

Mobility Utility Lander – Expeditionary (MULE)

Mission Concept Review and Requirements

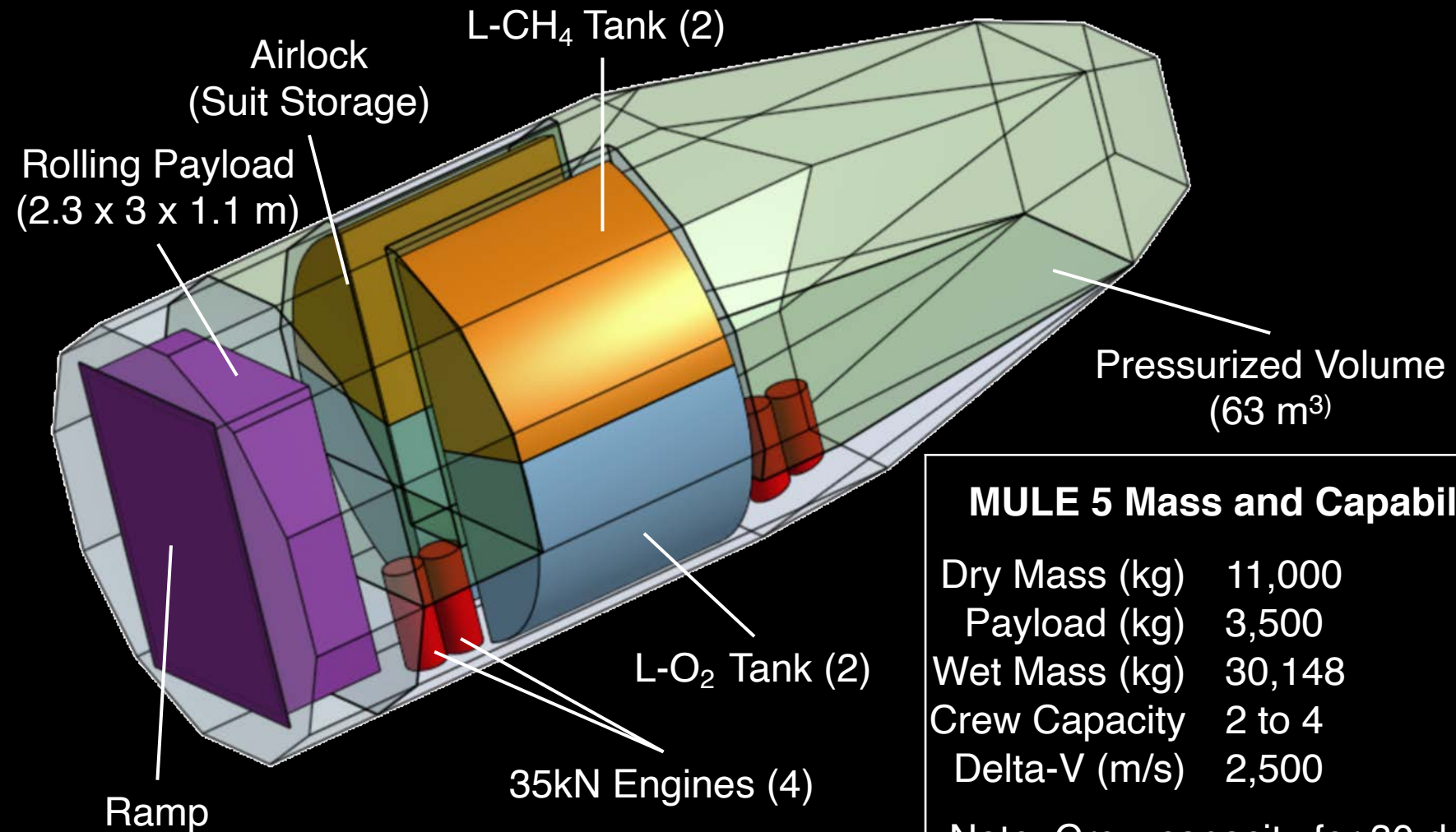
DRAFT

Timothy Anderson

tanderson@mckean-defense.com

Overview – MULE 5

Crewed Variant



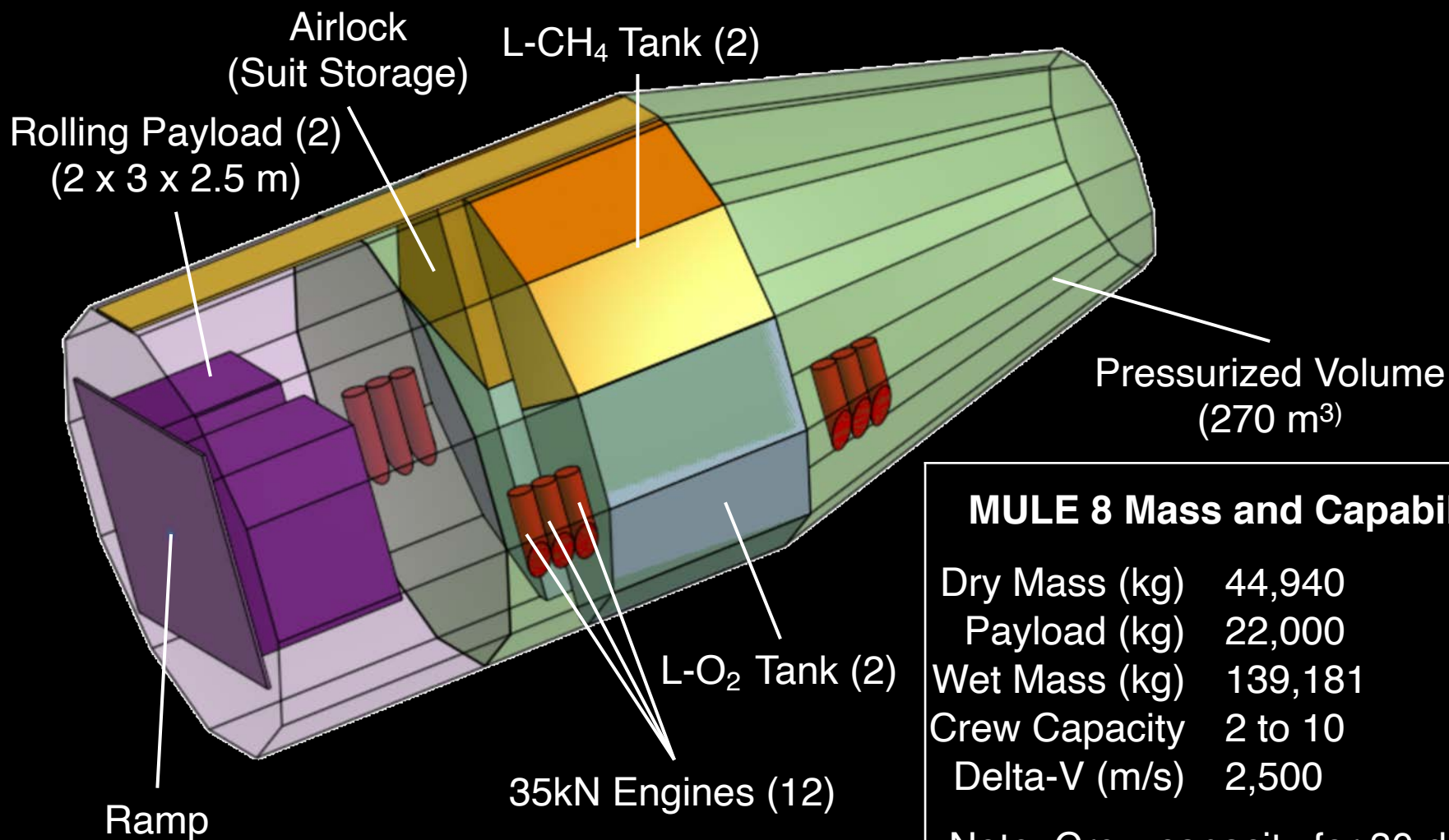
MULE 5 Mass and Capabilities

Dry Mass (kg)	11,000
Payload (kg)	3,500
Wet Mass (kg)	30,148
Crew Capacity	2 to 4
Delta-V (m/s)	2,500

Note: Crew capacity for 30 day expeditions.

Overview – MULE 8

Crewed Variant



MULE 8 Mass and Capabilities

Dry Mass (kg)	44,940
Payload (kg)	22,000
Wet Mass (kg)	139,181
Crew Capacity	2 to 10
Delta-V (m/s)	2,500

Note: Crew capacity for 30 day expeditions.

