Gateway Ground Rules and Assumptions

1. The proposed gateway concepts, associated systems, and operations shall demonstrate extensibility towards human missions to the lunar surface and to Mars.
2. The targeted timeframe will be to leverage the Gateway to send humans to the lunar surface in the late 2020s and to Mars system and return them safely to Earth in the 2030s.
3. The gateway shall accommodate a crew of four.
4. Gateway will support a minimum 30-day mission once propulsion, habitation and sufficient logistics have been delivered.
5. Habitable volumes' environmental control and life support systems (ECLSS) will nominally maintain an atmosphere of 14.7 pounds per square inch-absolute (psia) at 21% O2 during all long-duration microgravity mission segments.
6. The gateway elements are assumed to last for at least 15 years from element launch.
7. The Gateway should support simultaneous attachment of at least 3 visiting vehicles, e.g., crew transport vehicle, a logistics module, and one additional visiting vehicle, etc.
8. The gateway should accommodate EVA capability without blocking access to crew transport vehicle during the EVA. EVAs (planned or unplanned) take place from the facility once an airlock arrives (there is no initial EVA capability prior to arrival of the airlock and spacesuits).
9. Once EVA capability is delivered, the gateway should accommodate a secondary ingress method for EVA crewmembers.
10. Gateway will maintain one accessible docking port for contingencies.
11. Emplace capabilities that can support in-situ aggregation, assembly, and servicing of future exploration systems.
12. Gateway will accommodate crewed and uncrewed placement and operation of science assets e.g. external packages, ISRU operations, transfer of surface samples, sample return to Earth, and science data collection/transfer.
13. The gateway may accommodate support of crewed and robotic Lunar vicinity missions.
14. Initial staging orbit for the gateway or Deep Space Transport assembly will be in Near Rectilinear Halo Orbit (NRHO).
15. Gateway elements and logistics can be delivered to the gateway vicinity via SLS, commercial and/or international partner transportation system independent of crew involvement.
16. Operations at the gateway can be remotely and/or autonomously performed when uncrewed. These operations may include performing systems diagnostics and repair, exploration capability testing, aggregation of robotically returned destination surface samples, science measurements and operations, comm relay, lunar vicinity mission support, etc.
17. Assume Orion can be used as a safe haven during solar storm for all operating conditions.
18. The outer fairing diameter for SLS Cargo flights will be 8.4 m with a useable inner fairing diameter of 7.5 m.
19. Co-manifested payloads are available beginning with EM-3. Payload mass allocations are: EM-3: 8-9mt; EM-4 and beyond: 10mt, (these allocations require decrement of 1mt for the payload adapter).
20. Co-manifested payloads are available beginning with EM-3. The payload volume allocation is 286 m3 as shown in the diagram on page 50 of ESD 30000, Space Launch System Mission Planner's Guide (MPG), Initial Baseline.
21. The gateway will operate during obstructed or unreliable communications (with Earth) whether crewed or uncrewed (i.e., no comm relay available).