LUNAR EXPLORATION **2** Aug: Expedition Commander

We are now in the middle of Phase III of the Artemis Project. The Orion spaceship is still patrolling in NRHO and the exploration team has just landed at the Lunar South Pole. It's been over half a century since humans first set foot on the moon. We were asked to rest, eat, and recharge for the expedition's first full day. My emotions? Well, I'm too busy seeing and feeling what's around me to think about whether this is too foreign for me or not. David, NASA Staff ID 007658

10 Nov: Expedition Crew return

With samples collected and the map of traversal routes updated it's time to head back. Once we have returned to Orion to transmit and analyse the samples and data from the lunar environment we will return to Earth. I can finally imagine living around the Shackleton-De Gerlache Ridge and I'd be happy to stay there longer. I can already imagine the mounds of the settlement emerging from the regolith.

I will greet you soon back on Earth. Laura, NASA Staff ID 007658

PRE-SETTLEMENT PLANNING 10 May: Project Engineer

The Artemis V project worked out well. With all the data and information, pre-construction work for the settlement will kick-off in 2 years. Astroport Space Technologies Inc. have been tasked with site construction, including a landing pad and later, the settlement carapace. Alright, I'll get my hands busy getting these robots to work; speak soon. Aaron, NASA Staff ID 015268

SETTLEMENT INFRASTRUCTURE **18 Feb: Infrastructure Engineer**

I owe a lot of credit to the pre-construction team, the robots have been busy! I am writing from Orion while the PTFE membranes are inflated to line the inside. It's taking a bit longer than expected but we need to make sure the system is air tight and pressurised... I'm not sure how much longer, maybe a couple of days. Christy, UNSA Staff ID 019452

24 Feb: Infrastructure Engineer

Great news today, construction has been completed successfully. The project team has set up the new regolith modules and services are operational. Meanwhile, Habitat Engineering is shuttling our food, water, and oxygen supplies to the lunar surface. Our living quarters, the individual pods, are fortified with 2.3-metre-thick regolith walls, more than enough to protect us from thermal and electromagnetic radiation from the sun, outer space, and potential meteoroid impacts - at least according to the models. Igor, Russian Space Agency RU6782

25 Feb: Energy Systems Engineer

We installed the self-adjustable solar antenna rod panels on top of each dome roof of the module pod units. Individual solar panels are collapsable for maintenance and rotate in response to the sun position and altitude. The illumination on the panels serves as a geographical visual reference. New cables have been laid down for additional generation and distribution. We can now begin work on the next phase of our energy systems, the refuelling modules for future Mars missions. Robert, NASA Staff ID 019455



nappy homesick

What might a truly lunar or Martian architecture look like, and could a human born in space feel at home *in such an environment?*

Historically, colonial projects have constructed cities that mirror the architecture of their origin cultures, assimilating rather than accommodating landscape. Most visions of future space habitation continue in this pattern by simulating a controlled version of Earth to shelter from the harshness of space, a potentially useful psychological strategy for the first inhabitants of a new frontier. Happy Homesick chronicles an alternative approach to lunar habitation, working with the Moon as a staging ground for Mars and beyond.



The friendly lunar robot team is here to vacuum up regolith, mix binder, and print your new home!

Lightweight 3D printing robots construct a thick regolith wall with pre-planned cavities for services.



And just like that, it's ready to move in!

B. C. Howard

LANDING-----

-PAD

RAIL

LAUNCHER



GENERAL LOGBOOK

15 Apr: Captains Logbook

We are almost approaching the end of our lunar settlement rotation and sorting and cleaning up spaces for the next group of settlers. I thought I would've been more than thrilled to make it back to Earth. To some extent, I will miss a big part of my life here. We are trying not to mimic what it feels like back on Earth but to find a lunar way of life. And I'm confident I can say we achieved something, at least. Over the 2-month rotation, we all experienced some sort of 'homesick', if you call it that.

