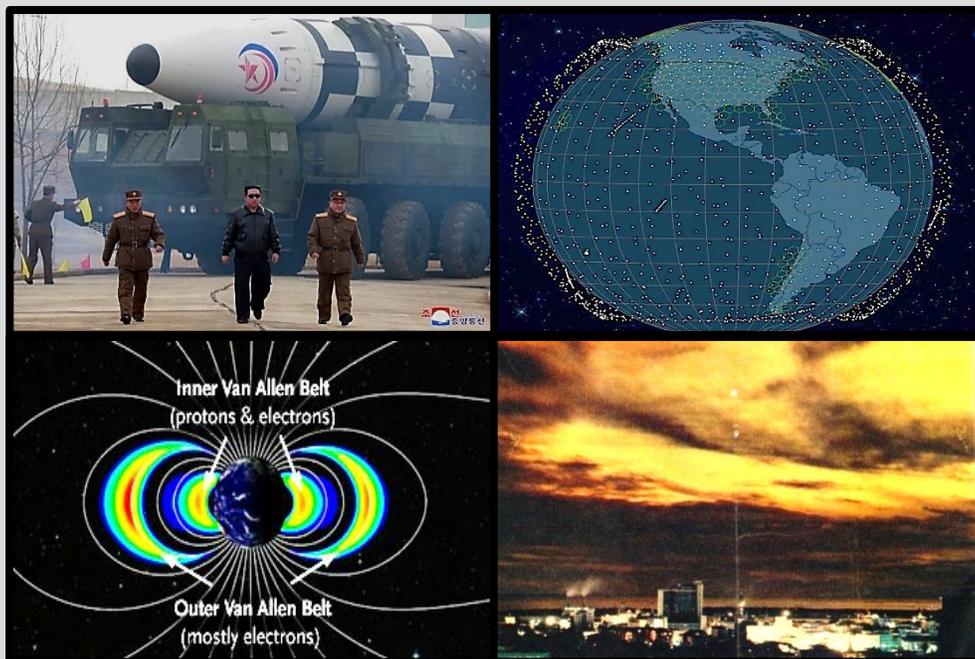


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**Pyongyang Goes Nuclear in Space:
An After-Action Report**

Edited by Henry Sokolski



January 2023

NPEC

Nonproliferation Policy Education Center

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Cover images, from top left clockwise: 1) North Korean leader Kim Jong Un walks away from what state media report is a "new type" of intercontinental ballistic missile (ICBM) in this undated photo released on March 24, 2022 by North Korea's Korean Central News Agency (KCNA) (credit: [KCNA](#)); 2) A satellitemap.space depiction of a real-time view of the Starlink low-Earth orbit satellite constellation where each dot is a Starlink satellite (credit: [satellitemap.space](#)); 3) Photograph of operation Starfish Prime in 1962 where the U.S. blew up a hydrogen bomb in outer space, some 250 miles above the Pacific Ocean (credit: [NPR](#)); 4) Depiction of the inner and outer Van Allen belts in Earth's magnetosphere (credit: [NASA / JHU-APL / Univ. of Colorado](#)).

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January 2023
Series Editor: Henry D. Sokolski

Nonproliferation Policy Education Center

The Nonproliferation Policy Education Center (NPEC), a 501(c)3 nonprofit organization, is a nonpartisan, educational organization founded in 1994 to promote a better understanding of strategic weapons proliferation issues. NPEC educates policymakers, journalists, and university professors about proliferation threats and possible new policies and measures to meet them.

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Contents

Acknowledgments and NPEC.....	2
Simulation Participants.....	3
Wargame Scenario and Rationale.....	5
Key Takeaways.....	6
Wargame Format.....	9
Game Narrative.....	9
Appendix I – Team Notes by Move.....	15

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The **Diplomatic Simulation of North Korea Waging War in Space** was not for attribution. The views contained herein do not necessarily reflect the views of each participant or the official policy of their respective agencies, private sector organizations, or the United States Government.

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Wargame Scenario and Rationale:

In the early 2000s, many hoped states might rely less on nuclear weapons for their security. Today, that hope seems remote. China is dramatically increasing the size and quality of its nuclear arsenal. Russia is developing new nuclear weapons. North Korea is accelerating its long-range nuclear strike programs and India's and Pakistan's nuclear arsenals continue to grow. Depending on what occurs in Ukraine and Iran, more nations may acquire nuclear weapons options of their own.

Parallel to these developments, the military salience of space has increased dramatically. Not just the United States and Russia, but China, Europe, Japan, the Koreas, Israel, and India have begun to develop military space capabilities. Just as many states are planning missions to the Moon. Finally, the development of dual-use commercial space systems that can be used for military purposes is expanding significantly.

The space wargame described below focuses on the collision of these two trends by simulating North Korea's use of nuclear weapons in space. Initially, some of the game's participants thought this was quite unlikely; mid-way through the game, though, they warmed to the idea. Some suggested that China might exercise the option.

They were prescient. Twelve weeks after NPEC completed its simulation, *The South China Morning Post* reported the People's Liberation Army's Northwest Institute of Nuclear Technology had simulated a nuclear weapons strike designed to knockout dual-use satellite constellations, such as Starlink. The stated aim of the computer-simulated attack was to prevent Taiwan from exploiting such militarily useful commercial systems. The article noted that the Limited Test Ban Treaty prohibits the detonation of nuclear weapons in space and the atmosphere. It failed, however, to point out that neither China nor North Korea is parties to the treaty.

The game scenario, in short, is plausible. By the end of the decade (when this simulation's war takes place), tens of thousands of small, commercial, networked satellite systems will be flying in low-Earth orbit. These satellites will complement the U.S. Defense Department's own space architecture, which includes national security systems flying in low, medium, and geosynchronous orbits. Hostile states will want to threaten them.

What's the worst they might do? This report gives an extreme answer. Some might ask why consider it. The answer is simple: U.S. national policies frequently focus on dire hypotheticals — e.g., massive nuclear wars, global warming catastrophes, pandemics, etc. — to shape plans not only to hedge against the worst, but to deal with lesser, included threats. U.S. space policy arguably doesn't yet have such an organizing worry. The scenario this report focuses on might help.

The war described in the report begins in the spring of 2029. The DPRK tests an ICBM that inadvertently travels further than intended, triggering U.S. missile defenses. No interception is made, but the U.S. demands North Korea show a good-faith effort to avoid further provocations by garrisoning its mobile missile force and by beginning U.S. reconnaissance flights near North Korea. Washington subsequently increases pressure on North Korea to accede to these demands by asking the United Nations to approve a selective blockade of North Korea and placing U.S. strategic forces on alert.

North Korea refuses America's demands, begins a general mobilization, and warns Washington that if the United States fails to end its nuclear alert and refuses to schedule the removal of its troops from the South, war will ensue. Tensions continue to build. Then early in June, North Korea launches a satellite into orbit and warns of a possible nuclear explosion in space unless the U.S. and ROK stand down. Washington contacts Beijing in hopes of getting China to pressure the North Koreans to relent. Chinese officials counsel Washington to negotiate with Pyongyang directly, noting that North Korea has not yet violated any treaty. The United States goes to the United Nations Security Council with a sanctions resolution against Pyongyang's space provocation. Russia and China block its approval.

Throughout this crisis, U.S. officials try to determine if North Korea's satellite is actually carrying a nuclear payload but are unable to do so. In mid-June, North Korea launches another payload into space, this time over the North Pacific. Well before entering full orbit (which, if it did, would constitute a clear violation of the Outer Space Treaty), the payload detonates, releasing 10-20 kilotons of nuclear energy into low-Earth orbit. All satellites in line of sight of the explosion are immediately disabled. U.S. space experts predict that the rest of the world's satellites in lower low-Earth orbit will be disabled in a matter of days to several weeks. Tactical military communications and reconnaissance in Korea are hampered by North Korea's low-Earth orbit attack. Shortly after the detonation, North Korea invades South Korea.

Key Takeaways:

At each move, the game focused on what the United States and its closest space-faring allies would do to deal with each of these crises. This produced four takeaways:

1. **The popular notions that space warfare will stay in space and that international limits can prevent hostile actions from occurring there are both strong and wrong.** Diplomats hope that with enough rules of the road, norms, and diplomatic signaling, the worst in space — military combat — can be avoided. Yet, the strong belief that diplomatic limits might prevent hostile military actions in space is betrayed by deep ambiguities in the space restrictions we have. In this regard, the U.S. team insisted North Korea's nuclear detonation violated the Outer Space Treaty. China, however, disagreed and the U.S. Department of Defense legal experts agreed with China: Unless

it can be proven that a nuclear device detonated while it was clearly in orbit or “on station,” there may be no foul. Indeed, under the Outer Space Treaty, both the Chinese and Pentagon lawyers insisted that a state can legally inject a nuclear weapon into space with a missile and detonate it so long as the warhead does not fly at least one, complete Earth orbit. Of course, exploding a nuclear weapon in the atmosphere would violate the Limited Test Ban Treaty but it is legally unclear how far out the atmosphere extends. More important, North Korea never signed the treaty. Also, there is nearly no easy way to verify if an orbiting spacecraft is carrying a nuclear warhead. This makes enforcing the Outer Space Treaty’s ban on “stationing” or detonating nuclear weapons in space all but impossible until the treaty itself is violated with a detonation. This suggests the diplomatic utility of clarifying what disagreements we are likely to have with hostile states on these matters even if agreement on preventing a nuclear explosion in space is not immediately possible. For decades, the United States and its allies have sought to establish clear rules whose violation has consequences. Although desirable, this is still all too aspirational. NPEC’s previous China space game struggled with the lack of clear rules to limit dangerous space proximity operations as well and concluded that only rules that could be self-enforced would likely be of any utility. Unfortunately, nothing in this Korean game suggested otherwise. As for the plausible hawkish hope that with enough investments in military space capabilities, nuclear attacks in space can be deterred or, at least, be prevented from leading to conflict on Earth, the game provided no clear proof. What the game did confirm, however, is the military imperative to develop space and other command, control, communications, surveillance, and intelligence systems that can survive such attacks.

- 2. Developing satellite hardening and constellation reconstitution options to respond to a nuclear detonation in space are obvious hedges; far less obvious is what should be done to secure such options.** All of the game’s players agreed that after a high-altitude nuclear explosion, there would likely be a race to reconstitute one’s satellite constellations. There also was significant agreement about what should be reconstituted — satellites and launchers — and how — by stockpiling certain materials, satellites, launchers, and other items, as well as ramping up manufacturing and mobilization base, etc. There was far less agreement or consideration, however, about *when* to reconstitute — early, when satellite lifetimes would be limited, or later, after the radiation levels in the Van Allen Belts had declined, allowing newly inserted satellites to survive longer. Nor was there agreement about where to focus the reconstitution efforts — in upper low-Earth orbit, medium-Earth orbit, in geosynchronous-Earth orbit, or on alternative, non-space-based, terrestrial systems. It also was unclear who might win in such a reconstitution race — China or the United States — and why. Some believed that the United States and its allies had a launch and satellite infrastructure and technology lead as well as a larger mobilization base than China. Others believed China would steal a march on any reconstitution race given its much quicker acquisition times. The game also stumbled across another reconstitution problem. Most players supposed that the Russian Soyuz capsule would be available on the U.S. space station in 2029. It might not. Developing U.S. or allied escape capsules would be desirable for both government and commercial space stations and operations on the moon. Finally, there was disagreement about how much hardening should be required. Some said it was pointless to demand this of commercial space firms, that if the U.S. government did, these firms

would simply go overseas. Others said hardening should be proportionate to the risk being run (is the satellite in low-Earth orbit, near debris, able to cope with strong solar storms, radiation, etc.). Others insisted that if the commercial satellite provided government services, their government contracts could be conditioned upon meeting certain hardening requirements. Yet others said the government should help pay for such hardening. Some took the position that low-Earth orbit satellites ultimately were not that important to U.S. and allied security and prosperity. Others disagreed. What is clear is the need for our government to resolve these disagreements before a crisis approaching what the game played ever unfolds.

3. **To hedge against possible nuclear attacks against low-Earth orbiting systems, the United States and its space-faring allies should develop alternatives both in other space orbits and on Earth.** Devising space systems that can operate in several different orbits without major modifications or dramatically increased costs would be extremely useful to cope with the threats posed in the game. Such systems could afford the United States and its allies much greater levels of space system resiliency against both nuclear and nonnuclear threats. Such systems would also allow much greater operational flexibility in determining what an “optimal” constellation might be. Finally, it would make any reconstitution efforts much quicker and, possibly cheaper. Meanwhile, on Earth, it would be useful to fortify land and sea cable communication systems, ground-based navigational aids, and the development of alternative imagery systems mated to high-altitude balloons, long-endurance drones, or other non-space platforms. These land and air-based systems could be useful as stop gaps if low-Earth orbit space systems are disabled. In developing these alternative systems, it also would be most useful to develop ways to defend them both passively and actively.
4. **Two large unknowns worth assessing are what can and cannot be done to verify the presence of nuclear weapons in space and what a military proportionate action might be to a nuclear detonation in space.** There was considerable debate about America’s ability to verify a nuclear payload in space. Some thought it would be possible by 2029; others doubted this. Several questioned if without a large fleet of such inspection systems constantly in orbit, one could get close enough soon enough to make any difference if a nuclear threat arose. Whatever the truth may be, it is critical to determine what’s possible so that reasonable expectations can be set before a crisis occurs. It is always tempting to spend significant amounts of time and money to try to secure a technical fix for such a challenging detection mission. It may more sense, however, to design technically and militarily around the probability that such a fix may long prove elusive. Yet another mistaken assumption the game revealed was that agreed, proportionate military counterstrike options to a nuclear detonation in space would be on tap. They were not. Again, it is unclear what, if any, these options might be.

Wargame Format:

The wargame consisted of three moves. The first began with a mishap during a North Korean test of multiple, independently targetable warhead-armed intercontinental ballistic missiles — this sparked an international crisis. In the second move, the crisis escalated, North Korea moved its ground forces near the border with South Korea and set off a nuclear weapon in low-Earth orbit. The game’s last, third move was a “hot wash” in which the group discussed the simulation and the players’ key findings.

Wargame participants were organized into four teams representing the United States, South Korea, China, and an expanded Five Eyes team (i.e., the United Kingdom, Canada, Australia, New Zealand, Japan, Germany, and France). The control team oversaw communications, managed the scenario, and represented North Korea, Russia, and several other regional actors. Teams responded to the crisis; communicated with other teams to gather information; negotiated; and created a response strategy and contingency plans.

Game Narrative:

Move One – The Crisis

Move one begins in 2029. The United States and its allies have employed large networks of proliferated military and commercial satellite systems flying in low-Earth orbit. A good portion of America’s, Japan’s, and South Korea’s most important military and civilian space missions are no longer achieved by simply using several large, geosynchronous and semi-geosynchronous spacecraft. Instead, by 2029, the U.S. Department of Defense has fielded their own fleet of military satellites and contracted with private firms that have their own large dual-use satellite constellations flying in low-Earth orbit. These low-Earth systems complement the large spy satellites the United States still operates. The low-Earth orbit military constellations’ key missions include missile tracking and secure military communications. In addition, tens of thousands of low-Earth orbit, dual-use, commercial, networked satellite systems afford unclassified images and secure communications not only to the U.S. military and intelligence agencies and America’s closest security allies but to customers lacking U.S. security clearances.

Early in 2029, South Korea’s and America’s recently elected presidents, announce their intent to meet to discuss several issues of common interest, including how best to deal with the continuing military threat Pyongyang poses. To test their resolve, North Korea launches a multiple independently targetable re-entry vehicle-armed intercontinental ballistic missile toward North America. The missile’s flight is supposed to terminate before it might trigger America’s Alaska-based missile defenses. Unfortunately, something goes wrong. The missile

flies further than planned, triggers the Alaskan system, but splashes down before it can be intercepted. This simulated “attack” alarms the American public.

The President demands that Pyongyang show good faith to prevent any further “surprises” by parking all of its mobile missiles in three agreed, visible locations within North Korea. In addition, Washington announces it will ask the United Nations Security Council to “prevent further military provocations” by authorizing a selective air blockade of North Korea. China and Russia block consideration of this resolution and before any further diplomatic action is taken, North Korea mobilizes its military. In response, the United States places its forces on alert, consults Seoul and Tokyo, and orders a series of air reconnaissance flights close to North Korean air space.

This escalates the crisis. North Korea warns that unless Washington 1. stops these flights, 2. stands down its military, and 3. agrees to a scheduled withdrawal of U.S. troops from the Peninsula, war will ensue. On the same day, Pyongyang launches a road mobile solid-fueled rocket but instead of aiming it against a target on Earth, the missile places an object in low-Earth orbit. North Korea, then, announces that Washington and Seoul should be very worried that a nuclear explosive may be set off in space at any time.

In hotline consultations with China, Beijing reminds Washington that North Korea has not yet clearly broken any rules as there is no reason to believe that it has placed an object carrying nuclear weapons in space. The PRC calls for calm so it might host talks to resolve the “larger” crisis. It offers to arbitrate and warns the United States not to attack North Korea’s “satellite” with anti-satellite weapons and that it should let diplomacy run its course.

Given this communication, the United States decides against, taking preemptive military action. Washington decides instead to keep engaging China, South Korea, and America’s allies to harmonize their actions if the situation intensified and asks Beijing to talk directly with Pyongyang. U.S. officials stress that they would hold North Korea’s leadership accountable should the crisis further escalate.

Washington gives its diplomatic strategy several weeks to succeed and concurrently prepares for its possible failure. The United States continues its military reconnaissance of North Korea and explores quick-fix technical workarounds to support military operations that rely on space assets that might be lost if North Korea sets off a nuclear weapon in orbit. The United States halts any new U.S. launches of satellites into low-Earth orbit and reduces the crew on its manned space station to two, which is the minimum required for operation.

South Korea considers North Korea’s actions an act of war that can only be de-escalated by showing Pyongyang an appropriate level of allied military resolve. After meeting with South Korea’s president, the U.S. President places U.S. nuclear strategic forces on Defcon 3 alert, orders families and dependents to evacuate from the Korean Peninsula, and calls for the U.S.

embassy to reduce its staff. South Korea expresses concern that North Korea's detonation of a nuclear weapon in space could cause substantial harm to South Korean communications, surveillance, early warning, and precision targeting systems.

Meanwhile, China perceives the crisis as one of America's making and characterizes the U.S. response as a deliberate escalation. China says it will work to de-escalate the crisis and discourage North Korean nuclear use but that it will not support any measures that impinge on North Korea's sovereignty, including imposing United Nations sanctions or blockades. China also issues a public statement defending North Korea's exercise of "its right to test defensive weapons" and calling for a meeting of all parties to find a peaceful resolution to the current crisis.

In this regard, China reminds the United States of its perpetual treaty of friendship with North Korea and maintains that North Korea's sovereignty is a fundamental Chinese interest. Some believe China sees the crisis as an opportunity to drive a wedge between America and its partners. China, meanwhile, offers to convey to Pyongyang Washington's desire to deescalate the crisis. Toward that end, Beijing advises the United States to de-alert its nuclear forces and agree to three-way talks with China and North Korea. At the same time, China asks North Korea to give China advance notice of any nuclear detonation to ensure the safety of astronauts on the Chinese space station and protect vital space infrastructure.

Both the South Korea and expanded Five Eyes nations reject China's characterization of the United States as the aggressor and condemn North Korea's actions. South Korea urges China to exert its influence over North Korea to maintain peace and warns that Seoul will increase defensive measures as long as North Korea continues to threaten the South Korean people. The South Korean team advises Beijing that South Korea's actions are of a defensive nature and not meant to undermine China's efforts for peace. South Korea and the expanded Five Eyes nations also publicly remind all nations of the collective threat a North Korean detonation of a nuclear weapon in space poses to Chinese, Russian, and Western commercial satellites and civil space stations operating in low-Earth orbit.

The expanded Five Eyes nations evacuate personnel from their manned space stations and the moon to prevent them from being stranded should the stations or the command and control to them be damaged. The expanded Five Eyes nations also begin migrating communications, navigation, and imagery activities in low-Earth orbit to satellites operating in other orbits, where feasible.

Meanwhile, China applauds South Korea's recent space accomplishments, cautioning that China would not want to see those assets affected by any escalatory actions. Beijing implores Seoul to refrain from military actions that North Korea might perceive as threatening.

The U.S. team directs American commercial satellite firms to do what they can to inspect the orbiting North Korean satellite and prepares for possible non-kinetic actions against North Korea's satellite (i.e., with high-power microwave and laser targeting and jamming). Meanwhile, the U.S. team asks China to support a United Nations resolution calling on North Korea to abide by past United Nations resolutions and end its nuclear provocations.

In response, China issues a firm warning to North Korea that it is in nobody's best interest to escalate the crisis. China reminds North Korea of the interconnectedness of their two economies and how any actions that cause harm to the Chinese economy, would, in turn, be detrimental to North Korea.

Move Two – The Detonation and Aftermath

At the start of move two, the crisis is in its 12th week. On June 10 and 11, the DPRK prepares four road-mobile missiles for launch and raises its force's alert status. On June 12, North Korean ground forces move toward the Demilitarized Zone. U.S. intelligence assesses the potential for an invasion to be high. On June 13, North Korea activates multiple mobile missile batteries, transiting to various points at night.

Meanwhile, the results of the U.S. satellite inspections begun in move one reveal gamma ray emissions from North Korea's satellite's payload, suggesting the presence of some plutonium. However, the inspection is unable to determine whether the payload is a weapon. South Korea asks the United States to conduct a preemptive space strike to stop North Korea from detonating the satellite. However, Seoul because such an action would be considered offensive and because a kinetic attack would cause damaging debris, Seoul urges Washington to use non-kinetic anti-satellite weaponry (e.g., jamming or cyber).

Meanwhile, America's space fairing allies ask for U.S. assistance to defend their assets in low-Earth orbit. To prepare for a possible nuclear detonation, the U.S. team urges contractors to determine key choke points and to prepare to reconstitute their constellations.

Meanwhile, the South Korean team partially mobilizes its armed forces and places 75 percent of South Korea's forces under U.S.-South Korean Operational Control or Central Forces Command. To hedge against a possible North Korean invasion, Seoul asks Washington to deploy one to two guided missile submarines off the Spratley Islands, one or more attack submarines in Taiwan Strait, and a carrier group off Japan and the Philippines to distract China and keep it out of Taiwan.

Washington assures Seoul that the United States is taking appropriate preparatory measures to prevent a Chinese move against South Korea and Taiwan asks Seoul to prepare to move north,

with U.S. forces, depending on North Korea's and China's next move. The United States assures Seoul that major, U.S. strategic space systems in medium and geosynchronous orbits, such as Defense Support Program Satellites, MILSTAR, and GPS are hardened and are fully operational but communications and imagery systems in low-Earth orbit will degrade over time due to the increased radiation environment.

The U.S. and its allies strongly condemn North Korea's actions that have broken the Armistice and that the firing of any rocket by North Korea is a breach of existing United Nations resolutions and Article 9 of the Outer Space Treaty, which prohibits "potentially harmful interference" with legitimate activities in space. They ask the United Nations to call out North Korea for violating the Outer Space Treaty. As a precondition to engaging in any Six-party talks, Washington insists that North Korea first commit not to explode a nuclear device in space. The Five Eyes expand their surveillance to detect any move China might make to take advantage of the space crisis to act against Taiwan. Privately, Beijing warns North Korea that a nuclear detonation would harm both China and North Korea. Pyongyang replies that only the withdrawal of all U.S. forces from the Korean Peninsula and America's commitment to the preservation of the North Korean regime can de-escalate the crisis.

On June 14, North Korea test ripple-fires four missiles. None go into orbit but one, carrying a nuclear device, detonates over the Northern Pacific well above the atmosphere. The device appears to have a nominal nuclear yield. On the ground, North Korean artillery forces bombard military targets just beyond the Demilitarized Zone. North Korean light infantry forces penetrate the Demilitarized Zone and use special forces to attack multiple air bases in South Korea.

Most U.S. and allied commercial satellites within line of sight of the nuclear explosion either immediately fail or begin to fail, including communication, entertainment, internet, weather, and Earth observation systems. The crews remaining on Chinese, Russian, and U.S. space stations are exposed to high levels of radiation. Initial assessments of debris creation are high. There is no electromagnetic pulse effect on any territory of any nation.

The United States uses ground-based, high-powered microwave and laser systems to disable North Korea's orbiting satellite, creating no debris, and activates its Korean command, executing all standing operational plans. Washington holds the North Korean regime accountable for launching a war against South Korea and proposes a United Nations Security Council resolution condemning, in unequivocal terms, North Korea's use of nuclear weapons in violation of the Outer Space Treaty. The Americans implore China to restore peace on the Korean Peninsula and avoid escalatory activities outside the Peninsula. Washington says it has no plans to use nuclear weapons, but warns that America and its allies will take all steps necessary to ensure North Korea never uses nuclear weapons again and to prevent North Korean forces from successfully invading the South.

South Korea's highest priority is to defend itself against the North Korean invasion. It initiates the operational plan and moves troops north, asking the United States to confirm it will provide air and naval capabilities to support the conflict. The United States assures South Korea and its other allies that it will provide the logistic support necessary for Korea to win the conflict. The U.S. also deploys naval forces to deter or defeat any attempts by China to take Taiwan.

South Korea objects to Washington's announcement that the United States would not use nuclear weapons. For Seoul, "communists only understand strength." At the same time, South Korea investigates how it might continue to conduct military communications, surveillance, and navigation by relying on ground and air-based systems. They also inquire if there are functional American space systems that South Korea could rely on outside of low-Earth orbit.

The United States, the Five Eyes, Japan, Germany, and France form a standing group to assess the military and civilian operational implications of the satellite losses. The U.S. team investigates what can be done with commercial space companies to surge satellite production and accelerate launching replacements. The U.S. team also conducts an inventory of what responsive launch operations capabilities it might have that allow the launching of satellites from planes based at airports. It also increases security around fixed launch facilities at the Kennedy Space Center and Vandenberg. The U.S. team is also concerned about possible attacks against U.S. space-related production lines and non-space communication systems (i.e., underseas cables).

Meanwhile, Five Eyes, Japan, Germany, and France use backup systems in medium-Earth and higher orbits to restore as much communication as possible. They also increase the monitoring and protection of undersea cables and the use of high-altitude airborne systems (e.g., high-flying drones, balloons, etc.) and terrestrial systems to help observe the war on the Korean peninsula and monitor Chinese military movements. China does the same, announces its support for North Korea, and warns South Korea and its allies not to cross the 38th parallel. The emergency of war makes forces deferral of any immediate clarification of what, when, and how the United States and its allies will reconstitute their commercial, civil, and military low-Earth orbital space systems.

Appendix I – Team Notes by Move

These notes are organized chronologically, streamlined, and reworded for comprehension purposes.

Move 1

Expanded Five Eyes Team

Crisis Response / Game Playing

Participant #1: There are questions about human spaceflight due to the Chinese space station being a bargaining chip. A country in the Expanded Five Eyes that has a better relationship with China than the United States might want to possibly point out to China that its space station is at risk. However, if they deorbit their space station or remove their astronauts it also sends a signal to the world.

Participant #2: There are essentially 3 elements to the question: 1. How will commercial and military operations in Low-Earth orbit (LEO) suffer? How will the effects be different from Russia and China? 2: What kind of assets do we, the Expanded Five Eyes, have in LEO? 3: How might Russia and China use this to enact diplomatic action? I agree that the question of whether we have a bargaining chip with the Chinese space station is one to consider. Can we bring in the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) and other treaty-related space obligations? We need to compartmentalize our options. Has there been any change to the Chinese crewed presence in LEO? Have there been any changes in human presence in LEO?

Participant #1: Have there been any changes in human spaceflight launches since the Democratic People's Republic of Korea's (DPRK) launch of the missile? The astronaut rescue treaty is a good point.

Participant #2: We need to come back to the diplomatic consequences like taking these issues to UN COPUOS. Is this a breach of weapons of mass destruction (WMD) in space, or a violation of astronaut safety?

Participant #1: We need to address the preparation that countries can make for this. One of our pre-meetings raised the issue of satellite design and operation because it has changed drastically in 5 years and can change much more. This drastically hurts our team. If I were to propose something, it would be to get together like-minded countries like ours with launch

capability and say that “we need to reconstitute all of these systems from the ground,” for the ones we were lucky enough to store on the ground. A coalition would be even better, but how would we prioritize who launches when?

Participant #3: We represent the Five Eyes, so we should factor in One Web, owned by the United Kingdom and India. That probably makes India involved in this because India is a space player, especially in the region. Perhaps we can bring this player to be part of the dialogue for the UK side because the UK is a member of the Five Eyes. This is something we could attempt to leverage to our advantage.

Participant #1: The point about India’s launch capability is good. They may not join the coalition but could be willing to assist if they have extra launch space.

Participant #3: Space flight from the Chinese side is assumed, but can we assume that India has an operational human spaceflight (HSF) program?

Participant #1: India might be a bigger player than assumed.

Participant #2: We would like to know if India is maintaining a non-aligned position, or if it would be willing to change its positions with its commercial, and potentially HSF operations. The first question was about the impact commercially and military, but we might have a bigger problem with commercial impact. How will governments feel about the economic impact of this? What kind of military options do we have with redundancy? We also have geosynchronous orbit (GEO) and Medium-Earth orbit (MEO) that we can still use. We also need a picture of who can bring what to the table in terms of redundancy. We have a lot of assets in MEO and others operating beyond the impact zone. We need to think about how we can manage some of the commercial impacts of the situation with that in mind.

Participant #1: Loss of weather forecasting is a big impact on LEO. The National Oceanic and Atmospheric Administration (NOAA), Japan, South Korea, and others all have fleets of weather forecasting. We will still be able to forecast, but our range of ability will drop from 10 to 2 days of predictability. How can we conduct a potential military option with only 2 days of weather forecasting? In terms of economic interest, though, we may want to specifically name OneWeb. People consider it a UK thing, but India has a big role that is sometimes forgotten.

Participant #4: In the context of OneWeb, has India retained its non-aligned posture internationally, or have its commercial interests and capabilities such that it is leaning in politically more?

Message sent to control –

India – has it retained its non-aligned posture internationally or has its commercial interests and capabilities meant it is leaning in politically more? In the context of OneWeb.

Participant #2: Is Russia still a big space player? What happened with Ukraine? Has it been brought to heel economically and military? I am interested in the relationship between Russia and China. Is there a strategic relationship, and how are they working together? Are they no-limits strategic partners, or has it changed?

Participant #1: We may also want to know whether Russia might have a bilateral relationship with North Korea.

Participant #2: Does Russia have a moon base by 2029? Will they get stranded on the Moon?

Participant #5: What kind of current treaties still stand? Do the Artemis Accords still stand?

Bailey: We have all current treaties still standing, including Artemis Accords, but no new ones.

Message sent to control –

About Russia, does it have an extensive relationship with China, and/or does it have a bilateral relationship with North Korea? Is Russia still a real space power? Is it still part of the international space station/does it have its own?

China/Russia base on the moon – does this exist?

Participant #3: I also wonder if America will have landed humans on the moon again by 2029. Are there some elements of Gateway? Does the United States have stealthy anti-satellite weapon (ASAT) capabilities that they could use to take down satellites in LEO?

Participant #1: That is a good question for control.

Message sent to control –

Has the United States developed the capability for ASAT in LEO departing from cislunar space? Are the current treaties still intact?

Participant #2: My optimistic approach is to assume the United States has been on the moon again.

Participant #6: Do we discuss the commercial space station?

Participant #1: That is fair. There will probably be at least one commercial human habitat in space.

Participant #2: Agreed.

Message sent to control –

Has the United States developed the capability for ASAT in LEO departing from cislunar space? Are the United States and Artemis partners still on the moon? What is the status of the permanent presence in space by commercial human space flight?

Participant #6: We should already have 1 or more commercial space stations that can take over.

Message received from the U.S. –

We are reaching out to you to let you know that the United States will engage with China to convey:

1. Give diplomacy a chance. The United States will engage with China and our Allies on this matter.
2. If things go wrong, the United States would like to have communications between China and the U.S. and its allies to deconflict actions and intent.
3. The United States national command authority will hold North Korean leadership accountable if things go badly.

Participant #2: Good communication. I am not uncomfortable with it, but I have a question back for them. Are they assuming China will work constructively in this scenario? Are they assuming China is more aligned with them in this event in keeping LEO sustainable and operational? Do they think that they could take out the North Korean satellite by non-kinetic means? Can it be neutralized?

Participant #1: It does not appear from this email that the U.S. team is not considering a Chinese space station with a human presence.

Participant #2: Are they thinking of using that fact in negotiations?

