

Table 1: Failure Mode and Effects Analysis (FMEA)

System or Subsystem	Hazard Category ¹	Failure Mode ²	Causes	Effects	Consequence before Mitigation ^{3, 4}	Probability of Occurrence before Mitigation ⁵	Mitigation	Consequence After Mitigation	Probability of Occurrence After Mitigation
Enter the system in which the failure may occur.		List the failure mode.	Describe the cause. Use multiple rows for multiple causes.	Describe the effect(s) on the system in which the failure occurs.	Rate the severity of hazard before mitigation efforts are made.	Estimate the likelihood of the failure occurring before mitigation efforts are made.	Describe the step(s) necessary for mitigating the likelihood of the failure occurring.	Rate the severity of hazard after mitigation efforts have taken place.	Estimate the likelihood of the failure occurring after mitigation efforts have taken place.
Project or Equipment Name:									

¹ Hazard Category: **Personnel, Equipment, Other**

² Failure Mode: Brief statement of the hazard

³ Personnel Hazard Level definitions: **Catastrophic** = May cause death. **Critical** = May cause severe injury. **Marginal** = May cause minor injury. **Minor** = Not serious enough to cause injury. **None** = No hazard for personnel.

⁴ Equipment Hazard Level definitions: **Catastrophic** = May cause > 1 day lost shot time. **Critical** = May cause < 1 day lost shot time. **Marginal** = May cause ~1 hour of lost shot time. **Minor** = May cause delay < 0.5 hour of lost shot time. **None** = No risk of lost shot time. Note: For non-shot related equipment, assess hazard level based on programmatic impact (cost, man-hours, delay, etc).

⁵ Likelihood of Occurrence definitions: **Probable** = Expected to happen in the life of the project. **Infrequent** = Could happen in the life of the project. Controls have significant limitations or uncertainties. **Remote** = May happen in the life of the project, but not expected. Controls have minor limitations or uncertainties. **Improbable** = Extremely remote possibility that failure will occur in the life of the project. Proven controls are in place.