

**RE: \*\*\*Important information regarding 2023 NASA Student Launch\*\*\***

From: Eckhart, John R. (MSFC-CS60)[PARAGON TEC] [john.r.eckhart@nasa.gov](mailto:john.r.eckhart@nasa.gov)

To: Robert Ekman

Cc: Chouinard, Allison I. (MSFC-CS60)[PARAGON TEC] <[allison.i.chouinard@nasa.gov](mailto:allison.i.chouinard@nasa.gov)>; Koch, Zachary A. (MSFC-QD12)[BASTION TECHNOLOGIES] <[zachary.a.koch@nasa.gov](mailto:zachary.a.koch@nasa.gov)>; Kepner, Frederick R. (MSFC-CS60) <[fred.kepner@nasa.gov](mailto:fred.kepner@nasa.gov)>; Sprague, Tyler J. (MSFC-CS60)[Fall Intern Program] <[tyler.j.sprague@nasa.gov](mailto:tyler.j.sprague@nasa.gov)>

Bob,

Below is the requested feedback for Explorer Post 1010 proposal. Nothing is scored or considered that is not stated in the handbook. The overall comments from the review panel were that the team hit on the majority of the topics requested in the proposal. Some of the items were lacking detail or missing, which will be outlined below by the different sections of the proposal section of the handbook. Feel free to share the feedback how you see fit with the team members and should you have any questions please don't hesitate to reach out.

- Add organizational hierarchy
  - o List of team members are given even including which team members are new. Consider implementing a team structure graphic along with listing roles and responsibilities for each team member. Student Launch requires a lot of moving parts so convincing the review panel you have considered all aspects of the program from vehicle, payload, recovery design, to STEM Engagement, Social Media, fundraising/budget, etc. is a good start to a successful year.
- Facilities/Equipment
  - o The team does a good job listing tools and equipment they have in order to build the rocket. The team can further elaborate about how particular equipment can be utilized. There is a mention of a wind tunnel but no real clear use for it in the proposal.
  - o List out equipment not on hand. The goal is to convince the NASA review panel the team has thoroughly thought through the project and knows what equipment is on hand and what clearly needs to be obtained. There is a vague reference of some mid-power parts for the subscale and some high-powered stuff for the full-scale.
  - o Brief mention of there being center staff to help with tools. Is there required training the students will undergo? It mentions training in the safety section, but what specific training will the team undergo? Attention to detail is a critical component for any type of proposal.
- Safety
  - o The team states the NAR safety code, but the team can list some more team-specific ways to adhere to the safety code rather than basically saying that they will comply to each item. Same comment goes for local and federal law compliance.
  - o Expand on risk analysis
    - When mitigation is “proper tool usage” or “proper procedures”, maybe those can be detailed in their own section.
    - This is a great time to separate risks specific to the launch vehicle, payload, recovery, environmental risks, STEM Engagement, etc. Generic risk analysis is

okay as a starter, but the team needs to go into specifics for each part of the project.