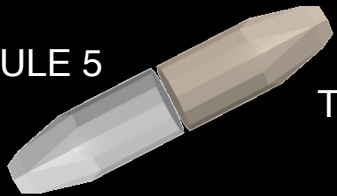


GTO Deployment

Deployment CONOPS

LLO Deployment

MULE 5



TE

R&D ΔV 50 m/s



MULE 8

GTO to LLO
 ΔV 2050 m/s



TE



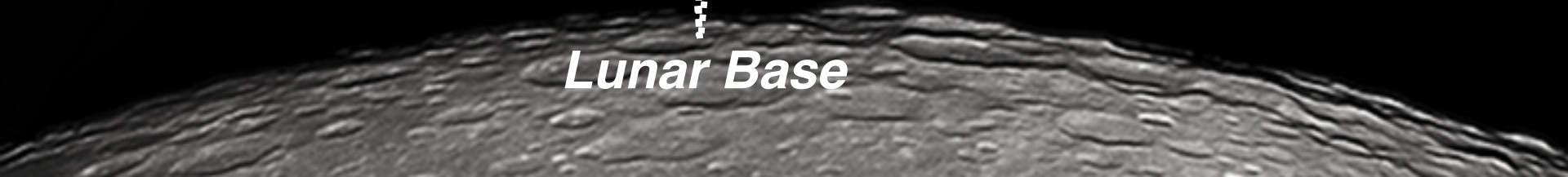
LLO Propellant Transfer



MULE 5

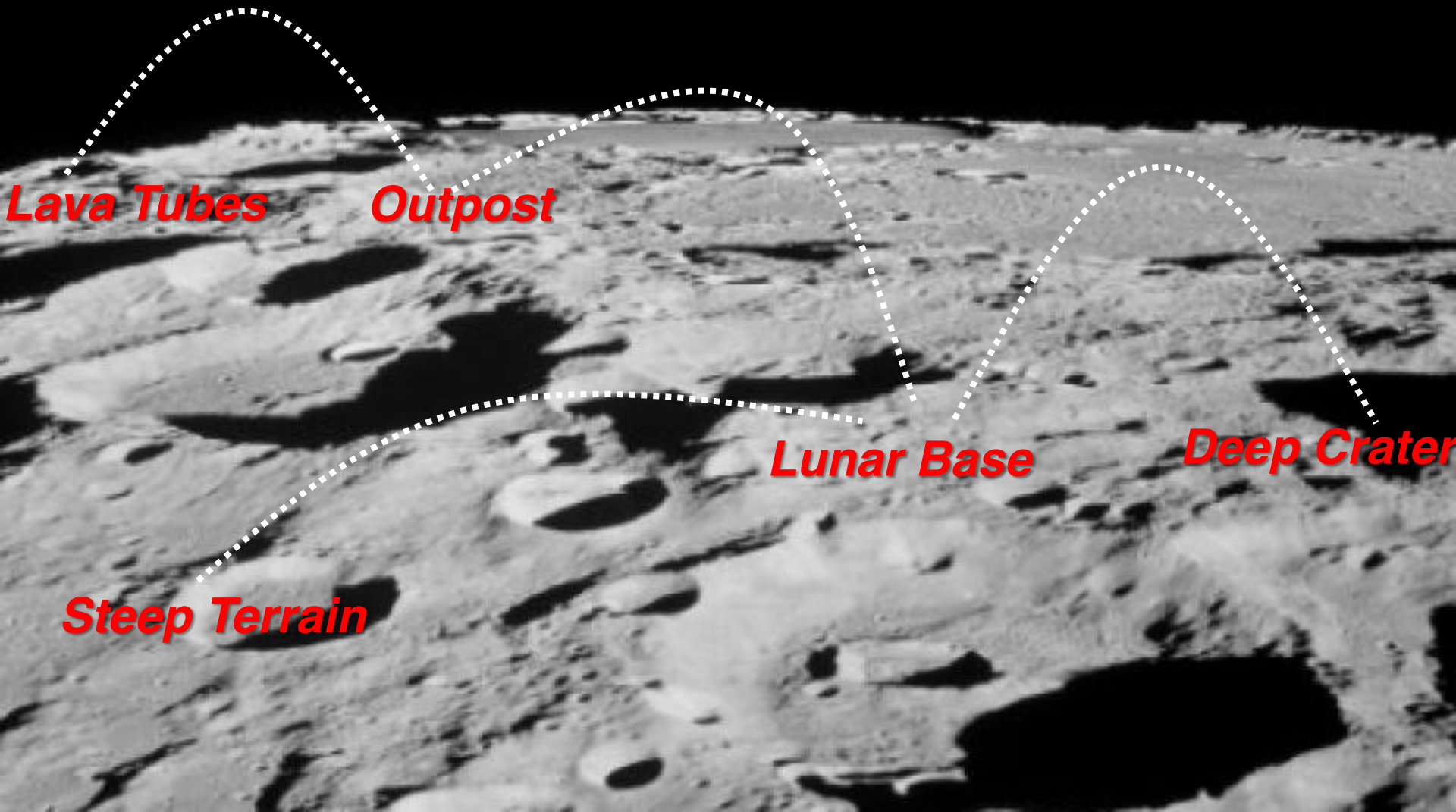
Descent ΔV 2060 m/s

Lunar Base



Sortie CONOPS

Sortie/Return = ΔV (600x4 m/s) per hop = 120 km w/4 minute TOF = 10 degrees
Max Hop = ΔV (1200x2 m/s) per hop = 737 km w/12 minute TOF = 40 degrees



Requirements Request

Collecting requirements supporting mission concept review via 4 minute survey:

<https://www.surveymonkey.com/r/V99D9ZN>