Reply received from control –

Q: About Russia, does it have an extensive relationship with China, and/or does it have a bilateral relationship with North Korea?

A: Yes.

Q: Is Russia still a real space power?

A: Yes.

Q: Is it still part of the international space station/does it have its own?

A: No, it is not part of the international space station. There is a Russian, Chinese, international, and commercial space stations.

Q: China/Russia base on the moon - does this exist?

A. No, China and Russia do not have moon bases.

Q: Are the current treaties still intact?

A: The current treaties are intact.

Participant #2: We need to be clear to the U.S. that however they respond to this, they need to be mindful of obligations in international law. North Korea is not part of any of those treaties, but you do not need to be a treaty member to know it is a breach of international law to do something.

Participant #1: The U.S. should probably not react unilaterally. Their response is not just to the bad guys, but to the entire international community. They should try to work with coalition countries.

Participant #2: It might be useful to communicate to the United States that as an Expanded Five Eyes group, we have talked about capabilities in orbit and redundancy. Commercial and military potential impacts are being considered by us with developing a plan in mind.

Participant #5: Should the United States connect with us before holding North Korea responsible?

Participant #1: That is a great point, assuming the United States will coordinate with us.

Participant #4: Maybe the United States is focused on China and allied deconfliction, rather than consulting with allies before taking action. It is not clear if they will speak to us before doing anything.

Message sent to U.S. –

Are you assuming that China will work constructively and that its interests are aligned with the U.S. and keep the LEO environment operational/sustainable?

Do you think you can take out the NK satellite by non-kinetic means? Use a non-kinetic measure to neutralize the satellite? Please be mindful of engagement and abide by international law. Please consider what your response will be. Be mindful of the response of the Expanded Five Eyes + powers and factor that into your response.

We request being part of the dialogue about number #3 if you decide to hold North Korea accountable.

Are you assuming that China has an active space station in orbit with humans? Are you thinking of using that in negotiations?

As an Expanded Five Eyes + team, we have already begun planning to mitigate the military and commercial impact. We are thinking about how an international coalition with the United States and Expanded Five Eyes can come together to respond.

Message received from China to all –

China objects to the U.S. initiation of a nuclear crisis in Northeast Asia in response to North Korea exercising its right to test defensive weapons. We call for all parties to meet to address American aggression and peacefully resolve this crisis.

We welcome the U.S. desire to enter dialogue with China to resolve this crisis. As the leading country in Asia, China calls for a UNSC meeting to discuss a peaceful resolution to this crisis and address the American nuclear escalation and bullying of small nations.

China reminds the United States that it has a perpetual treaty of friendship with North Korea and that its continued sovereignty and integrity is a fundamental to Chinese interests. China will vote against any military measures against North Korea to include an illegal air or naval blockade.

Participant #2: Sounds like China.

Participant #1: Sounds like they are admitting there is a weapon.

Participant #2: “Address American aggression.” That is lovely.

Participant #1: This brings up an interesting conversation to be had by the Five Eyes, in that, yes, we are a coalition, but there is no reason that any one of the countries cannot respond unilaterally to China’s diplomatic note. Australia and Japan, which are a lot closer to China and North Korea, might take a different view on how to respond than countries in Europe and North America that are not so close.

Participant #6: Yes, but with the Japan Self-Defense Forces (JSDF), I do not think Japan can take any action. I think we can respond as a coalition.

Participant #1: I would expect China to break apart the coalition, but they have not attempted to do that in this first memo.

Participant #2: I would bring up, first, internal law and cite Article III of the OST at them. *States are under an obligation to carry on activities in the use of space by international law and in the interests of maintaining international peace and security and promoting international cooperation and understanding (Article 3 OST).*

Participant #4: Yes, we need to remind them of their obligation under international law. I am not sure how far we want to go, but we may want to reject the characterization of the U.S. as an

aggressor. If China calls for a United Nations Security Council (UNSC) meeting, we have France, the U.K., and the U.S., but they have China and Russia, so the Security Council will be completely impotent in this crisis. Still, we must reject the role of the U.S. and the blame being placed on the U.S. for the crisis. I think we should all do that. And we should certainly remind them of their international obligations.

Participant #2: We could make a statement encouraging the Security Council to be working together, but I would not expect it to happen.

Participant #4: We should express that we want the UNSC to work. We want to say that we are on the side of not escalating this to war.

Participant #2: Maybe we should add something about their own commercial LEO assets.

Participant #1: Or we could remind them that they have an HSF presence in LEO.

Message sent in reply to China to all –

States are under an obligation to carry on activities in the use of space by international law and in the interests of maintaining international peace and security and promoting international cooperation and understanding (Article 3 OST).

In addition, the Expanded Five Eyes team rejects the characterization that the U.S. is to blame for escalation.

Finally, we express a desire for the UNSC to work effectively and achieve a diplomatic solution.

This is also a reminder that any hostile actions will have consequences on your space assets including a human presence and robotic assets.

Reply received from control –

Q: Has the U.S. developed the capability for ASAT in LEO departing from cislunar space? Are the U.S. and Artemis partners still on the moon? What is the status of the permanent presence in space by commercial human space flight?

A: The U.S., by 2029 will have at least one rendezvous satellite in cislunar space jointly developed with industry. The U.S. has landed on the moon again but has no permanent presence. There are Russian, Chinese, international, and commercial space stations.

Participant #1: Following the money, aspect is becoming a lot more important.

Participant #4: From an Australian perspective, I would almost want to go stronger on this one. I think it is incredibly unlikely, I would like to confirm that no Five Eyes member is invested in any Chinese LEO activities. Thinking of the German and Chinese belly-up issue with lots of

lawsuits. I cannot see Japanese companies doing it, but I would like to be forward-leaning. I would like to assume/propose that no Five Eyes private companies are invested in China.

Participant #3: I do not think it is unlikely for the Expanded members. For the Five Eyes, yes, maybe not, but for members that fall under the expanded umbrella, it is not that unlikely.

Participant #4: I think the Five Eyes is coalescing into tech and other industries. I would think Japan is similar. LEO constellations themselves are in question. Some of us think there is some potential for European commercial involvement with China in LEO.

Participant #3: I like to ask questions and see the reaction, but this is complicated and goes beyond buying satellites. There are also ground rights and landing in question. You might not think you are investing, but not far down the chain, there might be an oops.

Participant #1: China said not to touch the North Korean satellite. You do not have to touch satellites to remove them from orbit. A good cyber person on the ground could take out the signal from the ground.

Reply received from U.S. to China –

The United States still desires a diplomatic solution to this current escalatory action by North Korea.

Question: What suggestions does China have to offer North Korea to resolve this current international situation?

The United States re-emphasizes that it will hold North Korea accountable if events go badly.

Participant #4: Could we ask the U.S. again if they can non-kinetically neutralize this satellite? They could put something up themselves, not necessarily being explicit about what it is.

Reply received from the U.S. –

Q: Are you assuming that China will work constructively and that its interests are aligned with the U.S. and keep the LEO environment operational/sustainable?

A: No.

Q: Do you think you can take out the NK satellite by non-kinetic means?

A: Potentially.

Q: Use a non-kinetic measure to neutralize the satellite?

A: Potentially. Please be mindful of engagement and abide by international law. Acknowledged.

Q: Please consider what your response will be. Be mindful of the response of the Expanded Five Eyes + powers and factor that into your response.

A: Acknowledged.

Q: We request being part of the dialogue about number #3 if you decide to hold North Korea accountable.

A: Concur; will coordinate as events unfold.

Q: Are you assuming that China has an active space station in orbit with humans?

A: Yes.

Q: Are you thinking of using that in negotiations?

A: Yes.

Reply received from control –

Q: We want to propose that no Five Eyes private commercial companies invest in any Chinese LEO commercial constellations. Is there potential for European commercial involvement?

A: Yes. They can invest and do whatever they want with their assets.

Participant #4: Does anyone have ideas about what China or others could offer North Korea? Do we have any ideas?

Participant #1: I am tempted to say food.

Participant #4: That is certainly something they need.

Participant #1: There may be some infrastructure things that could be offered.

Participant #4: It almost seems that China is saying that they will back North Korea. It was a very strong statement from China. With the U.S. saying they will hold North Korea responsible, then by China's statement, China will also be responsible.

Participant #1: Then it is a coalition of two? Can we break China and North Korea apart?

Participant #4: Can the U.S. think of ways to split North Korea off from China?

Participant #1: You must make the risks to China unacceptable.

Participant #4: This is something we did remind them of in our communication.

Participant #6: But if you split China and North Korea, how do you communicate with North Korea?

Participant #1: How can the Chinese president answer to his citizens if he lets his taikonauts die and their satellites are destroyed?

Participant #3: There is a proposal to be made that a join China/U.S. HSF mission be made. The other way around is to create a situation where China is forced to avoid or stop the explosion from North Korea.

Participant #4: Maybe the question is – have you considered any offers to China that maybe may draw them towards cooperating more with us and away from supporting North Korea?

Message sent to control –

Will the coalition have an asset in North Korea in move two? Will the U.S. and coalition have a space-based asset in place that may non-kinetically neutralize a potential North Korean nuclear satellite? They do not have an asset in North Korea that can fix the problem. The United States has a rendezvous satellite in cislunar orbit.

Message sent to the U.S. and South Korea –

What is the United States thinking about the potential ways to split the China/North Korea cooperation? How do you plan to divide them?

The Expanded Five Eyes team emphasizes again that you hold North Korea accountable.

Have you considered any offers to China that may draw them toward cooperating more with the Expanded Five Eyes than supporting North Korea?

Finally, remind China of the threat to its assets, including humans and satellites, in LEO, which may have catastrophic effects on China.

Participant #1: We need to make sure that South Korea is in the loop about all of these things.

South Korea's message to Five Eyes and the U.S. received –

The Republic of Korea supports the actions of the United States and the statements by the concerned nations.

South Korea condemns North Korea's actions and demands they stop.

South Korea finds China's statements regrettable.

Based on consultations with the military committee, South Korea recommends moving U.S.-South Korea to DEFCON 3.

U.S. reply to South Korea received –

Thank you for your statements and support.

South Korea's message to China received –

Thank you for your efforts toward peace on the Korean Peninsula.

But I must remind you that North Korea initiated this crisis and now insists on conditions that are unacceptable due to North Korea's nature of threatening the security of the Korean people. We advise China to use whatever influence it has to influence North Korea to maintain peace.

Finally, South Korea will increase defensive measures and expects China to understand that these steps are not aggressive but defensive and Beijing should not feel it threatens China's efforts for peace.

Participant #1: I think at this point, from an Expanded Five Eyes perspective, we should send a quick response to support South Korea's responses and to note that we will support their defensive moves and their sovereignty.

Participant #4: We could say that we want to reiterate our desire for a peaceful resolution and support dialogue. This is not the most recent China message. I think what we want to do is continue to reject assertions of U.S. aggression and remind the entire international community of our collective interests, both commercial and military, as well as of human life in LEO.

South Korea's message to the U.S. received –

Do you agree with our proposal to move U.S.-South Korean forces to DEFCON 3?

U.S. reply to South Korea received –

Yes, we agree with your proposal.

We are taking steps to gain further information using a repurposed commercial servicing satellite.

U.S. message to all received –

We are taking the ISS down to a minimal 2-man crew.

South Korea's message to Expanded Five Eyes received –

Thank you for your support and commitment to peace and security on the Korean Peninsula.

Peace on the Korean Peninsula affects all nations and as such under the UN command flag, South Korea will support all activities to assist South Korea to maintain peace and defeat North Korean aggression if such conditions warrant it. Thank you for your support

U.S. message to China received –

China Team,

The United States and those nations that are part of the ISS are taking the station down to a minimal crew (2 persons). Is China taking similar action? Is China concerned about North Korean escalatory action threatening human life on orbit?

Team America

Participant #2: We need to remind China of the threat to its assets, including humans and satellites, in LEO, which may have catastrophic effects on China.

Team Briefing

Question 1 –

If U.S. and allied satellites cannot function in LEO how much of a hit do their military and commercial operations suffer?

How does this hit compare to the one Russia and China might suffer?

Is this difference one China or Russia can exploit militarily or commercially? If so, is the difference significant, and how?

Participant #6: Depending on how responsive they can be, I am not so sure how much the Expanded Five Eyes would respond. It could be up to the United States to be responsible for this kind of threat.

Participant #4: China is probably not far off in terms of LEO capability.

Participant #1: China will be more invested in LEO than Russia.

Participant #3: It will not be as bad for Russia.

Participant #1: Even in 2029, the biggest hit to Russia will be HSF.

Participant #2: Russia wants to increase MEO presence. We might be on the money, but it might be hard to know for sure. ([Source](#))

Participant #4: Is there any indication that China and Russia are in a good relationship? If they are acting together or as strategic partners, it does make a sort of 3 coalitions. I think we can assume there is something of a genuine coalition of Russia, China, and North Korea. This will be a significant hit for us. There will be profound impacts on the government, the military, and provisions of government services, in addition to commercial impacts.

Participant #2: Can we add in economic impact?

Participant #2: I think the answer is that the hit will be asymmetric. There may be civilian communications.

Participant #4: I think the difference is one that Russia, China, and North Korea could exploit.

Participant #2: I think the thing is that this will have a profound effect on the civil and commercial sphere. It will be a profound day-to-day effect on the civilian population.

Participant #4: That is easier for authoritative regimes to manage.

Participant #2: How can we prepare our civilian population for that consequence?

Participant #1: I think impacts are directly proportional to how technologically advanced your society is. I.e., this may not affect North Korea as it is not currently serviced by LEO.

Participant #6: Back to 1C; it may depend on resilience, meaning how fast we can repair and replace satellites to mitigate the threat.

Question 2 –

What immediate mitigation steps, if any, relating to low-Earth orbit spacecraft (satellites, manned stations, and robot craft) should the U.S. and its allies take in preparation for a possible detonation?

Participant #6: Evacuate people not satellites. But can we evacuate satellites?

Participant #2: My concern would be people potentially on the moon without a permanent presence.

Participant #1: The people on a moon base would be okay initially, but if all communications are wiped and other things, how can they get back?

Participant #4: The point is that if they do not have it already, the United States should get a weapon into LEO with ASAT capabilities like AMP, or even have ground-based offensive cyber capabilities queued up and ready to go.

Participant #6: We can try to move satellites to other orbits, and migrate capabilities. Also, we can start planning for any replacement capabilities in case a detonation happens.

Participant #1: We were talking earlier about how what the Chinese and Russians do with their humans in space really ought to be an indicator of whether they know if there is a threat. Back in my old Cold War days, we would always say watch for the Russians evacuating their cities.

Participant #2: Do we have any LEO satellites sufficiently hardened to withstand nuclear detonation? What could we potentially have left after the detonation?

Participant #2: “We see quite a bit of interest in LEO systems, Starlink, and OneWeb. The idea is that they would provide high coverage and offer broadband access. These systems have some benefits. They have better energy performance and lower latency. However, there are some challenges as well. Large parts of the population would be outside coverage areas. It is also about providing subscriber equipment. There are many challenges still in front of us,” Prokhorov said.” ([Source](#))

Participant #4: We should monitor terrestrial actions, not just space actions.

Mark: There is something to consider regarding North Korea’s lack of reliance on the internet. ([Link](#))

Question 3 –

How, if at all, might China, the U.S. and its allies, and Russia use this crisis to initiate some form of diplomatic action?

Participant #7: Russia made some sort of threat to the ISS recently when they threatened to take away all their capabilities and there was a Russian cosmonaut on board. Considering there will be multiple countries in space at one time if one threat is there, it threatens everyone.

Participant #1: This question gives us a chance to point out a potential Russia, China, and North Korea coalition. We should remind North Korea that there are Chinese and Russian people in orbit.

Participant #2: We could mention UNCOPUOS and potential discussions on banning kinetic destruction in LEO.

Participant #4: Can this crisis provide a new opportunity for a statement on the peaceful use of space?

People's Republic of China Team

Crisis Response / Game Playing

Participant #1: Why don't we just start going around and give first reactions to the scenario and the crisis situation? Let's get everyone's perspective on that and see what our team thinks.

Participant #2: It is still unclear whether the satellite launched by the North Koreans is nuclear. Ask China to play a negotiation role, our first priority should be getting intelligence to find out why Kim reacted that way. Do we have any intelligence about the situation?

Participant #1: They haven't set it off yet. Everyone's very worried.

Participant #3: We want some intelligence on what it is exactly that the Democratic People's Republic of Korea launched into low-Earth orbit (LEO).

Participant #4: It could just be posturing.

Participant #1: The scenario doesn't say anything about what we know, as the China team. There are two parts to that: one, our ability to detect, sense, and characterize the object and whether it has nuclear materials or not. Two, we presumably have a network of sources in North Korea, being their only friend. We could ask control: what do we actually know? Do we believe our statement that we have no reason to believe it is nuclear? Are we lying?

Participant #2: If I am a Chinese strategic thinker, I have my own satellites in LEO that I depend on for Command and Control (C2); navigation; and intelligence, surveillance, and reconnaissance (ISR). Therefore, I would be very concerned if North Korea detonates a nuclear-tipped satellite in LEO.

Participant #4: The United States might be more reliant on satellites in LEO.

Participant #3: We could contact North Korea asking what their game is here.

Participant #1: We should send out two messages. One to control, saying: "what does China know?" Our second message should be to our North Korean partners and allies, directly asking them what they launched. To the point that Participant #4 brought up, there are a few things China is worried about. The first is this broader crisis where the North Koreans conducted a missile test, it got slightly closer to Alaska than usual, and now the United States has initiated a crisis by getting the U.N. Security Council (UNSC) to suggest a blockade. As China, we would veto that: we do not want a U.S. presence in North Korea. If U.S. reconnaissance flights are near North Korea, they are also near China, so we have a bunch of Americans flying right by us, too. The U.S. Strategic Forces are also alerted, which we would not be thrilled about. As a Chinese strategic thinker, my initial reaction is that the United States has massively overreacted, and the blame is on the Americans. As far as space is concerned, there are a few

things we care about. First, there is the question of the threat to our space systems. China has a bunch of LEO satellites that would be threatened by a high-altitude nuclear explosion. In particular, we would be worried about LEO ISR satellites that enable anti-access area denial (A2/AD) capabilities. In the context of a U.S.-initiated crisis in Asia, China is worried about its ability to track and target U.S. troops if war breaks out. China would also be worried about where North Korea sets off a nuclear device. If it is set off over China, there is also an electromagnetic pulse (EMP) problem. This threatens C2, the power grid, and the economy. If this is really a nuclear weapon, China wants North Korea to blow it up over the ocean, or the Americas, not China, for military and economic reasons. From what we now know, we probably want to express this as a concern to the North Koreans as a part of our crisis behavior.

Participant #3: I am sending two emails: one asking Control what China knows from intelligence networks, and the other contacting North Korea. Does that sound good?

Participant #5: Sounds good.

Participant #2: Sounds good.

Participant #1: I have laid out my concerns. What is everyone else's read on the Chinese reaction to this broader crisis in Asia? How do you guys think we would be reacting to it, and is there anything we want to communicate to the United States or South Korea?

Participant #5: Instead of direct bilateralism, we could use the United Nations (UN) as a forum to engage on a more international scale. From a Chinese perspective, the United States could be well accused of overreacting to a missed missile test.

Participant #1: We could suggest the UN or Beijing as places to meet for negotiation; we should reiterate our commitment to negotiation in a message.

Participant #2: There are three ways China would respond to this: First, putting the blame on the United States, saying it overreacted and escalated the situation by making North Korea insecure. Second, reaching out to North Korea to make sure they do not engage in an activity that would be detrimental to China's position on an economic level. This would be done behind the scenes, not put out on a structural level. Third, offering its own mediation capability. I agree that China would use the UN because that is where it has the most influence. As a Chinese representative, I would use my UNSC veto power to ensure no naval blockades. Also, by 2029, China's power in the UN could have grown considerably, which is something to consider.

Participant #5: That, plus the Belt and Road Initiative (BRI), plus the fact that China has a dog in this fight due to being a competent space power with a lot to lose from a detonation.

Participant #2: By 2029, if I were China, I would be having a moon mission and committing to the construction of large satellite constellations, which means I would have an incentive to

deescalate the conflict. I would not signal my attempts to deescalate to the United States, though, because that is what Chinese strategic thinking tends to do.

Participant #4: If control tells us whether we know if it's nuclear-tipped, we could use the information we get to take mitigation steps without communicating our knowledge to anyone.

Participant #3: As China, we would want to go through the UNSC if we want to de-escalate, right? I believe North Korea is currently under sanctions for ballistic missile testing by a UNSC resolution. That is not mentioned anywhere in the scenario, but it is powerful leverage to create a coalition without anyone using veto power. We could tell other countries: "you need to stand down as we further enforce this resolution; China will try to be a more honest broker to prevent escalation, but you need to abide by Security Council resolutions." That is a card we could play to take a diplomatic leadership role if that resolution exists.

Participant #1: I typed up a broad statement of what China would want to send to everybody about objecting, blaming America, and calling for a U.N. conversation about this –

China objects to the US initiation of a nuclear crisis in Northeast Asia in response to North Korea exercising its right to test defensive weapons. We call for all parties to meet to address American aggression and peacefully resolve this crisis.

China calls for a UNSC meeting to discuss a peaceful resolution to this crisis and address American nuclear escalation and bullying of small nations. China will vote against any military measures against North Korea to include an illegal air or naval blockade.

Participant #1: We can send a separate "don't do anything stupid" message to the North Koreans.

Message sent to control –

What does China know from its extensive intel networks in N. Korean, that US and 5-eyes do not know? Seems reasonable China would have additional insights compared to other teams.

Reply received from control –

We believe the Chinese have penetrated leadership in some fashion and are therefore privy to any thinking of the top brass and leadership concerning matters.

Participant #2: To the question of whether the UN has strong sanctions on North Korea, China has argued in the UN Security Council that the United States push to strengthen sanctions on ballistic missiles against North Korea will not work. China is against further sanctions.

Participant #3: Does the risk of a nuclear weapon orbiting change the stakes for China?

Participant #2: As you said, there is a UNSC resolution, resolution 2397. It was adopted unanimously, but China does not support further sanctions.

Participant #5: This is likely the response China would have in 2029. We do not want to say anything about North Korea publicly to avoid muddying the waters, but in private, we definitely want to tell them to be careful so that China does not lose satellites because we have just built our architecture the way that we want it.

Message sent to North Korea, privately –

China is very concerned about the potential for escalating this crisis and inviting American aggression in the region. We would discourage any rash action on your part.

We are also concerned about a nuclear detonation in space that could threaten our own satellites and particularly worried about a nuclear detonation occurring over Chinese territory that creates EMP effects on our military systems or critical economic assets.

Message sent to everyone –

We would like to know what your intentions are regarding the purpose and capability of the satellite you recently launched. We specifically would also like to know if it carries a nuclear explosive, or if you are just posturing.

Finally, we would like you to de-escalate this scenario. When the US and its allies are surging military power/resources to confront you, it also puts Chinese security at great risk.

Participant #2: It is to China's advantage for others to think that this is a nuclear detonation because that restricts and restrains. I want to gather intel from North Korea, but why would I want to share my intelligence by confirming that? We want the United States constrained.

Participant #1: That level of uncertainty should make it more difficult for the Americans to act in East Asia, which is good.

Participant #2: We want to show that we have power and influence in shaping international situations, so we would play the good mediator.

Message received from the United States –

We are reaching out to engage with China to convey:

1. Give diplomacy a chance. The United States wants to engage on this matter.
2. If things go wrong, the United States would like to have communications between China and the United States and allies to deconflict actions and intent. A red phone.

3. The United States national command authority will hold North Korean leadership accountable if things go badly.

Participant #2: This is a threat.

Participant #1: This does not change our position, it reinforces it. We want to blame the Americans. If they want to give diplomacy a chance, they can come to the thing we invited them to. We are the important power in the region. Come talk to us. We will figure it out.

Participant #2: We should issue a statement through the Ministry of Foreign Affairs that we are glad the United States reached out, we are happy to try diplomacy, and that we are going to use our Treaty on Friendship, Cooperation, and partnership with North Korea to achieve this. However, we should also say that the United States should de-escalate because North Korea did nothing wrong.

Participant #5: Given the timeframe, it is very likely this posturing from the UNITED STATES comes from a new, green President who is unsure of their footing and position on things. We should shift it to a political standpoint as well.

Participant #4: Should we be responding to their second point?

Participant #5: We should reiterate that we are open to communication.

Participant #1: New draft of the message to send to everyone –

China objects to the U.S. initiation of a nuclear crisis in Northeast Asia in response to North Korea exercising its right to test defensive weapons. We call for all parties to meet to address American aggression and peacefully resolve this crisis.

We welcome the U.S. desire to enter dialogue with China to resolve this crisis. As the leading country in Asia, China calls for a UN Security Council meeting to discuss a peaceful resolution to this crisis and address the American nuclear escalation and bullying of small nations.

China reminds the United States that it has a perpetual treaty of friendship with North Korea and that its continued sovereignty and integrity are a fundamental Chinese interest. China will vote against any military measures against North Korea to include an illegal air or naval blockade.

Participant #2: The last point is very well-drafted. That is exactly how China behaves.

Participant #1: Nobody would need all these nuclear weapons if the United States wasn't always invading things.

Participant #2: It is the U.S. presence in Asia that is causing all this escalation. That is the Chinese perspective.

Participant #1: It is the continued U.S. imperial presence that is the cause of all this.

Participant #2: U.S. troop presence in South Korea and weapons systems are creating all these issues.

Message received from North Korea –

The western powers need to take us seriously and we are serious about the possibility of a nuclear device going off in space.

Message received from control –

More clarification on team China objectives –

- If Chinese satellites cannot function in low-Earth orbit, how much of a hit do their military and commercial operations suffer?
- How does this hit compare to the one Russia, the United States and its allies might suffer?
- Is this difference one you can exploit militarily or commercially? Can Russia exploit militarily? If so, is the difference significant, and how?

Participant #4: In the present day, because the United States has more satellites, they rely more on them for communications, navigation, etc. This could be difficult in 2029, but China could also potentially see the vulnerabilities in the U.S. architecture today and build around that; China's operations might not suffer as much as those of the United States. The United States would be the biggest loser.

Participant #1: The first problem for the United States is that there is a geographic asymmetry—this is happening in China's territory. We have got more ground-based stuff, whereas the United States is playing an away game, meaning they need satellites more because they are farther from home. How vital are LEO satellites for a Chinese counter-intervention strategy? Can we keep U.S. aircraft carriers at bay on the outside of the first or second island chain without space assets? As China, we are better off than the United States in most of those scenarios, but taking a hit could be operationally relevant in the case that this crisis turns into a conflict, and more generally because these are the first capabilities China would be trying to reconstitute to keep the United States at an arm's length during a fight.

Participant #5: It seems to me like everybody loses out in the scenario of a nuclear explosion. I would imagine that the private infrastructure and manufacturing of the United States should in theory be able to reconstitute its satellite capabilities more quickly than China might be able to

if all remains the same as it is now. That said, were I in China's seat, I could assume safely this would bleed America pretty well, but we would be hurt. Especially having just invested so much in space, this hits everybody really hard. This is not a scenario we would want to applaud or increase the likelihood of.

Participant #3: The impact on China would be different from the one on the United States, but that does not mean it would be any less severe, just different. To what extent would we as China be bearing down on North Korea to not ruin our big crown jewel in space and kill Chinese people with their misbehavior?

Participant #1: Insofar as mitigation, if a bomb goes off, cannot do anything, but if we have notice, we can at least get taikonauts off the Chinese space station, so they are not irradiated, or in case the station gets damaged.

Participant #2: By 2026, China is going to launch 200 private 5G satellites into LEO. Satellite internet has been identified as a critical infrastructure by China—that will be far more scaled up by 2029. They have 100 military satellites today and want to expand that to 300. Unless China has a second plan to work its civil society and military without satellite infrastructure, the incentive for China to pressure North Korea not to detonate is much higher. Given the huge amount of money that China is spending today on space infrastructure and the fear that they might not have reusable rocket capability to relaunch, there is every incentive for China to stop North Korea from detonating.

Participant #1: Draft of China message to North Korea –

We continue to discourage any rash action that would escalate this crisis. We also require advanced notice of any detonation of a weapon so that we can ensure the safety of the taikonauts on the Chinese space station and protect our vital space infrastructure.

Participant #5: Could we move the Chinese space station out of harm's way?

Participant #1: Physics does not leave us with many options, but we can at least get the guys out of there.

Participant #2: What should our de-escalation strategy be? What kind of pressure can we bring?

Participant #1: Some mix of economic carrots and sticks?

Message received from Expanded Five Eyes –

States are under an obligation to carry on activities in the use of space in accordance with international law and in the interests of maintaining international peace and security and promoting international cooperation and understanding (Article 3 OST).

In addition, the Five Eyes Expanded team rejects the characterization that the United States is to blame for escalation.

Finally, we express a desire for the UNSC to work effectively and achieve a diplomatic solution.

This is also a reminder that any hostile actions will have consequences to your own space assets including a human presence and robotic assets.

Participant #1: The Expanded Five Eyes is just a collection of U.S. proxies. This is why China does not like international law. It is just a way for the imperial West to expand its power.

Participant #2: We want to establish that this situation is because of what the United States has done and because they have been threatening North Korea, which is forcing North Korea to employ this escalatory mode for fear of regime stability, which is their biggest concern. We would be happy to mediate a diplomatic solution.

Participant #1: In addition to the point about us suggesting diplomacy, one other question is, if we are responding to this set of U.S. allies, is there something we would want them to do, to get them to lean on the Americans? Our read is that the United States is the one escalating this crisis; would we want its allies to do something to restrain American escalatory behavior?

Participant #3: Another option is driving a wedge.

Participant #1: That would be the other way to do it. Is there any way we can do this?

Participant #5: We do have bilateral space agreements with many of these countries. We can use that to say to these countries that we are on their side, and that the United States is the one escalating.

Participant #2: Our response should be very legal and very ambiguous, as China's responses always are. It is a very deliberate strategic ambiguity. The message to the Five Eyes should be that China is in favor of de-escalation, that the United States brought this about, and that China wants to act as a mediator. China will use its channels with North Korea to bring this about. China wants to remind the U.S. and the Expanded Five Eyes teams...

Participant #3: ...that it wishes to maintain trade relations and continue investment in economies.

Participant #2: The fact that China is an upholder of international law should be in the response. China is a very responsible UN member.

Message received from U.S. –

The United States still desires a diplomatic solution to this current escalatory action by Nk.

Question: What suggestions does China have to offer North Korea to resolve this current international situation?

The United States re-emphasizes that it will hold North Korea accountable if events go badly.

Message sent to Expanded Five Eyes –

China is dedicated to peaceful and harmonious use of space by all nations. Of course, many of you are partners with China in the peaceful scientific and economic development of space so you are well aware of China's efforts in this area.

China reiterates its objection to U.S. demands for a blockade of North Korea as well as its dangerous and escalatory alerting of its strategic nuclear forces. China seeks de-escalation of this crisis by all parties and reiterates its offer to mediate this crisis between the US and North Korea.

Given the importance of the economic and trade ties between our nations, we expect that you would be supportive of China's efforts for peace and the fair and just application of international law.

Participant #2: Our response to the United States should be that China desires diplomacy to de-escalate the U.S.'s escalatory actions.

Participant #1: The best thing we can offer is U.S. de-escalation. They should commit to de-alerting their forces and committing to diplomacy because this is their fault.

Participant #2: We do not recognize the U.S.'s hegemonic position. Why should we copy them?

Participant #5: I really like the idea that the best thing China can offer is assurances by the United States that they will leave the region alone. This would put it completely on the United States; they escalated this, so they must de-escalate.

Participant #2: They are the responsible actor. We did not escalate. We asked for calm on all sides.

Participant #5: We are going out of our way to act as a mediator.

Participant #2: Not knowing whether North Korea is planning on detonating a nuke is a concern. North Korea is not telling us anything, but they should be; we are their ally, they survived because of us, they should be telling us.

Message received from South Korea –

Republic of Korea supports the actions of the United States and the statements by the concerned nations.

ROK condemns North Korea actions and demands they stop.

ROK finds the China's statements are regrettable.

Based on consultations with the military committee, ROK recommends moving U.S.-ROK to DEFCON 3.

Participant #1: We should tell them that if they stop doing what they are doing, we would be happy to arbitrate the discussions.

Message sent to the United States -

China would be happy to convey a U.S. message of de-escalation to North Korea. The most effective steps to resolve this situation would be the de-alerting of U.S. nuclear forces, an end to U.S. demands for military actions, and a public commitment to peaceful resolution of this crisis with United States and North Korea talks arbitrated by China.

Participant #1: Was that South Korea message supposed to go to us? We can treat it as a leak.

