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The United States and Greenland, Part I: Episodes in Nuclear History 1947-1968

The nuclear-armed B-52 that crashed in January 1968 was secretly monitoring the Ballistic Missile Early Warning System (BMEWS) site at Thule Air Base, Greenland, pictured here in November 1961. (NARA Still Picture Unit, RG 342B, box 1452)

Greenland “Green Light”: Danish PM’s Secret Acquiescence Encouraged U.S. Nuclear Deployments

Pentagon Approved Nuclear-Armed B-52 Flights Over Greenland

State Department: U.S. Can Do “Almost Anything, Literally, That We Want to in Greenland”

Danish Officials Worried About Danger of U.S. Nuclear Accidents

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Subjects: **Nuclear Proliferation and Accidents**
Nuclear Strategy and Weapons
Weapons of Mass Destruction

Regions: **Arctic**

Project: **Nuclear Vault**

*Depiction of B-52 bomber crash in Greenland, 21 January 1968, with commentary by nuclear experts. Excerpted from Sandia National Laboratory documentary, **Always/Never: The Quest for Safety, Control and Survivability** (2010).*

*CIA map from 1949 depicting Greenland's "strategic areas and their approaches." The three "primary" strategic areas -- Thule, Sonde Strom, and Narssarssuaq -- would be treated as "Defense Areas" set aside for U.S. use in the 1951 agreement for the "Defense of Greenland." (Source: **National Archives Catalog**)*

*Danish Prime Minister Hans Christian Hansen, who, in November 1957, gave what U.S. officials interpreted as a "green light" to deploy nuclear weapons in Greenland. (Photo from **Wikipedia**)*

U.S. Ambassador Val Peterson made the approach to Hansen about U.S. interest in nuclear deployments in Greenland (Photo from U.S. National Archives Still Picture Unit, RG 59-SO, box 12)

A 1974 Air Force photo of a Distant Early Warning (DEW) Line site in northern Greenland, used to provide warning of bomber incursions across the Arctic. (Photo from NARA Still Picture Unit, RG 342B, box 920)

A January 1961 aerial view of the BMEWS site at Thule Air Base as work on it was nearing completion. According to the caption, "the scanner and transmitter-computer buildings are connected by covered passages, a protective measure against the severity of Arctic weather." (NARA Still Picture Unit, RG 342B, box 1452)

*A 1966 Air Force training film, "BMEWS Mission: The Men of the TOR [Tactical Operations Room]," representing the daily routine at the Thule site. [Document 5 in **EBB 825**]*

A map showing U.S. airborne alert routes as of June 1964, including the "Hard Head" routes that provided B-52 surveillance of the BMEWS site at Thule Air Base. (Excerpted from Document 16)

Washington, D.C., June 3, 2025 - The Trump administration's intention to acquire Greenland, including **possibly by force**, has put a focus on the history of its strategic interest to U.S. policymakers. Today, the National Security Archive publishes the first of a two-part declassified document collection on the U.S. role in Greenland during the middle years of the Cold War, covering the decisions that led to the secret deployment of U.S. nuclear weapons in the Danish territory in 1958 to the 1968 crash of a nuclear-armed B-52 bomber near Thule Air Base that left plutonium-laced debris scattered across miles of Arctic sea ice.**[1]**

The radioactive mess caused by the accident required a major clean-up and caused a serious controversy in U.S.-Denmark relations. The U.S. had never officially told Denmark that it was flying nuclear weapons over Greenland, although Danish officials suspected it; nor had the U.S. informed the Danes that it had once stored nuclear weapons in Greenland, although in 1957 they had received a tacit "green light" to do so from the Danish prime minister, according to documents included in today's posting. But both the nuclear-armed overflights of Greenland and the storage of nuclear weapons there were in strong contradiction to Denmark's declared non-nuclear policy. When the bomber crash exposed the overflights, Denmark tried to resolve the conflict by seeking a U.S. pledge that Greenland would be nuclear free.

