Space Center and the 30th and 45th Space Wings. Each of the Space Wings has their own processes, and the KDP outlines how the NASA/Kennedy Space Center Range Safety Representative meets the intent of NPR 8715.5 with regard to variances.

Listed below are the definitions of terms as they currently exist in the NPR:

- **Tailoring.** The process where the authority responsible for a set of range safety requirements (e.g., the Independent Technical Authority for technical requirements) and the range user review each requirement and jointly document whether or not the requirement is applicable and, if it is applicable, whether or not the range user will meet the requirement as written or achieve an equivalent level of safety through an acceptable alternative. Tailoring includes the approval of deviations. Tailoring does not include the approval of waivers, which are addressed by a separate process.
- **Deviation.** A variance that authorizes departure from a particular safety requirement that does not strictly apply or where the intent of the requirement is being met through alternate means that provide an equivalent level of safety.
- **Waiver.** A variance that authorizes departure from a specific safety requirement where an increase in risk, due to the fact that the requirement is not satisfied, has been documented and accepted by the appropriate authority.

Although these definitions and process are used for new range safety related variances for both the Shuttle and the Launch Service Program, changes to both terminology and process are being vetted for the Constellation and other future programs. Additionally, NPR 8715.5 is currently being reviewed to determine if changes are needed to effectively operate the variance process NASA wide.

The most notable change being discussed is the use of the term *variance*. This term may no longer be used as an inclusive term for tailoring, waivers, and deviations. In the future, the terms *waiver* and *exception* (equivalent level of safety) may be used. This is a NASA-wide initiative to ensure commonality throughout the agency and to have NASA terminology that is more consistent with the Department of Defense and the Federal Aviation Administration.

A *waiver* will be required when there is rationale for not meeting a requirement as written. This includes meeting the intent, exceeding the requirement, or not meeting the requirement and may or may not be a change in risk. The rationale will be documented and agreed to on the waiver form.

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When a waiver is brought forward due to increased risk to the public, workforce, and/or property, the “burden of proof” or rationale for acceptance and approval of the increased risk is on the entity bringing forward the request. The waiver will not be approved without acceptable rationale. With that in mind, the entity bringing the waiver forward should use available expertise to help determine the following:

- The rationale is reasonable.
- Hazard mitigation is in place.
- A get well plan is available to correct the noncompliance.

Today, the NASA Range Safety Manager is the waiver approval authority for all range safety related variances for NASA launches where there is not a range safety office. For launches at the Western Range, the Program accepts the increased risk, and for launches at Kennedy Space Center, this responsibility falls on the Kennedy Space Center Center Director and the program manager. But with the proposed changes, all NPR requirements are being reviewed to determine the appropriate level for approval, so the current approval and acceptance authorities may change for future programs. The current NASA Range Safety Variance process is shown in the flowpath below.

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