

Notes from Excavation & Construction Monthly Meeting

October 2020

Notes From Discussion

Longform notes available on page 10

Introductions & Announcements ::refer to slides::

Request from John Vickers re: "Break the Ice" Challenge

- John requested feedback on what the environmental impacts are to the lunar surface from excavation and construction. Contact him with any feedback you may have.

Habolith, Morgan Gendel ::refer to slides::

Lunar Landing & Launch Pads, Rob Mueller ::refer to slides::

- Question from Karl Hibbitts: Have you tried imaging with SWIR or different wavelengths?
 - Response from Rob: Yes, used radar and LIDAR in project with Caterpillar, sensors were degraded by dust. Easier to remove root cause (liberated dust).
 - Follow-up Question from Karl: Could sensors be used for autonomous landing?
 - Response from Rob: You could.
- Question from Stephen Indyk: Artemis has advantage over Apollo because of high resolution NRO surface topography
 - Response from Rob: The resolution is not that good - 5 meters. Need ground truth.
- Question from Athonu Chatterjee: Can this be transferable to Mars?
 - Response from Rob: It is transferable, but the environment is different on Mars (soft vacuum).
- Statement from Brad Blair: Responding to Stephen's question above, advancements with LOLA data could yield more granular results, but hasn't happened yet.
- Question from Nicole Shumaker: How would site prep described by Rob be accomplished?
 - Response from Rob: CLPS could drop off robotic mobility platform with site prep capabilities and also deploy landing pads. Artemis Accords may require this kind of landing and launch mitigation.

- Question from chat: Will there be any new SBIR STTRs for solo solicitations this year on LLP?
 - Response from Rob: Still under development, don't have information.
- Question from Clay Davidson: Are berms helpful?
 - Response from Rob: Berms are designed to protect from explosions / debris. A good landing pad will mean you don't need berms.
- Question from Jim Clawson: Does engine configuration mitigate the issue of. Mounted engines scattered outward?
 - Response from Rob: Yes, has been implemented in SpaceX Starship design.
- Question from Brad Blair: Can you comment on the Masten design to inject stabilizers into the rocket plume while landing?
 - Response from Rob: It's a great NIAC project.
- Question from Sam Ximenes: How far away would surface assets need to be from the landing pad while still under construction?
 - Response from Rob: A 100 meter radius pad would drop out particles down to 70 microns. 40 microns and below is where you get into trouble.
- Question from Unknown Speaker: Are there options other than landing pads to protect assets?
 - Response from Rob: Catch and deflect is an option. Not having assets nearby is an option. Using smaller landers would also mitigate ejecta.