This new publication revisits the nuclear and strategic history of the United States and Greenland as it emerged during the late 1940s through the crash in 1968, highlighting key declassified documents from the archival record, FOIA releases, the Digital National Security Archive (DNSA), and other sources. The analysis draws on the work of U.S. and Danish scholars who have written about the B-52 crash and the

history of the U.S., Denmark, and Greenland during the Cold War, including revelations in the 1990s that prompted Danish experts to revisit the historical record.[2]

Part I, below, looks at U.S. strategic interests in Greenland in the early Cold War period, including Danish government acquiescence to the storage of nuclear weapons there, U.S. nuclear-armed airborne alert flights over Greenland, and the 1968 B-52 crash. Part II will document the aftermath of the accident, including the clean-up of contaminated ice, the U.S.-Denmark government nuclear policy settlement, and the failed search for lost nuclear weapons parts deep in the waters of North Star Bay.

Background

Greenland has been seen as an important strategic interest to United States defense officials and policymakers since World War II. After the fall of France in June 1940, the Nazis seized Denmark, and the Roosevelt administration feared that Germany would occupy Greenland, threatening Canada and the United States. In response, the U.S. insisted that Greenland was part of the Western Hemisphere and thus a territory that had to be “**assimilated** to the general hemispheric system of continental defense.” The U.S. began talks with Danish Ambassador Henrik Kauffmann, who was acting on his own authority as “leader of the Free Danes” and in defiance of the German occupiers. On 9 April 1941, Kauffmann **signed** an extraordinary **agreement** with Washington giving the United States almost unlimited access to build military facilities in Greenland and would remain valid as long as there were “dangers to the American continent,” after which the two parties could modify or terminate it. By the end of World War II, the U.S. had 17 military facilities in Greenland. After the liberation of Denmark from German rule, the Danish Parliament **ratified** the Kauffmann-U.S. agreement on 23 May 1945, but it assumed its early termination, with Denmark taking over Greenland’s defense.[3]

In 1946, the Truman administration gave brief consideration to buying Greenland because it continued to see it as important for U.S. security.[4] During 1947, with the U.S. beginning to define the Soviet Union as an adversary, defense officials saw Greenland as an important “primary base,” especially because they were unsure about long-term access to Iceland and the Azores.[5] Thus, maintaining U.S. access was an important concern, as exemplified in an early National Security Council report that U.S. bases in Greenland, along with Iceland and the Azores, were of “extreme importance” for any war “in the next 15 or 20 years.” For their part, Danish authorities had no interest in selling Greenland but sought to restore their nation’s sovereignty there; having joined NATO, they dropped their traditional neutrality approach and were more willing to accept a limited U.S. presence. In late 1949, the U.S. and Denmark opened what became drawn out negotiations over Greenland; during 1950, the U.S. even returned some facilities to Denmark, including Sandrestrom air base. But in late 1950, with Cold War tensions deepening, the Pentagon gave the negotiations greater priority, seeking an agreement that would let the U.S. develop a base at Thule as part of an air strategy designed to reach Soviet targets across the Arctic.[6]

In April 1951, the two countries reached an **agreement** on the “defense of Greenland” that superseded the 1941 treaty, confirmed Danish sovereignty, and delineated three “defense areas” for use by the United States, with additional areas subject to future negotiations. Under the agreement, each signatory would “take such measures as are necessary or appropriate to carry out expeditiously their respective and joint responsibilities in Greenland, in accordance with NATO plans.” Consistent with that broad guidance, the U.S. would be free to operate its bases as it saw fit, including the movement of “supplies,” and with no restrictions on its access to airspace over Greenland. With this agreement, Washington had achieved its overriding security goals in Greenland. To move the agreement through Parliament, the Danish government

emphasized its defensive character, although the negotiators and top officials understood that U.S. objectives went beyond that.[7]

In 1955, a few years after the 1951 agreement, the Joint Chiefs of Staff tried to revive interest in purchasing Greenland to ensure U.S. control over the strategically important territory and without having to rely on an agreement with another government. But the JCS proposal never found traction in high levels of the Eisenhower administration. The State Department saw no point to it, since the United States was already “permitted to do almost anything, literally, that we want to in Greenland.” The 1951 agreement stayed in place for decades. Denmark and the United States finally **modified** it in 2004, limiting the “defense area” to Thule Air Base and taking “Greenland Home Rule” more fully into account.

Nuclear Issues

When the U.S. negotiated the 1951 agreement, nuclear deployments were not an active consideration in official thinking about a role for U.S. bases for Greenland. Yet by 1957, when U.S. government agencies, including the State Department, became interested in deploying nuclear bombs at Thule, they used the agreement’s open-ended language to justify such actions. According to an August 1957 letter signed by Deputy Under Secretary of State Robert Murphy, the Agreement was “sufficiently broad to permit the use of facilities in Greenland for the introduction and storage of [nuclear] weapons.” The problem was to determine whether Danish leaders would see it that way.

