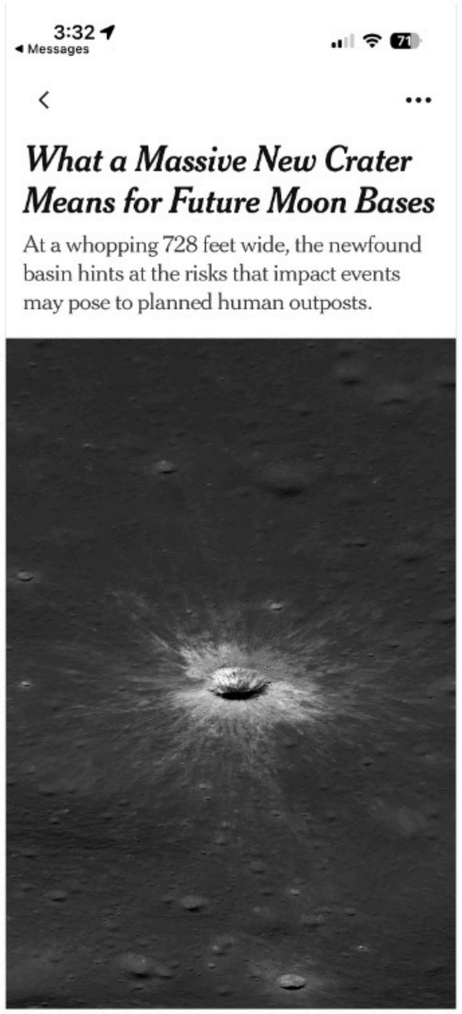
NEW MEXICO TECH

Group Exercise in Space Diplomacy

You are the moderator.
Suggest a compromise for each of the 3 friction points

EMGT 5061, Sep 23, 2026





Exercise 1: The Shackleton Crater Water-Ice Dispute

Simulation Guide: Scenario, Team Roles, & Tripartite Positions Matrix

1. Scenario Overview

Recent robotic prospecting has confirmed a dense deposit of water-ice along a 3-kilometer stretch of the rim of Shackleton Crater at the Lunar South Pole—a site that also benefits from near-permanent sunlight ('peaks of eternal light') for continuous solar power generation.

A private commercial venture (**AstroMining Corp**) has landed an autonomous processing rig at the site. Backed by their home state (**The Sovereign Nation**), they plan to harvest the ice, process it into cryogenic liquid hydrogen and liquid oxygen propellant, and sell it to orbital tugs and cislunar space stations. However, the geographic site is so narrow that AstroMining Corp's operations effectively block any other entity from accessing this specific high-grade water-ice deposit.

2. Team Roles & Conflicting Requirements

Team 1: The Commercial Enterprise (AstroMining Corp)

Core Mandate: Maximize Return on Investment (ROI) and secure market leadership in cislunar propellant supply.

- **Safety Zone Demand:** Demand immediate recognition of a 25-kilometer 'Safety Zone' around their facility (citing Artemis Accords principles) to protect their $2 Billion CapEx investment from physical or technical interference.
- **Resource Property Rights:** Assert full legal ownership over extracted water-ice and derived propellant, claiming the right to set market prices and sell exclusively to preferred commercial or national buyers (backed by the U.S. 2015 Commercial Space Launch Competitiveness Act).
- **Regulatory Autonomy:** Reject any UN-mandated profit-sharing, mandatory technology transfers, or production caps.

Team 2: The Sovereign Nation (Sponsoring State / Space Power)

Core Mandate: Guarantee national cislunar strategic advantage, support domestic industry, and maintain international leadership while adhering to treaty obligations.

- **Strategic Fuel Reserve:** Secure an anchor-customer contract reserving 50% of AstroMining's propellant output for national defense and civil space agency missions at a discounted rate.
- **Geopolitical Defense:** Endorse AstroMining's property rights and Safety Zone to protect its national commercial champion against foreign interference or competitive encroachment.
- **Treaty Compliance:** Avoid violating Outer Space Treaty Article II (non-appropriation), maintaining that Safety Zones are temporary operational deconfliction measures, not territorial claims.

Team 3: The United Nations (COPUOS / UNOOSA)

Core Mandate: Prevent de facto colonization, enforce international space law, protect access for non-spacefaring nations, and preserve the lunar environment.

- **Anti-Appropriation Enforcement:** Halt unilateral enforcement of a 25 km Safety Zone, declaring it an illegal, de facto territorial claim that violates Outer Space Treaty Article II and the 'province of all mankind' principle.
- **Multilateral Benefit-Sharing:** Demand full implementation of Moon Agreement principles (or an equivalent multilateral regime): mandating that a portion of commercial lunar resource revenues be allocated to an international fund for global capacity building.
- **Global Transparency:** Insist on complete operational transparency, mandatory registration under UNOOSA, and open public access to all scientific and environmental impact data.

3. Key Friction Points for Negotiation

- **Safety Zone vs. Non-Appropriation:** Is a 25 km exclusive Safety Zone legitimate operational deconfliction under Artemis Accords principles, or an illegal territorial claim under Outer Space Treaty Article II?

- **Resource Extraction vs. Celestial Body Ownership:** Does harvesting and selling lunar water-ice constitute legal resource recovery (as framed by CSLCA 2015) or illegal occupation of the celestial body beneath it?
- **Commercial ROI vs. Global Benefit-Sharing:** How can a commercial enterprise achieve financial viability and satisfy private investors while meeting international obligations for non-discriminatory access and equitable benefit-sharing?

4. Tripartite Positions Matrix

Comparison of core negotiation positions across all three parties prior to synthesis:

Friction Point	Commercial Demand *(AstroMining Corp)*	Sovereign Nation Demand *(Sponsoring State)*	UN Demand *(COPUOS / UNOOSA)*
Safety Zone & Deconfliction	Demand **25 km exclusive** operational safety zone around facility to protect $2B CapEx investment.	Endorse Safety Zone to defend national champion & protect sovereign technical assets.	**No exclusive zones**; assert Safety Zones violate OST Art. II non-appropriation principle.
Resource Ownership & Royalties	**100% private commercial rights** to possess, process, and sell harvested propellant at market rates.	Anchor-customer contract reserving **50% discount** on harvested propellant for state missions.	Declare celestial resources **common heritage**; demand mandatory multilateral revenue-sharing.
Supply Access & Distribution	Exclusive sales to highest commercial or national bidders without price controls or caps.	**Guaranteed priority supply allocation** for national defense and civil lunar operations.	**Open, non-discriminatory market access** to lunar infrastructure and resources for all nations.