


# DISSECTING THE WASHINGTON DECLARATION

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**APRIL 29, 2023**

**PETER HAYES**

## I. INTRODUCTION

In this essay, Peter Hayes analyzes the five key elements of the Biden-Yoon Washington Declaration; and concludes: "Yoon's January 2023 nuclear proliferation demarche and the US response have made the peninsula, the region, and the world more insecure whilst doing nothing to actually reduce

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the risk of nuclear war posed by the DPRK's accelerating nuclear weapons program. The United States and its allies remain in strategic drift in Northeast Asia, and the risk of nuclear war—and its cataclysmic humanitarian consequences—are increasing with each day that passes without substantial nuclear arms control dialogues, preventive diplomacy and nuclear risk reduction measures.”

It supplements the Global Asia special issue on the Yoon intervention on ROK nuclear weapons and US deterrence found [here](#).

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Banner image: Yoon-Biden state dinner, White House video, [here](#)

## **II. NAPSNET POLICY FORUM ESSAY BY PETER HAYES**

### **DISSECTING THE WASHINGTON DECLARATION**

**APRIL 29, 2023**

The Washington Declaration issued on April 26 2023 at the conclusion of the Biden-Yoon summit contains five key elements.

#### **1. Biden threatens to eliminate (nuclear annihilate?) the DPRK regime**

Biden's threat to end the DPRK regime in response to a DPRK nuclear attack on the ROK was in the Declaration wherein he states “that any nuclear attack by the DPRK against the ROK will be met with a swift, overwhelming and decisive response.”[\[1\]](#)

In less scripted form, he repeated this threat in in response to a journalist's question.

Look, a nuclear attack by North Korea against the United States or its allies or partisans — partners — is unacceptable and will result in the end of whatever regime, were it to take such an action.[\[2\]](#)

Biden is ambiguous as to whether nuclear or conventional means would be used to “end...the whatever [sic, DPRK] regime.”

Scripted or not, Biden's threat recalls Trump's August 8 2017 threat to employ “fire and fury like the world has never seen” to counter the DPRK's nuclear threat.[\[3\]](#)

From DPRK perspective, Democrat, Republican, they both project a threat to annihilate the DPRK leadership. In the DPRK's corporatist system, the leader/regime is the same as the entire population. Intended or not, the perceived threat by North Koreans will be societal annihilation, not the “mere” elimination of the DPRK leadership.

## 2. End of nuclear and conflict resolution negotiations

The joint declaration states: ““In parallel, both Presidents remain steadfast in their pursuit of dialogue and diplomacy with the DPRK, without preconditions, as a means to advance the shared goal of achieving the complete denuclearization of the Korean Peninsula.”

In practice, the United States and the ROK have pursued a crime and punishment approach to negotiations with the DPRK aimed at isolating and sanctioning the regime into compliance with their demands while offering nothing in return. The predictable response is the DPRK’s fight and flight refusal to resume dialogue with the United States and the ROK.

Sole reliance on nuclear threat and military containment unaccompanied by engagement and meaningful diplomacy with adversaries is like trying to cut paper with a one-bladed scissors.

If Yoon had a strategic goal in declaring that nuclear weapons are a live policy option in January 2023,<sup>[4]</sup> this is it—to ensure that the United States does not resume dialogue with the DPRK, and for the moment, he has achieved it. There will be DPRK responses, at times with actions of their own choosing, and these will likely be aimed primarily at the ROK, not the United States. A possible early casualty will be military clashes that destroy the 2018 ROK-DPRK military agreement that maintained a relatively tranquil DMZ during the Moon Jae-In administration, what Yoon calls a “false peace.”<sup>[5]</sup>

## 3. US-ROK presidential hotline?

The commitment to consult after DPRK uses nuclear weapons is new but not really. First, it assumes the ROK president is still alive to consult after a DPRK nuclear attack on the ROK. Second, it applies only to DPRK use against the ROK, not DPRK use against the United States itself (for example, Guam), Japan, or someone else. The Declaration is explicit in this regard, stating that Biden says “any nuclear attack by the DPRK *against the ROK* will be met with a swift, overwhelming and decisive response.”