Participant #2: An intelligence leak is fantastic for us. We know what they're going to do!

Participant #4: Does DEFCON 3 mean more U.S. presence in South Korea? We can threaten them if they allow a U.S. presence.

Participant #1: We could tell South Korea that part of de-escalation is telling the United States not to do anything escalatory from their soil.

Participant #4: Yes, I like that.

Participant #2: This fits into our narrative. DEFCON 3 is further escalatory action from the United States and its allies.

Participant #5: Since they are trying to speed everything up, our goal should be to slow everything down. China would not be wrong in assuming that the United States is very capable of overreacting and acting without all the necessary intelligence. There could be a miscommunication that ends in a nuke going off in space, which would be detrimental to China as well. Ultimately, we do not want that.

Participant #2: We should say that China finds South Korea's declaration of DEFCON 3 regrettable.

Participant #1: I drafted a message that lets us pretend we did not read that message from South Korea, but still gets the point across.

Participant #5: You should include the language of regionalism—this is not a global thing; it is an Asia thing. We should do as much as we can to exclude the West and include other Asian countries.

Participant #2: We should also kind of tickle South Korea; by 2029, they should have much stronger space capabilities. Can we use that to also let them know that escalation is not in their interest?

Message received from South Korea –

Thank you for your efforts toward peace on the Korean Peninsula.

But it is my duty to remind you that North Korea initiated this crisis and now insists on conditions that are totally unacceptable due to North Korea's nature of threatening the security of the Korean people. We advise China to use whatever influence it has to influence North Korea to maintain peace.

Finally, South Korea will increase defensive measures and expects China to understand that these steps are not aggressive but defensive and Beijing should not feel it threatens China's efforts for peace.

Participant #2: Yes, but we feel threatened?

Participant #1: A message discouraging them from defensive measures is a good reply.

Participant #2: We should say South Korea's offensive measures are escalatory, and not defensive measures. We must take strategic leadership and shape the narrative.

Participant #3: Reminding them of their space capabilities is a good idea.

Participant #5: Any other proactive messages we want to send before time is up?

Participant #4: We should send one more message to North Korea. We should say that we see the situation escalating, that it is in nobody's best interest to detonate anything in space, and that we would like them to wait for the time to resolve it with all partner nations.

Participant #3: Yes. When you face an existential threat where you could be done and over with, you do not back down.

Participant #2: We should arm-twist North Korea a little bit. They are dependent on us; we are their economic lifeline. We should tell them that, look, if you do this detonation, we will sanction you bilaterally.

Participant #4: If they cause harm to our economy, and our well-being, we will do the same.

Participant #2: Exactly. We will have blood on the line. We will have citizens dead.

Participant #5: We could leverage our UN position; we should remind North Korea that denouncing it in the UN would be easy and would instantly give us tons of credit internationally. We do not want to do that, but if they detonate anything in space, we will have to.

Participant #2: This message should be sent secretly to North Korea so that only they see it.

Participant #1: I have come up with a new draft for the message to send to South Korea.

Participant #2: This message looks good, but we should add one line subtly reminding South Korea that their space systems are vulnerable as well. We need to thread the needle with our message.

Participant #1: I am open to that.

Participant #4: I will start working on the message to send to North Korea.

Message received from the United States –

We are taking the ISS down to a minimal 2-man crew.

Participant #2: We want to be very hard on North Korea. Tell them that we fund their economy. Tell them that if they hurt our economy, we will hurt theirs. This would be in line with Chinese actions; China is very harsh in negotiations with Cambodia, for example.

Participant #4: I added that. I also said that although we have taken a position of defending North Korea in the past, it would be easier to denounce them and give us international leverage. The last thing in the message is a request for them to wait for diplomacy; everyone can get what they want if China leads the diplomatic effort. Could we throw those points over to North Korea?

Participant #2: North Korea would worry if they were denounced by China in the UN Security Council. That would put a lot of pressure on them.

Participant #3: I will send those over.

Message sent to South Korea –

China remains concerned about the U.S. escalation of this regional crisis. We would encourage South Korea to both play a constructive role in resolving this crisis and not to go along with any U.S. efforts that would further threaten North Korea.

South Korea should refrain from any military action that would be seen as threatening by North Korea even if intended as defensive or allow U.S. forces on your soil to take aggressive action. Such actions would only limit our ability to arbitrate a peaceful resolution to this crisis.

South Korea should also work with the United States to encourage it to take escalatory steps - Asian countries must take proactive measures to ensure peace and harmony in our neighborhood and not allow outside parties like the United States to threaten our common peace and prosperity.

Message sent to North Korea –

It is in no one's best interest to escalate – a reminder that we fund your economy and if they hurt ours, we will hurt theirs.

We have taken a position of defending you

But it would be easier for us and give us leverage if we denounced you

The easiest way for us to gain international prestige would be to denounce you in the UN Security Council.

Please consider your next steps carefully.

Participant #2: These messages sum it up well.

Message received from Expanded Five Eyes –

The Expanded Five Eyes reiterates our desire for a peaceful resolution, continues dialogue, continues to strongly reject assertions of U.S. aggression, and reminds all of our collective interests, commercial and military, and human life in LEO.

Message received from the United States. –

The United States and those nations that are part of the ISS are taking the station down to minimal crew (2 persons). Is China taking similar action? Is China concerned about North Korean escalatory action threatening human life on orbit?

Team America

Participant #2: We do not have crew on the ISS, we are not allowed to be on the ISS.

Participant #3: We should say that then.

Participant #2: Yes, ask them to remove the Wolf Amendment.

Participant #1: Agreed.

Participant #3: Force them to ask the correct question.

Participant #5: This might be a decent time to pitch that up too, at some point. Tell them, look, if you really wanted communication with us, you would get rid of this. It is not serving either of our interests anymore, and it is just increasing miscommunication.

Participant #1: Yes, definitely. Now we have to work on slides answering the questions for this move.

Team Briefing

Participant #1: Do we need to summarize the Chinese position as well, or do we just need to give answers to the three questions?

Participant #3: We can be flexible.

Participant #2: Since our slides should be five minutes, maybe we should spend two minutes on our position towards the crisis, and three minutes answering the questions? We obviously would say that the escalation is the United States' fault, and that China will do everything it can to de-escalate the conflict as a responsible member of the United Nations.

Participant #1: Let's start off with a slide that summarizes our position. Our first point is that China would perceive this as a crisis initiated by the United States. In response to yet another North Korea missile test, the United States is trying to initiate a blockade and alert its forces, which seems like a tremendous overreaction. It is their fault that the North Koreans did something stupid.

Participant #2: Yes. And the United States has been deliberately escalating a situation in Asia. I want to make sure to put it in the way that China would put it. They are not very direct. They are very subtle.

Participant #5: Rather than "in Asia," put down "in China's sphere of influence."

Participant #1: The second part of our position is that we are not thrilled that North Korea put a nuclear weapon in low-Earth orbit and that we certainly do not want the North Koreans to detonate it.

Participant #2: We should not say that. We cannot put it that way. China would never say that. We should say that China would do everything as a responsible member of the United Nations to de-escalate the situation.

Participant #1: We would discourage any North Korean nuclear use, but we see this is an opportunity for China to take regional diplomatic leadership to arbitrate between the United States and North Korea and resolve this, ideally under Chinese leadership.

Participant #2: But the issue is that nobody knows if this is a nuclear satellite.

Participant #5: I agree that we should situate ourselves in saying, given the Chinese influence in the region, given our third-party status, and given our adherence to international law, we are the obvious candidate to bring all members to the table.

Participant #2: This is great. Our position is well-stated here. We are responsible, and we are taking leadership.

Participant #5: We should add that escalation is in nobody's interest.

Participant #4: I was going to say, in addition to discouraging any North Korean nuclear use, we also discourage any escalatory actions taken by outside actors outside of the sphere of influence.

Participant #2: Yes.

Participant #1: That is a good point too. We discourage U.S. escalation.

Participant #4: That is not just the United States. That's South Korea, too.

Participant #2: Yes, and the Expanded Five Eyes. Use the phrase "outside actors in our sphere of influence." We are taking ownership.

Participant #1: Why don't we answer the questions next?

Question 1 – If the U.S. and allied satellites cannot function in LEO, how much of a hit do their military and commercial operations suffer? How does this hit compare to the one Russia and China might suffer? Is this difference one China and Russia can exploit militarily or commercially? If so, is the difference significant, and how?

Participant #1: We are concerned about the costs to China, and they are not trivial by any means, but we would probably come off better in the exchange than the United States would.

Participant #5: A nuclear tide sinks all ships.

Participant #2: Why do we say that we would come off better? What is our rationale?

Participant #1: We are probably less dependent on space assets to support military action in East Asia than the United States would be.

Participant #4: A secondary thing is that with the way that China has so quickly manufactured and built its space capabilities, the United States and the way that it builds acquisitions is much slower. And so, if it was to start from the beginning, China has the technology and a bigger investor base to build and reconstitute a lot faster.

Participant #2: That is a good point, I agree.

Participant #1: Yes. How true that is in 2029 is an area of ambiguity in the game design, but I think this is a reasonable belief to have.

Participant #2: Yes, and we have a reusable launch in 2029, because the Long March 8 is reusable now, so we can launch satellites quickly. I know that the low-Earth orbit environment will probably not enable satellite launch quickly, but we can assume that.

Participant #4: Once the environment is safe, they can relaunch satellites quickly.

Participant #1: To an extent, if you can launch fast enough, you are fine. An irradiated LEO would not be an instant death zone, it would just shorten the life of satellites. If everything that is supposed to last 1 year lasts 6 months instead, we can just launch twice as many, provided we can launch quickly enough. Regarding the second sub-question, there are probably two things that we could exploit. From a military perspective, we are probably in a stronger position given that we are less dependent on space, not just for the Korean crisis, but for anything in the Western Pacific. We have a good window for taking Taiwan.

Participant #2: Absolutely.

Participant #5: China always takes the opportunity to go after Taiwan.

Participant #3: Yes. My mind is always so focused on Taiwan and the South China Sea that I forget that China can walk to South Korea. You don't need to cross any water.

Participant #1: This scenario is the North Koreans doing most of the job of the strategic support force already. We do not need to fight the first part of the war. The second point, from a commercial perspective, is that this is a great reset on all the commercial stuff, so regarding any of the things that the United States was doing with Starlink or anything else, if we can build back faster, now, we become customers' first choice. If it is the 5G stuff that China is trying to do or anything else, if we can move fast enough, any U.S. commercial advantage in LEO is just erased.

Participant #4: I love that.

Participant #5: With that and the BRI, we are in a great position.

Participant #4: Can I add something? The question asks about China or Russia. Russia probably would not have any involvement in this, right? Of course, they also would have lost things, but

they could use that opportunity in Ukraine, for example, but also other former Soviet countries. They could also become a secondary option for the commercial aspect.

Participant #3: My personal opinion is that, seven years from now, Russia is too much of a wildcard to even play in a game, because who knows how long Putin is going to last, whether Putin will leave and Russia will become democratic again, or whether it will go haywire and gets worse. It is just so unstable right now.

Participant #4: It is one of the questions, though. If all things are equal at that point, I think Russia would exploit the opportunity.

Participant #1: I think that is a good point about Russia.

Participant #2: I would argue that Russia and China will come together because their strategic partnership is strong. The very fact that Russia can succeed in Ukraine right now is because of China's strategic partnership. They would exploit this situation and build up their strategic partnership, for Russia to then extend support to China's actions in Taiwan.

Participant #1: From a Chinese perspective, this is a really great opportunity to tie the Russians to us with whatever rebuilding. If they have to rebuild all their LEO stuff, this is a good time to lock them into Chinese solutions. We could not just build that partnership, but make sure it is unequal in our favor.

Participant #2: Yes. I see that scenario playing out. I agree there is uncertainty, but taking the scenario as it is, this might pan out.

Participant #4: This is probably good.

Participant #5: What is the next question?

Question 2 – What immediate mitigation steps, if any, relating to low-Earth orbit spacecraft (satellites, manned stations, and robot craft) should the United States and its allies take in preparation for a possible detonation?

Participant #1: In terms of mitigation, aside from pulling taikonauts off the Chinese space station if we know the blast is coming, I do not know that there is a lot we could do to protect existing on-orbit stuff.

Participant #2: The question is about the United States and allies.

Participant #1: I guess I was assuming they wanted it from our perspective, but I think it is about the same thing for the United States

Participant #3: I think they are talking about what steps we could take to start building an architecture today.

Participant #1: The one thing you can do, whether you are the United States or China, is if you are going to lose all this low-Earth orbit capability, the most important of which is intelligence, reconnaissance, and surveillance stuff, you can try to push forward any non-space alternatives. So, you know, probably mostly aerial stuff like drones is all you have left in the toolkit there.

Participant #2: Is it possible to think about hardening? I have not thought about this, but is hardening against a nuclear detonation possible?

Participant #4: You cannot do it after a satellite has been launched. It does not make economic sense. So, hardening can only be for new constellations that will come online from now until then. The other thing you can do is proliferation of satellites, so that more would maybe be saved in the event of detonation. You could also try to utilize different orbits.

Participant #1: Hardening is one answer, because it answers the nuclear vulnerability, but some of the question is the cost benefit of that. The case for proliferation is that all these satellites are individually pretty cheap, which is one of the reasons nobody is planning on hardening these things. If you have to harden them against the fairly unlikely case of a nuclear detonation in LEO—and even if the North Koreans do it, in a world where this has happened, is anyone going to do it again?—does that implicate the basic budgetary and economic justification for proliferated LEO? If we must harden every satellite, then why are we doing proliferated LEO? It rapidly no longer has any advantages over the old way of doing things.

Participant #5: Additionally, from a commercial perspective, if we tell people they can now buy from our satellites exclusively, but they are five times more expensive to launch, that is not going to be attractive to our buyers.

Participant #1: When you look at the way some companies have done this, bad launches happen and they shrug it off, but they are not trying to make satellites more resilient. Proliferation assumes risk on any individual satellite. This detonation is the black swan that gets them all at once, but you can keep assuming risk going forward. Particularly if you are commercial, upping capital costs by hardening is probably not a savvy business decision.

Participant #2: Let's take a situation where we know this detonation is going to happen. What are some precautionary steps we could take in that case to make sure our space assets survive? Is it even possible?

Participant #4: It is not a very popular opinion to keep assets in reserve, but for absolutely needed capabilities in wartime, having backup constellations ahead of time could be something to consider. Could you use cutting-edge robot technology to get close to another satellite to fix it or help it get back online?

Participant #5: In the interest of time, we should probably go to the next slide.

Question 3 – How, if at all, might China, the U.S. and its allies, and Russia use this crisis to initiate some form of diplomatic action?

Participant #1: This is our primary move. Not only do we want diplomatic action, but this is also an opportunity for China to demonstrate regional leadership through diplomacy and potentially drive a wedge between the United States and its various allies.

Participant #2: Yes, and to show the world that we are the peacekeepers.

Participant #1: Yes. The Americans are overreacting, so we really look reasonable by comparison.

Participant #2: We would likely use the forum of the United Nations.

Participant #3: We would want to do something multi-level, right? In addition to the UN, we want to do regional diplomacy like ASEAN, as well as also bilateral engagement.

Participant #1: This UN is especially useful because we have a veto there. We want to use whatever fora we are leaders in. Organizations that include China but not the United States are the best ones for us to use.

Participant #2: That is a great point. Do we want to use the Shanghai Cooperation Organization in some sense? Do we want to use multilateral forums to de-escalate the crisis? ASEAN is one, but China is not a leader in ASEAN.

Participant #3: Regarding driving a wedge, if China leads in the UNSC and regional fora and so forth, the United States will lose credibility, right? This is a situation where the United States is rattling nuclear sabers, and going on strategic alert, and flowing forces, which makes China seem like the responsible actor here. That could cause concern for some U.S. allies in Asia.

Participant #5: In terms of getting back to Taiwan, should the North Korea and the United States continue escalating, we could say we have no choice to blockade Taiwan to “protect” them.

Participant #1: Correct. It would not be framed as a blockade, but as “forward stationing naval forces to protect Chinese citizens.”

Participant #2: Yes. China would say it has no choice but to do that.

Participant #3: China could play this not only to de-escalate, but also to undermine the U.S.’s credibility and position in the region.

Participant #1: To the extent that it is a wedge, or the United States is militarily damaged, either by the LEO stuff or by getting into a war on the Korean Peninsula, we can take advantage of its distraction either to do our own stuff militarily, or to exercise leverage to get tradeoff on other

issues that really concern us in exchange for whatever the United States wants on the Korean Peninsula.

Republic of Korea Team

Crisis Response / Game Playing

Participant #1: The scenario is vague because we do not know the elevation or the yield of the blast. What would it do to atmospheric and ground-based capabilities?

Participant #2 (*translated by participant #1*): North Korea does not have re-entry capabilities. A detonation will have an impact on everyone including China and Russia and would elicit a response from them.

Participant #1: Remember that the scenario will take place in 2029 so we do not know this for sure.

Participant #2: Assuming North Korea has re-entry capabilities, they would likely come down to 40-60km for a more manageable damage radius focused on the Korean Peninsula and parts of Japan (~500km radius). If the weapon exploded at 100km, it would affect Korean Peninsula, U.S., and Russia. Even North Korea could not handle the repercussions from all these countries.

Participant #1: What would the damage of such an explosion be?

Participant #3: The scenario posits the effective removal of satellites in LEO. It is less about what their best move would be, so we are starting to fight the scenario a bit.

Participant #2: If it exploded at a lower altitude, aircraft, and other ground-based facilities are more likely to be affected than satellites.

Participant #4: As a military guy, I want to know what capabilities I have lost to see the strategic surprise. What eyes, what capabilities have I lost from these satellites that would leave me vulnerable to North Korea's strategic surprise? What capabilities do I lose to defend South Korea and the U.S. military? What capabilities can replace them, if any? What actions can I take before the threat is carried out to prepare for this eventuality?

Participant #3: If it is only a regional effect, can we get European satellites into the regions instead?

Participant #5: Radiation would cover the entire Van Allen belt so it would threaten long-term sustainability. We would lose satellite-guided weaponry if that is all based in low-Earth orbit at the time of the scenario, so we would have to rely on outdated high-orbit technology or other old technology (e.g., laser guiding). How advanced are Russia and China on satellite comms and how reliant are they on those tools?

Participant #1: If we lose these satellites, we lose surveillance of North Korea and deployment of GPS precision munitions. Can we shoot rockets into North Korea with precision without these satellites?

Participant #2: The scenario is unrealistic, but we will assume what happens if all these satellites go down. It would affect surveillance, targeting, communications, etc. so it is a big problem.

Participant #6: We would be going back 20-30 years. We need to protect Global Hawk, etc. from electromagnetic pulses (EMPs), so one of our first steps should be to harden command posts and similar from EMPs. We must be ready beforehand.

Message received from the United States –

South Korea Team,

We are reaching out to you first to let you know that the United States will engage with China to convey:

1. Give diplomacy a chance. The United States will engage with China and our Allies on this matter.
2. If things go wrong, the United States would like to have communications between China and the United States and allies to deconflict actions and intent.
3. The United States national command authority will hold North Korean leadership accountable if things go badly.

Participant #4: We are focused on deterrence and defense for South Korea. It is fine to let diplomacy run as well.

Participant #7: Can we prepare for both low altitude and high altitude?

Participant #1: EMP protection is critical to make sure we can have surviving systems if we lose our satellites, though this capability would be diminished compared to satellites. As for diplomacy, whatever hits Korea and Japan take would also hit Russia and China, so we would support those kinds of activities.

Participant #5: U.S. and European satellites are going to be more commercial (and less hardened). Will the same be true of Russia/China, who are more likely have government satellites, which may be more hardened? If it is different, it might make the scenario relatively favorable to China/Russia against the United States and its allies.

Participant #2: I have never heard of a satellite hardened against a nuclear detonation in space, so nobody is likely prepared. If the explosion occurred in LEO (1000-1500km or less), GPS would be less affected because that is at 20,000km.

Participant #4: If Russia and China want to prevent this, they may push to appease North Korea, including the removal of U.S. troops from the Peninsula. Therefore, diplomacy can be dangerous if we cave to that pressure.

Reply received from China to the United States –

China objects to the U.S. initiation of a nuclear crisis in Northeast Asia in response to North Korea exercising its right to test defensive weapons. We call for all parties to meet to address American aggression and peacefully resolve this crisis.

We welcome the U.S. desire to enter dialogue with China to resolve this crisis. As the leading country in Asia, China calls for a UNSC meeting to discuss a peaceful resolution to this crisis and address American nuclear escalation and bullying of small nations.

China reminds the United States that it has a perpetual treaty of friendship with North Korea and that its continued sovereignty and integrity are a fundamental Chinese interest. China will vote against any military measures against North Korea to include an illegal air or naval blockade.

Participant #1: What would the U.S. do in this nightmare scenario?

Participant #4: We should ask them. My recommendation would be to reinforce the Peninsula and prepare for the worst. First, we should be strong enough to deter. Second, if deterrence fails, we must be able to fight and win, even without LEO satellites.

Participant #1: Depending on the U.S. President, we may be risking war with China, so we need a strong enough deterrent to scare even China. This exemplifies why Korea and Japan need their own nuclear deterrence.

Participant #3: Should we make a public statement moving toward that outcome?

Participant #4: We should come out and say that. The worst thing we could do is to split the alliance, so any steps we take relating to this, we should consult with the United States beforehand.

Participant #5: Because Korea is on the long end of logistics for the United States, as Korea we may have other avenues of response. Being a leader in AI and associated network hacking capabilities might provide an alternative, non-nuclear deterrent through cyber offensive.

Participant #7: We can work with U.S. Stratcom to strengthen deterrence, e.g., Stratcom monitors the satellite and announces they've prepared satellite and electronic measures against

it. This could involve strategic communications as well as indirect actions in the form of U.S. Stratcom announcing its capability to track and possibly disrupt North Korea's satellite by showing that they are able to track it and implying that it could do other things, thereby influencing North Korean actions to prevent a catastrophic situation.

Message received from Expanded Five Eyes –

PRC,

States are under an obligation to carry on activities in the use of space in accordance with international law and in the interests of maintaining international peace and security and promoting international cooperation and understanding (Article 3 OST).

In addition, the Five Eyes Expanded team rejects the characterization that the United States is to blame for escalation.

Finally, we express a desire for the UNSC to work effectively and achieve a diplomatic solution.

This is also a reminder that any hostile actions will have consequences for your space assets including a human presence and robotic assets.

Message received from the United States. –

Urgent: request United States deploy strategic assets at or near Korean Peninsula to demonstrate resolve and to protect South Korean citizens as well as members of U.S. Service Members and their families.

Participant #1: We should write a message to the U.S. and Five Eyes teams saying: 1. South Korea supports the initiative of the United States and other concerned nations (i.e., Expanded Five Eyes) and condemns North Korean actions and demands. 2. The Chinese attitude is regrettable. 3. Based on consultation with the military committee, we recommend U.S. forces increase readiness posture to DEFCON 3.

Message from China to the Five Eyes:

China is dedicated to the peaceful and harmonious use of space by all nations. Of course, many of you are partners with China in the peaceful scientific and economic development of space so you are well aware of China's efforts in this area.

China reiterates its objection to U.S. demands for a blockade of North Korea as well as its dangerous and escalatory alerting of its strategic nuclear forces. China seeks de-escalation of this crisis by all parties and reiterates its offer to mediate this crisis between the United States and North Korea.

Given the importance of the economic and trade ties between our nations, we expect that you would be supportive of China's efforts for peace and the fair and just application of international law.

Message received from the United States –

The United States still desires a diplomatic solution to this current escalatory action by North Korea.

Question: What suggestions does China have to offer North Korea to resolve this current international situation?

The United States re-emphasizes that it will hold North Korea accountable if events go badly.

Participant #1: We should tell China we support efforts for peace, but North Korea started this and is asking for unacceptable conditions as they threaten the safety of South Korea. China should use its influence to convince North Korea of its interest in peace. South Korea will increase defensive measures, and China should understand that these are defensive, not offensive, and do not threaten China's desire for peace. We should also ask U.S. forces to move to DEFCON 3.

Team Briefing

Participant #1: We find this a grave situation. If North Korea were to detonate it would be considered an act of war and would affect our communications, early warning, and position capability and surveillance (with some question about the impact on GPS). Measures we take would include working on EMP shielding. On China and Russia: it is prudent to consider South Korea having indigenous nuclear capability because otherwise everything falls to the United States and limits the response that the allies can conduct in this situation. We also have concerns about the reality of the scenario as we are not sure that detonation in space would be realistic.

Participant #4: We should emphasize the role of military preparations, including our request to move to DEFCON 3. The best way to encourage diplomacy is to rest on a foundation of military preparedness.

Participant #1: I also think this shows that strategic submarines would provide a response capability and increase deterrence.

Participant #5: As INDOPACOM commander, I would have fleet ballistic missile submarines at my disposal. that capability does exist, and I cannot see the United States not deploying it

(and I would advocate for such). As INDOPACOM commander, I have submarines, but the surface capability is thin.

Participant #4: There are multiple threats including in the Taiwan strait, so we will be spread thin, and U.S. deployment will depend on surface shipping. We cannot wait around for something to happen. We must reinforce the Peninsula, and Korea has to make the early decision to mobilize.

Participant #3: One of the scenario questions is about the relative hit to Russia and China. Even if it hits them as well, they may have less time-sensitive needs, since the United States is expecting to have an immediate war and China may not.

Participant #4: We should be prepared for China to get involved or to take advantage of distractions to move on Taiwan.

Participant #5: If the scenario only happens over 3 months or so, it will require a lot of major decisions to be made very quickly, which is a worry.

U.S. Team

Crisis Response / Game Playing

Participant #1: The first thing I'd like to do is confess to my prejudices on this. I have been part of people looking at the issue of an ambiguous nuclear launch in the past. So, I am willing to accept at face value the idea that we can't tell what's on the vehicle or not. We can have lots of debates about how good the North Koreans are at making things smaller and whether they could have gotten there -- the intelligence analysts I'm sure would have a good time arguing about that. But the fact that it's going to be ambiguous, I think is reasonable.

I also had some experiences long ago in track two discussions with the North Koreans meeting in Berlin, where we were talking about the North Koreans potentially giving up long-range ICBMs and denuclearization. It was a different time. Ninety percent of the time, the North Koreans were professional and ten percent of the time you realized they were bats*** crazy. It was a very strange kind of engagement and you were never quite sure whom you were going to get at any particular time.

Before going into my sort of other prejudice, let me first ask for peoples' first, off the top of their heads impressions, so I can get an orientation of where everybody is.

Participant #2: I think what will be interesting is China's role with the Chinese space station and presumably the Guo Wang communication satellite constellation is online. China, in a low-

Earth orbit capacity, has not quite the same amount to lose as the U. S and its allies, but still quite a lot. So, it's interesting that they're taking this diplomacy first route with this

Participant #3: This is my first time in a wargame, so I'm just trying to orient myself, but I'd be curious as to whether any of the U.S. commercial space stations are in orbit yet in 2028-2029. I'd also like to know whether there are any commercial capabilities available such as space planes to send people to space under quick notice to observe. Is that even realistic?

Participant #1: I would note that it looks like they shot this thing into a 45-degree, inclination orbit, which I don't see how they could easily do from their location. The Chinese station is at a 40-degree inclination orbit. I'd like to remind others the space station is at a 51.6-degree inclination orbit. Some of the initial commercial stations are likely to be in a trailing 51.6-degree inclination orbit to kind of leverage off of ISS, but other subsequent commercial stations are likely to be in lower inclination, like 28.5 or a straight shot out of Kennedy. So, 40 is most threatening to the Chinese station, as opposed to threatening the ISS or others. They are all at risk and nukes are bad, but the Chinese are a little bit more in front of the crowd for that.

Participant #4: Basically, I've been involved in the peripheral of this problem in the past, up to and including putting together what the space weather and situations would be if they launch something at us. I've worked with Star Wars on this before. The bottom line is I think that if they take out the low-Earth orbit assets that are going to be a real pain. Taking out the space station is going to be almost an act of war. But my biggest concern is the EMP pulse over the United States. I think EMP pulse is the biggest single threat that we have. I think that the Chinese would be upset if they lost their LEO satellites. I think that in 2029, we'll probably still have defense support system satellites and GPS, and I know we'll have some of the systems they've talked about putting in at higher altitudes, specifically for the problem with low-Earth orbit. So, I have a suspicion that it will be painful, but we will be able to reconstitute. I think this will affect the space station, which would be considered an act of war. And I think that EMP also in the United States would be devastated.

Participant #1: Got it. I buy that. Let me hold the comment for a little bit later. Participant #5, how's the insurance market looking?

Participant #5: Well, after nukes in space it is an interesting question because our insurance policies for satellites explicitly exclude nuclear weapons. In this game so far, they haven't yet exploded anything, right? They're threatening to. I'll give you that they could be ten percent bats*** crazy, but I think, first of all, that the Chinese would be talking behind the scenes. Secondly, I don't see how North Korea could do this and not expect a massive fallout. I guess maybe I'm the optimist – yes, it would affect things, but I will agree with Participant #4 that we would reconstitute fairly quickly.

Participant #1: I also agree with Participant #4, the EMP and particularly its impact on U.S. civilian infrastructure and U. S. civilian lives is the wild card. The ISS would be an act of war.

If you take down the power grid and cripple part of the west coast, you'll have a fury on your hands that people will be surprised by.

Participant #6: I have the luxury of going later, so I do have a few thoughts to share. The first is that North Korea's act of launching the 45-degree inclination satellite in orbit and subsequent comments seem like an awfully strong reaction to a request for mobilization and remote sensing, particularly in light of the previous event with the Alaskan detection. I guess I wouldn't tremendously depend on diplomacy as the first round of action.

A couple of other thoughts are that the radiation belts go through the poles and a 45-degree inclination is not the same as equatorial. Participant #4 will know this better than I do. There certainly needs to be some rather quick modeling to understand the extent of the damage.

Third, my actual initial thought was there's a lot of commercial private money at stake now. Whereas perhaps historically it was mostly a government-to-government issue. I think one of the first actions we would want to take would be to identify what our most rapid communication channels would be.

Participant #1: Those are some initial thoughts. Thank you. As I said, I'm just looking for quick response impressions.

Participant #7: One of my roles is as your facilitator. So, I'm going to be cracking the whip around for the 6:30 wrap up and I'm taking notes. We may also want to just think of a few messages we want to fire off to the other teams.

Back to the situation. We have a potential nuke on orbit, North Korea is being ambiguous, and we have human life on Chinese, ISS, and probably commercial stations. If it was me, wearing the hat, it sounds like a good cause for anticipatory self-defense to take out that nuclear capability instead of something really bad happening.

In the previous briefings, we talked about radiation getting trapped in tubes. If it goes off, probably everything in LEO is going to be pretty much trashed to some extent. But the loss of life will be the most pressing concern. Those are my initial thoughts.

Participant #1: I'm looking at a couple of decision points. One of these decision points is whether or not to do a preemptive shot. The other strategic question is China's reaction: How does China want to play this one way or the other? So, I think strategic communications with China on their reaction and what they think is important. And then at a tactical level – and by tactical level what I mean is, do we have or can we ensure there are military-to-military, deconfliction channels like we did with the Russians in Syria because stuff is going to start flying? If we have reconnaissance aircraft flying in the area, we know that the Chinese already don't like this. In the current day, they've already been playing games with Canadian and Australian P8s in pretty irresponsible ways.

The Chinese don't tend to like the Koreans very much. In the old days when they would talk about China and North Korea's being as close lips and teeth, that's a very old-fashioned phrase not used much anymore. The question is how far will the Chinese go. From a U.S. standpoint, we want to encourage the Chinese to be helpful, constructive, and practical, which they sometimes can be, but at the same time, we want them to think that things are going to go to the hell-in-a-hand basket if things go wrong.

Let me just walk down some of those alternate roads, just because I do worst-case scenarios. The question for China is: Are they willing to defend the North Korean regime no matter what? Under what conditions would they be willing to say that this has crossed the line and it's got to go?

Participant #7: Just for clarification, are these questions you want me to send to China?

Participant #1: Phrase them diplomatically. We understand the Chinese view and I would argue for the moment that the U. S should let diplomacy give a chance. We wish to know what China's view would be if things go unfortunately wrong. We would like to have a deconfliction channel with China to make sure that any actions we may take do not conflict with you, if at all possible. We would like to understand if are there any conditions that may result in changes to the North Korean regime. If the North Koreans behave badly enough, we will have no choice.