While Defense Department officials were willing to go ahead on the deployments without consulting the Danish Government, Murphy thought it best to seek the advice of the U.S. ambassador, former Nebraska Governor Val **Peterson**. Peterson recommended bringing the question to Danish authorities and, having received the Department’s approval, in mid-November 1957 he asked Prime Minister Hans Christian **Hansen** if he wished to be informed about nuclear deployments. By way of reply, Hansen handed Peterson a “vague and indefinite” paper that U.S. and Danish officials interpreted as a virtual “green light” for the deployments. Hansen raised no objections, asked for no information, and tacitly accepted the U.S. government’s loose interpretation of the 1951 agreement. He insisted, however, that the U.S. treat his response as secret because he recognized how dangerous it was for domestic politics, where anti-nuclear sentiment was strong, and for Denmark’s relations with the Soviet Union, which would have strongly objected.[8]

When Prime Minister Hansen tacitly approved the deployment of U.S. nuclear weapons in Greenland, he was initiating what Danish scholar Thorsten Borring Olesen has characterized as a “double standard” nuclear policy. On the one hand, in a May 1957 address, Hansen had stated that the government would not receive nuclear weapons “under the present conditions.” Thus, Denmark abstained from NATO nuclear storage and sharing plans as they developed in the following years. On the other hand, the Danish leadership treated Greenland differently with respect to nuclear weapons even though, as of 1953, it was no longer a colony but a **county** represented in Parliament. This double standard was not necessarily a preference for Denmark’s leaders but they felt constrained by the need to accommodate U.S. policy goals in Greenland. Thus, by keeping their Greenland policy secret, Hansen and his successors kept relations with Washington on an even keel while avoiding domestic political crises and pressure from the Soviet Union.[9]

In 1958, the Strategic Air Command deployed nuclear weapons in Greenland, the details of which were disclosed in a **declassified** SAC history requested by **Hans Kristensen**, then with the Nautilus Institute. According to Kristensen’s research and the Danish study of “Greenland During the Cold War,” during 1958 the U.S. deployed four nuclear weapons in Greenland—two Mark 6 atomic bombs and two MK 36 thermonuclear bombs as well as 15 non-nuclear components. That SAC kept bombs there for less than a

year suggests that it did not have a clear reason to continue storing them in Greenland. Nevertheless, the U.S. kept nuclear air defense weapons at Thule: 48 nuclear weapons were available for Nike-Hercules air missiles through mid-1965. There may also have been a deployment of nuclear weapons for Falcon air-to-air missiles through 1965, but their numbers are unknown.[10]

Airborne Alert and the January 1968 Crash

If it had only been an issue of the U.S. storing nuclear weapons on the ground in Greenland for a few years, the matter might have been kept under wraps for years. But the crash of a U.S. Air Force B-52 on 21 January 1968 near Thule Air Base exposed another nuclear secret and caused serious difficulties in U.S.-Denmark relations. While the bomber crash was quickly overshadowed by North Korea's seizure of the U.S.S. *Pueblo* the next day and the Tet offensive that began on 30 January, the coincidence of the three events was a major crisis for the overextended U.S.[11]

Beginning in 1961, accident-prone B-52s were routinely flying over Thule because Greenland had become even more salient to U.S. national security policy. To warn the U.S. of incoming bombers, the Air Force had deployed Distant Early Warning Line radar stations across Alaska and northern Canada during the 1950s and extended them to Greenland in 1960-1961. The Air Force also deployed the Ballistic Missile Early Warning System (BMEWS), with a site located near Thule Air Base in 1960. With BMEWS, the U.S. would receive 15 minutes of warning of a ballistic missile launch.