However, the commitment is only to make “every effort” which means the United States is free to do whatever it wants with nuclear weapons, irrespective of this “commitment.” In other words, empty words.

As a result of the declaration, there may be some upgrade in communications hardware between the ROK presidential office and the White House to make such a communication possible after a nuclear attack. Presumably this entails installing some form of secure and nuclear-hardened communication system, likely hooked into US Forces Korea’s (USFK) own nuclear command control and communications systems. Whether the ROK president’s wartime bunker at Yongsan base is hardened against direct nuclear blast damage and/or electromagnetic pulse from nuclear detonations is unknown. Possibly what’s envisioned is some form of ROK presidential mobile, videoconference-bandwidth, satellite hotline to a dedicated line in the White House or connected to a local US nuclear-hardened military communication system that might still be operating even after a nuclear attack, to connect back to US presidential command locations--or some other arrangement.

## 4. NATO-Style “Strategic scenario planning”

According to the declaration, “the Alliance will work to enable joint execution and planning for ROK conventional support to U.S. nuclear operations in a contingency and improve combined exercises and training activities on the application of nuclear deterrence on the Korean Peninsula.” The two

allies will create a Nuclear Consultative Group to enhance ROK understanding of US nuclear war planning.

This is not at all the same as NATO style “nuclear sharing” as suggested by ROK Deputy National Security Adviser, Kim Tae-hyo, who reportedly stated that the arrangement will make South Koreans “feel that they are sharing nuclear weapons with the United States.”<sup>[6]</sup> In fact, US National Security Council’s Ed Kagan stated: “So let me just be very direct. I don't think that we see this as a de facto nuclear sharing.”<sup>[7]</sup>

This joint commitment boils down to conducting a “high level” scenarios exercise in the form of a table top simulation run by STRATCOM, not specific targeting or operational matters. There are strict limits on what nuclear-arms related information including knowledge as well as operational details and hardware information can be shared with the ROK with a US-ROK program of cooperation agreement. The information will therefore be generic and the simulation similarly non-specific, broad-brush.

What may be new is increased attention to the role of ROK conventional military force supporting US nuclear operations although it’s unclear what difference this will make at an operational level. There is zero chance that ROK ASW would be involved in relation to supporting US SSBNs; and likely no role for the ROK in the unlikely event that US ICBMs or missile defense systems are involved in responding to a DPRK nuclear attack. If the DPRK used a submarine to launch the nuclear attack, ROK airborne and maritime ASW forces would be involved in finding and destroying them, but US nuclear operations would not be aimed at those platforms unless they fired from a port city in response to a nuclear attack by the DPRK on the ROK.

In reality, the only nuclear operations in which the ROK’s military might play a supporting role relate to US nuclear bombers. ROK KC-330 aerial tankers might be used to refuel US bombers as they approach the Korean peninsula, although this seems unlikely as very high degrees of interoperability are required in refueling operations. The other possible conventional aerial support might come from ROK fighter aircraft.

US strategic bombers rely on stealth not accompanying fighter protection. Indeed, having ROK fighter planes accompany US strategic bombers would tip off DPRK, Russian, and Chinese radars as to the presence of an otherwise invisible stealth bomber. The idea that ROK fighters would fly wingtip-guard each side of a US bomber is unrealistic. ROK planes and/or cruise missiles might be tasked with destroying DPRK radar and SAM sites so that US strategic bombers can fly unimpeded through entry corridors into the DPRK.

Such attacks might take place—assuming ROK airfields have not been destroyed in a DPRK nuclear attack--sometime in the 3-4 hours it takes for US planes to fly from Guam to DPRK (if the US bombers have been moved forward to Guam which is unlikely as they would be vulnerable on the ground with nuclear weapons) or within 10-12 hours before US strategic bombers flying from CONUS arrive in the vicinity of the DPRK.