We want to make sure that those deconfliction channels are there and we want to give diplomacy a chance. I don't want to have public red lines, because I think red lines just get you into trouble if you're not prepared to back them up. But, if there are large numbers of U.S., or even ally, deaths (never mind the station, never mind hardware, and never mind dollars), but if there are large numbers of U.S. deaths due to EMP or something like that, North Korea is dead. North Korea is going to be a parking lot. That's a little overstated, but not by much. I think that the North Koreans should hear from the Chinese – not from us – but hear from the Chinese that we fully intend to hold their leadership accountable for anything that goes wrong. The North Korean regime is personally at risk.

If things go badly, the South Korean army will be moving north. We should be having conversations with them about their role as an occupation force. We should be prepared to ask the Chinese what their buffer zone would be and how much of a buffer zone they would require. We don't want to repeat the Yalu River business. They're not going to be happy with the idea of North Korea clashing. It's a massive problem for them. They don't want that to happen. They don't want to see the South Koreans moving north. But they should understand that some of these things are likely to happen if the North Koreans are not responsible. We will hold the North Koreans responsible for any U. S.-allied deaths. Hardware? I'm not going to make any promises about that. But, if they kill Americans, it's all over.

Participant #7: Let me propose that I fire off one email to China that says we are looking to give diplomacy a chance. We'd like to have a communication channel to deconflict actions in

China and we want China to know that we're going to hold North Korean leadership accountable if things go poorly.

Participant #4: If I can interrupt that for one minute. I think given that South Korea is our close ally here, anything that we do should be prefaced by a discussion with South Korea about what they are going to do.

Participant #1: Yes, yes, and also with the Extended Five Eyes team. I think we should socialize that around -- holding leadership accountable, giving diplomacy a chance, and wanting to understand China's strategic reaction.

One more thing on the technical end. Participant #6 made the point about modeling and understanding what else might happen. I'd want to make sure from INDOPACOM that the war plans are all up to date. For example, nuclear targeting and mobile target indicators should be updated and ready. And, if there's something needed in between to have options for the President to be able to choose from, cutting all rail, air, cable, and cyber access in and out of North Korea. The only thing that those guys should be able to communicate on is high-frequency radio. That should be about it. It was good enough for the Imperial Japanese in 1945, it should be good enough for them [North Korea]. Everything else should be on a frag list to go badly. Again, I think this is part of the optimum plan. Participant #7, am I missing anything?

Participant #7: I wouldn't get into the operational stuff at this point. But, I mean, if we've gone to high alert, if they've raised the Defcon, then all that stuff was already taken care of.

In addition to what I wrote earlier, I'm going to socialize with the allies and partners that this is message we want to send China. Does that sound okay?

Participant #6: I just wanted to raise the point that in addition to going to China with that question, should we also define an ultimatum that should be issued to North Korea? A relatively small thing, or a large thing. If they comply with this during the time that we're posing our question to China, we know that they're at least somewhat amenable to working with us.

Participant #1: My immediate gut reaction is not to give ultimatums like that because they could back us into a corner. I'm open to other people's suggestions and if we get a consensus around it, that's fine. I just have a general reticence to it.

I think the main point is that if they do anything that harms American or allied lives, then they'll be accountable for that and kind of leave that open. We've already said that we want them to move their stuff into three areas and that we're going to be monitoring that. So, we've already given one ultimatum. They've already made threats with their satellite and there's not a lot more they could do. We could say, "you know, hey, show us the bomb design you put in your satellite maybe it will give it more credibility". But, until they do something, there's a

window for us to keep talking about a diplomatic solution by saying here's what would happen if something goes wrong. I think we already have given them an ultimatum in response to their first action, which was the failed missile test. If there was a second thing, like an EMP pulse that collapses half of the west of the United States, then we're done talking and it's regime change and only a question of which part of North Korea will be occupied territory at that point. Participant #4 may have a better idea than me.

Participant #4: I agree with everything you said so far, but in the back of my mind the simplest solution is to take the satellite out. Don't even hesitate, just take it out. But that is the simplest solution. And then China will be forced to sit on them, or South Korea will invade if they're going to throw stuff back at us.

Participant #1: Well, that's interesting because that poses maybe an in-between mode to incentivizing the Chinese. We want the Chinese to incentivize the North Koreans by having them communicate to the North Koreans that the North Koreans are personally at risk. We incentivize the Chinese by going, "if you don't succeed, thank you for your effort, but, you know, we're going to go after that satellite."

Participant #7: I agree with that last point, but as we churn on that we have a 30-minute window to fire off these questions.

Participant #4: Just let South Korea know first.

Participant #1: And Japan second, or the Extended Five Eyes

Participant #7: I will fire those off in that order.

Message to South Korea, Five Eyes, and China (in that order)

We are looking to give diplomacy a chance. We'd like to have a communication channel to deconflict actions in China, and we want China to know that we're going to hold North Korean leadership accountable for things.

Participant #5: A question about taking out the satellite -- does that risk detonation? If there is a weapon on there, will we be detonating that weapon?

Participant #4: It's better than letting it go off. You'll make a mess, but it's not going to be a huge mess.

Participant #1: If the satellite sees something coming up toward it. But on the other hand, the North Koreans don't have any space situational awareness (SSA). I mean, their version of SSA is reading the newspapers. I mean, it's not like they're going to know. So, assuming it doesn't have a nuclear detonation, it makes a mess, but as Participant #4 says, it's a fairly clean mess compared to a nuke going off.

This is probably too far down in the operational weeds, but a variation of holding the North Korean leadership accountable is targeting the leadership. Where are their command-and-control bunkers, what rail trains are they on, and all those good details? What would it mean to deprive North Korea of the ability to do anything like this again? Let's say they don't put their accountable items into the cleared areas where we've asked them to do that. A different targeting strategy would simply be a counterforce strategy versus the counter value. Counter value would be going after the North Korean leadership. Counterforce would be, "Hey, we told you to put the stuff into garrison and you didn't do it. Now we're going to destroy it so you can't do that again." That's a different variation than saying we're going to hold leadership accountable and you either do what we want you to do or we're going to kill you, as opposed to depriving them of some sort of hardware.

Participant #6: What would the goal of the diplomatic discussion be? I remember you mentioned the preemptive anti-satellite action at the beginning of your remarks. I tend to think that's a good idea given that I can't see what the goal of the diplomatic action would be, given what they have said.

Participant #4: Immediate de-orbit of the satellite.

Participant #6: Assuming they can do that.

Participant #4: If they're going drop it on us, they have to be able to do that.

Participant #1: No, they don't have to drop it on it. They just have to set it off. But if they set it off, we send them a copy of Dr. Strangelove -- the section on the doomsday machine, for their enjoyment. There is a serious point in that quip which is, I think it would be very important, particularly with the North Koreans when playing some of these back-and-forth games, not to get into a lot of legalisms. Let them argue in and around things like that. But, it is just really simple: "You do this and I'm not even going to say this is going to happen. I will simply take action."

The variation is to go right after the leadership, which would cause problems for China. It would be best if the Chinese could get the North Koreans to give up or de-orbit. If the Chinese try and they don't succeed, the question becomes, will the Chinese do something to defend the North Korean leadership or to oppose U. S actions to remove equipment on the ground, never mind the satellite? I'm not stressed about the satellite unless it really is a nuke or it really can cause an EMP. It can cause a lot of damage to commercial stuff, but unless it kills lots of Americans on the ground, it's not the existential threat we need to worry about. So, I'm inclined to treat satellite almost as if it's a one-off issue -- it's more of a bluff. I am concerned about the weapons delivery capability the North Koreans have, and they just can't be allowed to threaten anybody. This is an irresponsible regime. We're sort of in this spectrum -- we're going from a deterrent situation which has failed because they're not listening to us and they've launched another provocation to a Compellent situation where we want them to behave differently. The

North Koreans can choose to cooperate because they fear being killed, or they have no choice because their toys have been destroyed or taken away. The wild card in that is what the Chinese do.

Participant #4: I see them using the scenario of hundreds of thousands of COVID-infected North Koreans, running into China.

Participant #1: No joke. They would fear that in the North. I've played other games in the past where North Korea collapses, and it's ugly. One, there's a big hunt for the nukes. The other is the chaos that's created on the border. China does not want North Korea to collapse, but they're also not thrilled about sacrificing much for them either.

Participant #4: Well, they are a good buffer state between China and South Korea, right?

Participant #1: Yes, and could they be a good buffer state at half the size?

Participant #4: I think we've put together what I consider to be the key points right now.

Participant #1: An interesting signaling question is do we de-man the space station while this is going on?

Participant #4: You'd have to because you couldn't run the risk. I think what you're going to find is by then there is supposed to be at least one commercial hotel up there.

Participant #1: One way of showing that we're willing to be serious is by evacuating U. S and allied nationals from space. Say, "bring them home. Things may get weird."

Participant #4: And I look like. Sorry, I don't know if you heard today, but the Iranians launched their first solid propellant rocket. We may have another player in this game.

Participant #1: We could take the ISS down to two people. You could leave a minimal crew on board of government astronauts. You can get everybody else out. You could get the commercial stations out. There's a big step between two people on station and zero. That's a big problem. It's not impossible. But, as long as they have an escape pod there with them, they might take their chances leaving a minimal crew on station. I think there are certainly a lot of astronauts who would volunteer to do that, but I really couldn't order him to do that. As for the Chinese, it would be interesting to see what they do.

Participant #7: To the point about evacuating the station, what I have seen asked of the space lawyers in other games is if the U. S and the allies abandoned the station and the Russians stay up, do the Russians get to claim the station is theirs?

Participant #1: No, the intergovernmental agreements already hold. And, there's no salvage law in space anyway.

Participant# 4: And apparently, they don't know how our half works, because we don't know how their half works.

Participant #1: No, the most important thing is their half has one of the two bathrooms. We have one bathroom. They have one bathroom.

Participant #4: We've been trying to model the charging and the potential build-ups and all that stuff for years and they have no real knowledge of their half of the space station. This is terrible. We can't quite model it right.

Participant #7: What was the consensus? Are we going to do preemptive action on the North Korean satellite?

Participant #1: Somebody can object, but I think it was that we tell the Chinese to go ahead with your diplomacy. But we're reserving the right to take the satellite out if we have further evidence and it becomes a threat. And, if something really bad happens and it does go off and cause damage, then the whirlwind comes next. We will hold the North Koreans accountable. The question at that point is are you going to defend these guys or are you going to stand aside and let us take care of it? Okay.

The problem is if we start preempting it, which is probably the easiest and simplest thing to deal with it, it doesn't deal with the larger crisis about how we got into the situation in the first place. And, it allows the Chinese to say you're the aggressor and we're going to be pushing back against you. Chinese incentives for helping any further go away. So, it's a hard mix. You're avoiding a potential problem [by pre-emptively taking down the satellite], but again, the evidence for it is still pretty limited. I like to do lots of talking before shooting, but once you shoot, shoot first and shoot a lot.

The team turned to the questions while they waited for answers from the other teams.

Participant #7: We think there's going to be a new debt in low-Earth orbit. Most of the effects will probably be confined to low-Earth orbit. There may be some damage to the grid. I'm not sure how control's going to play that, but my guess is they're going to play substantial Robotic, and then affect human life in low-Earth orbit.

Participant #4: The big problem is the line of sight and all that garbage.

Participant #7: Yes, I agree. If the United States is more reliant on space, especially with this U. S commercial, then maybe it affects us more than China or Russia. But with the Chinese space station, they could take the brunt of it, too.

Participant #1: I think politically there would be such a sea change between hardware being harmed versus humans on the ground being harmed. If humans on the ground were harmed, the gloves would come off. Any president would have to act. However, even if there was harm to

billions of dollars of hardware in space, there isn't a reciprocal space action. That's where other options like a total blockade of North Korea – all sections being cut -off. Revisiting the locations of the MIRV missiles that North Korea was shooting, and how much China is willing to defend North Korea. You have to have something that's a phase change to trigger a real military action. We ought to prepare for it and have plans in place for it. But we don't want to start with it, even if it's billions of dollars of hardware damage, to the disappointment of the commercial community.

Participant #7: I think that seeing live feed video from the station of the effects of radiation sickness and the like, I think that could shape world opinion, too.

Participant #1: Yeah, feeds of what we would do going after North Korean leadership and the collateral damage that would result from that would also be pretty horrific. You'd like to keep this all non-nuclear if possible. I don't know whether any assurances that we would not intend to use nuclear weapons near their border unless they used them first, would help in our negotiations with the Chinese.

Participant #4: I hate to bring up this point, but it was a point during the first Iraqi war. What happens if a large meteor hits the upper atmosphere and duplicates an explosion at an inappropriate time and location? I think that would be a good reason to threaten that they need to get that thing down right away.

Participant #1: Yeah, well we have really good space situational awareness, but it's not perfect and we might make a mistake. So, you shouldn't depend on us to be perfect.

Participant #7: Turning to the questions, what mitigation steps, if any, relating to the low-Earth orbit satellites should the United States and its allies take in preparation? So, as part of the preparatory meetings, we talked about how for a lot of the missions the DoD relies on space there are other ways to get the missions done, whether it's MEO, GEO, or terrestrial-based. Potentially, you would probably not want to launch any additional satellites into low-Earth orbit. Maybe you would evacuate the station, just to take that off the table if we had enough vehicles to get the entire crew down from the station. I'm not sure where we would stand in 2029 on that. Then, we would talk to commercial partners as they might want to do likewise if there is a commercial station.

Participant #1: I think that the ground infrastructure is just going to be overwhelmed. The space stuff can be almost kind of confined to a particular problem. I agree with you on the relative resilience that we have with the low-Earth orbit systems. So, any actions for us will be cross-domain and that needs to be discussed with the allies and South Korea first. It just depends on whether China is willing to defend North Korea and what limitations they would place, if any, on our actions against them. That is where holding leadership accountable is going to be, I think, the litmus test.

Participant #7: I got a response from South Korea.

Message from South Korean:

We strongly support diplomatic efforts, but we consider North Korea's actions an act of war and we should respond accordingly. Therefore, as we pursue diplomacy, we want to pursue actions to ensure the defense of South Korea from a North Korean attack if it demonstrates a nuclear capacity that takes out low-Earth orbit satellites. Please take appropriate actions to ensure contingencies in case North Korea detonates.

Participant #1: How prepared are they to move north of the DMZ and how far can they be by day three?

Participant #7: You want me to ask that? I can reference the numbered plan too if you

Participant #1: How are their stores of precision-guided munitions(PGMs)? Have they finally gotten enough PGMs online and are their artillery stores up? The last defense budget was still a little deficient in that area.

Participant #7: I'll respond and then tell them they be prepared for all contingencies.

Participant #1: Well, you know, they can have an amphibious landing practice.

I just want to know how far can the line of advance be, where are the nukes, and how fast can they find them.

Participant #4: Well, the North Koreans don't need nukes. I understand that Seoul is in artillery range.

Participant #1: Right, which is why how fast the South Koreans can move to take that artillery out. That's why I usually complain that they've under-invested in PGMs and counter-battery fire. They want to spend money on missile warning satellites and yet their ammo stores tend to be low. That's down in the weeds.

Participant #6: In addition to considering the effect on human life in space, given the number of communications and remote sensing assets this 40-degree latitude mark, which I know is an inclination, should we not also consider the indirect effect on human life? If there is even an anti-satellite missile, it will have a lot of detrimental impacts – it's not like a nuclear detonation, but will require years and years of recovery time. In addition to the indirect effect on human life on the surface, there's the economic impact. My thought is we should ask some of the commercial folks that have a lot of assets in this region to be prepared to launch to a higher altitude for their next replenishment and to coordinate replenishment backup assets to launch quickly, if possible.

Participant #4: The problem that you have is that if you move up you move into the middle of the radiation belts and proton belt, and that's pretty bad. That's where you have to start armor-plating the GPS and satellites like that. Of course, we do it. But the bottom line is that the radiation environment gets bad quickly after you get above a few thousand kilometers. You get into the first proton belt and there's an electron belt there. The outer electron belts, you don't worry about too much because they keep getting banged around by the solar wind and stuff, but that inner belt, particularly protons is a serious issue anyway.

Participant #7: I got a message from China if I could read it

Message from China to all:

China objects to the U. S. initiation of the nuclear crisis in northeast Asia in response to North Korea exercising its right to test defensive weapons. We call for all parties to meet to address American aggression and peacefully resolve the crisis. We welcome the U. S. desire to enter dialogue with China to resolve the crisis. As the leading country in Asia, China calls for a UN Security Council meeting to discuss a peaceful resolution of this crisis and address American nuclear escalation and bullying of small nations. China reminds the United States that it has a perpetual treaty of friendship with North Korea, and its continued sovereignty and integrity are fundamental to Chinese interests. China will vote against any military measures against North Korea including any illegal air or naval blockade.

Participant #1: Okay, so this brings up the framework for the diplomatic game, which is getting a Security Council resolution. That will be part of the build-up. Do the Chinese veto any Security Council resolution? It's possible. But we did get a Security Council resolution for the Gulf war. The question is under what conditions could we get one here? If the answer is we can't get one, then it's going to be a very clear and present danger to the United States, and it would be hard to do a preemptive shot against their antisatellite missile. I think that the diplomatic venue moves to the UN Security Council, but I think the message has to be that we're going to hold the North Koreans accountable for it, and the Chinese are going to have to decide which way they're going to go.

Participant #7: And you could have something similar to what we did in Ukraine and go straight to the Security Council – we do have the general assembly, too – and just get the votes on record. We do have other alliance structures we can use.

Participant #6: Can China get North Korea to retract its statement?

Participant #1: Now the bell, once rung, can't be un-rung, in terms of statements. But the Chinese could encourage the North Koreans to quietly de-orbit it naturally, without anybody saying anybody did anything. We still have the U.S. demand out there that kind of started this, which is for North Korea to put their MIRVs into three locations. I presume the Chinese are

saying that they don't like that U. S demand. Can the U.S. back down from that demand? I kind of wouldn't have made it in the first place, but they said, "don't fight the scenario." Now we're going to be running a lot of reconnaissance and surveillance flights to see what they do. Would the Chinese be open to having a deconfliction channel for our reconnaissance activities to assure ourselves that the North Koreans aren't doing something? If they don't agree to that then we have a more general problem.

Participant #4: Does anyone think that the North Koreans will move all their nuclear missiles and warheads out into a field where we can see them?

Participant #1: Nope, this is why I wouldn't have made that demand in the first place. Don't ask a question you don't want to hear the answer to. On the other hand, if we wanted to start a war, because we knew they wouldn't respond to that, it does give us an excuse to set these things up and solve them. But I think it's an unnecessary escalation for not much gain.

Participant #7: We have an email back from the Five Eyes team.

Message from Five Eyes to the U.S.:

Are you assuming that China will work constructively and that its interests are aligned with the U. S. and to keep the low-Earth orbit environment operational and sustainable?

Participant #7: Great question.

Do you think you can take out the North Korean satellite by non-kinetic means using non-kinetic measures to neutralize the satellite?

Participant #7: Excellent question.

Please be mindful of engagement and abide by international law. Please consider your response and be mindful of the response of the Five Eyes+ powers and factor that into your response. We request being part of the dialogue if you decide to hold North Korea accountable.

Are you assuming that China has an active space station on orbit with humans? Are you thinking of using the negotiations?

Participant #7: We are.

As the Five Eyes + team we have already begun planning to mitigate the military and commercial impact. We are thinking about how an international coalition with the United States and expanded Five Eyes powers can come together to respond.

Participant #7: They have a lot of questions, which is fair. They have a lot of Control questions.

Participant #1: I think for the Japanese the question has got to be, “are you prepared for a surge of forces into Okinawa?” There’s a force structure cost for surging reconnaissance in and around North Korea and I’m not sure how long we can sustain that. Maybe that’s a question for us as the United States, what is the end game here? If you set the satellite aside for a moment, the thing that set this all off was the test launch threatening the west coast of the United States. How do we make sure that doesn’t happen again? Or do we treat it just like an accident? Remember the Russians dropped a nuclear reactor on Canada that cost a lot of money to clean up, but it was treated like a liability issue - just an accident. Could we have gone a different direction and treated this just like any other normal activity? The North Koreans like to have this fiction that they have a real space program and maybe we should pretend that they will pay compensation under the liability convention if anything happens as a result of the MIRV test.

U.S. reply to Five Eyes:

Q: Are you assuming that China will work constructively and that its interests are aligned with the U.S. and keep the LEO environment operational/sustainable?

A: No.

Q: Do you think you can take out the NK satellite by non-kinetic means?

A: Potentially.

Q: Please be mindful of engagement and abide by international law.

A: Acknowledged.

Q: Please consider what your response will be. Be mindful of the response of the Five Eyes + powers and factor that into your response.

A: Acknowledged.

Q: We request being part of the dialogue about number #3 if you decide to hold North Korea accountable.

A: Concur; will coordinate as events unfold.

Q: Are you assuming that China has an active space station in orbit with humans?

A: Yes.

Q: Are you thinking of using that in negotiations?

A: Yes.

Participant #7: We have an urgent communication from South Korea.

Message from South Korea to the U.S.:

We request that the United States deploy strategic assets at or near the Korean peninsula to demonstrate resolve and to protect South Korean citizens as well as U.S. service members and their families.

Participant #1: Are South Korean security forces already on alert and are they prepared to move?

Participant #7: Do you want me to acknowledge?

Participant #1: Tell them to acknowledge that and ask them to please delineate what steps they have taken to defend themselves.

Participant #6: In the move one description, the North Korean statement was Washington and Seoul should be very concerned. The latitude of DC is 38.9 and Seoul is 37. I wonder if there's some response to China's requests that we not escalate that asks China something specific about protecting Seoul and Washington.

Participant #1: Like, how would we phrase that?

Participant #6: I am thinking it should be an open-ended question for them, given their response given us no escalating, when frankly I feel like we haven't done anything at all. Maybe an open-ended question: What would they be willing to do? Do we ask open-ended questions and these types of scenarios?

Message from Five Eyes to China:

States are under obligation to carry out activities on the use of space in accordance with international law. In the interest of maintaining international peace and security and promoting Article II of the Outer Space Treaty. In addition, the Expanded Five Eyes team rejects the characterization that the United States is to blame for escalation. Finally, we express a desire for the UN Security Council to work effectively to achieve a diplomatic solution. This is also a reminder that any hostile actions will have consequences for your own assets including human presence through robotic assets.

Participant #1: Very good. Per Participant #6's point, maybe the question we could reiterate to China we are, of course, interested in finding a diplomatic way forward. Ask what steps China would be prepared to suggest to North Korea for a confidence-building measure. We're open to their ideas not for steps that we can take, but the steps North Korea could take and we could support. Again, reiterate that if any action results in harm to U. S or allied persons or material, we will hold the North Koreans accountable.

Participant #7: I'm going to send that to China and copy our allies so they see it, too.

Participant #1: So, everybody stays calm, keep your guns holstered. But as the phrase goes, you know, screw around and find out.

Participant #2: So, I just had a quick question. If North Korea effectively has no space situational awareness capabilities, is there any good in us sending a satellite over to inspect the North Korean satellite?

Participant #1: You could. The problem is you have to get, really, pretty close. But it's not a bad idea. You'd have to get close using a radiation detector system. Maybe Participant #4 could give us something on distance. But even then, you wouldn't be able to confirm. You might be able to confirm if there was a radioactive source on board, but would not be able to confirm that it was a weapon. That would be tough.

Participant #4: Yes, you have to get pretty close to do that. The gamma rays you could detect, but fairly far away.

Participant #1: By close I mean, you know, not a couple of kilometers.

Participant #4: No. You're talking about closer than that few meters. Yeah, we'd just as well blow it up at that point.

Participant #1: Just to throw something creative in there, maybe this is a role for a space-based satellite servicing dual-use system?

Participant #2: That's where my mind was going.

Participant #1: Okay, well, we repurposed an SM3 to be a direct ascent anti-satellite missile. It's a new day. Why don't we repurpose a satellite servicing repair system?

How about throwing a curve ball in here and saying privately to the Five Eyes team only, the United States is initiating a rapid deployment, redeploying a satellite servicing system with a radiation detector system that will approach the North Korean satellite to determine whether or not it's carrying a nuclear device. If it is carrying radioactive sources, the United States will retain the option to grapple with and de-orbit this object. We do not intend to engage in a kinetic kill, but we are intending to seek verification and provide an option to do a propulsive de-orbit.

Participant #4: Well, perhaps we should offer them the opportunity for us to de-orbit it. Phrase it that way.

Participant #1: That we're offering to de-orbit the North Korean satellite?

Participant #4: Yes, yes, yes, yes.

Participant #1: Tell them we'll send them the bill after it's over.

Yeah, in this situation, there is nothing forbidding a close approach. If we then grapple with it and remove it, that would be an infringement upon their rights. So, giving ourselves some options, I think going ahead with the rapid-to-launch.

Participant #4: We want to go even further. We had proposed putting a solar sail between the offending satellite and its communication systems. The Air Force was going to test it for us.

Participant #1: That's the spirit! But that would be an interesting commercial option. Just take one of those services, give me a rapid deployment launch, and get me close, and even if the detector is ambiguous, I now have the option to do a grapple and deorbit that I didn't have before.

Participant #4: The question is, could you prevent the thing from exploding over the United States by jamming it?

Participant #1: Like trying to jam an IED when you're driving down the road in Iraq somewhere? You know, they certainly could do it. But again, if they did then a whole bunch of other plans should go into effect to make sure they can't do that again. That's part of holding North Korean leadership accountable. And then the question is about whether or not the Chinese will forcibly resist or not. Their call. But we can't let a regime like that continue. That just has to stop.

Participant #7: Okay, I sent that last email off to China, copying control and our friends. The Five Eyes had a lot of questions we need to answer. Are we assuming that China will work constructively and that its interests are aligned with the United States?

Participant #1: No, but we are hopeful that necessity will prompt them. Either they will help fix a problem, or stand out of the way when we fix it.

Again, I think it's important that almost no matter the level of material damage I don't think we can justify going to war, but if there is an EMP hit or explosion over a U. S. city, that's where all the gloves come off. If it just damages the satellites and hardware, then we deal with it.

Participant #6: Wonder if there's anyone else that we should contact. I know India is at lower latitudes, but they have relationships as well as Europe. Are there any other connections we should be making?

Participant #1: I think it probably would be good to have a public messaging campaign, particularly for developing countries. If there's damage to space systems, many developing countries depend on the infrastructure, and they're the ones who are going to be hurt the worst. We will have ways of doing military workarounds, but countries that depend on remote sensing, weather, and communications are utterly not interested in there being a war in space. Developing countries would come up losing no matter what. So, a messaging campaign that paints North Korea as the aggressor, as the one placing space at risk, and therefore placing the

interests of the developing world at risk for nothing except its military ambitions would be part of a public diplomacy campaign. So, the answer is yes, we should be reaching out, because we may need to try to shape votes in the general assembly. If the fight is in the Security Council, popular opinion will be the general assembly. China, given its stance, will reflexively defend the North Koreans but doesn't want to be isolated in that. You don't want other countries joining China and supporting North Korea. That would be pretty bad.

Message from South Korea to the U. S. and Expanded Five Eyes teams:

The Republic of Korea supports the actions of the United States and the statements by the concerned nations. South Korea condemns North Korea's actions and demands they stop. South Korea finds China's statements regrettable. Based on consultations with the military committee, South Korea recommends moving U.S.-South Korea to DEFCON 3.

Participant #1: How much of this would be what's happening just within U.S. Forces Korea? How much of this would be INDOPACOMM?

Participant #7: They would probably be the supported commander. If not they'd be with the person that has the charge of the plan. They would be supported along with the folks on the Peninsula. So, it might be a little tenuous, depending on which phase, but I really can't go into more than that. So, everything's going to flow their way, right?

Participant #1: But if they're the supported command, so U. S Space Command would be supporting INDOPACOMM?

Participant #7: That depends on which action. This goes back, again, to some lessons learned from other games. You're trying to make this a space scenario. Everything has to have a terrestrial reference. So, most of the consequential stuff is going to be on Earth or in theater. But there could be occasions, depending on what phase, if this just stays space, there could be occasions where the U.S. Space Command could be supported in that regard. So, it depends. You can have different military orders that have different supported commanders.

Participant #1: I think you're making the point that as much as you would try to make this about space and space issues, it's a geopolitical problem on the ground. Space stuff is dressing.

Participant #7: And that's how China and Russia would see it, too.

Participant #1: Rightly so. That inspection satellite going up there, we should make sure it's commercial. Maybe you could fly like, a jolly Roger flag on it or something?

Participant #4: I wanted to go up with a can of spray paint and spray all the optical sensors. That sounds good.

Participant #1: Not a bad idea. The question is how well the venting and outgassing of a spray can would work in the thermal environment that you have there.

Okay, so we're still waiting for other reactions. I'm sure during the next move, they'll throw something bad at us. I guess we're sort of assuming that all the war and operational plans are in place.

I think, again, from a strategic standpoint we want to stop the North Koreans from further doing bad things, but if they harm U. S. people then that's the point where we're going after the leadership. Is there anything else that you think would make us happy other than de-orbiting the satellite? Is there anything else?

Participant #6: We could take out the launch pads.

Participant #1: Launchpads are good. Some tomahawk cruise missiles? I'm sure INDOPACOMM has them and the targets are dialed in.

Participant #4: There is the possibility of using intense radio waves to fry the thing.

Participant #1: Well, I mean, use a microwave beam weapon on satellites?

Participant #7: If we're looking to go anticipatory or preemption, I would say if you can take this out non-kinetically that would be the ideal, vice, creating a bunch of radioactive debris. You know, it won't go high order and detonate. You still don't want a bunch of radioactive stuff floating around. So, the non-kinetic solution would be ideal.

Participant #1: There's a trade between doing a grapple and deorbit or a microwave soft kill

Participant #7: Yeah, if you could try to electronics where it has been no propulsion and can't maneuver, then you can deal with it at another point.

Participant #6: Yes, and China has done that, so we could ask them to do it.

Participant #4: Well, the Russians have done it on the shuttle.

Participant #1: What's the ask here? We're going to ask the Chinese to please remove the North Korean satellite or we will?

Participant #4: They have that huge radio antenna. The world's largest.

Participant #7: Here's the potential -- one of the advantages of going with non-kinetic reversible attacks is the attribution. So, we could tell Control we are going to take non-kinetic actions by jamming high-powered microwaves against that. They'll be the only ones that know. Nobody can see it and then you can say, I didn't do anything. So, that's one of the advantages.

Participant #4: We do have high-power lasers.

Participant #7: Yep, lasers, jamming, jam the communications, or mess with the uplink.

Participant #1: That's good. So that's kind of this is getting maybe overly complicated, but there's a dual track. One is we have an overt mission with a commercial satellite to do an inspection and come up close. Then we have the covert option of "let's go ahead and fry the electronics anyway" the benefit being the non-attribution, it's harder to find. We can let some of the "sneaky Pete guys" try out their wares, and if it doesn't work, we still have the overt commercial system. And if it does work, then the commercial system will have an easier time with it.

Participant #7: I like that. Did you want to make that a move or is that just a thought piece for right now?

Participant #1: I like the idea of having the commercial inspection satellite go up there. We would want to get more information no matter what, and pressing a dual-use system in the service seems like a good idea.

Participant #7: OK.

Participant #1: Let's do that. The radiation inspection may or may not work. So, as a subsidiary covert backup, we're also looking at doing a high-power microwave kill.

Participant #7: So, we're executing on the commercial inspection and we're prepared to execute non-kinetic means against the North Korean satellite.

Participant #1: We are not pulling the trigger on the first one until we see if the Chinese are going to be public about doing the inspection. Not quite pulling the trigger on the covert method until maybe a little more information

Participant #7: To clarify, are we asking China to do the inspection or commercial to do the inspection?

Participant #1: Commercial.

Participant #7: All right.

Message from China to the U.S.:

China would be happy to convey the U.S. message of de-escalation to North Korea. The most effective steps to resolve this situation would be the de-alerting of U. S. nuclear forces, an end to U.S. demands for military actions, and a public commitment to a peaceful resolution of the crisis with the U. S., and North Korea talks arbitrated by China.

Participant #1: OK. That's a nice fantasy they have there.

Message from South Korea to China:

Thank you for your efforts toward peace on the Korean Peninsula. But it is our duty to remind you that North Korea initiated this crisis and now insists on conditions that are totally unacceptable due to North Korea's nature of threatening the security of the Korean people. We advise China to use whatever influence it has to influence North Korea to maintain peace. Finally, South Korea will increase defensive measures and expects China to understand that these steps are not aggressive, but defensive, and Beijing should not feel it threatens China's efforts for peace.

Participant #1: Isn't it better having allies saying that then having us do it?

Message from South Korea to the U.S.:

Do you agree with our proposal to move U.S.-South Korea forces to Defcon 3?

Participant #1: Yes, yes, yes. Would it be reasonable to let them know that we were taking steps to gain further information?