The warning time was important for U.S. Strategic Air Command (SAC) because it provided the opportunity to launch ground alert bomber forces in the event of an attack. But the possibility of an ICBM strike on U.S. airbases also helped inspire the emergence of airborne alert, whereby SAC kept nuclear-armed B-52s in the air 24 hours a day, ready to move on Soviet targets in the event of war. SAC began to test airborne alert in the late 1950s, and the flights soon became routine. By 1961, SAC had initiated "Chrome Dome," with 12 B-52s flying two major routes, a Northern Route over North America and a Southern Route across the Atlantic. While SAC leaders used strategic arguments to justify airborne alert, they also had a parochial interest because it kept bombers in the air, giving pilots even more training.[12]

Airborne alert converged with Greenland in August 1961, when SAC and the Joint Chiefs of Staff approved a plan for two B-52 sorties a day to fly over the BMEWS site at Thule. Given the major importance of the BMEWS site, if the Soviets knocked it out in a surprise attack, they could disrupt U.S. early warning capabilities. Thus, SAC insisted on visual observation so that the B-52 crew could check whether the site was intact in the event there were failures in the communications links between Thule and the North American Air Defense Command in Colorado. SAC's BMEWS Monitor was a routine operation for years, even after the B-52 crash in Palomares, Spain, led to decisions to scale back on airborne alert. Secretary of Defense Robert McNamara wanted to end the program altogether but accepted a JCS compromise proposal for fewer sorties.

Danish military personnel and others nearby were aware of the daily B-52 flights. Moreover, every year there were emergency landings by U.S. bombers, with three in 1967 alone. After a nuclear-loaded B-52 crashed in western Maryland in January 1964, **Eske Brun**, Denmark's Under Secretary for Greenland, wondered whether the B-52s flying over Thule carried nuclear weapons and asked U.S. Ambassador William McCormick Blair about the possibility of an accident. Blair suggested that such an "unfortunate" occurrence would be the price of defending the "free world" and that the flights were consistent with the 1951 agreement. The Danes held internal discussions about whether there were any restrictions on U.S. flights over Greenland and decided not to pursue the matter.

According to Scott Sagan, the January 1968 crash was a “normal accident waiting to happen.” The heating system failed on a bomber carrying four nuclear weapons over Thule, causing foam rubber cushions placed under the seats to catch fire. The crew could not extinguish the flames and bailed out after determining that an emergency landing was impossible, with all but one of the seven crew members surviving. While the nuclear weapons carried on the plane did not detonate when the B-52 crashed on **Wolstenholme Fjord**, near North Star Bay, conventional high explosives carried in the bombs did, causing plutonium contaminated aircraft parts and bomb debris to scatter about the ice for miles.^[13]

To recover what they could of the bombs and assess the contamination, SAC sent an emergency team to Thule, including officials from the Atomic Energy Commission (AEC). All of this occurred under incredibly difficult conditions, sub-zero temperatures, and winter arctic darkness. Danish officials joined in the effort, although they would not take part in the bomb-salvaging activity. While SAC’s disaster team discovered most of the bomb parts after the accident, it could not find some of the important pieces, which eventually necessitated an underwater search. An equally significant problem was the possible risk to the local ecology from plutonium contamination, including its impact on Inuit hunters. U.S. officials had to find a way to clean up the icy mess quickly and in a way that was satisfactory to Danish authorities.

Immediately after the accident, JCS Chair Earle Wheeler and Secretary of Defense Robert McNamara ordered nuclear-armed airborne alert flights to end. SAC would continue the BMEWS Monitor using KC-135 tanker aircraft, but that ended that April 1968 when the flights were switched to the BMEWS site in Clear, Alaska. BMEWS, including the site at Thule, remained a U.S. strategic asset until 2001, when the Air Force replaced it with the **Solid State Phase Array Radar System**.

Soon after the accident, the Danish Foreign Ministry issued a statement that included this language: “Danish policy regarding nuclear weapons also applies to Greenland and also to air space over Greenland. There are no nuclear weapons in Greenland.” With this statement, the Government of Denmark was beginning to abandon the “double standard” by moving toward a consistent no nuclear policy. How Danish authorities worked with Washington to confirm this policy goal will be the subject of Part II.

The crash of the B-52 was no secret in Denmark, but the fact that airborne alert flights over Greenland were routine during the 1960s did not reach public attention until the early 1990s. Prompted by the revelations, the Danish Government asked the U.S. government for more information, which led the State Department to disclose to the Danish government in July 1995 that the U.S. had deployed nuclear bombs and air defense weapons in Greenland during 1958-1965. The State Department letter was secret, but its contents began to leak. The preceding month, the Danish government had released information on the Hansen paper, creating a political scandal and prompting calls for an investigation of the historical record.