However, this conventional role for ROK fighter and cruise missiles in attacking coastal radars and SAM sites assuredly is already a well-rehearsed role under the existing ROK “Kill Chain” posture as well as in the US-ROK Combined forces Command joint war-plans with USFK and the ROK military and is not an innovation resulting from the Joint Declaration.

It is unlikely that such entry corridor clearance missions would take place on the northern parts of the DPRK east and west coasts because such an angle of approach comes perilously close to Chinese and Russian borders and also entails additional flight time for the bombers to get to targets. Almost

certainly US strategic bombers would cross the coast somewhere well north of the DMZ and more or less opposite Pyongyang and Hamhung in the central coastal areas of the DPRK--well within range of ROK fighter-bombers and their standoff missiles—assuming the ROK planes still exist after a DPRK nuclear attack.

The DPRK knows this, so these coastlines are heavily fortified with radar and surface-air missiles, which is precisely what past US-ROK exercises flying offshore are intended to “light up” so that US signals intelligence can locate them ahead of time for targeting purposes.

In sum, the declaration’s “deeper, cooperative decision-making” boils down to slightly enhanced symbolic participation in nuclear “planning”—similar to NATO’s nuclear planning for the 31 non-nuclear NATO members that don’t have nuclear weapons and don’t have the nuclear-delivery role of the 5 NATO non-nuclear delivery states (Belgium, Germany, Italy, Netherlands, Turkey) that constitutes the core of “nuclear sharing.” The declaration made no change in how the United States shares nuclear weapons and operations with the ROK.

In sum, for all the verbiage and new entity, nothing substantively new to see here.

## 5. Nuclear Signaling[8]

In addition to the threat rhetoric from Biden and Yoon, reinforced symbolically with the “planning,” table top simulation, and more explicit formulation of a possible ROK air force role in US nuclear bomber operations in the DPRK, the only other “new” item is resumption of ballistic missile firing submarines (SSBN) visits. The last SSBN visits to the ROK were to Chinhae in 1981, see Table 1. Many US nuclear-capable aircraft have flown to and around Korea in the last few years, so that tempo is already high; US nuclear attack submarines have also made port visits, although not often. US ICBM tests have been calibrated briefly by postponement due to tension in Korea, but there are only two such tests each year, so using missile tests is difficult signal threat in a crisis is difficult in a timely manner. Redeployment of US nuclear weapons to Korea was explicitly ruled out by Biden.

Due to operational constraints and the vulnerability of US SSBNs in ROK port visits to Russian, Chinese, or DPRK attack, my best guess is that the United States will make one or two SSBN visits and then will return to its habitual mid-Pacific deployment to ensure that the SSBN retaliatory force is invulnerable. The timing would depend on having at least two such SSBNs deployed in the Pacific at the time of the visit, to ensure that no matter what happens to the ship visiting the ROK, the United States maintains its retaliatory capability in the Pacific at all times.

Table 1: 1981 US warship visits to the ROK

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●	SS	574	GRAYBACK	811108	811108	CHINHAE	KS	001.0
	SS	574	GRAYBACK	811113	811113	CHINHAE	KS	001.0
	SS	574	GRAYBACK	811203	811203	CHINHAE	KS	001.0
●	SS	574	GRAYBACK	811206	811208	CHINHAE	KS	003.0
	SS	580	BARBEL	810306	810307	CHINHAE	KS	002.0
	SS	580	BARBEL	810316	810316	CHINHAE	KS	001.0
●	SSBN	598	WASHINGTON G	810112	810116	CHINHAE	KS	005.0
	SSBN	601	LEE RE	810308	810311	CHINHAE	KS	004.0
	SSN	677	DRUM	811103	811104	CHINHAE	KS	002.0
●	SSN	684	CAVALLA	810702	810703	CHINHAE	KS	002.0
			TOTAL FOR PORT: CHINHAE				=	0022.0 SHIP DAYS
●	SS	574	GRAYBACK	810309	810310	PUSAN	KS	002.0
	SS	576	DARTER	810616	810616	PUSAN	KS	001.0
			TOTAL FOR PORT: PUSAN				=	0003.0 SHIP DAYS
●			TOTAL FOR COUNTRY				=	0025.0 SHIP DAYS
●	*****							

Source: US Navy, US nuclear warship visits 1981, computer printout, US FOIA release to Nautilus Institute.[9]

Note: The two SSBN visits on January 12-16 and March 8-11 may have been related to the Team Spirit exercise, and the sub-Team Spirit naval exercise Valiant Flex that year. At the time, the US had five Polaris missile SSBNs operating in the Pacific.