Participant #7: I would say, let all our allies know about the commercial satellite doing an inspection, because everyone's going to see that coming. Nobody else should know about the non-kinetic actions.

Message from the U.S. to South Korea:

Yes. We are taking steps to gain further information using a repurposed commercial servicing satellite.

Participant #7: And this will beg the question of keep-out zones. How close can they get before they consider it?

Participant #1: A new norm has been established in this area, after years of efforts within the United Nations.

Participant #1: Did evacuate the space station and take it down to a minimal crew.

Message from the U.S. to all:

We are taking the ISS down to a minimal 2-man crew.

Participant #7: Participant #1, my question about that is usually there are not enough capsules to bring the entire crew down.

Participant #1: There are always enough seats to bring everybody out.

Participant #4: Yeah, it's supposed to be always.

Participant #1: That's why we have to go to like two guys after Columbia because we had nothing to put up there.

Participant #7: Full of questions I'll read these.

Message from the Five Eyes Team to the U.S.

What is the U.S. thinking about the potential ways to split the China/North Korea cooperation? How do you plan to divide them?

The Expanded Five Eyes emphasize again that you hold North Korea accountable.

Have you considered any offers to China that may draw them toward cooperating more with the Expanded Five Eyes than supporting North Korea?

Finally, remind China of the threat to its assets, including humans and satellites, in LEO, which may have catastrophic effects on China.

Participant #7: Splitting the alliance?

Participant #4: I don't think you can.

Participant #1: We can propose a question to the Chinese, "what is the minimal stand-off distance from the Yalu River, they would prefer the occupation?"

U.S. message to China:

The U.S. and those nations that are part of the ISS are taking the Station down to a minimal crew (2 persons). Is China taking similar action? Is China concerned about North Korean escalatory action threatening human life on orbit?

Participant #4: I don't know about that.

Participant #1: That's move 7.

Participant #7: I'll send something to China that says, are you concerned about the potential loss of Chinese taikonauts?

Participant #1: Yes, noting that we have taken the station down to a two-man crew. Is China Group taking similar actions?

Participant #1: It's interesting how we don't seem to care that much about the original MIRV launch. We're worried about the satellite and all that, but a long-range ICBM heading for the United States and accidentally missing. We have somehow sort of forgotten that part, but we're worried about what is most likely a dead piece of lead rotating around at a 40-degree inclination. That gets more of our attention.

Participant #4: Supposedly, we're supposed to have an anti-ballistic missile system in place for North Korea by that time.

Participant #1: The same system at Fort Greely the Chinese used to justify digging 100 more holes for their ICBMs, which they said they would do. I mean, they said they would need to offset the capability and so they went ahead and did that.

Participant #6: Should we ask for the results of the air reconnaissance flights?

Participant #1: That would be a good question for control. What's the status of the reconnaissance flights centered around North Korea? Has tried to challenge any of these flights in international airspace?

Participant #7: I'll read this communication.

Message from South Korea to the Expanded Five Eyes:

Thank you for your support and commitment to peace and security on the Korean Peninsula.

Peace on the Korean Peninsula affects all nations and as such under the UN command flag, South Korea will support all activities to assist South Korea to maintain peace and defeat North Korean aggression if such conditions warrant it. Thank you for your support

Participant #7: Technically, the Korean war never ended. It's under the armistice. We still have a UN. command there.

Participant #1: Yep, and again, how are the PGM stores? And where can they be on day three?

Team Briefing

Participant #1: The question is there any possibility of a UN Security Council resolution that would be coherent in all this? North Koreans are already barred under early resolutions, 1718, and others, from doing what they've been doing. They're already in violation because of the missile launch. Even the launch of the satellite with the threat on it. There are not supposed to be tests of ballistic missile technology. These are Security Council resolutions that China also supported. Maybe a question to China could be, would China consider joining the United States in reiterating the need for North Korea to comply with the existing Security Council resolutions, such as 1718?

Participant #7: I'll do that right now. Even, if the answer is no, it still helps solidify the international consensus.

Participant #1: That's the idea.

Participant #4: We haven't asked what Russia would do in all of this.

Participant #6: The whole thing started around the new South Korean American presidents agreeing to meet to discuss how to deal with Pyongyang. Should we make some statement that we should continue with that meeting, despite all this? What would be the protocol?

Participant #1: Given that we are still in a crisis, we would probably be continuing intense discussions. We'd probably want to have a press statement that the President has talked with the South Korean president, reiterated our friendship and commitment to North Korea, and joined with other like-minded countries around the world in calling on North Korea to abide by security Council resolutions. I don't know that I would want to take the time, effort, and organizational bandwidth necessary to have the meeting, but doing a video call, and then having a presser about that would certainly be protocol. That would be normal.

The diplomatic action would be a UN Security Council resolution, that would seek to bring North Korea back into compliance – you know, don't go launching ballistic missiles. Resolution 1718 I believe it's the right number. There may be others. They're not supposed to be doing space launches at all.

Participant #4: Doesn't seem to do any good though, whatsoever. I don't think any has ever affected North Korea in any way.

Participant #1: It's helped justify the basis for economic sanctions. It hasn't changed the behavior, but it's been the basis for cutting them off from international trade and finance and forcing them to go underground. It's made it hard for them to raise hard currency. So, it's been the basis for economic sanctions.

Participant #7: As you're seeing the scenario play out, we have a coalition forming of the allies when things go south.

Participant #1: The Chinese have this whole nonintervention mentality, except when it's in them doing it like in the South China Sea. They get uncomfortable with other countries messing around in their backyard unless it's them doing it, like in the Spratly Islands and such. There is sort of a weird principle involved here. They do have these ties with North Korea, but they also find North Korea to be exasperating. North Korea originally received help from China on building some of its first space technology, but then the Chinese didn't continue helping. So, the Chinese don't want anybody else messing with them, so close, in their backyard. That's why we have the comment about a buffer state.

Participant #7: Let's go back to the first two slides. Do you want me to brief these?

Participant #1: Yeah.

Participant #7: Sure. I think we have stuff to talk to.

Participant #1: Well, you know, I think the themes are 1) we are not overtly taking any preemptive action; 2) we want to give diplomacy a chance; and 3) we are preparing for if diplomacy fails.

Participant #7: And, trying to figure out what Chinese intentions are. I think we've got a good feel of where the allies stand on the issue too.

Participant #1: I think that the number one is the satellite threat is eliminated. However, that happens. I would say success means that the satellite thread is eliminated.

Participant #4: Would we want to set a date? I know it's a red line and you didn't want to set red lines.

Participant #1: Well, the question would be how fast can the commercial inspector system be available to go?

Participant #4: We have some now. So, I assume they could probably get it ready within a few weeks. If you press the real hard. If you want to be a conservative, say, a month or two.

Participant #7: I think I think there may be some on orbit by then.

Participant #4: People are testing them already.

Participant #7: The problem is even getting to the right orbit for inspection will take some time.

Participant #4: A minimum of a month in my mind.

Participant #1: We should use the 30 days or so to see if we can craft a diplomatic solution in the National Security Council, and say we'll give diplomacy a month. But that month is driven not by diplomacy, but by how quickly we can get an inspector system on board, and also that buys us time for a covert reversible kill.

Participant #7: Do you want me to brief the non-kinetic kill backup?

Participant #1: Nope. Only Control knows that. For the briefing, we're giving diplomacy time and we're looking to independently verify the nature of this threat. We are going to continue reconnaissance systems given North Korea violates existing UN Security Council resolutions as demonstrated by the most recent reckless launch accident, which caused this whole problem yet, again, to come to global attention.

Participant #1: Forces in the Korean Peninsula are on alert. We're reducing our exposure in space and stepping things up. Given the Defcon level, would we be evacuating U.S. dependents from Korea?

Participant #7 and Participant #4: Yes.

Participant #1: That's going to be another very visible thing. So, in terms of media, we're going to have a press announcement about our conversations with the South Korean president. There will be pictures of tearful families getting on U. S commercial airline flights and evacuating from Seoul. That's going to be the other news headline.

Participant #4: And probably ambassadorial staff reductions.

Participant #7: And of course, we'll communicate all this with our South Korean friends so they don't get upset.

Participant #4: We should put the meeting of U.S. and South Korean presidents up at the top.

Participant #7: All right. Thanks, everyone. We'll see you in a few minutes.

Move 2

Expanded Five Eyes Team

Crisis Response / Game Playing

Participant #1: Given how last time we were exclusively space-focused and taking actions in that regard, and now we are faced with a land invasion, does anyone else share my hunch that the object in space is a ruse and diversion?

Participant #2: I think we got tricked on that one.

Participant #3: Maybe we were not tricked; maybe that is the backup plan. There was an element of distraction and taking our focus away from the ground. I would not be confident saying it is a bluff, though.

Participant #4: Surveillance and reconnaissance against Western countries will be hindered. Even the potential detonation that could affect satellites in low-Earth orbit could leave the United States blind, at least looking from space, in the Korean field in the event of an invasion. Detonation could be triggered to make the United States and South Korean allies blind.

Participant #1: That's a good point. For years, I remember in the cold war days, we carefully monitored our missile warning SATs in geostationary orbit. If all of a sudden one of those got taken out, then that meant the Russians are about to nuke us. Could be similar. Maybe the perhaps of the spacecraft is to detonate and blind everyone as the invasion starts. So that might be the case in a plausible scenario. Immediate coalition steps might have to assume the purpose is to blind us right as the invasion starts.

Participant #5: Low-Earth orbit would be setting conditions for an invasion. So, I would think at least one of the things I would want to do is start taking a harder look at land-based communication. We should be getting ready to unplug the hardware to protect it.

Participant #3: In the last move, as an Expanded Five Eyes group, we did something of an audit, to see what we might have in redundancy and resilience if low-Earth orbit got taken out. We have France and Germany, in our coalition, which would have assets beyond low-Earth orbit. Japan as well. Assets, as a coalition, have a backup of visibility from intelligence in medium Earth orbit and geostationary orbit. We would want to complete support with the ground, air, and sea-based assets. We have partners not in the region like Australia and Japan, so you would have some ready military partners to start mitigating the damage.

Participant #2: Commercial is harder to mitigate

Participant #1: When was the last time we tested our backups? Maybe that is part of the preparation. Now we have all this backup comm capability. We should test it to make sure it works.

Participant #2: The capability North Korea put in low-Earth orbit could be afunctional, whatever it is. I think it was a bit of a distraction and a bit of a ruse. Maybe they will come back to us and say it is a nuclear-powered satellite that has the capability of malfunctioning in a destructive way. We need to be prepared for unpredictable effects.

Participant #1: We need to ask the United States for the results of the satellite inspection.

Participant #2: We need to remember that we must be working with the commercial sector here. It will have a huge effect on the commercial providers in low-Earth orbit.

Participant #1: If we need to buy more transponder time, now is a good time to do that. "Transponder time" is a slang term for buying more capability on a commercial communication satellite.

Participant #3: Commercial companies are also operating beyond low-Earth orbit, and some of those capabilities will be critical for rebounding economically on the commercial side.

Participant #4: I wonder if we have space service and manufacturing capability. I would assume we would not have it, as much. We might have to coordinate with other countries to protect our assets.

Participant #2: If we do not have Japan with us at the moment, could we just say, Japan will likely have the tech to remove stuff from low-Earth orbit? Do we say that Japan is going to go up there and remove it from low-Earth orbit? Can we throw something like that up there?

Participant #1: From a technological perspective, yes, if you could go up and grab it and deorbit it. There is a finite time from which you land and grab. There is about half an hour to remove. The North Koreans would have about 45 minutes to do something if that would happen. You would have to completely disrupt the command and control. If it was a nuke, then you would have to hope there was no autodetonation.

Participant #3: Diffusion would be risky. Can we assume that the US wants to protect satellites and is maneuvering into a position where it could respond? Perhaps Japan could help; they could have some jamming or cyber that knocks out comms and the Japanese deorbiting capability comes in to remove it once the United States halts communications.

Participant #1: It is plausible, but it is unlikely that scenario could have been rehearsed and practiced enough to where Japan and United States could pull the trigger and do it in any real-world scenario. However, it is certainly appropriate to practice with our allies.

Participant #5: The United States has anti-satellite capabilities. If we are confident that it was nuclear, those might be a better option.

Participant #4: We could consider taking control of mission control on North Korea's side by planting a virus and raising the orbit to make it leave low-Earth orbit.

Participant #2: We may reject those options, but it makes sense to put everything on the table.

Participant #1: While we ask the United States questions, we could also ask Control if North Korea has only one ground site where it controls its stuff. Does that mean they cannot control for the full orbit if they cannot see satellites? If we want to do sneaky stuff, then it makes sense we could do it when they cannot see the satellite.

Participant #3: Can we ask Control how much assistance China might be providing to North Korea? We got a vague answer. I think another realistic thing we could do at this point might be to let the United States know we prefer a non-debris-forming response. We could remind them of planning and identification abilities within our group that could help mitigate military and commercial effects.

Participant #5: Do we prefer, at the diplomatic level, tying the satellite and invasion of Korea as the same thing, or do we prefer handling them separately? Would we want to position ourselves such that we do not get pulled into a conflict on the Peninsula, but be involved with the satellite?

Participant #1: We should broaden that to understand the linkage between the build-up for a potential invasion and the orbit asset. We could conclude by asking whether, diplomatically, we should couple or decouple them. We want to know what the US is thinking, so we can either agree or disagree.

Message received from the United States –

Expanded 5 Eyes,

Please continue mobilization and pressure and stick with us in communicating your concerns to China about the need to resolve the North Korean crisis peacefully.

Would the UK be willing to make available its systems?

We will work to make sure all our strategic systems for nuclear command and control stay in good shape. But we need allies to continue to be prepared to backfill other systems and work together to fill any gaps.

Help includes sharing launch systems for support and replenishment.

Team America

Participant #3: Our message to them can stay, but we should add to ours that the Chinese should make a significant push to get North Korea to the table, so they cease their very alarming land activities.

Participant #2: That is what China said they would do.

Participant #3: We should pressure the Chinese to use leverage on North Korea both in space and on land.

Participant #4: I do know if this will go anywhere. My understanding is that in space now, a lot of stuff is connected to the low-Earth orbit constellation for repair. There are technical ways to harden the hardware of low-Earth orbit satellites, though, so if the United States could provide such a service, that will give strengthen our assets.

Participant #2: We talked a lot about a hardening in the pre-meetings.

Message received from China –

The dear world community,

China is very concerned with the rapidly escalating crisis between the imperialist powers and North Korea. Escalation of the crisis is in no state's interest. We call for immediate 6-party talks, or all-party talks, and offer to convene such a meeting immediately in Beijing. Diplomacy needs time to work. North Korea's deployments and movements are in reaction to the United States and South Korea going to DEFCON 3 and being on strategic alert. Responsible powers should try diligently to find a peaceful solution. North Korea's failed ballistic missile test and posturing are not a reason to unleash damaging effects and consequences on the region and world.

Reply received from the United States to China –

We welcome China's efforts at diplomatic resolution. However, in light of the aggressive and provocative nature of North Korea's statement regarding their satellite, we ask China if it can remove the nuclear satellite threat as a precondition to a convening of the 6 party talks. If China is not able to remove this threat either through North Korea or its own efforts then we will view that as an impediment to successful discussions at the 6-party talks.

Team America

Message received from control –

June 14th

North Korea ripple fire four missiles, three are tests, one continues over Northern Pacific where a nuclear device detonates in low-Earth orbit. It seemed to be a bomb with at least a nominal yield but not a megaton yield.

North Korean artillery forces are now bombarding military targets just beyond the DMZ but not yet striking the city of Seoul. North Korean light infantry forces have penetrated the DMZ. There have been multiple special operations forces attacks at multiple air bases in the Republic of Korea.

Participant #5: Do we assess that they can detonate again?

Participant #1: That is a good question because it seems the nuke that was just detonated was not the one that was in orbit for a while.

Participant #5: Do we have an assessment that the lower yield was because it did not work as intended?

Participant #2: Despite the lower yield, it would probably cause most satellites to fail in low-Earth orbit in days.

Participant #1: It makes a lot of difference if it was 600km vs 200km.

Participant #3: This has to go to the UN, as a nuke was detonated. Any firing of missiles from North Korea is already a breach of Security Council resolutions.

Participant #5: This straddles the line between military and diplomatic, but we should start increasing expeditionary forces. Even if there is no intention to get involved in the conflict, having relevant assets in the region gives us leverage.

Participant #1: I was going to ask if we want to increase our surveillance of Taiwan and want to diplomatically tell China not to get rambunctious while this happens.

Participant #2: This is all useful to put pressure on China about the growing list of infringements by North Korea. I think we could also lodge a note to the U.N. General Assembly (UNGA) Article 9 of the Outer Space Treaty (OST) that this is not legal. This is the use of space to cause harmful interference.

Participant #5: A scenario where the south is supported by an international coalition is worse for China than the status quo. If the Republic of Korea (ROK) was concerned about nukes from North Korea and launched military operations, then China might be concerned. China might want to knock off the current regime rather than allow it to become part of South Korea. What would a Chinese intervention look like?

Participant #4: It might look like increased sanctions.

Message received from the United States –

We hold the criminal North Korean regime accountable for this action and we call upon peace-loving nations to implement UN Security Council resolutions and ensure the removal of this criminal regime. Nuclear weapons will be removed from North Korea to ensure such terrible tragedies never happen again. We call upon our other allies to restore peace on the Korean Peninsula as soon as possible. We call upon China to cooperate in the restoration of peace in the Korean Peninsula and to avoid any escalatory activities outside the Korean Peninsula.

At this point, the United States does not contemplate the use of nuclear weapons. However, should the North Korean regime further employ weapons of mass destruction, we and our allies will take all steps necessary to ensure they are not able to repeat this action.

Team America

Participant #5: Do we support that?

Participant #1: I was just going to say, would the Brits or the French unilaterally get involved in this deep enough to throw a nuke at North Korea? My guess is probably not.

Participant #3: Yes, I agree, The nuclear states would be very worried about triggering a nuclear war with China. The United States says nukes are not part of calculations, but if nukes are used a second time, then the United States may respond similarly. We should not worry about the criminal part, but the removal regime is worrisome. China will not tolerate that. Is the United States going to go over and take over North Korea? China could also potentially go in and take control of North Korea.

Participant #5: Does Australia have a nuclear policy? Or would they support the United States?

Participant #3: The policy position is that we support the United States returning strategic immunity. New Zealand is very different with a hardline no nukes stance. Australia enjoys nuclear deterrence.

Message received from the United States to Japan –

The United States activates its OPLAN and Korean commands.

Participant #3: There is a current operation. I am not sure what it is called, maybe the armistice agreement. So, all contributing countries to that agreement would be activated.

Message sent to United States –

Activated Armistice.

Participant #4: Did China and Russia lose their station crew?

Participant #1: Yes, that is certainly a fair question. How did the Russians and Chinese react to their astronauts being exposed?

Participant #3: There is also the ongoing risk of debris. They may be taken out at any moment by debris.

Message received from South Korea to CHINA –

South Korea warns China not to intervene as South Korea and our allies defend South Korea from this unjustified attack.

Participant #3: Should we follow up on that message with a reply?

Participant #5: Do we want that?

Participant #2: We are part of the armistice agreement, are we not?

Participant #5: Part of me thinks it is unreasonable for China to not respond. Whether they prop up the regime or control it, they will not allow a unified Korea under the south.

Participant #3: You are right, we would want to be different in our warning to China. We want to be more realistic.

Participant #5: Also, we could probably do a more open message with a behind-the-doors message. We need to make sure this does not get any more out of hand. There is still conflict on the Peninsula right now.

Participant #3: We could publicly request help from China and privately message deep concern.

Participant #5: Privately, we would probably have to be tactical in de-escalation. I am not privy to what the United States team thinks, but if they and South Korea are flying strikes into North Korea, then those would be in potential places close to the Chinese border. They might have an intercept point. You would need a quick response. I think China would quickly put its forces on North Korea to control the situation.

Participant #3: Our allies and partners, the United States and South Korea, do not want China to enter North Korea and take control, but what do we want as the Expanded Five Eyes? Maybe we want to talk to them privately about our concerns.

Participant #5: I think we would either ask China to get North Korea to knock it off, which opens the pathway to China knocking off the North Korean regime. I could see us instinctively not liking this, but it is probably one of the fastest ways the conflict could end. North Korea is already a client state of China.

Participant #1: I think the ace in the hole to all of this is the countries in the Expanded Five Eyes that have embassies in North Korea. That is where you might play those cards and try to diffuse things. You might have Australian diplomatic in North Korea going across the street to Chinese diplomats in North Korea.

Participant #6: I like this idea. It is vague enough with our support. We can do this publicly, so it does not raise eyes.

Participant #5: Are there tanks rolling the ground in Seoul?

Participant #3: I imagine there is active fighting between both sides just beyond the DMZ. Also, China does not have any influence over North Korea. Someone, at some point, is going to bring North Korea to heel. The question is whether it is going to be China or the U.S. coalition.

Participant #2: Agree with the U.S. statement.

Participant #3: Agree with the U.S. statement.

Participant #1: Agree with the U.S. statement.

Participant #6: Can one of the Expanded Five Eyes countries offer to host talks for mediation?

Participant #3: The Expanded Five Eyes would be considered not neutral as a military alliance. I do not see Japan hosting, nor India. We could respond by not proposing to cross the line but affirming our commitment to take control back to that line. So, we would not be moving north, and we would make that very clear to the Chinese. Still, it would be returning to the armistice agreement. There is no need for China to get involved, which is what we would be stressing if we did such a thing.

Participant #5: Would we imply or say explicitly that we are running airstrikes past the 38th as well as missile strikes?

Participant #1: I think we should include the words “return to the armistice agreement” to answer the Chinese threats about the 38th parallel.

Participant #2: What about France and Germany? I wanted to know who else might be affected by this. Like, if there was a German astronaut on the ISS when it was exposed to radiation. Would that be enough to bring Europe in?

Participant #3: The United States is saying a similar thing. It is fine to send our message but change it to “ceasefire” instead of “peaceful resolution.”

Participant #5: Do we want to add something about the denuclearization of North Korea?

Participant #3: Denuclearization is important, but maybe we leave it for now, for simplicity.

Participant #3: Australia, Canada, and the Philippines have all called for denuclearization. Have any other countries in the Expanded Five Eyes?

Participant #5: We could say countries will support through military and non-military means by the will of their national government.

Participant #3: We should note that there are standing military commitments under the U.N. Command Korea. Do we want to think about the Japan question? They may find themselves in a difficult position in this scenario. However, Japan could be helpful in a maritime sense.

Participant #5: The Japan question is worth talking about. What is reasonable to ask for? Can the United States fly airstrikes off of Japanese bases? They could contribute to early warning.

Participant #1: They certainly have maritime surveillance aircraft.

Participant #5: I would ask them to take a bigger role in the defense of U.S. bases.

Participant #1: They would most certainly bring up their missile defense system.

Participant #3: We could say Japan is enabling U.S. flights from their bases.

Participant #1: I would expand that to say the entire coalition is enabling U.S. flights from bases.

Participant #5: We could also commit maritime and airtime control to defend coalition and U.S. assets.

Participant #1: Also, if anyone gets shot down, Japan has good search and rescue capabilities.

Participant #5: We could ask them to help with the evacuation and get the Japanese military on the Peninsula in a defensive role.

Participant #3: Japan will only act within its constitutional constraints.

Participant #5: Japan did make some comments that they would defend Taiwan, however, I am not sure what they could do aside from defending coalition forces in Japan. I am not sure they could be trained for participating in offensive strikes.

Team Briefing

Participant #2: We have a shortened window for discussion.

Participant #1: Because of the explosion, some of the things we considered are now off the table. One of those things is the deployment of cyber capabilities.

Participant #3: This is assuming that North Korea cannot detonate the original weapon they sent up because they rendered it useless.

Participant #1: We can assume they damaged their asset. They could have hardened it because they knew they would blow off another one first. I do not think they are that good. However, admittedly, you never know, so it may be a possibility.

Participant #3: Maybe the moon can be where peace is brokered, since there are/could be astronauts on the moon from the United States, Russia, and China.

People's Republic of China Team

Crisis Response / Game Playing

Message received from the United States –

Will the Chinese delegation to the UN Security Council support a resolution to remind North Korea to abide by past UN Security Council resolutions?

Participant #1: I think China has pretty much gone along with these UN resolutions regarding North Korea and missile proliferation. Is that something we can reasonably say yes to as China?

Participant #2: I was just thinking, the detonation has not happened yet, and so North Korea is only moving four mobile launchers and alerting its forces. I would say that we should not give our agreement to the United States so quickly. If you are China, your main concern on the Korean Peninsula is North Korean regime security and denuclearization. In that context, we need to make sure we know what North Korea is going to do. We stated earlier that this crisis was caused by a U.S. overreaction; agreeing so quickly would go against that view. We should say we will think about supporting this, but first, we need to establish whether North Korea has plans to detonate.

Participant #1: We can also ignore this message because it came in after the deadline yesterday and see if they retransmit it. I am okay with delaying doing anything in response.

Participant #2: I have a clarification question. We are still in a scenario where they could detonate a nuclear weapon in low-Earth orbit. Is that the assumption of the scenario?

Participant #1: That is my understanding. There is something still swirling around up there that North Korea claims is a nuclear weapon, but we are not sure.

Participant #2: And we could not get any intelligence from North Korea?

Participant #1: I was looking at the messages that went back and forth during the last session between us and Control, and Control seems to indicate that we had some intelligence, but they were vague. They did not say anything that helps us too much. We have just one question on hand: Given the intelligence of an impending invasion of South Korea, what immediate steps would nations take to mitigate the potential loss of military and commercial low-Earth orbit capabilities? There is stuff we should talk about as far as mitigating on orbit loss, but also politically, what can we do to mitigate the potential loss? Can we pressure North Korea to just back down, and give them a face-saving way out of everything? The goal last time was that China wanted to de-escalate because escalation is in nobody's interest. We want to preserve North Korea's regime. That sounds to me like we need to message North Korea and start leaning on them to figure out a way to get them to de-mobilize or something like that.

Participant #3: I do not know if we want to respond to the United States' last correspondence, but we could at least pressure North Korea about the fact that they need to adhere to that treaty. We would probably not use our veto on the resolution the United States was talking about.

Participant #2: Yes, that is a good point. I did a little bit of calculation about what could be the loss to China if North Korea detonated. It is very large. China should have thousands of satellites in low-Earth orbit, most of which are supporting billions of dollars in the economy. It is not in our interest to encourage any sort of belligerence. The first strategy: can we put pressure on North Korea by telling them this is not in the interest of China, their main economic trading partner? We need to communicate with the North Koreans separately. At the larger strategic level, we still maintain our position that the U.S. overreaction to North Korea's failed ICBM is what caused this whole situation. Do not forget, the United States is in DEFCON 3. If the United States is mobilizing its forces, it only makes sense that North Korea would mobilize its as well.

Participant #1: As far as messaging goes, we should say that to North Korea privately, but globally, say that the United States is at fault for this crisis because of their overreaction, and North Korea going on alert is only natural.

Participant #4: Agreed. We should publicly shame the United States and privately lean on North Korea. We should publicly reiterate our commitment to maintaining peace in the region by any means possible and denounce foreign incursions. Privately, however, we should engage in strongly worded pressuring of North Korea to de-escalate or else. Given China's frustration with North Korea, I do not think it is beyond our strategy to follow the world in denouncing the country should they detonate the nuke and destroy our capes too.

Participant #3: There should be three levels of messaging. We also need some sort of push to the whole community about reiterating our willingness to host negotiations, and for everyone to

take a break, stop escalating on both sides, and get to the arbitration part. We could propose to convene a meeting.

Participant #2: I second that. If you look at how China behaves, we always want to take a leadership role in terms of arbitration. We do not want to lose the narrative. If not the UN, we could propose a regional dialogue because this is an escalation scenario with consequences for us. Second, as China, I would be concerned, because if North Korea is acting so independently, it must have some leverage against China in the form of ICBMs. Therefore, China must be careful in pressuring North Korea, and cannot act belligerently. The situation is such that they have alerted their forces, so there must be some sort of dialogue and negotiation.

Participant #4: Agreed, we always have to give them a clear route to de-escalation. We need to use both carrot and stick. China gets to fancy itself a calm mediator, North Korea shows that it is serious, and we get mud in the eye of the West.

Participant #3: We should strongly word the message pressuring them to de-escalate. We should also ask them to convene for talks, and we will try to get other parties to de-escalate. The other way we could handle it is to exclude them from talks, which would be worse for North Korea in the long run.

Participant #1: I can start drafting the message. I am hearing two messages. One, privately to North Korea, saying this is not in the interest of China, it could have consequences for the region, for China, and for North Korea, so we would appreciate it if they could help de-escalate. And then another message to everyone, still blaming the United States, but calling for negotiation.

Participant #3: We want to maintain that it is the United States' fault, but I would not overly emphasize that in this message, because we want to get everyone to negotiate.

Participant #2: Yes. How do we take leadership quickly? The grand strategy should be proposing all-party talks; we also need to call out to the United States and its allies to de-escalate and not create regime insecurity, because that has been our key focus for years. We have reassured Kim we will support his regime no matter what. We should call party talks but insist that this has to be about regime security and de-escalation. Privately to North Korea, we should communicate that China's interest is to de-escalate given the consequences for regional peace and economic prosperity. We should ask North Korea how China can help to de-escalate. I was thinking that it is critical. I cannot imagine in what world China would agree to this escalation by North Korea.

Participant #3: Agreed.

Participant #2: I ran the statistics, and China's dependence on low-Earth orbit is very high. They would never be okay with losing thousands of satellites. China's infrastructure is

dependent on it. On the one hand, that is the Chinese goal. On the other hand, China also wants to become a global leader, so we want to take advantage of this crisis by acting as a leader; that is the strategy we need to play.

Participant #3: Is there anything we should do strategically? We have not raised our alert or anything, but I do not think we want to, because we want to be peacemakers. Is there anything we can threaten North Korea with?

Participant #2: That is a good point. We have intelligence, and so we should activate our own intelligence, to see what North Korea's regime is thinking about. Are they thinking of detonating it? Do they have the Russian-transferred electromagnetic pulse capability?

Participant #3: China has satellite capabilities with robotic arms, right? Can we say that we are going to follow their satellite and say that monitoring is part of what we are going to do to resolve the situation?

Participant #2: It will be very difficult because there is radiation. Even if we have a robotic arm, it will not function, because of radiation effects. Should we say that China had hardened its satellites in anticipation of this scenario? Can we claim that capability?

Message sent to North Korea –

We are very concerned with the escalating crisis in our region. We do not see this crisis and potential escalation as in China's interests. If North Korea causes damage to both China and North Korea, economically or otherwise, and to the region there will be consequences for all of us. How can China help de-escalate this crisis and help preserve the North Korean regime?

Participant #3: We should ask Control if we can do that.

Participant #2: Yes. We should do that. The only countries that could potentially detonate a nuclear weapon in space are North Korea or Iran; could we have anticipated that future in the time leading up to 2029?

Participant #4: Would we want to only track their satellite, or confirm cargo?

Participant #3: Confirming cargo is difficult.

Participant #2: Confirming cargo is very hard. I do not think by 2029 we will have that capability.

Participant #3: Going back to the question, North Korea is escalating and building up forces. This could be bad. But what could we do in low-Earth orbit in the meantime? How do we protect what we have? If there are satellites that can change orbits, which is a potentially feasible thing in 2029, we could move those out of the way. Is there anything else besides

tracking the North Korean satellite? Is there anything we can do to destroy the satellite without causing an explosion to go off? What steps can we take in space to protect?

Participant #2: I was just thinking, we have a very high-level anti-satellite weapons capability. The problem is that using anti-satellite weapons capabilities would be belligerent behavior on our part. We can threaten North Korea by saying that we can do this. We can also threaten to sanction them. Not right now, though, because right now it is not clear whether they will detonate. There are two levels of response to this: first, North Korea has now launched mobile launchers, so we need to find out the reason for this; we also need to find out why they alerted their forces. Is it just posturing? Why would North Korea invade South Korea while the United States was there? This would be a completely suicidal act because China would be against them as well. And then they have activated missile batteries, and they are shuffling assets around at night. As for China, we need to get intelligence as to why they are doing this. Do we know that they are not going to escalate? We need to play a two-level game, both at the systemic level and at the level of communication with North Korea.

Message sent from China to all –

China is very concerned with the rapidly escalating crisis between the imperialist powers and North Korea. Escalation of the crisis is in no state's interest. We call for immediate six-party talks, or all-party talks, and offer to convene such a meeting immediately in Beijing. Diplomacy needs time to work. North Korea's deployments and movements are in reaction to the United States and South Korea going to DEFCON 3 and being on strategic alert. Responsible powers should try diligently to find a peaceful solution. North Korea's failed ballistic missile test and posturing are not a reason to unleash damaging effects and consequences on the region and world.