But I'm very sure that it has been a happy homesick. Team, NASA Lunar Settlement Piloting Program

ENVIRONMENTAL CONTROL 20 Apr: Habitat Engineer feedback on Atmospheric, thermal, acoustic and lighting systems

Happy to report that we just arrived to assist with the continual terraforming of our lunar base. Effective O2 generation, circular carbon monitoring, and thermal control are managed by solar energy, ensuring our life support systems function seamlessly. The cavelike architecture of our spaces alongside lighting optimised for circadian rhythm work to create a sense of comfort amidst the otherness of this barren landscape. Shaun, ASA, AU8954

FACILITIES MANAGEMENT

28 Sep: Facilities Engineer

Today was mostly occupied by a safety check for our base. I started by conducting a thorough inventory across all our storage facilities. This included the cryogenic sections, fuel storage, scientific material storage, the hazardous materials area, general supplies, and our surface equipment storage. Inspections of the airlocks connecting the outside environment to our pods and those interlinking the pods themselves. All scrub areas in the airlocks were found satisfactory. Our emergency systems are operational, and I oversaw some required repairs to the protective regolith layer. It's been a productive day! Nick, UNSA Staff ID 019457

MEDICAL & BIOMED RESEARCH 31 Aug: Medical Officer

Today, Laura Armstrong presented with an abrasive injury from lunar regolith due to a malfunctioning airlock in Mining District C. We've received new emergency radiation treatment protocols from Earth and implemented updated sanitation protocols for new arrivals. Additionally, our ongoing research continues to address the effects of low gravity on the crew's health.



All you need to do is install the final touches: skylights, solar panels, internal membrane barrier.

Miriam, UNSA ID 019453

SLEEP QUARTERS

31 Aug: Technician Sleep Journal

Last night was another restful one; our pod's cool 18-degree temperature and ventilation have optimised our sleep. The research into our lunar circadian rhythms, maximising REM sleep, exercise, and controlled lighting has paid off. Our residential unit pods, hexagonally shaped and covered with lunar regolith, comfortably house two of us. They're equipped with in-built furniture designed for the moon's light gravity and have glazed openings on the ceiling to take advantage of natural sunlight during lunar days. Some walls also have windows to provide for the best views of Earth or the lunar landscape, depending on the orientation.

Eric, ASA (Australian Space Agency) AU891

SCIENTIFIC RESEARCH

02 Mar: Physicist office space reflections

Everyone has started getting used to the daily routine of life here. We spend most of our time together in our shared office. Back on Earth it might not have been enjoyable to have to work inside what is essentially a hallway, the central axial corridors between the research labs, data centres, storage and supply management, and everything else inside the settlement. So, it is quite funny that we all enjoy being there and working there so far, maybe because we've become a close-knit community here on the moon (at least, we think so...). Every time I need a moment to myself, I pour myself a cup of tea and walk out to the closest room with a view to Earth, before returning to work. Rob, NASA Staff ID 019352

15 Jun: Biorepository Biologist

With every shuttle arrival, we are making new additions to the biorepository systems. We must protect biological samples from Earth's biodiversity against climate change, natural disasters, and geopolitical conflicts, ensuring their preservation in our naturally cold, stable environment. We've also bred our first moon strawberry varieties, and growing them in enriched regolith seems to be feasible. Jacob, South African Space Agency ZA451

COMMUNITY

15 Jul: Technician

Today was lively at the base, with a massive birthday party for Christy alongside the routine maintenance. On the operational side, we lubricated the power generation fitness bikes. Greg used some of the time off to work on a mural in one of the communal spaces. Eric, ASA (Australian Space Agency) AU891

27 Sep: Physicist

Today marked another special day at the lunar base - the arrival of packages from Earth. Every time a shuttle docks, it brings parcels filled with personal items from our loved ones, and the entire base lights up with excitement. Opening packages together has evolved into something of a ritual. Delivery Day is a huge morale boost, but it's also a reminder of the Earth we left behind. Each package, small or large, carries gifts and a tangible sense of home, making it a bittersweet moment for all of us here. **Rob, NASA Staff ID 019352**



Adaptive solar panels reach upward and rotate with the sun path. Sunlight is reflected through the ceiling structure, eliminating need for artificial lighting in living spaces.

VIEW INTO

CRATER



CRATERED MUNLANDS SURFACE CONTRINS LEVEL MREAS (SLOPES < 10°)

LANDING SITE

SUN AT LEAST VISIBLE >70% - HIGHLANDS RECOLITH LESS AFFECTED BY SO LAR WIND - INDUCED MATURATION - EXTENDED EARTH JISIBILITY FOR COMMUNICATIONS

SITE IN CLOSE PROXIMITY OF PERMANENTLY SHADED RELIONS

HOSTING YOURTILES CRUCAL TO

DE CERLACHE ATE

LONGER - TE RM NABITA

SCIENCE-FOLISED TRAVERSE 27KM

OCKY KNOP

POTENTIAL FUTURE

MINING STATION

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SEED

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-VOLATILE STORAGE + MINING RESEARCH

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