

*SOUNDING ROCKET  
RISK AND  
MITIGATION PLAN*

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Table 1: Document Change History

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# 1 Project Risks and Mitigations

Inherent in any project is the aspect of risk. Risk is the potential that something will go wrong as a result of one or a series of events. This document serves as the Risk Management Plan that describes the planning for, assessment, analysis, and handling of risk and will be used during the duration of the project.

## 1.1 Defining and Identifying Risk

The four basic categories of risk include Technical Risk, Cost Risk, Schedule Risk, and Programmatic Risk and each are briefly described below:

### 1.1.1 Technical Risk

The possibility that a technical requirement of the system will not be achieved. Technical risk exists if, in the system design and development process, it appears that the system will not meet a specific performance objective, such as one or more of the appropriate Technical Performance Measurements (TPMs). For this Sounding Rocket project, this could include TPMs pertaining to achievable altitudes, time of flight, payload capacity, etc. These technical risks have the potential to cause the sounding rocket to fail requirements or expectations for rocket performance.

### 1.1.2 Cost Risk

The possibility that the specified allocated budget will be exceeded. Cost risk will be addressed within the initial project budget and the subsequent projected life-cycle costs for the system. For this Sounding Rocket project, cost risk could potentially include the cost of materials for the sounding rocket body, payload cost, launch site fees, launch licenses fees, etc. These cost risks have the potential to increase the overall cost of the project.

### 1.1.3 Schedule Risk

The possibility that the project will fail to meet the scheduled milestones, such as the reflected in the Detailed Project Schedule and Project Milestones. Schedule risk can be incurred if the overall project schedule is not being met, or if any lower-level task is

behind schedule. For this Sounding Rocket Project, schedule risk could include failure to complete the CONOPS, Requirement, Preliminary Design, Critical Design, and Project Schedule Implementation documentation on time. This could cause overall schedule slippage to the right if any one of these major milestone documents are not finished on schedule.

#### **1.1.4 Programmatic Risk**

The occurrence of events, imposed on the project, which are the result of external influences out of the control of the team. Decisions made at a higher level in the project organization (UCCS, Stakeholders), delayed funding, external environmental impacts, and so on can have an impact on the project in terms of technical, cost, and schedule objectives. For this Sounding Rocket project, programmatic risk could include unexpected changes to the university (UCCS) status, any health-related emergencies within the team, an unexpected lack of funding to support the sounding rocket project, external environment factors that change things such as available launch sites, etc.

### **1.2 Risk Mitigation**

The four major areas of potential risk for the project will be mitigated by utilizing Risk Mitigation process that follows Risk Planning, Risk Identification, Risk Assessment, Risk Analysis, and Risk Handling:

#### **1.2.1 Risk Planning**

Iterative risk identification and assessment milestones are set in the schedule in order to conduct identification of and assessment of possible risk items. This includes meeting regularly throughout the project life cycle to discuss potential risk items and take status on risks previously identified.

#### **1.2.2 Risk Identification**

Screening of all requirements and identifying any that have the potential to not be met. This will be a part of the iterative meetings discussing any potential risk items that need addressing. Newly identified risks will be prioritized based on assessment.

### **1.2.3 Risk Assessment**

Determining the probability of failure to meet a specified requirement and the possible outcomes and the consequences of not meeting the requirement. This pertains to both the probability of occurrence and the estimated magnitude of the risk.

### **1.2.4 Risk Handling**

Activities associated with the incorporation of changes and modifications recommend as a solution to the identified risk or problem. The team will discuss and collaborate on risk mitigation solutions and come to an agreement on the best path forward.

The utilization of a Risk Mitigation Plan that follows the identified process above will ensure the successful accomplishment of the Sounding Rocket project objectives.