Message received from the United States. –

Given the escalatory and aggressive statements from North Korea that do not help resolve this case, is China able and willing to remove the satellite?

Participant #2: No! I wonder why the United States is asking us this, very interesting. We need to think through our reply very deliberately.

Message received from DPRK –

Withdrawal of all US forces from the Korean Peninsula must be agreed to and time is short.

Participant #1: They are blowing us off!

Participant #2: Yes. Why would North Korea tell us this? This is a communication that should be sent to the likes of the United States. We are their ally. We need to insist again. We need to tell them that we are their ally.

Participant #3: We are your last chance!

Participant #2: Yes. This kind of banal answer should go to the United States, not China. We are the only reason they are an independent kingdom.

Message from Control –

Intelligence says the situation is truly dire.

Participant #1: The question for this session is driving to whether there are any preparatory measures we should be taking in the event of a situation like this.

Message from Control –

North Korea ripple fires four missiles, three are tests, and one continues over Northern Pacific where a nuclear device detonates in low-Earth orbit. It seemed to be a bomb with at least a nominal yield but not a megaton yield.

North Korean artillery forces are now bombarding military targets just beyond the DMZ but not yet striking the city of Seoul. North Korean light infantry forces have penetrated the DMZ. There have been multiple special operations forces attacks at multiple air bases in South Korea.

Participant #2: This is very disheartening. None of our strategies worked with North Korea. They just decided on their own. Now we need to escalate.

Message from the United States to all –

We welcome China's efforts at diplomatic resolution. However, in light of the aggressive and provocative nature of North Korea's statement regarding their satellite, we ask China if it can remove the nuclear satellite threat as a precondition to a convening of the six-party talks. If China is not able to remove this threat either through North Korea or its efforts, then we will view that as an impediment to successful discussions at the six-party talks.

Participant #2: This is a completely different scenario now.

Participant #1: We are at war, now. Well, the United States is, not China. We have to worry about our satellites.

Participant #5: All of this phrasing was picked to focus on the problem of high-altitude nuclear detonation pumping the Van Allen belt to affect satellites in low-Earth orbit without creating a

real electromagnetic pulse effect in places we care about, or creating an effect on other orbits. The thing to keep in mind is that the pumping of the Van Allen belt is a more hostile scenario for satellites and shortens lifespans in a way that is difficult to predict. More or less everything we have in low-Earth orbit will decay; some things will have gotten hit right away, but not our entire low-Earth orbit constellation is dead yet. It is just going to die faster than we anticipated. These belt-pumping effects will persist for some unpredictable period. As long as this remains, anything we put into orbit will die faster. Our eyes and ears are not all gone but may be gone faster, and any replacements will be affected in the same way in the near- or medium-term.

Participant #2: This is a key point.

Participant #3: Should we still bother sending messages? Are we passed that?

Participant #1: I think we should send a message to everybody saying China wants North Korea and everyone to withdraw to pre-crisis positions and have an immediate ceasefire and diplomatic negotiations. We know from history that nobody can win a crisis like this. Once we wash our hands of it that way, we can worry about our satellites.

Participant #2: As China, I would say that I am against the invasion of the territorial integrity or sovereignty of any nation. China wants to work towards de-escalation of the conflict and offers mediation. The third point is very important: China recognizes the legitimate concern of North Korea and will work towards resolving it. The use of the word “legitimate” is important.

Participant #3: We should denounce their actions in low-Earth orbit as in violation of the treaty, though.

Participant #1: Nobody is going to care about that, in the reality of the game, but we can put it in there.

Participant #5: Along with this statement to everyone, we should also send a message to the United States saying that we understand they are going to act defensively, but we do not want U.S. forces going north; we probably want to make some statement telling them to keep out of our backyard, or else they risk drawing us into the conflict like they did in the 50s.

Participant #2: That is key. We should tell the United States that we will come to North Korea’s defense if they cross the thirty-eighth parallel. We do not want a repeat of the 50s. How do we communicate to North Korea that this was devastating for China?

Participant #1: North Korea is probably going to be dead within an hour of the nuclear response. We should look at those questions some more.

Message from the United States –

We hold the criminal North Korean regime accountable for this action and we call upon peace-loving nations to implement UN Security Council resolutions and ensure the

removal of this criminal regime. Nuclear weapons will be removed from North Korea to ensure such terrible tragedies never happen again. We call upon our other allies to restore peace on the Korean Peninsula as soon as possible. We call upon China to cooperate in the restoration of peace to the Korean Peninsula and to avoid any escalatory activities outside the Korean Peninsula.

At this point, the United States does not contemplate the use of nuclear weapons. However, should the North Korean regime further employ weapons of mass destruction, we and our allies will take all steps necessary to ensure they are not able to repeat this action.

Participant #2: Oh no, no, no. We have to send a very strongly worded statement that the United States' hegemonic enterprise to carry out regime change is the reason we are in this position in the Korean Peninsula in the first place. We are committed to de-escalation and preserving low-Earth orbit access, but we do not support U.S. intervention; North Korea did this because of U.S. overreaction, and the United States should take responsibility for the instability it has created.

Message from the United States –

Would you like to convene six-party talks in a neutral location, such as Geneva?

Participant #2: We should first send our response so that they know we do not support regime change at all.

Participant #5: I have no strong opinion about this most recent message. I prefer talks in Beijing, but no skin off my nose.

Participant #4: Should there be any conditionality for talks?

Participant #1: At this point, we are just trying to get a ceasefire.

Message sent to U.S. –

China will not support regime change in North Korea. China supports the de-escalation of the conflict but holds the US responsible for instability in the Korean peninsula and its effects in space right now.

Similar behavior is seen by the United States in Taiwan and the South China Sea. China condemns any intervention in another country and respects sovereignty.

We propose holding six-party talks in Asia because this is a regional crisis in China's sphere of influence that the United States has perpetuated and led closer to the brink of nuclear war.

Message sent to all –

China reiterates its long-standing support for the territorial sovereignty and integrity of all nations. China also acknowledges the legitimate security concerns of North Korea but suggests that a peaceful solution can be found to address them.

This is a time for de-escalation of the conflict by all involved parties – China suggests an immediate cease-fire and invites all parties to Beijing for diplomatic talks to resolve this conflict. Hegemonic action by outside nations or violent regime change in our region is unacceptable.

Participant #2: As China, we should work towards thinking if we can harden our satellites. Is it even possible?

Participant #1: Not after the fact.

Participant #2: What consequences does this have for us domestically?

Participant #1: One question to think about is what non-space alternatives we have available. We might want to start thinking about that.

Participant #5: The stuff that has been affected is all in low-Earth orbit. So, all of our geostationary orbit communications are fine. BeiDou is in geostationary orbit and medium Earth orbit, so that is fine. It is just a question of the low-Earth orbit intelligence, surveillance, and reconnaissance stuff that China has today, and whatever proliferated stuff China may have deployed by 2029. It is a matter of backfilling intelligence, surveillance, and reconnaissance. Our ways of doing that come down to drones and airborne intelligence, surveillance, and reconnaissance, both to keep track of the Peninsula and to keep track of what the United States and its allies are doing in the region.

Participant #2: The problem is that billions of dollars of Chinese industry are dependent on low-Earth orbit. It is not something China would ever take lightly. A bunch of critical infrastructures is getting fried. This is serious for the Chinese economy. Even more critical are our space station and space-based solar-powered satellites for renewable energy.

Participant #5: That stuff is important, but intelligence, surveillance, and reconnaissance are, from a People's Liberation Army perspective, the priority.

Participant #1: This thing has gone off. These satellites are all going to die. There is nothing we can do about that. It has happened. That is the way it is. How can we exploit this to China's advantage? The United States is potentially also blinded, so the United States now also has a potential blind spot. We have to figure out what that is. Can we take advantage of that in this situation? Can we do that either around China's borders or somehow otherwise? We cannot do anything about what just happened, so we should take whatever advantage we can.

Message from South Korea –

South Korea warns China not to intervene as South Korea and our allies defend South Korea from this unjustified attack.

Message from the United States to all –

The United States proposes a UN Security Council resolution condemning in unequivocal terms the use of nuclear weapons, violation of the Outer Space Treaty, and various UN resolutions.

The goal is to ensure that North Korea is never able to use nuclear weapons like this again and the leadership will be held accountable.

Message from the United States –

What are you doing to respond to this crisis?

Message from Control –

The United States is activating its Korean command and executing all standing military operations plans.

Reply from Five Eyes –

All contributing countries to the Armistice Agreement would be activated.

Participant #2: We should ask the United States what they are doing to respond to this crisis of their making. Their language is pretty belligerent. From our perspective, the United States is responsible.

Participant #3: We need to activate our forces.

Participant #2: Yes. We need to activate strategic support forces, in fact, all our forces.

Participant #5: I am sure there is some preplanned mobilization during a crisis. Whatever that is, we probably want to send forces into that.

Participant #2: Yes.

Message to the United States. –

What are you, the United States, doing to respond to this crisis of your making that China is now having to resolve?

Participant #1: We want to put China forces on alert, but not get into a security dilemma. Maybe we can just put the army on alert, or the navy, or vice versa. If we have any mobile anti-

satellite weapons, we can tell them just to go into garrison, because what good are they anyway?

Participant #4: I think throwing the U.S. question out on the international sphere would be good. We need to expose their hypocrisy. What is an appropriate punishment for North Korea?

Participant #3: Agreed. What are the United States and its allies doing to de-escalate the crisis that they caused and are perpetuating through the activation of war plans?

Participant #4: An appropriate response could be the cutting of economic supplies, fuel supply, and supply chain for their strategic assets.

Participant #2: We should chastise North Korea for not asking for our permission.

Message from the United States –

We are open to discussing the future of the North Korean regime, but we will be ensuring that they are not able to threaten regional peace again.

We continue to propose six-party talks in a neutral country. Would the Chinese like to set up a deconfliction channel with INDOPACOM to ensure there are no misperceptions or accidents while we ensure North Korea is not able to repeat its criminal actions?

Message received from the United States. to all –

The U.S. is looking to return to a peaceful status quo as rapidly as possible while ensuring weapons of mass destruction are never again used or threatened in this region by the North Koreans. The United States has offered discussions with all concerned parties in a neutral country and we have sought support from the international community to condemn the criminal actions of North Korea.

Participant #4: I think the United States has to walk back its rhetoric of regime change before we agree to any talks.

Message from South Korea to all –

South Korea appreciates the support of the Five Eyes and requests immediate deployment of all available forces to regain stability on the Korean Peninsula and defeat North Korean aggression.

Message from China to all –

What are the United States and its allies doing to de-escalate the crisis that they caused and are perpetuating through the activation of war plans? Beijing is working diligently

to de-escalate the crisis with North Korea but actions will continue to escalate unless there is an immediate ceasefire

Participant #2: For us, the strategic concern is that if the United States and everyone else is responding to this and might cross the thirty-eighth parallel, we might end up with 1950 again. We do not want that to happen.

Participant #5: We might want to say something about U.S. and South Korean ground forces and the thirty-eighth parallel; that could be a way of clearly articulating our red line for the war.

Participant #1: Are we going to respond to the United States?

Participant #2: I think their request is fine and accepting makes us seem responsible.

Participant #5: It is a reasonable request. We should say yes.

Message received from Expanded Five Eyes –

The Expanded Five Eyes offers support against the unjustified attack.

The Expanded Five Eyes encourages China to play a constructive and peaceful role.

Participant #3: We should agree to deconfliction channels, but say that any troop movements will be met with a similar level of force.

Participant #5: Yes, or we could even say that it would be seen as a threat to “core national interests.”

Message from China to all –

China does not support any crossing of the 38th parallel and will not tolerate any western troops inside North Korea. We are willing to mediate to de-escalate this conflict and are willing to communicate through Indo-PACOM to mitigate this crisis.

However, any troop movement by Western forces will be met with an equal response from China.

Participant #3: I love that the United States keeps asking China to play a constructive role. You will not let us!

Participant #2: We are telling them again and again that we are willing to mediate, but do not support regime change; they just keep sending the same rhetorical request over and over again.

Message received from the United States –

Thank you for your interest in American space policy.

Participant #1: Since communicating with the United States is fruitless, we should go back to thinking about how we can recover from the loss of our satellites.

Participant #3: It is party first. One thing we need to do is strategic messaging to our public, to make sure there is as little disruption to the Chinese way of life as possible. We also need to take action to reconstitute whatever satellites we can.

Message received from Control –

The North Korean offense is continuing unabated.

Participant #1: The United States does not believe us. They think we are pulling strings somehow. North Korea is also ignoring us. So, we are stuck between a rock and a hard place. We should just focus on the satellite issue for a while because the geostrategic portion is going nowhere.

Participant #2: We have ground-based intelligence, surveillance, and reconnaissance. Therefore, we are not completely dependent on satellites for the movement of troops.

Participant #5: And nothing would prevent us from launching in this environment. Expected operating life will be lowered, but if we are willing to take some hit to that, we can backfill the intelligence, surveillance, and reconnaissance capabilities we have lost. It might make less sense for satellites with more economic values because that is less time-sensitive, and we might not want to burn that stuff. But the military stuff, I would want to pull the trigger on now.

Participant #2: There are lots of ways China could activate a different, non-satellite-based infrastructure. Also, Beidou is in geostationary orbit, so the most important support structure is still activated.

Participant #1: China can start reconstituting its constellations. There will be a shorter satellite lifetime, but over a year, things will get more normal. We should start putting up cheaper, faster satellites since they are going to die anyway. We should just keep launching more satellites and get rocket production lines going.

Message received from the United States –

We are not the aggressors and we are not the ones who broke the Armistice. We call upon China to bring North Korea back into compliance. We will take all steps necessary to defend South Korea. At this point, U.S. personnel are not required beyond the DMZ.

Participant #3: We could illicit Russia's help for any satellites they still have.

Participant #2: This is a good idea. We should ask, in case they have any satellites still working.

Participant #1: We also still have stuff in geostationary and medium Earth orbits, and besides getting our production lines going again, we can build more geostationary and medium Earth orbit telecommunications satellites until low-Earth orbit gets cleaned up. The problem would be making ground systems compatible. As far as avoiding low-Earth orbit or just putting up with it, either way, we need more launch vehicles. Alternatively, we can buy up commercial launch capacity from Russia and India.

Participant #2: By 2029, our launch capability will be very high. We will have Long March 8, Long March 9, and other capabilities.

Participant #1: We might still want to secure additional launch capacity for a surge capability. We should start monopolizing commercial leases so that there are fewer left to reconstitute.

Participant #2: We also have our commercial launch capabilities. We have a very robust launch capability, but I agree with you, and I think collaborating with Russia is a good idea. However, collaboration is not possible with India because of geo-political issues.

Participant #1: That is fair. The more we can monopolize the commercial market, the less the United States can use that for its surge capability.

Participant #2: I agree.

Participant #1: And as for our satellite lines, we will just have to keep them going 24/7 or something.

Participant #2: And it is possible to relaunch and create a complete structure again.

Participant #1: Yes. We just need the satellites and the rockets, and whatever other critical components and resources are needed to do that. We would want to capture the market globally, so we could get ahead of everybody. You know, we want to monopolize supply chain stuff, so that when the United States, Europe, and Japan go on the market looking to help reconstitute their stuff, they cannot. However, I do not know how realistic that is.

Participant #5: I think that is a good idea. This is something we can do in support of taking advantage of the commercial reset that has just happened in low-Earth orbit. Tens of thousands of satellites will need to be replaced. Anything we can do to get our commercial stuff up sooner or to slow U.S. and European equivalents, improves our competitive position commercially.

Participant #2: Yes. We are getting there in terms of a strategy and responding to this and safeguarding our capability.

Participant #1: We can work on the slides for the questions now.

Message from the United States to Expanded Five Eyes (copying all) –

How are the air strikes going, Five Eyes?

Message from the United States –

How is China handling the flood of refugees coming in from North Korea?

Message from Control –

Lest there be any confusion, the detonation occurred in low-Earth orbit.

Team Briefing

Participant #1: We need to separate the geopolitical discussion, which was most of our discussion, and then the actual impact on satellites.

Participant #2: Yes. Our position is that China does not support regime change in North Korea.

Participant #1: Another part of our position is that there can be no western or allied forces north of the 38th parallel and even more-so closer to the China border. China will not tolerate them.

Participant #2: Tolerate is good language.

Participant #5: One more point we might want to make is that we are not seeking to support North Korea in the invasion either. We do not want the United States to go north, but we think that this was stupid of North Korea to do, and it was harmful to us.

Participant #2: Yes, but we cannot say that.

Participant #5: How much of this position is messaging vs. just a description of our discussion?

Participant #2: We should respond the way China responded to Russia. We should say “China does not support any third country invasion or challenging the territorial integrity of another nation.”

Participant #1: This is an important part of our position, so we should just say “any country.”

Participant #2: Yes. Agreed.

Participant #4: The sovereignty of states is of the utmost importance, China is the regional mediator, and the United States is always to blame.

Participant #2: Yes. We should put that in. We should say that this crisis has been brought about by the western presence in Asia. China never mentions the United States, it only talks about the hegemon. We can go to the next slide now. Our position is clear.

Participant #1: That covers it pretty well.

Participant #5: We should separate the next question into separate military and commercial sections. From a military perspective, we would want to activate as many non-low-Earth orbit alternatives to intelligence, surveillance, and reconnaissance as possible to support Chinese military mobilization and our surveillance of military action on the peninsula as well as U.S. forces being deployed to the region.

Participant #1: Or territorial seas or something.

Participant #5: Yes. We would still want to make the best use of our low-Earth orbit capabilities as long as they are available despite their shorter lifespan, and we would reconstitute critical low-Earth orbit capabilities despite them having a shorter lifespan due to the detonation.

Participant #1: We would also have to lean on our geostationary orbit capabilities more too, assuming not everything is in low-Earth orbit in 2029.

Participant #5: Yes. Definitely.

Participant #2: Commercially, we would use our commercial relaunch capability to reconstitute the low-Earth orbit constellation when required. The other thought I had is that we would put together our commercial space actors, especially their proven capacity of reusable launch, to ensure we can rebuild the low-Earth orbit infrastructure for our economy, which is vital for our economy. China by then would have a very advanced commercial capability to build a supply chain of satellites.

Participant #1: We would have to invest heavily to speed production of satellites and launch vehicles. We also talked before about trying to buy and monopolize as many relevant resources for satellite and launch reconstitution as possible on the international market, including commercial launch availability.

Participant #4: In terms of reconstitution, I would suggest satellite sharing and data sharing with Russia.

Participant #2: Yes.

Participant #1: That is a good idea.

Participant #2: Should that be in the military section?

Participant #1: Does Russia have commercial stuff?

Participant #5: They do, but this is probably most relevant in the military section.

Participant #1: Is China not the leader in the supply chain?

Participant #2: Then we need to say that.

Participant #5: Not so much for space. Some of this is a broader part of electronic stuff, but the answer to the question also depends on how fast we expect China's aerospace industry to improve leading up to 2029. Today, they still require some degree of western support.

Participant #1: I am not sure if this would work, but just like the United States buys up a bunch of commercial remote sensing, maybe we can buy up microchips from Taiwan as China.

Participant #5: This question seems about what we would do right before the crisis. We might want to put the buying up part on a later slide asking questions about after the explosion has occurred. I think it is best as an answer to the question: "What immediate opportunities might be exploited given that certain orbits will not be safe to operate in for some time?"

Participant #2: And what immediate space and non-space workarounds deserve the highest priority?

Participant #5: For China, intelligence, surveillance, and reconnaissance for the tracking of U.S. forces is the only thing we need to use space for immediately in this scenario. And then there are also whatever workarounds we need to negate the immediate economic impact of losing all that stuff.

Participant #1: The other idea I have here is increased espionage to intercept or steal commercial or remote sensing data as it is being downlinked to try to make up for the gaps in intelligence, surveillance, and reconnaissance. I do not know if that is possible, but stealing data is an idea.

Participant #2: We also have ground-based network espionage that we can take advantage of.

Participant #5: We can also say ground-based sensors, airborne intelligence, surveillance, and reconnaissance, whether it be drones or aircraft. That is what we want to throw at this problem.

Participant #1: The other thing we have mentioned is leaning on geostationary assets.

Participant #2: I agree that ground-based sensors are important.

Participant #1: To twist it a little bit, how can we, strategy-wise, make it harder for the United States to reconstitute its stuff? We have discussed monopolizing resources, but is there anything else we can do? Blame the United States diplomatically?

Participant #2: Yes. What immediate opportunities might be exploited? Hm.

Participant #5: We might also want to lay out that this resets the commercial environment in low-Earth orbit and is an opportunity for China to gain an advantage in providing things to global markets.

Participant #2: We can gain a dominant status.

Participant #4: And we might take over Taiwan.

Participant #5: We should put that on the next slide.

Participant #2: We could do that, or we can very subtly and aggressively pressure Taiwan to finally join the mainland. We want to do it as we did with Hong Kong and Macao, without using the military. We want to persuade Taiwan to join China by keeping the stick and the carrot both in vision. We need to give them an ultimatum: either you join peacefully, or we invade, and the United States cannot come to your rescue because they are busy.

Participant #5: In addition to Taiwan, this might be an opportunity for any of the frozen crises to escalate. Given that this detonation has weakened the United States now is a good time for South China Sea stuff, for East China Sea stuff with the Japanese, or any other territorial claims. We can push either militarily or diplomatically while the United States is at a disadvantage because it lost its space assets.

Participant #4: Setting the narrative is key.

Participant #2: Which narrative?

Participant #5: I disagree a little on this; diplomatically is probably our first choice to take Taiwan, but if we are going to use force, now would be a good opportunity for us to do that. Both because the United States has lost space capabilities, and because the United States is sending forces to Korea. Therefore, if we were going to invade anything, now would be a good time for that.

Participant #2: That is a very good point. I did not think of the extension of U.S. forces to the Korean Peninsula, which may prevent them from diverting forces to Taiwan.

Participant #1: I do not think there is anything there, but what about the South China Sea and the East China Sea? Could China assert its claims more strongly? I mean they have already built islands and militarized them, so I do not know if there is any more to do than invade.

Participant #5: Now would be the time to use force to grab some of those reefs and shoals that China disputes with the Philippines, and knock out Filipino outposts or the Taiwanese and Vietnamese islands. Anything you want to grab now is a good time. China could put forces in the Senkakus. The distraction is on the Korean peninsula, and we could go anywhere else.

Participant #2: We also need to mention that if China had been the leader, this situation would never have risen. Under a Chinese-led order, North Korea would not have been as insecure as it was, and would not have acted in such a detrimental way. This is a failure of U.S. leadership.

Participant #1: Failure of U.S. leadership is something that can be diplomatically hammered home in many forums.

Participant #2: They failed to keep the peace.

Participant #5: There are things diplomatically that could have been done to mitigate the crisis. China would be seeking to resolve the crisis, but this theme that this is a U.S. screw-up is not just about mitigating the crisis, it is also a great diplomatic opportunity to push for China as a global leader overall. Part of that is that we want to arbitrate the crisis itself, but another part is that we want to use this as an anti-U.S. weapon in every forum we can.

Participant #1: The pushback to that is that China failed to keep North Korea in line.

Participant #5: We have to say something.

Participant #1: North Korea was undeterred.

Participant #2: That is true, but we should push that this is because of U.S. belligerence. This is how China has explained away Russia's behavior.

Participant #5: If we are being honest, the way the road to war is written, this is objectively a U.S.-initiated crisis.

Participant #2: Yes.

Participant #5: Yes, there was a slightly worse missile test conducted by the North Koreans, but then the United States reacted poorly. This is an American crisis. But that is just how the game is.

Participant #2: In the mitigation section, we should highlight that we are willing to constitute a six-party talk, taking leadership, being sure to de-escalate the conflict, and making sure such an incident is not repeated in the future.

Participant #5: Another thing that is important to do is to communicate to the United States China's core interests in North Korea, and set clear redlines, so the United States knows what not to do. We have made it clear what will escalate the conflict such that we would feel the need to be involved militarily.

Participant #2: Our position puts that very clearly, but we can repeat that in terms of setting clear redlines and communication with the United States.

Participant #1: What other questions do we need to work on?

Participant #2: Now that the explosion has occurred, has anything changed about what you intend to do compared to your original actions?

Participant #5: Not really, except for pulling the trigger on the commercial plan we came up with. We came up with a good plan, and it still stands.

Participant #2: Should we say that as far as China's strategy towards North Korea, that is something we would do differently? We would put more bilateral pressure on them. We should tell them that they cannot do such tests because of their economic dependence on China, which relies on low-Earth orbit for its economy. Taking out low-Earth affects everything. We should have done things differently with North Korea.

Participant #5: This explosion was a big hit for us. Our dealing with North Korea would probably reflect the extent to which they just screwed us, and also just started a war. We would probably be more upset about the invasion.

Participant #1: We might want to reassess our relationship with the current leader of the regime.

Participant #5: We do not want western regime change, but this might be an opportunity where someone who will not screw us is put in charge. There might be quiet Chinese regime change.

Participant #2: Of course!

Participant #5: We have no problems with the government, we would just want another guy in charge at some point.

Participant #2: Yes. I think we should say that there is a conversation that there should be Chinese-inspired regime change in North Korea. Is that the right word?

Participant #1: China-shaped regime change, maybe?

Participant #5: We would want to put into place a new North Korean leadership better aligned with Chinese interests.

Participant #2: Absolutely. This is something that China is not tolerating.

Participant #5: The North Koreans did not listen to us at any point along the way. That is unacceptable.

Participant #2: Yes. They behaved with us exactly how they would behave with the United States, even though our Supreme Leader signed an ever-lasting treaty of friendship with theirs. China is so much more powerful than North Korea, and they did not treat us like an ally at all.

Participant #5: And we are the ones paying for everything, keeping the regime alive, and the economy functioning, so the way they have acted is unacceptable.

Participant #2: I wanted to ask: should we have thought about hardening our satellites? Please correct me if I am wrong, but we knew by March that there could be some nuclear detonation.

We tried to reach out, but North Korea never said anything. Could we have done something to harden our satellites?

Participant #1: To my understanding, hardening is mainly electronic, so it is done to circuit boards and chips. I just wanted to clarify in case anyone thought hardening involved something like encasing the satellite in titanium. There are techniques to electronically harden satellites. However, hardening must be done in production.

Participant #5: There are different design choices we could have made. Certainly, in the window between them putting a nuke up there, we might have delayed the launch or made some changes to any new satellites we were planning on putting up. Other than that, the only thing we might have been able to do is to maneuver things, keep them at the right orbital altitudes, and keep them out of expanded belts. In terms of fuel costs, however, that might not have been a viable option for our satellites. There is also a difficult math problem involved in that in the fact that if we did not know the yield of the weapon, we might not know how bad this would be, so we would not know where to maneuver to. There are things we could have done, but we would have been so constrained by delta-v and uncertainty that we probably could not realistically have done much.

Participant #2: Yes, and we were talking about whether you can move satellites, but I do not think it is possible, because when they were launched, the satellites were not designed for that sort of maneuver.

Participant #5: Every significant conventional hardening is paltry in comparison to the electronic impact of a nuke.

Participant #2: All right, I just asked that question because I wanted to understand what we could have done.

Participant #5: Everything in space is radiation hardened to some extent because space is a nastier radiation environment. The one place where there is an exception is some commercial companies, for profit reasons. Additional hardening is more expensive, and in some cases, the electronics are not as good so there is a capability cost. Our satellites are hardened against the natural radiation of space, this detonation is just making it worse, which is why satellites would not die immediately. There are some satellites you are hardening under assumptions that you want them to work in nuclear environments, and some you are not. It is just a question of where on the spectrum of radiation hardening our satellites are.

Participant #2: Thank you for that, that is very clarifying.

Participant #1: Is there anything else we need? I think we can just review the slides.

Participant #2: We should do that.

Participant #1: We should add something about crisis communication lines to the question about what can be done diplomatically to mitigate the crisis. We should say something ambiguous, such as, “as always, we are committed to crisis communication lines,” and then never actually do anything about it.

Participant #2: Absolutely. We should put that there. Ambiguity is the best thing for China.

Participant #1: Our last point on the “near-term actions” question—the one about monopolizing relevant resources—is the most interesting idea. The other stuff is pretty run-of-the-mill.

Participant #5: I agree. That is the exciting bit.

Participant #2: I agree.

Participant #5: All of this looks good to me.

Participant #2: Yes, me too.

Participant #1: Yes.

Participant #5: We have captured all the main points here.

Republic of Korea Team

Crisis Response / Game Playing

Participant #1: We have to start by making some assumptions: 1. Korea has undertaken a partial mobilization of about 100,000 people because at DEFCON 3 it is likely we would have partial mobilization. 2. Korea is closely exploring its kill chain/Korean Air and Missile Defense (KAMD) and Korean Massive Punishment and Retaliation (KMPR) massive punishment plan. 3. DEFCON 3 is in effect and approximately 75 percent of Korean forces are under the operational control of Combined Forces Command (CFC) (still commanded by a U.S. officer).

Participant #2: No transfer of command is likely by 2029.

Participant #3: I agree.

Participant #4: We should discuss with the United States their plans to deploy or threaten to deploy one or two subsurface guidance nuclear submarines (SSGNs) off the Spratly Islands, attack submarines in the Taiwan strait, one carrier group outside of Japan, and another outside of the Philippines. We urge them to do so because we believe this will distract China and keep Taiwan stable.

Participant #1: We should discuss mitigation efforts in the event of a low-Earth orbit nuclear detonation. Such a detonation would affect communications, surveillance, and precision capabilities. What actions has the United States taken during the past month to provide some backup for this kind of event?

Participant #5: At a minimum, these are the broad questions that must be answered: 1. What will the effect on intelligence, surveillance and reconnaissance systems be, and how will our ability to prevent strategic and operational surprise be impacted? 2. What effect will it have on weapons systems – air, land, and sea? 2. What effect will it have on our communications capabilities? 3. What effect will it have on our logistics capabilities to include, most importantly, our ability to execute South Korean military mobilization and the Time Phased Force Deployment Data (TPFDD)?

Participant #1: U.S. ground forces are likely minimally affected because they are still using landlines and FM radios, so they must keep those as backups. We need to gain theater-level info on the degradation of communications, navigation, and surveillance, as well as the impact on precision munitions. There would be potential degradation in combined/joint operations. I would already be advocating the first strike.

Participant #4: By 2029, Korea may have successful development of a lethal autonomous weapons system (LAWS).

Participant #5: My understanding is that the systems they are working on are more related to infiltration, not massive cross-border attacks.

Participant #1: The current timeline is more like 2040, so those capabilities are probably not meaningfully present in this scenario.

Participant #5: We should ask the U.S. team if we can take preventative or preemptive measures to destroy or disable the satellite with the possible weapon in orbit.

Participant #4: Newer missiles can likely get there, see it, and reach it.

Participant #5: That would be my recommendation. I am not sure what that means for treaty obligations, but I believe we should do it from a military standpoint.

Participant #6: Remember that China has threatened action if we do this, so it is not just about the treaty obligations.

Participant #1 (*translating for Korean experts*): Attacking the North Korean missile would be seen as an offensive move, not a defensive one. It is likely that we do not have the decision to make and must rely on U.S. capabilities and decisions instead. Cyber or jamming to make it inoperable but leave it intact could achieve similar results as destruction.

Participant #5: From a military standpoint, we need to prevent this detonation for defense.

Participant #1: The Korean experts feel that physical action is not ideal. Either way, it is mainly up to the United States because they have the capability. An offensive action may cause a loss of support by the international community.

Message from U.S. –

If it's a detonation in space, the major effect is going to be an electromagnetic pulse and that is going to depend on where the detonation was and what was in the line of sight when it happened.

Our major, strategic, high-end systems, like missile warning, MILSTAR and GPS will be fine. They are hardened.

Low-Earth orbit communications systems will probably fry after a while because of the radiation they'll be flying through.

South Korea: Equipment will largely be okay. But if they are within sight, the satellites may have some electromagnetic damage. They better have high-frequency radios and they ought to have some hardened communications systems. The United States will be able to communicate, but doesn't know if South Korea will be able to. So moderate degradation of South Korean communications.

Prompt effects would not be much, but a sustained radiation environment would cause degradation over time. Commercial systems will likely survive for a month as the radiation belt fills up. It will take a month or two before it dies.

The ability to mobilize and move trucks and trains will probably be okay - but that is wild a\$\$ guess - it would depend on where the detonation occurred.

This is why we need to assure that if North Korea detonates the bomb, it is not able to do it a second time.