## 6. Conclusion

The ROK tail (Yoon's talk of nuclear proliferation) has wagged the American nuclear dog. His verbal antics in January 2023 about nuclear proliferation elicited enhanced "reassurance" in the form of restated generic nuclear commitment and an explicit US presidential threat to eliminate the DPRK, enhanced by a small, symbolic increase in access to nuclear war planning, buttressed by iconic signaling in the form of US SSBN visits (minor in the world of nuclear war), matched by a ROK recommittal to its NPT non-nuclear weapon state status.

In short, reversion to the status quo ante—a fact noted by South Korean conservatives calling for the ROK's independent nuclear armament after the declaration was issued.[10]

However, in inter-Korean relations, Yoon has unleashed the dogs of nuclear war on Kim Jong Un. Not only will nuclear diplomacy not occur during his tenure in the Blue House; but the stage is now set for increased DPRK nuclear threat and signaling aimed at the United States as well as fury focused on Yoon himself. For all the pomp, red carpet treatment and karaoke in Washington, Yoon was unable to change US nuclear policy in any substantive manner. In effect, the Washington Declaration is the reimposition of US nuclear policy whereby Washington pulled the ROK back into line and rebuked Yoon for his clownlike behavior in January.[11] Having proven that he has no real influence over American policy, the DPRK now has no reason to talk with him.

As has been the case for the last 3 decades, the United States and the DPRK will continue to use nuclear threat against each other for *compellence* (not deterrence purposes); and for *reassurance* by the United States of the ROK, not deterrence purposes. Nuclear extortion designed to force the other side to stop what they are already doing [that is, compellence] almost always has a bad outcome and undermines deterrence which remains based on each side's conventional sledgehammer. This is the cost of the reassurance provided to the ROK by the United States, such as it is.

Yoon's January 2023 nuclear proliferation demarche and the US response have made the peninsula, the region, and the world more insecure whilst doing nothing to actually reduce the risk of nuclear war posed by the DPRK's accelerating nuclear weapons program. The United States and its allies remain in strategic drift in Northeast Asia, and the risk of nuclear war—and its cataclysmic humanitarian consequences—are increasing with each day that passes without substantial nuclear arms control dialogues, preventive diplomacy and nuclear risk reduction measures.[12]

In this inter-Korean game of countervailing threat and escalation, Yoon has no cards left to play except making risky moves involving conventional forces on the western sea, overflights, or along the DMZ.

## ATTACHMENT

### Washington Declaration, April 26 2023[13]

President Joseph R. Biden of the United States of America and President Yoon Suk Yeol of the Republic of Korea (ROK) met on this 26<sup>th</sup> day of April, 2023 to mark the 70th anniversary of the U.S.-

ROK Alliance. The Alliance between our two nations has been forged in shared sacrifice, fortified by enduring security cooperation, and nourished by our close kinship that has enabled both countries to leverage their diplomatic resources to peaceably achieve crucial, strategic outcomes. What began as a security partnership has grown and expanded into a truly global Alliance that champions democratic principles, enriches economic cooperation, and drives technological advancements. Our Alliance has been tested many times, and in every instance we have risen to the occasion and responded to the changing threats on the Korean Peninsula and in the Indo-Pacific.

To commemorate this historic year for our Alliance, President Biden and President Yoon have committed to develop an ever-stronger mutual defense relationship and affirm in the strongest words possible their commitment to the combined defense posture under the U.S.-ROK Mutual Defense Treaty. The United States and the ROK are committed to peace and stability in the Indo-Pacific, and the measures we take together are in furtherance of that fundamental goal.