- What are the responsibilities of the team's safety officer? There's a mention of hazard briefings, but outside of lab and launch day it's not clear what the safety officers' job is.
- List/describe hazardous materials that will be used throughout the project as well as ways to mitigate danger to personnel, including PPE.
- What kind of storage does the NAR mentor have at his house? This is especially important since the report mentions the mentor will "pre-assemble the motor for launches."
- Technical Design
  - The team does a good job listing what materials were chosen for the different parts of the rocket. Part of a proposal is to convince the review team the team is following the engineering design cycle. Were those the only materials looked at and researched or were others? Why did the team make the choices they did? There is a mention of mass, cost, and ease of construction, but trade study tables can still be used to help determine what the best choice is and what alternatives exist.
  - The team does a good job listing some dimensions of the launch vehicle but should break down the lengths and masses of each component. We understand these values are going to change but a rough idea now is better long term to help the team stay on track for their mass margins.
  - The team lists the motor that is going to be used but could list properties of the motor including a thrust curve. Were other motor alternatives discussed? Similar comment to material selection and justification meaning trade study tables are a great way to discuss pros and cons of different motors.
  - Explain acronyms the first time they are used even in the team believes they are widely known.
  - Calculate and state the amount of black powder that will be used.
  - Calculate and/or justify that the stated diameter of parachutes are adequate. What descent rates and therefore descent times is the team expecting? The diameters are given, but it's not clear if these choices satisfy the requirements set forth in the handbook. Mathematical calculations should be used to justify selections dealing with the performance of the launch vehicle and payload.
  - Very interesting payload idea – would love pictures that show the theoretical design.
  - Are all electronics needed for the payload mentioned? The background and justification for the payload is well explained, but the actual execution could be further explained. Wiring diagrams, integration into the launch vehicle. Pictures are extremely helpful here to show the review team how this is supposed to work. Similar comment for the recovery, pictures and diagrams of electrical schematics is a great way to show the review panel this is a safe and well thought out launch vehicle.
  - Each challenge and solution could be expanded on.
  - List requirements and methods of verification. There should be a table that lists out all of the handbook requirements and how the team plans on satisfying all of the requirements. This convinces the review panel the team has thoroughly read the handbook and has a plan to address all requirements and challenges set forth by NASA.
- Timeline, budget, funding, administrative tasks
  - Specific topics planned for this year during those monthly science days? Any that count toward the 250 since those are required to be direct engagement?

- Good ideas, just need to expand on what is exactly going to happen during these events and a rough estimate of when they will occur.
- Break down large tasks in the timeline to smaller, more manageable tasks. Include more team specific tasks. A detailed timeline truly isn't for the review panel but so the team can help stay on task and find ways to address issues when the timing doesn't exactly go the way the team planned it.
- Break down each item for purchase. Items are grouped together several times. Imagine you were buying all of the components during the proposal. Things to include are vendor, price, quantity, taxes, shipping, and also helps to prevent the team from missing items if everything is stated as a different line-item.
- Does the team do anything to retain members or knowledge throughout the year, and year to year?

- John Eckhart

**From:** Robert Ekman <[bob.ekman@att.net](mailto:bob.ekman@att.net)>

**Sent:** Tuesday, October 4, 2022 12:51 PM

**To:** Eckhart, John R. (MSFC-CS60)[PARAGON TEC] <[john.r.eckhart@nasa.gov](mailto:john.r.eckhart@nasa.gov)>

**Subject:** [EXTERNAL] RE: \*\*\*Important information regarding 2023 NASA Student Launch\*\*\*

John,

This is very disappointing. Please give us specific feedback.

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Bob Ekman, Rockville, MD  
Explorer Post 1010 Advisor  
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**From:** Eckhart, John R. (MSFC-CS60)[PARAGON TEC] <[john.r.eckhart@nasa.gov](mailto:john.r.eckhart@nasa.gov)>

**Sent:** Tuesday, October 4, 2022 11:01 AM

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**Subject:** \*\*\*Important information regarding 2023 NASA Student Launch\*\*\*

Dear Explorer Post 1010,

This year's NASA Student Launch (SL) proposals were scored by a team of NASA panelists. The Proposal Review Panel utilized a rubric, based on the proposal requirements included in the SL handbook, to score all the proposals received. Unfortunately, your proposal did not meet the qualifying score

necessary to participate in the 2022-2023 NASA Student Launch challenge. If you are interested in receiving specific feedback on your proposal, we can provide feedback upon request.

We'd like to encourage you to continue pursuing your interest in rocketry this year through TARC, Rocket's for Schools and other rocketry competitions.

Sincerely,

The Student Launch Management Team

**John Eckhart**

PARAGON-TEC  
Education Specialist

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**NASA Office of STEM Engagement**  
{MSFC}