Message from control –

Your deep assets are telling you the situation is truly dire.

Message from China to all –

China is very concerned with the rapidly escalating crisis between the imperialist powers and North Korea. Escalation of the crisis is in no state's interest. We call for immediate six-party talks, or all-party talks, and offer to convene such a meeting immediately in Beijing. Diplomacy needs time to work. North Korea's deployments and movements are in reaction to the United States and South Korea going to DEFCON 3 and being on strategic alert. Responsible powers should try diligently to find a peaceful

solution. North Korea's failed ballistic missile test and posturing is not reason to unleash damaging effects and consequences on the region and world.

Participant #5: If it is true that the situation is dire, we should be careful about any Chinese demands that would weaken us in deterrence or defense. Is it feasible to conduct any kind of pre-emptive or preventive action to prevent the loss of our space capabilities? What actions are feasible? If so, combined forces command recommends you consider this course of action.

Participant #1: South Korea concurs but reminds that this would be an offensive action. South Korea urges prudence, that the United States side consider the second and third-order effects, and that if anything, you consider non-kinetic means to disable or degrade the satellites (e.g., jamming, cyber). If there is a feasible course of action, combined forces command recommends that action be considered. The bottom line is: can we prevent that denotation from going off?

Message received from control –

North Korea ripple fires four missiles, three are tests, and one continues over Northern Pacific where a nuclear device detonates in low-Earth orbit. It seemed to be a bomb with at least a nominal yield but not a megaton yield.

North Korean artillery forces are now bombarding military targets just beyond the DMZ but not yet striking the city of Seoul. North Korean light infantry forces have penetrated the DMZ. There have been multiple special operations forces attacks at multiple air bases in South Korea

Participant #5: We are now at war. Our number one priority must be the defense of South Korea.

Participant #1: Our first post-attack move is to initiate the operational plans.

Participant #4: We should exert influence on China to stop North Korea's offensive.

Participant #1: I do not trust the Chinese. they do not have influence and are probably supporting this behind the scenes. We need to prepare doomsday plans.

Message from the United States –

We hold the criminal North Korean regime accountable for this action and we call upon peace-loving nations to implement UN Security Council resolutions and ensure the removal of this criminal regime. Nuclear weapons will be removed from North Korea to ensure such terrible tragedies never happen again. We call upon our other allies to restore peace on the Korean peninsula as soon as possible. We call upon China to cooperate in the restoration of peace to the Korean Peninsula and to avoid any escalatory activities outside the Korean Peninsula.

At this point, the United States does not contemplate the use of nuclear weapons. However, should the North Korean regime further employ weapons of mass destruction, we and our allies will take all steps necessary to ensure they are not able to repeat this action.

Participant #1: Why are we telling North Korea and everyone that the United States is not contemplating using nuclear weapons? We should request that the United States confer on use of its nuclear deterrent and draft a message to the United States to question the decision to take nukes off the table—communists only understand strength. If they have not learned this, shame on you.

Participant #4: Has the United States responded to questions about naval dispositions? We cannot have a sign of weakness at this point.

Participant #1: We need to warn China not to intervene in this conflict.

Participant #1 (*translating for Korean experts*): It is in South Korea's interest to take a hardline position at this point. Because of the jump in scenario, we did not get to discuss our kill chain message.

Participant #4: In this scenario, would South Korea look to unify the peninsula?

Participant #1: Many would be interested in that. I personally am not, but many would say this is the time to unify.

Participant #5: Many say that if we go to war, we end it and do not make the mistake of the 1950s again—all U.S. senior generals think there should be no limited attack once North Korea attacks.

Participant #1: There is a lot of big talk, but no money or training into it so it is not going to happen.

Participant #4: Political leadership is what matters, not military leadership, and their actions do not seem to support that position. South Korea is at least saying it is their objective.

Message from Control –

The United States is activating their Korean command and executing all standing operational plans.

Message from the United States –

The United States proposes a UN Security Council resolution condemning in unequivocal terms use of nuclear weapons, violation of the Outer Space Treaty and various UN resolutions.

The goal is to ensure that North Korea is never able to use nuclear weapons like this again and the leadership will be held accountable.

Participant #5: If the United States is not responding here, then we have just ended nuclear deterrence forever.

Participant #1: I agree.

Message from Expanded Five Eyes –

All contributing countries to the Armistice Agreement would be activated.

Participant #6: I assume this means they are sending states as none of them are party to the armistice.

Participant #1: The United States is making a terrible mistake by talking about a rapid return to peacetime when the cat is out of the bag. Thank the Expanded Five Eyes and ask for immediate deployment of all available forces to Korean Peninsula to defeat North Korean aggression.

Participant #4: What exactly is the United States saying with “return to peaceful status quo as rapidly as possible”? Are they saying fall back and hold? We should see what the U.S. position is because North Korea is across the DMZ already.

Participant #5: They are talking like they would before an invasion.

Participant #6: We should ask the U.S. team to clarify what they are talking about.

Participant #2 (translated by Participant #1): The United States is probably reaffirming commitment to peace, so we should ask the U.S. team for clarification.

Participant #6: I asked for clarification from the United States about the current course of action.

Message to U.S.:

Request U.S. clarification on what US side is talking about. South Korea is under attack and you are calling for a return to a peaceful status quo. How do we get there? Is the United States helping us fight back or waiting for diplomacy?

Message from China:

China does not support any crossing of the 38th parallel and will not tolerate any western troops inside North Korea. We are willing to mediate to de-escalate this conflict and are willing to communicate through Indo-PACOM to mitigate this crisis (per standing MOU's). However, any troop movement by western forces will be met by an equal response from China.

Participant #5: The right to self-defense is never denied.

Participant #1: We should message the United States.: urge strong message to the PRC to show resolve.

Message from the United States:

We are helping you [South Korea] fight back and we'd like you to move north as quickly and effectively as possible.

We're supporting you in the war, we are trying to re-establish peace as soon as possible and we have already tried to take out the North Korean regime and we're trying to deter China from escalating the problem further.

Participant #1: We should message the United States.: Appreciate support north of the DMZ, priority should be in air and naval superiority in and around the peninsula. Take care of China and we will take care of North Korea.

Participant #5: It sounds like the United States will not go across the DMZ, so now South Korea is being asked to implement a plan we are not prepared for, and the United States. is not backing the operational plan. We are splitting the alliance, which is one of North Korea's core objectives.

Participant #1: U.S. troops not crossing is bad enough, but aircraft is even worse.

Message from the United States:

We will take all measures necessary to defend our allies including the elimination of possible Naval forces that threaten South Korea.

Participant #1: So, it sounds like we will still get air and naval support.

Participant #5: They are still not following the operational plan.

Participant #4: It sounds like the U.S. wants to keep the U.S. Navy out of Korean waters and have the Korean navy be there instead.

Participant #1: We should ask the United States. to make sure that Russia/China cannot operate navally in Korean theater of operations and prevent any North Korean submarines and ships from leaving. Anything that attempts to leave should be destroyed.

Participant #1 (*translating for Korean experts*): With Koreans advancing north without U.S. support, we should consider how North Korea having nuclear weapons affects overall the theater situation. In this situation, a U.S. carrier group may not be able to operate as it currently does. There must be a mediating measure for North Korean nuclear weapons before naval and

air measures can begin. North Korea has weapons that can threaten the United States, so unless we can eliminate the threat, we must deal with it.

Participant #5: The only answer is that we must hit every known nuclear weapons site immediately or else we lose this war.

Participant #1: We are not certain we can get all of them, right?

Participant #5: We have to die trying, otherwise we just die. The genie is out of the bottle, since they have already used a nuclear weapon. They will likely continue using them.

Team Briefing

Participant #1: In next war with the North Koreans, we must assume that they will use nuclear weapons and the only way is to strike hard and to strike first.

Participant #5: It is unlikely that they will strike first, but any use of weapons of mass destruction must be met with a decisive response. If we do not, then they will be able to use them at will.

Participant #1: You understand that taking it on the chin means that many Koreans will die, so it is hard to accept.

Participant #5: A preemptive strike is ideal, but we have to convince political leaders to do it. In the past, we have not been willing to do this.

Participant #4: Understanding the geography of targeting nuclear sites is something we could work to improve. Furthermore, targeting command leadership might be a more feasible target that can be easier to locate and shoot.

Participant #5: Agreed. We have to hit command and control and the entire weapons of mass destruction structure from top to bottom. I think targeters know how to go after those targets. It would be irresponsible to not be thinking about that all the time.

Participant #4: This is not a first strike consideration anymore so we should be hitting command and control right away.

Participant #5: Agreed. That is why following operational plans is so important. It covers this, including weapons of mass destruction and all associated systems, including command and control.

U.S. Team

Crisis Response / Game Playing

Participant #1: I think we want to send a message to Control. I think we should ask for the results of our inspections.

Participant #2: Yes, and we need to inform them that based on that result, we will do our attack.

Participant #3: A reversible incursion. It's still covert. We are not talking about this openly. You know the North Koreans lose stuff all the time. They often have no idea of what any of their systems are doing. Not until we have some identification – if it is a dead rock up there -- I think we would keep that information to ourselves and not brag about it. If it is a potential nuclear device, then we would go ahead with a covert incursion and not talk about that too much.

The real game is on the ground, it's not in space. I am much more worried about how many precision-guided missile stores the South Koreans have, and how many months, weeks, and days, the South Koreans can hold out. Also, where are China's forces mobilizing? I'm sorry, but space is kind of a sideshow.

Participant #4: Yeah, I agree with you. The only thing I would mention is that we don't need to send an inspector satellite. Astronomy amateurs can image the antennas on the space station. I will not say anything about military capabilities, but to my knowledge, they're probably a lot more refined than that.

Participant #3: There are limitations to this. As an unclassified story, had people saying all kinds of things to me after the Columbia accident, about what national assets could have done and shown and when, and how easy it was. I hauled those guys into a skiff at headquarters and let's say they were more humble after they came out.

Participant #1: It wasn't a question of where the satellite was. It was a question of the nuclear material and needing to inspect close rates.

Participant #3: Yes, and what kind of equipment is on board, and all kinds of characterizations.

Participant #4: I think radiation detection is what we are after.

Participant #3: Well, we need the spectrum and the isotope ratio. You'd have to be close.

Participant #4: I've been reading in the journals that if you're that close, it turns out that people have been proposing that you can charge the satellite up with a laser beam.

Participant #3: I think structurally we're looking for a couple of things. One is we need more Intel as to what's out there, and we have an option If it turns out to be potentially hostile.

However, if upon close approach the North Koreans salvage fuse the system and do set off a nuclear detonation, which is a violation of so many levels, then the question becomes what are the war aims of the United States? I would think one of them would be to ensure that North Korea is never able to do this again. That means either ensuring enforcement of existing UN resolutions on not doing nuclear and ballistic missile systems ever again, and forcefully verifying, or leadership change. I assume the Chinese will not be thrilled with the idea of leadership change, but that is what is going to have to happen if we don't get satisfaction in ensuring that North Korea is never again a threat to the global community.

This is not occupying China. It's not necessarily starting with regime change. It's ensuring that North Korea is never able to do this again and to verify that. China can decide to be part of this and stand aside. Or, China can oppose, and then we're in a different situation. If China opposes actively, then we'll do everything short of engaging with Chinese forces to harm North Korea's ability to ever launch their ballistic missile systems again. That gets down into war plan level stuff (e.g., do we blockade, cut through cables), and how much does China want to resist that?

I think we should use precision-guided missiles, depending on how many we can afford, to destroy every site we can find in North Korea. Their air defenses wouldn't be able to deal with that. Again, the question will be, does China want to actively engage or stop that? However, any of these actions would only occur after there was a nuclear detonation.

If there were simply an invasion from the north to the South, that's the contingency we've been planning for forever. That depends on a host of factors of which space is important but not the number one issue. Well, that's just my line in the sand.

Participant #4: The scenario lays out four mobile missiles ready, as well as activity on the border, but the question is what actions would be taken to try to preserve functionality in military and commercial low-Earth orbit. My question is should we assume those four missiles are not aimed at South Korea but are the same type of missile launch that placed the spacecraft in orbit?

Participant #3: That's a good question. I'm not certain. Does anybody else have an opinion on that?

Participant #4: If they're the same type that placed the spacecraft in orbit, I wonder if we would want to consider taking those out as a measure.

Message from Control:

There were no emissions that betrayed the presence of a nuclear payload. However, that does not preclude a nuclear payload from being onboard. The volume of the satellite is certainly large enough to accommodate such a payload.

Participant #3: Basically, they said it's ambiguous.

Participant #1: Would you not detect it at a several-meter distance?

Participant #3: Yes, we would get close to picking up radiation. That's what we have satellite grappling and servicing systems for. We would be within spitting range if you could spit in zero-g. We're talking about nearly docking with this thing. We're not talking about imaging it from some distant location. If the equipment used by DOE nest teams to hunt for stray nukes in urban environments works, it would also work in space. I'm pushing back on Control and saying that we do have the technology, by close inspection, to identify if it is or is not a nuke – and we do propose to be that close.

Participant #2: I'd like to note that with Northrop Grumman / JPL, I think they've already done it. We helped them design their system and we did the plasma thing for a different reason.

Participant #1: On the missile question, can we inspect the missiles?

Participant #3: We should be able to answer the question, are they of the same type that placed the satellite object in orbit? Generally, the stuff that's on the North Korean mobile systems is usually not capable of reaching orbit. It's worth asking. My gut reaction is the mobile missile systems are more for tactical use. They are not space launch vehicles, but we could certainly ask if they are of the same type.

Message to Control:

Are you sure we couldn't detect nuclear material at a short distance? We would be within grappling range. We do have the technology to identify if the object is nuclear or not, and we plan to use that technology for very close inspections.

Are the four missiles of the same type that placed the satellite object into orbit?

Participant #3: In general, as a rule of engagement, is to simply match what the opponent does, not necessarily to preempt. If the North Koreans launched something out of their mobile missile systems and tried to harm one of our satellites, then that thing is now a legitimate target and we can think about suppressing it. However, until they do that, until they pull their guns out, it's really hard for us to preempt. We can watch them closely. But we shouldn't be the first ones to pull the trigger.

Now that doesn't necessarily apply to reversible, microwave beam effects. Depending on how Control answers, we could say there is this covert, microwave beam that just happened to be tested, and see what happens. But again, we try to maintain plausible deniability of it.

Participant #4: Would we want to prepare to intercept any of those four missiles that would launch, given this intelligence of these threats, or would we wait for them to go into orbit and make additional threats?

Participant #3: I don't know that we could intersect them. I don't know that we have the capability. I think if they were going to orbit it would be really hard to intercept. We don't have the brilliant pebbles system that the STI people have. I think in this world, we wouldn't have that capability. Even our antiballistic missile systems, operating at Fort Greely to protect the West Coast and Hawaii, are very limited in the pathways that they can intercept. I just don't think we'd have that capability. We have to wait until they launch something. If they get one missile off that does come after one of our satellites, the other could be targeted in such a way that they don't get a second shot.

Participant #4: The reason I ask is that in move one it said the ICBM splashed down before we could intercept, right?

Participant #3: Right. If those were ICBMs that were heading toward the U. S. If they were firing on a deep South azimuth going into full orbit or even into 40-degree inclination, I would not assume that's within the engagement range of our existing systems.

Message from South Korea:

USPACOM and Korea Team want to know if the United States is going to deploy one to two guided-missile submarines outside the Spratly Islands, attack submarines in the Taiwan strait, and one carrier group outside of Japan and another outside of the Philippines. We urge USG to do so because we believe this will distract PRC and keep Taiwan stable.

Participant #4: Aren't there currently two carrier groups? One is in the Mediterranean and the other is out in the Pacific. Isn't that the deployment?

Participant #3: We are supposed to have in theory, twelve carrier battle groups, and how much how many are normally in the seventh fleet?

Participant #2: I don't know, I'm an Air Force guy.

Participant #3: I imagine an interesting question – if we're on worldwide alert and at Defcon 3 – would be, given they are starting in March, would we start pulling carriers from the Mediterranean to beef up the Pacific? I guess I would say to the South Koreans that we'll be taking appropriate preparatory measures, but we don't comment on ballistic missile and attack submarine deployments. But we could certainly talk about moving a carrier group from Europe over to the Pacific. But it takes time to get there, but that's not something that can happen immediately.

Participant #5: Where do you want to move the carrier group?

Participant #3: We could beef up operations off of Guam, to begin with, staying out of the initial Chinese missile range. But, we would be prepared to make sure there's not a move

against Taiwan while all this other excitement's going on. But no comments on the movements of the subs.

My question back to the South Koreans is now are their ammunition stores fully stocked and how many weeks can they hold out without assistance that is otherwise in place?

Message to South Korea:

We will be taking appropriate preparatory measures, but we could certainly talk about moving a carrier group from Europe to deploy off of Taiwan. We'll be prepared to make sure there is no move against Taiwan.

Are your ammunition stores fully stocked and how many weeks can you hold out without assistance that is otherwise in place?

Depending on what is going on with China, with assistance, be prepared to move North.

Participant #1: We haven't leveraged allied capabilities beyond asking South Korea, and to some extent, Japan, what is going on. Are there any other capabilities that we can leverage?

Participant #3: That's a good point. I think one of the things we probably would want to do is to make sure that Japan is in a position not only to defend itself but also to assist in the defense of Taiwan. Now, the tricky part is they legally can only literally defend themselves. They are not allowed to do power projections. They don't have inner refueling capabilities, for example. It is literally for self-defense. But a top priority for Japan could certainly be staging, logistics, supporting naval groups, and maritime self-defense forces operating toward Taiwan. Getting involved with the Korean peninsula is there's logistics support they could do, but it gets kind of sporty for all kinds of historical reasons with the South Koreans. You definitely could make the protection of Taiwan something that is a top priority for the Japanese, as well as make sure that they can protect themselves.

They are developing some of their own counter-battery fire counterstrike systems, which are pretty much on the edge of being offensive, which they're not supposed to be doing. But politics is changing. So, yes they can generate alerts and get them going but they can't project outward that much.

Participant #1: We should probably craft a message to Japan at some point. but we have an answer from the Control.

Message from Control:

The presence of some gamma rays suggests some plutonium is on board.

Yes [the four missiles are of the same type as those that placed the satellite object in orbit].

Participant #3: Okay, well, then put them on the frag list to go first.

Message from South Korea:

The Control team directed us to ask you these questions (instead of the control team). When we say "we" and "our" we are talking about the U.S. military's ability to do these things or U.S.-South Korea combined forces. This is what would happen if North Korea denotes the space asset in orbit and it has a nuclear weapon.

- What will be the effect on intelligence, surveillance, and reconnaissance systems and how will our ability to prevent strategic and operational surprised be impacted?
- What effect will it have on weapons systems -air, land, and sea?
- What effect will it have on our communications capabilities?
- What effect will it have on our logistics capabilities to include, most importantly, our ability to execute South Korean military mobilization and the Time Phased Force Deployment Data?

Participant #3: Well, the short answer is if it's a detonation in space, the major factor is going to be an electromagnetic pulse, and that's going to depend on where the destination physically was and what was in the line of sight when that happened. Our traditional, major high-end systems, such as missile warning MILSTAR, and GPS are all going to be fine. They're supposed to be hardened to survive stuff like that. Low-Earth orbit communication systems will probably fry after a while because of the increased radiation environment that they're going to be flying through. But I think the big strategic warning stuff is going to be fine. Now, as far as the South Koreans are concerned, their equipment is likely going to be okay. But if they were within sight, they might have some electromagnetic damage themselves to deal with, so they'd better have high-frequency radios and they should probably be concerned about having some hardened communication capabilities. I don't know what the state of hardening of South Korean forces is. We'll [US] be able to communicate, but I don't know that they would be able to. I would say moderate degradation of their communication capabilities. Their strategic systems would be fine. Commercial systems would be disrupted, but the ability to mobilize and move trucks, trains, and things like that is probably not disrupted, depending on where it is. That's a wild guess. It depends so much on what the particular scenario was, which is why we can't have another one. Because of that uncertainty, if North Korea was to do this, I think the strategic aim is to make sure that North Korea never can do that again.

Participant #2: My only caveat to what you just said is that I think the commercial systems, except the ones in line of sight, will probably survive up to several months afterward because the radiation belts would fill up slowly and diffuse around, and with time the dose would be enough to kill the other satellites.

Participant #3: That's a good point. There would be a bit of a time delay.

Participant #2: Yes, probably up to a month. We saw that with the Argus and the Starfish. It took a couple of months before things failed.

Participant #3: So, the prompt effects are not likely to be that much, but a sustained enhanced radiation environment would be harmful, and hence the importance and urgency of making sure that North Korea is not able to repeat that action.

Participant #1: I just wanted to ask, since we were seemingly unsure last time if a positive nuclear detection equaled a nuclear weapon. Does just the detection of gamma rays and plutonium on board mean it is definitively a nuclear weapon, or could it be nuclear repulsion? What is the level of uncertainty in our nuclear detection and how does that determine our actions?

Participant #3: It's a good point. If you have the isotope ratio, you can figure out whether it's weapons-grade material, a nuclear power system, or just a dirty bomb.

Participant #1: So, should we ask Control for the isotope ratio?

Participant #4: I presume what you'd look for are the neutrons and the gamma rays.

Participant #3: You'd see what their energy distribution was and it's like looking at a spectrum and you can make an inference from it.

Participant #4: It will tell you pretty much what the ratios were.

Participant #3: Again, people push back on me, but I'm thinking regardless, maybe I want to do that the high-power microwave plasma thing anyway. I'd like to know whether it was a nuclear weapon or not, but maybe in the case of this satellite, we just try to covertly fry all the electronic anyway.

Message to South Korea:

If it's a detonation in space, the major effect is going to be an electromagnetic pulse and that is going to depend on where the detonation was and what was in the line of sight when it happened.

Our major, strategic, high-end systems like missile warning, MILSTAR, and GPS will be fine. They are hardened.

Low-Earth orbit communications systems will probably fry after a while because of the radiation they'll be flying through.

South Korea - equipment will largely be okay. But if they were within sight they may have some electromagnetic pulse damage. They better have high-frequency radios and they ought to have some hardened communications systems. The United States will be

able to communicate, but I don't know that South Korea can. So moderate degradation of their communications.

Prompt effects would not be much, but a sustained radiation environment would cause degradation over time. Commercial systems will likely survive for a month. As the radiation belt fills up, it will take a month or two before it dies.

The ability to mobilize and move trucks and trains will probably be okay - but that is a guess. It would depend on where the detonation occurred.

This is why we need to assure that if North Korea detonates the bomb, it is not able to do it a second time.

Participant #1: I understand in the timeline of the wargame we would try to fry the satellite anyway. We in terms of control would get the isotope ratio at the same time as we inspected the satellite, right?

Participant #2: And by the way, if we're that close, if we wanted to, we could link up and de-orbit it.

Participant #3: That's another way to deal with it, but that's very overt. I like the idea of it just failing and leaving them guessing as to whether it failed or not. And our story just being, "hey, we're just inspecting."

Participant #4: I kind of feel the same way about the four that are on the ground in the mobile launchers. Given the threats and the build-up along the border.

Participant #3: So, your thought would be to try to do a soft kill of those things somehow?

Participant #4: A covert, something happens to all four of them.

Participant #3: Yeah, that's harder to do for things on the ground like that. It's hard to hide that. Whereas in space, something just goes wrong.

Participant #2: But you have to stay away from it when it happens. Inspect, go away, and, a day or two later it fails.

Participant #3: You shouldn't be next to it. That's true.

I think the main things for the allies are to continue mobilization and pressure, stick with us on communicating concerns to China about the need to resolve the crisis on the Korean peninsula peacefully, and we will continue to hold the North Koreans accountable for any of their actions. Please keep your powder dry. We need China's active help. And if we don't get it, that would be worse.

Participant #4: Should we ask the allies what kind of capability they can bring to bear if we do lose some assets?

Participant #3: Yes, that's perfectly fair. Would the Brits be willing to make available their systems? We should all be talking to each other about sharing and balancing resources so that if any one of us has gaps that others can fill, we'll try to do this as a team. We will work on making sure our strategic assets for warning, navigation, and nuclear command and control all stay in proper shape. But to backfill things, like remote sensing and communications systems from commercial assets, we encourage people to talk to each other and prepare to help each other out if there are losses.

Participant #1 was mentioning things Japan could do – one of the interesting things Japan has is the solid propellant Epsilon rocket, which is a Minute Man 3. They don't necessarily have nuclear warheads on top of them, but they've got their launch systems as well. When we talk about asking for help from everybody, that also includes sharing launch services for support and replenishment.

Participant #2: One thing I would recommend is that whatever we find out about that satellite, we broadcast it to South Korea and Japan.

Participant #3: Yep, absolutely. I would say since it's clear and we're doing this in the open, if we find positive evidence that it is a nuclear weapon, we would certainly announce that. If we find evidence that's ambiguous, despite our best efforts, I don't know that we would say anything. If we were certain, it's not a nuclear weapon then we could also sort of relax and make sure they are sort of bluffing. But if it is a nuclear weapon, or it might be a nuclear weapon, then we need to go to that frying electronics option. We can't take a chance.

Message to Control:

From the neutron and gamma-ray spectrum, are we able to determine the isotope ratio of any radioactivity sufficient to determine if it is a weapon or not?

Participant #4: Should we ask our allies if they have any capabilities to intercept?

Participant #2: I think the Japanese are developing a system. I know the Chinese do.

Participant #3: We could back away from the satellite afterward and ask the Chinese if could they please de-orbit the satellite for us.

Participant #4: That might be a nice diplomatic move.

Participant #3: And if they don't do it well, it just happens to fail. Send a note to China.

Message to China:

Given the escalatory and aggressive statements from North Korea that are not helpful in resolving this case, is China able and willing to remove the satellite?

Message from PRC to all:

China is very concerned with the rapidly escalating crisis between the imperialist powers and North Korea. Escalation of the crisis is in no state's interest. We call for immediate six-party talks, or all-party talks, and offer to convene such a meeting immediately in Beijing. Diplomacy needs time to work. North Korea's deployments and movements are in reaction to the United States and South Korea going to DEFCON 3 and being on strategic alert. Responsible powers should try diligently to find a peaceful solution. North Korea's failed ballistic missile test and posturing are not a reason to unleash damaging effects and consequences on the region and world.

Message to China (copy all):

We welcome the PRC's efforts at diplomatic resolution. However, in light of the aggressive and provocative nature of North Korea's statement regarding their satellite, we ask China if it can remove the nuclear satellite threat as a precondition to a convening of the six-party talks. If China is not able to remove this threat either through North Korea's or its efforts, then we will view that as an impediment to successful discussions at the six-party talks.

Message from Control in response to U.S. question, "From the neutron and gamma-ray spectrum are we able to determine the isotope ratio to determine if it is a weapon or not?"

No.

Participant #3: We are going to back off the inspector satellite. We'll see what the Chinese response is to our question, "as a condition for six-party talks can we remove the provocative threat off the table?" Separately, we're preparing to covertly fry the electronics of that satellite. This will give us some time to back off and get away and have plausible deniability. Stuff happens all the time.

Participant #4: If we agree to have the discussion, we should add the condition that any build-up of additional mobile launchers or build-up on the border of South Korea would also be considered an aggressive move.

Participant #3: The question is how many preconditions we put into the six-party talks, which is not a bad idea in and of itself. The question is can you have productive discussions if there's a gun pointed at your head? To me, the satellite is the most immediate gun pointed at us, at least by their threats. The ability to remove that would be the biggest confidence-building measure. If we were to ask them to move mobile launchers back, they would turn around and say, South Korean forces should return to garrison. You know. We can't do that. We need to stay forward-

deployed because we don't know what these guys are going to do. So, my problem is if I ask for something on the mobile and they ask for something that I can't do.

Participant #4: I guess my suggestion is to prevent further escalation if possible.

Participant #3: We can certainly communicate that standing down those four mobile missile systems would be taken as a positive, confidence-building measure.

Participant #4: I'd like to posit that we feel confident that we could perform this covert activity and that relatively shortly, within a day, this said satellite would be missing or have some problem. Maybe we should wonder what they would do in response, if anything, or what we should do to prepare.

Message from Control:

NEWS ALERT - June 14th: North Korea ripple fire four missiles, three are tests, and one continues over Northern Pacific where a nuclear device detonates in low-Earth orbit. It seemed to be a bomb with at least a nominal yield but not a megaton yield.

North Korean artillery forces are now bombarding military targets just beyond the DMZ but not yet striking the city of Seoul. North Korean light infantry forces have penetrated the DMZ. There have been multiple special operations forces attacks at multiple air bases in South Korea.

You have additional questions to answer at the end of the move:

- What, if anything, can be done diplomatically to mitigate the crisis?
- Now that the explosion has occurred, has anything changed about what you intend to do compared to your original actions?
- What near-term actions can nations take now that the explosion has occurred?
 - What immediate, space, and non-space workarounds deserve the highest priority?
 - What immediate opportunities might be exploited given that certain orbits will not be safe to operate in for some time?
- How might any of the major space-faring powers exploit this crisis to the military and commercial disadvantage of their adversaries?

Participant #2: I have one statement. The minute that happens we're at war and the second thing we should do is take out that satellite before they pop an electromagnetic pulse over the United States.

Participant #3: So, first of all, we destroyed the satellite. That's kind of a done deal. The second thing is we go after North Korean leadership. This is the war plan; Kim Jong-un is a dead man. His family, everybody who knows him, and his dog. All of it. The question is again, what are the Chinese going to do? At this point, the South Koreans can hold the line. We have enough

mines. Hopefully, we have enough precision-guided munitions, and basically, every moving mobile target in North Korea should be dragged and killed at this point. So yeah, we're at war.

Participant #3: To control, we hold the criminal North Korean Regime accountable for this action. We call upon all peace-loving nations to implement UN Security Council resolutions and ensure the removal of this criminal regime. Nuclear weapons will be removed from North Korea to ensure such terrible tragedies never happen again. We call upon our other allies to restore peace on the Korean peninsula as soon as possible. We call upon China to cooperate in the restoration of peace to the Korean peninsula and to avoid any escalatory activities outside of the Korean peninsula.

Participant #4: Is there a consequence to violating the Outer Space Treaty?

Participant #3: Yes, inbound cruise missiles to kill the leadership. The only thing the Outer Space Treaty calls for is consultations. There is no enforcement mechanism. International law, outside of just treaty stuff, is usually then enforced through security Council resolutions, which the North Koreans are already in violation of in multiple ways. And, of course, by committing an act of war, they've broken the armistice agreement that was in place. So, once they break the armistice we can go in.

I think it's very important to have very clear war aims. We want to keep the Korean peninsula. We're going after nuclear weapons, weapons of mass destruction, which are the things we care about. And we are not trying to escalate the war into other areas beyond that. We need to make sure North Korea can't ever do this again.

Participant #2: The one statement that's missing in all this is that I don't believe we've had to use nuclear weapons.

Participant #3: No, and we hopefully won't.

Participant #4: We need to state the fact that if nuclear weapons are used in North Korea's attack on the South all bets are off. Do you want to make that statement?

Participant #3: I'd make the same statement that we did to Saddam Hussein: Should the North Koreans use weapons of mass destruction the United States and its allies will take all steps necessary to ensure such criminal actions cannot be repeated.

Participant #2: We should specifically state that we are not intending to use nuclear weapons at this point.

Participant #3: The United States will not be the first to use nuclear weapons. I'm kind of even leery of a no-first-use case. I would simply say something like, at this point, the United States does not contemplate the use of nuclear weapons. However, should the North Korean regime

further employ weapons of mass destruction, the United States and its allies will take all steps necessary to ensure that they are not able to repeat this action.

Participant #2: I think the main thing that China is going to be worried about immediately is nuclear fallout from any weapons. It would be best if that fallout, came from the North.

Participant #3: Well, the fallout drifts to the East the Japanese will get hit with the fallout as well.

Participant #2: The other question is should we ask the Japanese what they plan to do?

Message to all teams:

We hold the criminal North Korean regime accountable for this action and we call upon peace-loving nations to implement UN Security Council resolutions and ensure the removal of this criminal regime. Nuclear weapons will be removed from North Korea to ensure such terrible tragedies never happen again. We call upon our other allies to restore peace on the Korean peninsula as soon as possible. We call upon the PRC to cooperate in the restoration of peace to the Korean peninsula and to avoid any escalatory activities outside the Korean peninsula.

At this point, the United States does not contemplate the use of nuclear weapons. However, should the North Korean regime further employ weapons of mass destruction, we and our allies will take all steps necessary to ensure they are not able to repeat this action.

Message from South Korea:

Is it feasible to conduct any kind of pre-emptive or preventive action to prevent the loss of our space capabilities? What actions are feasible?