The ROK has full confidence in U.S. extended deterrence commitments and recognizes the importance, necessity, and benefit of its enduring reliance on the U.S. nuclear deterrent. The United States commits to make every effort to consult with the ROK on any possible nuclear weapons employment on the Korean Peninsula, consistent with the U.S. Nuclear Posture Review's declaratory policy, and the Alliance will maintain robust communication infrastructure to facilitate these consultations. President Yoon reaffirmed the ROK's longstanding commitment to its obligations under the Nuclear Nonproliferation Treaty as the cornerstone of the global nonproliferation regime as well as to the U.S.-ROK Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy. The Alliance commits to engage in deeper, cooperative decision-making on nuclear deterrence, including through enhanced dialogue and information sharing regarding growing nuclear threats to the ROK and the region. The two Presidents announced the establishment of a new Nuclear Consultative Group (NCG) to strengthen extended deterrence, discuss nuclear and strategic planning, and manage the threat to the nonproliferation regime posed by the Democratic People's Republic of Korea (DPRK). In addition, the Alliance will work to enable joint execution and planning for ROK conventional support to U.S. nuclear operations in a contingency and improve combined exercises and training activities on the application of nuclear deterrence on the Korean Peninsula. In keeping with the Presidents' commitments, the Alliance has established a new bilateral, interagency table-top simulation to strengthen our joint approach to planning for nuclear contingencies.

President Biden reaffirmed that the United States' commitment to the ROK and the Korean people is enduring and ironclad, and that any nuclear attack by the DPRK against the ROK will be met with a swift, overwhelming and decisive response. President Biden highlighted the U.S. commitment to extend deterrence to the ROK is backed by the full range of U.S. capabilities, including nuclear. Going forward, the United States will further enhance the regular visibility of strategic assets to the Korean Peninsula, as evidenced by the upcoming visit of a U.S. nuclear ballistic missile submarine to the ROK, and will expand and deepen coordination between our militaries. Furthermore, the United States and ROK will strengthen standing bodies for consultations on extended deterrence, including the Extended Deterrence Strategy and Consultation Group, to better prepare the Alliance to defend against potential attacks and nuclear use and conduct simulations to inform joint planning efforts. President Yoon affirmed that the ROK will apply the full range of its capabilities to the Alliance's combined defense posture. This includes working in lockstep with the United States to closely connect the capabilities and planning activities of the new ROK Strategic Command and the U.S.-ROK Combined Forces Command. Such activities will include a new table-top exercise conducted with U.S. Strategic Command.

In view of these critical developments, President Biden and President Yoon send a firm message to the international community that the United States and the ROK will stand together in the face of any and all threats to their shared security, and continue their close consultations on further steps to strengthen extended deterrence. In parallel, both Presidents remain steadfast in their pursuit of dialogue and diplomacy with the DPRK, without preconditions, as a means to advance the shared goal of achieving the complete denuclearization of the Korean Peninsula.

### III. ENDNOTES

[1] “Washington Declaration,” White House, April 26, 2023, at:

<https://www.whitehouse.gov/briefing-room/statement-releases/2023/04/26/washington-declaration-2/>

[2] P. Baker, D. Sanger, “Deterrence, Biden Vows ‘End’ of North Korean Regime if It Attacks,” *New York Times*, April 26, 2023, at: [https://www.nytimes.com/2023/04/26/us/politics/biden-south-korea-state-visit.html?utm\\_source=AM+Nukes+Roundup&utm\\_campaign=b2fe188e-9-](https://www.nytimes.com/2023/04/26/us/politics/biden-south-korea-state-visit.html?utm_source=AM+Nukes+Roundup&utm_campaign=b2fe188e-9-EMAIL_CAMPAIGN_2018_07_25_12_19_COPY_01&utm_medium=email&utm_term=0_547ee518ec-b2fe188ee9-391728633)

[EMAIL\\_CAMPAIGN\\_2018\\_07\\_25\\_12\\_19\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_547ee518ec-b2fe188ee9-391728633](https://www.nytimes.com/2023/04/26/us/politics/biden-south-korea-state-visit.html?utm_source=AM+Nukes+Roundup&utm_campaign=b2fe188e-9-EMAIL_CAMPAIGN_2018_07_25_12_19_COPY_01&utm_medium=email&utm_term=0_547ee518ec-b2fe188ee9-391728633)

[3] P. Baker, S.H. Choe, “Trump Threatens ‘Fire and Fury’ Against North Korea if It Endangers U.S.,” *New York Times*, August 8, 2017, at: <https://www.nytimes.com/2017/08/08/world/asia/north-korea-un-sanctions-nuclear-missile-united-nations.html>

[4] S.H. Choe, “In a First, South Korea Declares Nuclear Weapons a Policy Option,” *New York Times*, January 12, 2023, at: <https://www.nytimes.com/2023/01/12/world/asia/south-korea-nuclear-weapons.html>

[5] M. Gordon, “U.S., South Korea Pledge Cooperation on Potential Use of Nuclear Arms; Seoul agrees not to develop its own arsenal while gaining more of a say in planning response to North Korea,” *Wall Street Journal Online*, April 27, 2023, at: <https://www.wsj.com/articles/u-s-south-korea-pledge-cooperation-on-potential-use-of-nuclear-arms-eeeecec9>

[6] “Washington Declaration will help deter NK threat but not 'nuclear sharing' agreement: US official,” *Yonhap via The Korea Times*, April 28, 2023, at: [https://www.koreatimes.co.kr/www/nation/2023/04/120\\_349974.html](https://www.koreatimes.co.kr/www/nation/2023/04/120_349974.html)

[7] “Washington Declaration will help deter NK threat but not 'nuclear sharing' agreement: US official,” *Yonhap via The Korea Times*, April 28, 2023, at: [https://www.koreatimes.co.kr/www/nation/2023/04/120\\_349974.html](https://www.koreatimes.co.kr/www/nation/2023/04/120_349974.html)

[8] Nuclear threat refers herein to the use of any medium to convey a threat of nuclear attack against an adversary. One such medium is variation of nuclear force deployments by alert levels, force dispersion, or other displays of nuclear forces, referred to as “signaling” in contrast to rhetorical threats (leadership rhetoric, declaratory or operational doctrines, etc.)

[9] US Navy, US Warship visits, 1981, computer printout, US FOIA release to Nautilus Institute, at: <https://nautilus.org/wp-content/uploads/2023/04/1199-Port-Visits-in-PACOM.pdf>

[10] J. Smith, “Analysis: Calls for South Korean nuclear arsenal unlikely to fade despite US deal,” *Reuters*, April 27, 2023, at: <https://www.reuters.com/world/calls-south-korean-nuclear-arsenal-unlikely-fade-despite-us-deal-analysts-say-2023-04-27/>

[11] Peter Hayes, “The Long Saga of Nuclear ‘Vortex Politics’ in Korea,” *Global Asia*, 18:1, March 31, 2023, at: [https://www.globalasia.org/v18no1/cover/the-long-saga-of-nuclear-vortex-politics-in-korea\\_peter-hayes](https://www.globalasia.org/v18no1/cover/the-long-saga-of-nuclear-vortex-politics-in-korea_peter-hayes)

[12] D. von Hippel, E. Lisowski, P. Hayes, S. Shetty, T. Suzuki, F. Yoshida, M. Nishida, S. Freedkin, “HUMANITARIAN IMPACTS OF NUCLEAR WEAPONS USE IN NORTHEAST ASIA: IMPLICATIONS FOR REDUCING NUCLEAR RISK”, NAPSNet Special Reports, March 31,



2023, <https://nautilus.org/napsnet/napsnet-special-reports/humanitarian-impacts-of-nuclear-weapons-use-in-northeast-asia-implications-for-reducing-nuclear-risk/>

[13] “Washington Declaration,” White House, April 26, 2023, at: <https://www.whitehouse.gov/briefing-room/statements-releases/2023/04/26/washington-declaration-2/>

#### **IV. NAUTILUS INVITES YOUR RESPONSE**

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