If so, CFC recommends you consider this course of action.

South Korea concurs but reminds that says this would be an offensive action, urges prudence, and that the U.S. side considers the second and third-order effects, and if anything that you consider non-kinetic means to disable or degrade the satellites (jamming, cyber).

If there is a feasible course of action, CFC recommends that action be considered. The bottom line is can we prevent that denotation from going off?

Participant #3: We already failed at that. Our plans worked for a non-kinetic kill, but we missed the opportunity.

Message from Five Eyes:

We request that you pressure the Chinese to use their leverage with the North Koreans to have them cease their provocative military behavior both in space and on land.

We request that you continue to update the Expanded Five Eyes on your upcoming actions and potential capabilities.

Please advise us as soon as possible regarding intel on the inspection mission. We remind you that members of the Expanded Five Eyes have non-kinetic mitigation options including deorbiting capabilities.

The Expanded Five Eyes emphasize a non-debris-forming response.

The Expanded Five Eyes would like to remind the United States that the group has significant C4ISR, PNT space capabilities, and commercial comms in medium Earth and geostationary orbits and other orbits. We are also preparing and testing land, air, and sea-based options to maintain comms and visibility and fit into a coalition response.

The coalition would like to understand the U.S. position on the linkage of the buildup for invasion and the purpose of the North Korean satellite.

Please engage the NATO council of ministers.

Participant #3: We did all of those things.

Participant #: Do we have to inform the control team that we plan to covertly take out the other satellite that was launched at the news alert?

Participant #3: I thought we only had one satellite.

Participant #6: I thought there was another one at 6:00 PM.

Participant # 4: Yeah, they fired one and it popped it off over the ocean. I don't think they did it in orbit, did they?

Participant #3: They reported that one went off over the North Pacific where a nuclear device detonates in low-Earth orbit. That seems to imply that the original satellite is still up there. Okay. We'll fry it.

Participant #2: That's what we said earlier – take it out immediately.

Participant #3: Yes, we will go after it with a non-kinetic kill mechanism.

Participant #2: That's to prevent it from detonating over the U. S. and creating an electromagnetic pulse. That is the worst thing they could do to us. I'm surprised they didn't explode the missile over the United States.

Participant #4: Are we saying we're going to wait for the time it takes to do a non-kinetic kill versus the kinetic?

Participant #3: We are doing non-kinetic. The kinetic approach also takes a similar time and produces lots of debris, and it's not necessary. We should just go ahead and take out the original orbiting satellite as quickly as we can.

Message to Control:

The United States is taking out the orbiting satellite with a non-kinetic kill mechanism.

Participant #2: Okay, ask Japan where they stand and what they're planning to do. It's like you said, the fallout is going to get them. The other thing we haven't mentioned is, if they pop a nuke over the Pacific, it's going to take out Hawaii as it did when they did the test there.

Participant #3: Yes, the Honolulu electric company lost power for almost everybody.

Participant #2: So, we may end up having had an attack on Hawaii. I don't know if you want to do it, but we can ask about it.

Participant #3: We might ask Control if there were any immediate electromagnetic effects. There is going to be particle charging in the atmosphere that is going to make it an irritating problem over the next several weeks. I think we've already mentioned we just want to know if are there any immediate electromagnetic effects on the ground, for example in Hawaii.

Message to Control:

Were there any immediate electromagnetic effects on the ground, e.g., Hawaii?

Message to Five Eyes:

Question for Japan: What actions are you taking?

Participant #2: We've been quiet about Taiwan.

Participant #3: Covertly, we would be moving attack submarines into position to make sure that the Chinese don't use this as an opportunity. We'd be increasing stores on Okinawa. There's probably a lot of activity in the geography of Guam. All the usual stuff would be happening.

Message from South Korea:

We do not think taking nuclear weapons use off the table is prudent. Communists only understand strength. If you do not know that by now, shame on you.

Additionally, U.S. Forces Korea commander/INDOPACOMM wants the status of naval force disposition as requested in a previous message to counter China.

Participant #3: Which we will share this with U.S. commanders, but we aren't necessarily going to share it with the South Koreans. INDOPACOM is going to do what INDOPACOM does. That's in the Taiwan area. South Korea should be worried about pushing back the DMZ and getting counter-battery fire away from Seoul. Focus on your problems.

Participant #2: North Korea doesn't have to use nuclear weapons to make a mess.

Participant #3: They have like 40,000 artillery pieces. This always makes it entertaining for me when the South Koreans say they want missile warning satellites and all kinds of other space gear. I ask can you take out the artillery tubes that are pointed at you first?

Do we have any response from the Chinese? The question here is do we want to think about having six-party talks?

Participant #2: I think we have to have talks going on no matter what happens. We know that the North Koreans will probably do nothing. But, we at least have to have China, Russia, and NATO involved in this.

Participant #3: How about how good a proposal to China to convene six-party talks, but in a neutral location? Like Geneva?

Participant #2: How about India?

Participant #3: The Chinese won't like that. They'll be hostile to the Indians.

Message to China:

Would you like to convene six-party talks in a neutral location, such as Geneva?

Participant #4: I assume it's precedent, right? We should ask them to set a date. We should be pressing in our responses and I worry that we can't allow this kind of precedent to stand.

Participant #3: Which particular precedent are you talking about?

Participant #4: This nuclear device detonation.

Participant #3: One way is for the United States to propose a UN Security Council resolution simply condemning the North Korean detonation of a nuclear weapon as a violation of the Outer Space Treaty and in contravention of numerous existing Security Council resolutions. Don't need to be fancy.

Message from Control:

The U.S.-Korean operational plan has been activated and Korean forces are tightly coordinated with U.S. forces so we need to be honest with South Korea.

Message to South Korea:

We will deploy naval forces to deter or defeat any attempts by China to take Taiwan and to ensure the flow of logistics to support this conflict.

Message to all:

United States proposes a UNSC resolution condemning in unequivocal terms the use of nuclear weapons, violation of the Outer Space Treaty, and various UN resolutions.

The goal is to ensure that North Korea is never able to use nuclear weapons like this again and the leadership will be held accountable.

Participant #3: The second message should be to ask China if they would take the initiative. Would they participate in an invitation to six-party talks? We have to reiterate that the goal is to ensure that North Korea is never able to use nuclear weapons like this again and that the leadership will be held accountable, and this is our warning doesn't necessarily mean we have to replace the entire regime. But we need to be assured that the North Koreans will never do this again.

Participant #2: Either way should we ask if our hit took out the government?

Participant #3: Well, have we been successful in capturing or killing the senior North Korean leadership? They are probably hiding in some cave. This is too far down in the weeds. The questions I would have are: how quickly could we establish air superiority over North Korea, how close do you get to the Chinese border and what's the Chinese Air Force doing? I mean, those are the kinds of things that I'd be worried about. Are they helping the North Koreans? Are they still standing pat? So, North Koreans are doing all this stuff – what's China doing?

Participant #2: We need to ask what China is doing.

Participant #4: Agreed. Even if they are just moving assets.

Message from Control:

How exactly are you doing it?

Participant #3: What's your favorite choice?

Participant #4: Kinetic kill, using the fighter jet?

Participant #3: We're trying to stay away from debris-creating, and you had some ideas.

Participant #4: Microwaving first and following that with a laser. I'm not sure how accurate targeting from the ground is for those systems right now. Certainly, the Navy has lasers capable of doing things, but I am not sure what distance.

Participant #3: Okay, well, let's go for a combination of high-powered microwaves and lasers. Ground-based lasers. Does the microwave make sense from the ground or does it have to be closer to the satellite?

Participant #2: The problem is I don't know what the range of those weapons is.

Participant #3: Simply say we've gone for a high-powered microwave and laser, non-debris-creating event. Let control argue with us as to whether we can do it or not.

Message to Control:

We've gone for a high-powered microwave and laser kill, non-debris-creating event.

Message from Control:

There is no electromagnetic pulse impact on the ground.

Message from South Korea:

Message to the PRC: South Korea warns China not to intervene as South Korea and our allies defend South Korea from this unjustified attack.

Message from China:

China will not support regime change in North Korea. China supports the de-escalation of conflict but holds the United States responsible for instability in the Korean peninsula and its effects in space right now.

The fact that the West went into DEFCON 3 has brought about this instability in the Korean peninsula and China's sphere of influence. Such U.S. interference is visible in the Taiwan Strait and the South China Sea. The United States needs to accept responsibility for its strategic irresponsibility in Asia.

We propose holding 6 party talks in Asia because this is a regional crisis in China's sphere of influence that the United States has perpetuated and led closer to the brink of nuclear war.

Participant #3: Okay, well there ought to be about 20 or 30 inbound cruise missiles to North Korea at this time. I can believe the Chinese would react that way. What is important is for the South Koreans to win and head farther North and for us to assist as much as we can.

We could send a private message back to China saying we are open to discussing the future of the North Korean regime. However, we will be ensuring that they are not able to threaten regional peace again. Would you like to set up a deconfliction channel to ensure there is no accidental engagement between Chinese and allied forces while we pursue the criminal North Korean routine.

Participant #2: Yeah, we have to communicate with them directly. Right?

Participant #3: We should probably -- at least for public consumption -- agree to that. But not in Asia because that concedes the whole idea that this is a regional issue, which means the U. S has no legitimacy. You could meet in a neutral country.

We continue to propose six-party talks in a neutral country and would the Chinese like to set up a deconfliction channel with INDOPACOMM to ensure there are no accidents or misperceptions, as we pursue actions to ensure a nuclear North Korea is not able to repeat its criminal actions.

Message to China:

We are open to discussing the future of the North Korean regime, but we will be ensuring that they are not able to threaten regional peace again.

We continue to propose six-party talks in a neutral country. Would the Chinese like to set up a deconfliction channel with INDOPACOM to ensure there are no misperceptions or accidents while we ensure North Korea is not able to repeat its criminal actions?

We should also make a public statement that the United States is looking to return to the peaceful status quo as rapidly as possible while ensuring that weapons of mass destruction are never again used or threatened in this region by the North Koreans. We have offered discussions with all concerned parties in a neutral country. We have sought support from the international community to condemn the reckless actions of North Korea. This way we have a diplomatic message in the press and clear, fairly tightly bound fairly reasonable war aims.

Message to all:

The United States is looking to return to a peaceful status quo as rapidly as possible while ensuring WMDs are never again used or threatened in this region by the North Koreans. The United States offered discussions with all concerned parties in a neutral country and has sought support from the international community to condemn the criminal actions of North Korea.

Participant #3: It would probably be worthwhile cutting every submarine cable coming out of North Korea, and maybe early on in the days of the war, make sure that the airbases, ports, and rail lines into North Korea, except along the Chinese border, are cut.

Message from Control:

It [the U.S. non-kinetic kill] was successful

Message from Control:

The United States is activating its Korean command and executing all standing operational plans.

Message from Five Eyes:

All contributing countries to the Armistice Agreement would be activated.

Message from China:

What is the United States doing to respond to this crisis of your making that China is now having to resolve?

Message to China:

Thank you for your interest in American space policy.

Participant #2: I think space is off the table now.

Participant #4: Yes, also, should we consider setting up a coordination group amongst our allies, to understand what the effects are on communication capabilities as time goes by?

Participant #3: Yes, we should send a proposal to Five Eyes that we form a standing group to assess lingering impacts on space systems of the North Korean detonation and jointly consider measures to mitigate the impact.

Message to Five Eyes:

The United States would like to form a standing group to assess the lingering impacts of the North Korean denotation and jointly consider actions to mitigate the impacts of the detonation.

Message from Five Eyes:

Yes. Agree.

Participant #2: Do we need to do anything with the station?

Participant #3: We succeeded in evacuating the crew, right?

Participant #2: Space is out of the picture now.

Participant #3: Yes, we're down to two people. For the modeling question, we may want to look at whether or not the radiation environment forces us to look at keeping the station manned.

Participant #2: Yes, it would require them to leave. The current radiation requirement is that you have to have a death rate equal to or less than cigarette smoking. It is ingloriously too low. It's ridiculous.

Participant #3: I can imagine until something else changes we could still keep two people up there. We just have to rotate them more often. No more six-month duration tours. Send them up for three months at a time, and rotate a two-man crew. We have enough launch capability that we could do that.

Participant #2: Yes, SpaceX will be launching a bunch of Starlinks to replace what was taken out.

Message from Five Eyes:

The Expanded Five Eyes offers support against the unjustified attack.

The Expanded Five Eyes encourages China to play a constructive and peaceful role.

Message from South Korea to all teams:

South Korea appreciates the support of the Five Eyes and requests immediate deployment of all available forces to regain stability on the Korean Peninsula and defeat North Korean aggression.

Message from Control:

The North Korean offense is continuing unabated.

Participant #4: Isn't there an issue that the UN is in charge of the defense of South Korea and there's never been a treaty signed with North Korea? Isn't that a UN issue?

Participant #3: The unified command has evolved. First of all, there never was a treaty. There's only been an armistice. The command structure, as I understand it, and I can be wrong, has evolved to where it's gone from the United States being unilaterally in charge to a shared command, to have the South Koreans more responsible for their activities. The United States is now more of a support of them rather than being solely in charge. Our job is largely to 1) maintain extended deterrence, 2) make sure there are still logistics supplies coming into South Korea, 3) Airlines are open – at this point, Seoul airport and others are shut down, 4) commercial traffic is maintained communication lines, particularly submarine cables coming in

-- so that's another thing that the Navy should be paying attention to – making sure nobody is doing anything stupid with submarine cables and 5) The South Koreans just need to win.

Participant #2: Hopefully, it will be a conventional war.

Participant #3: The old story is we know what war looks like without space and nukes. It looks like World War 2. It's like Ukraine. It's pretty horrible. But nukes would be worse. With Ukraine, you still have space. Whereas I'm saying if space systems were taken out and not available, then you get things like Montecasino and Dresden and stuff like that.

Participant #2: You get trenches.

Message from South Korea:

Request U.S. clarification on what the U.S. side is talking about. South Korea is under attack and you are calling for a return to the peaceful status quo. How do we get there? Is the United States helping us fight back or waiting for diplomacy?

Participant #3: We are helping them fight back and we'd like them to move north as quickly and efficiently as possible without triggering help from the Chinese.

Participant #2: P.S. We tried to take out the leadership for you.

Message to South Korea and all teams:

We are helping you fight back and we'd like you to move north as quickly and effectively as possible.

We're supporting you in the war, we are trying to re-establish peace ASAP and we have already tried to take out the North Korean regime and we're trying to deter China from escalating the problem further.

Participant #3: This is, again, very similar to Ukraine. Ukrainians are fighting for their existential life, and they're wondering why we're dithering around. Well, that's because we don't want to have direct contact between NATO and Russia yet.

Message from China to all:

China does not support any crossing of the 38th parallel and will not tolerate any western troops inside North Korea. We are willing to mediate to de-escalate this conflict and are willing to communicate through Indo-PACOM to mitigate this crisis (per standing MOUs). However, any troop movement by western forces will be met with an equal response from China.

Participant #4: They haven't caught on yet that the North Koreans have already moved across the DMZ. Right?

Participant #3: Right, and, we're providing support for that. It is certainly possible to imagine U.S. forces not crossing the 38th parallel, but doing everything we can behind that and having the South Koreans out of the front.

Participant #4: I was just thinking, should we be sending military equipment to South Korea?

Participant #3: Absolutely. We should be surging stuff through Omaha and Japan.

Message to South Korea:

We are providing all the logistic support necessary for you to win.

Participant #2: But to the Chinese, you have to be very specific. We are not the aggressors here. North Korea has invaded the South and we consider troop movements in and across the DMZ necessary for the defense of South Korea.

Participant #3: Yes, we are not the aggressors and we are not the ones who broke the armistice and we call upon China to bring North Korea back into compliance.

Participant #2: We should say that the United States is supporting South Korea's desire to defend itself, and if necessary cross the DMZ.

Participant #3: Well, I don't even know if I would say. I would probably drop at this point and say we will take all actions necessary for South Korea to defend itself. We don't need to give hypotheticals. We're saying we will take all steps necessary to support and we are not yet committing U.S. troops north of the DMZ. They have plenty to do where they are now. But, I'm not going to preclude that, just as I would not preclude the use of nuclear weapons if they use them first. Copy this to the South Koreans

Message to all:

We are not the aggressors and we are not the ones who broke the Armistice. We call upon China to bring North Korea back into compliance. We will take all steps necessary to defend South Korea. At this point, U.S. personnel are not required beyond the DMZ.

Participant #4: Should we call on North Korea to retreat beyond the 38th parallel?

Participant #2: No. They do what they have to, militarily. We're not going to dictate to them.

Participant #3: We're not going to tell them. North Korea broke the armistice and all bets are off.

The core part of the problem is going to be the alliance relationship. This is not about space stuff. It's about how far we go. We don't want to trigger a nuclear war with China, but short of that, we want South Korea to win. Once the North breaks the status quo, it's kind of all bets are

off. And I'm sorry, China, if you didn't want this to happen you should have maybe done more to keep North Korea in line.

Participant #4: It certainly seems it's important to China and North Korea to make ridiculous statements publicly.

Participant #3: That is kind of like the tendency. And the Russians, too.

Message from South Korea:

US Forces Korea asks for clarification if that means the United States is no longer considering the full execution of the OPLAN.

South Korean side says: Urge strong message required to PRC to show resolve. Appreciate support north of the DMZ. Priority should be on air and naval superiority in and around the Peninsula. Take care of the PRC and we will take care of North Korea.

Participant #3: First of all, yes, we are still committed to OPLAN. Yes, our priorities are air and naval forces. Good luck, we're helping.

Message to South Korea:

Yes, we are still considering the operational plan. Yes, our priorities are air and naval forces. Good luck. We're helping.

Participant #2: By the way at this point, in our simulation. Space is off the table.

Participant #3: I mean, the space stuff is gone. Things aren't damaged. Strategic assets are still functioning, meaning GPS, missile warning, etc. We haven't put nuclear forces on alert. They were at different DEFCON levels, but there's been no change in nuclear posture. As far as space goes, I think we hit the wall.

Participant #4: My opinion is that the South Koreans, what the North nuked.

Participant #3: Well, they may want that, but that's not something that we're going to do for them.

Participant #2: I think that's an important point that comes out of the simulation.

Message from Five Eyes:

We propose to take control back to the 38th parallel and we would not be moving North. The Expanded Five Eyes however will conduct air strikes.

The Expanded Five Eyes agree to return to the Armistice Agreement and achieve a ceasefire.

Participant #2: It is going to be too late. Once the North commits to artillery, it's going to be a bloodbath.

Participant #3: At which point do forces start moving north? The question is, after the deconfliction channel, what side of the buffer zone would the Chinese like to settle for? 50 kilometers, 100 kilometers? This is where we take the existing deconfliction channel and have it operational to make sure that they don't freak out because we're going to get closer. Chasing north to Pyongyang. Pyongyang is going to be gone.

Participant #4: By the way, did we ever get word back about whether we wiped out the government?

Participant #3: I don't think we heard back from control on that, but I suspect those guys were still alive in a cave somewhere.

Participant #2: The other question we haven't asked is who is winning the war on the ground, right? If North Koreans are winning, the Chinese aren't going to stop it.

Participant #3: Right, so the question is do we have to win enough on the ground short of nuclear weapons to get the Chinese to want to come to the table?

Participant #4: Our allies just said they will conduct air strikes.

Participant #2: Yes. I think we should get the status from that.

Message to Control:

Were we successful in wiping out the North Korean regime?

Message from Control (as North Korea):

They have not knocked out our senior leadership.

Message to Control:

Who is winning the war on the ground?

Message from Control:

Unclear. Too early to tell.

Participant #3: Are ground forces operating under air superiority or not? If they don't have it they are in a world of hurt they do have it, they should probably be doing okay.

Participant #2: Yes, but the Chinese may be providing air cover for the North Koreans.

Message to South Korea:

How are you doing? Are South Korean ground forces operating with air superiority at all?

Message from Five Eyes:

Individual countries will support through military and non-military means in the interests of their government. We note that there are standing military conditions under UN Command Korea.

Participant #3: There is also the question about the refugee flows from North Korea to China. COVID or not, that's one of the things China does fear. It would be chaos. China doesn't want us moving troops North because they don't want their buffer zone being whittled down. Concurrently, they also really hate the idea of instability of North Koreans flooding into China in an uncontrolled way.

Message to Control:

How is China handling the flood of North Korean refugees?

Participant #3: Is there anything for the space piece? Then I'd say we would go work with commercial space companies to rebuild the replacement satellites. We want them as rapidly as possible because we think that the existing lifetimes will be shortened as a result of radiation.

Participant #2: I think there's a name for that, the rapid response thing. The space division was working with commercial companies to figure out how fast they can reconstitute.

Participant #3: There's a specific project that I don't remember the name of, but I would say we'd be working on the industrial base as the first point working with companies to surge satellite and launch replacements as quickly as possible.

I would be watching our cyber systems. I would increase security around our fixed launch facilities at KSC and Vandenberg. I would probably be looking at increasing responsive launch options for systems that could operate from bases and airports worldwide, like Virgin orbit.

Participant #2: I read AT&T has been testing drones for rapidly re-establishing WiFi communications and communications in remote areas, and the big balloon ships are coming online in Europe. I think we should appeal to our European allies to figure out ways to re-establish lost communications worldwide as quickly as possible.

Participant #3: I wonder if the Galileo system was adequately hardened against nuclear detonation.

Participant #2: I think it is.

Message from South Korea:

Does the U.S. Navy plan to restrict/eliminate North Korean naval forces from the KTO? Also, will the Navy isolate KTO from Russian and Chinese naval incursions? Will U.S. Naval forces operate within the KTO or remain east of the Japanese islands?

Message to South Korea:

We will take all measures necessary to defend our allies including the elimination of possible Naval forces that threaten South Korea.

Participant #2: I was asking whether the Galileo system was adequately protected. Given the orbits, I am pretty sure that they are.

Participant #3: We would be sharing information with allies on what degradation we're seeing as a result of the nuclear detonation, and then coordinating actions to fill in capabilities that have been harmed.

Participant #4: I think Galileo and the GPS systems are the big questions. If those are in place, communications are pretty easy to get back because they are in higher orbits.

Participant #3: I'm mostly worried about stuff in low-Earth orbit. Radiation levels will be up, so the lifetimes of satellites are going to get shortened. We'll have to figure out how to replace them.

Participant #2: As far as I know, that's mainly communications, though.

Participant #3: I know that there is some remote sensing, MAXAR systems, and climate satellites. There are also some maritime location systems and Hawkeye 360. There are also some commercial remote sensing and geo-location systems that we want, but it's the same basic problem as the low-Earth orbit communication satellites.

Participant #2: Over the next month or couple of months they're going to die.

Participant #4: And for a while, because the radiation will take time to dissipate. So there needs to be a continual replenishment initiative.

Participant #3: The energy has been pulsed into the Van Allen belt. How long did it take for the Starfish prime effect to fade away?

Participant #2: We're not sure it ever went away. But the rule applied was 2 to 3 months.

Participant #3: Is there anything else the commercial industry would care about in this environment?

Participant #1: No, I think that's it.

Message from Five Eyes:

Japan has activated missile defense capabilities. Japan and the coalition allow the United States full operational use of the forward base. Japan has excellent aerial and maritime defense capabilities that it will provide to defend coalition parties that are in Japan. Japan also has excellent search and rescue capabilities as well as evacuation assistance that it will provide.

Japan will act according to its constitutional restrictions and constraints.

Participant #3: This means no Japanese ground forces on the Korean peninsula.

Team Briefing

Question: What near-term actions can nations take now that the explosion has occurred?

- *What immediate space and non-space workarounds deserve the highest priority?*
- *What immediate opportunities might be exploited given that certain orbits will not be safe to operate in for some time?*

Participant #2: I would say that provided that navigation capabilities from GPS and Galileo are maintained, the next most important thing would be to re-establish communication systems, such as Starlink, and things of that nature. The follow on would be the re-establishment of optical systems and monitoring so that the battle can be monitored. Those would be my three things.

Participant #3: A friendly amendment to the navigation capabilities is it is the precision timing and navigation capabilities. It's the precision timing signals that synch into financial networks and point of sale systems and things like that. It permeates everything.

Those are the priorities and basically, you need to secure the launch sites, protect the production lines, mobilize the industrial base, and make sure to engage with friends and allies to make sure the global supply chains are stable.

Participant #2: I would add inventory the launch capabilities. You need to be able to launch on demand.

Participant #3: We would need to expand the use of mobile launchers. You want to be able to operate from almost any place.

There are opportunities for GEO satellite owner-operators might see an increase in business. Viasat earnings will go up because they will be operating in GEO. Other GEO operators like

SES and Luxembourg will probably do well. The traditional geo-satellite birds will do better in the short term.

Participant #2: Iridium is in the high-end of low-Earth orbit, and polar.

Participant #3: Systems in the high-end of low-Earth orbit will be survivable and you could produce more of them. It's only low data rates. It is the Starlinks of the world, or these mobile broadband things, that are much more delicate.

Gates: First, should we be able to repurpose other existing space assets to fill in any gaps?

Participant #2: By the time the game takes place, SpaceX is supposed to have launchers ready to go that can launch hundreds of satellites at a time. This would make rapid replenishment feasible.

Participant #4: I was thinking of assets at a higher inclination or Polar you might want a longitude change if needed.

Participant #3: I think that these things are usually designed for particular orbital parameters and so it's hard to move them to do something else. Not only physically, like an inclination change, which is usually prohibitive, but even phasing coverage change. Maybe existing networks can do it? This goes back to the idea of allies sharing information about how their systems are hit. So, if Inmarsat has a problem, does SES pick it up? GEO systems can help GEO systems. Low-Earth orbit systems can help other low-Earth orbit systems. But it's hard to work across different systems. If there is a big gap in a low-Earth orbit system, maybe you send the traffic to GEO. I'm having a hard time thinking about how I would repurpose a satellite because they tend to be so specialized.

Participant #4: I just meant if they serve a certain area, like high latitude, maybe spending more time in low latitude. And by that, I mean not necessarily changing the technical capability for a satellite, but using it differently, if it helps to fill some data gaps.

Participant #2: Well, I think along the lines of what you're saying, the Air Force, or at least the Space Force, has been talking about putting ride-along payloads for various functions on commercial satellites, like Starlink. They have been talking about adding other types of systems so that they can use the fact that they have this orbital coverage. There is a whole program on that.

By the way, the one thing we haven't mentioned is weather satellites.

Participant #3: So, there are the polar orbiting systems. Is there any Defense Meteorological Satellite Program (DSMP) left anymore?

Participant #4: Yes, we still have a few DSPs left. They are supposed to merge the programs with the military system. But we still have a few.

Participant #3: So, we would worry about the health of the weather satellite systems.

Participant #2: Yes, but again, they are about 800 to 900 kilometers, so a little bit above low-Earth orbit, they're polar, and they are already hardened because of the aurora, solar flares, and solar proton events, which they run into those over the polar caps?

Participant #3. We would we about weather satellite coverage in both polar and geosynchronous orbit.

Participant #2: Yes, financially that's the biggest issue, as it protects crops.

Participant #3: We worry about restoring critical infrastructure and prioritizing those. We worry about the manufacturing lines and how fast can production be restored. Supply chains, and second and third-tier suppliers. Are they affected?

The markets probably have gone pretty badly sideways as a result of the war. So, just as we worried about COVID, during the height of the crisis we are worried about some companies financially going under. And, since we may need to invade, we would worry about the space-related industrial base to see if there were any critical supply deficiencies. In a couple of cases, we're one-producer deep. If they get into financial trouble, we're in bad trouble.

We worry about national systems.

Participant #2: We need to worry about national reconnaissance systems.

Participant #4: Is there some cyber thing that we should also include here?

Participant #2: Fiber optics is key to much of what we do right now in the U. S. They're moving as much as they can to fiber just because of the electromagnetic pulse problem and because of the solar proton and solar flare event can do the same thing.

Participant #3: It is not a space-related thing, but I would be very forward-leaning to make sure all the undersea cables are working because that's where the bulk of this traffic goes. It doesn't go over space systems. It goes over undersea cables. If anybody is doing anything to disrupt them, it would be bad. Conversely, cutting off North Korea is a pretty obvious thing to do.

Participant #4: Is there a space law / UN issue that should be on this list?

Participant #3: Just simply condemning as a violation of the Outer Space Treaty.

Participant #4: Yes, they've detonated a weapon. They've violated the treaty. That was a big no-no.

Participant #3: Staging a nuclear weapon in space and then detonating it – both of those are pretty bad.

A nuance I would pick up on is the interpretation of stationing via the defense counsel. It turns out that's an important viewpoint. But, that is not dispositive to what the position of the United States is, and that is stated by the office of the legal advisor at the Department of State. So, the DoD can have an opinion, and it's an important one, but at the end of the day, the buck stops with the legal advisor at State. An interesting question is whether or not the State Department would agree with DoD or not. Probably would on the issue of stationing versus placement of weapons.

Question: How might any of the major space-faring powers exploit this crisis to the military and commercial disadvantage of their adversaries?

Participant #2: If I were the Russians, this is when I would attack the U. S. This would be a great time because you have all this going on in Korea, and all the assets are focused over there. You've lost a lot of the low-Earth orbit assets, so you aren't quite sure what's going on in Russia. And, this might be a good time to launch.

Participant #3: I think, in this environment, that you would put NATO certainly on alert, because you're going to have to move air and naval forces out of the area to help on the Korean peninsula, and you don't want to leave a vacuum that the Russians would exploit.

Participant #2: That's the way to phrase it -- exactly what you just said. We need to have NATO prepared to counter any type of Russian attempt to exploit.

Participant #3: There's nothing they can do commercially as the Russians just totally trashed their commercial space industry.

Participant #2: I don't think Iran would mess around at this point. They might attack Israel. You never know.

Participant #3: All we do is say we have no interest in restraining Israel. If the Iranians try anything just leave it to the Israelis to deal with.

Participant #2: That could happen any time, so right.

Participant #3: We would look toward Israel and our Arab allies to deal with it. There is no love loss with Iran.

Would India do anything different in this area? There's no love lost with the Chinese. Could India use this as an opportunity to move north into Kashmir? Or, would they look to create opportunities for their industries to fill?

Participant #4: I think industrial-wise they would do anything they could to raise commerce.

Participant #3: The Indians are part of the Quad with ourselves, Japan, and in Australia. The question is, the Indians may seek military and commercial advantage by supporting Quad members in the Korean conflict both militarily and commercially.

Question: When we had the intelligence of the invasion, what were the immediate steps we were taking to mitigate the potential loss of military and commercial capabilities?

Participant #2: I give you the simple answer to that: not much because the issues are, do you turn the satellite off or put it into a safe state? But that doesn't make any difference. Part by part, satellites respond differently to the radiation effects. Some systems are even more sensitive if they're turned off. And so, it's satellite by satellite. The operators would have to be ready to recover immediately altitude control. Altitude control would be the first thing that would go on these things.

The bottom line is, we would do what we've agreed to in past situations with meteor showers and similar events: You would staff up, and put people on overtime, to try to recover. This has been worked through. You don't know, for a given system how it's going to respond.

Participant #3: There's not much. You could start thinking about stocking up stores and replacements and making sure you have responsive launch contracts ready to go for your security posture. There are things you can be forward-leaning on, but not a lot.

Participant #2: There is not a heck of a lot you can do to physically protect a satellite once it's up there. The obvious thing to do is to put it in safe mode or something like that, but you don't know how that individual satellite will respond. The operators would have to decide what to do satellite by satellite. An electromagnetic pulse might turn the thing on.

Participant #3: You are looking at stocking up and shoring up parts and components, replacement capability, and supply chains.

Participant #4: Surge replenishment.

Participant #2: Yes, but you aren't going to do that until it happens.

Participant #3: You could start being forward-leaning. You start putting in calls to your contract officers and procurement people to tell them to stand by for some emergency procurements and ask how are your vendors doing. We're looking for key checkpoints. If you have to replace satellites, how can you cut the resupply time down from years to a few months or weeks?

Participant #2: And, we need to say something about software protection against malware.

Participant #3: I'd have cyber command up and forward-leaning looking for anything malicious going on. Some of the North Koreans are what they call advanced, persistent threats and pretty sophisticated, so looking for cyber-threats from the North Koreans would be a priority.

Participant #2: I suspect the Russians and the Chinese would be ready to pounce too. Once they started up, they would be firing up all their systems, too.

Participant #3: The problem is that the Chinese are also vulnerable in return and they have to be careful because cyber takedowns inside China can be targeted right back at them. Whereas North Koreans just don't have much. So, their sophisticated actors can do a lot of damage, and there's not a lot you can do to North Korea, other than cutting them off the grid entirely, which probably ought to be done anyway.



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