The Danish Institute of International Affairs sponsored the research and published its report in 1996, *Grønland under den kolde krig: Dansk og amerikansk sikkerhedspolitik 1945–1968* [Greenland During the Cold War: Danish and American Security Policy 1945-1968]. The report, which included a full reproduction of the Hansen paper, among other revelations, disclosed much of this once-hidden history.^[14]

Nevertheless, significant State Department and U.S. Embassy records remain classified and have been the subject of declassification requests by National Security Archive to the U.S. National Archives.

THE DOCUMENTS

I. Context

Document 1

NSC 2/1, "A Report to the President by the National Security Council on Base Rights in Greenland, Iceland, and the Azores," 25 November 1947, Top Secret

Nov 25, 1947

Source: U.S. National Archives, Records of the Department of State, Record Group 59 (RG 59), Executive Secretariat, Records Relating to National Security Council Policy Papers, 1947-1979, Box 1, Unlabeled File

One of the earliest NSC policy papers, NSC 2/1 spelled out why U.S. defense officials sought base rights on islands in the North Atlantic. Both Greenland and Iceland, along with the Azores, were of "extreme importance" for any war "in the next 15 or 20 years." They would serve as bases for "offensive operations," such as "staging of air transport and combat aircraft." Moreover, because Greenland "lies astride the most probable route of enemy attack... it would certainly form a most desirable part" of an air defense system that could include bases for interceptors and "early warning" facilities. Greenland was also important as an "area to be denied" to an enemy. "We certainly could not allow an enemy to gain a foothold in this region."**[15]**

Greenland's strategic value created some interest in the Truman administration for a purchase arrangement, but the Danish government would not consider it. Indeed, believing that the threat to the Americas had passed and that the 1941 agreement gave the U.S. too much freedom of action in Greenland, Denmark was interested in abrogating it, which would have required the withdrawal of U.S. forces within 12 months. To balance the interests of both countries, the United States was interested in negotiating a new agreement that would confirm Danish sovereignty and consider "legitimate U.S. and hemispheric defense requirements." An interagency committee was developing a proposed agreement, but it took some years to achieve.

Document 2

Central Intelligence Agency, Office of Current Intelligence, Daily Digest, 18 April 1951, Top Secret, excerpt

Apr 18, 1951

Source: CIA FOIA Collection

By late 1950, intensified Cold War tensions heightened U.S. interest in reaching an agreement on Greenland. The U.S. Air Force leadership, worried about the vulnerability of other U.S. overseas air bases, began to assign priority to developing a base in northwestern Greenland to support a "Polar Strategy" for targeting the Soviet Union if war broke out. Cold War tensions had encouraged Denmark to abandon its traditional neutrality policy by signing the North Atlantic Treaty, and it dropped any thought of abrogating the 1941 agreement. With the improvement in U.S.-Denmark security relations and the escalation of world tensions after the outbreak of war in Korea, a base at Thule became a priority to Washington. After secret negotiations in Copenhagen, the U.S. and Denmark reached an **agreement** on "The Defense of Greenland" in April 1951 that met U.S. interests in providing wide scope for developing and operating defense facilities in

specified areas of Greenland, including Thule. At the same time, the agreement affirmed Danish sovereignty, brought an end to the 1941 agreement, and put the U.S.-Denmark relationship on a somewhat more even basis.^[16]

As CIA analysts noted, the “technical schedule” defining territory in northern Greenland available to the United States would remain secret. According to the analysts, “The Danish Government is very sensitive with respect to Greenland... This extreme caution on the Government’s part is due partly to fear of providing grounds for Soviet protests and partly to a desire not to excite ‘neutrality’ elements in Denmark.” Copenhagen had some leverage of its own and worked to ensure that the agreement met important interests.

Document 3

“Technical Schedule” to U.S.-Denmark Agreement for the Defense of Greenland, 27 April 1951, Top Secret

Apr 27, 1951

Source: RG 59, Central Decimal Files, Box 3783, 759A.5

This supplemental agreement demarcated the “defense areas” in which the U.S. would be free to develop and operate military bases. The main areas were Narsarsuaq, which had been the site of a U.S. air base since 1941, Sondrestrom, which the U.S. saw as a support base during the construction of Thule, and the area around Thule.^[17] The information was secret, most likely to minimize political debate in Denmark and Soviet knowledge of U.S. military interests. Under the 1951 agreement, if the U.S. sought additional territory for installing military facilities, it would have to reach an agreement with Denmark to do so.

Document 4

Memorandum for the Secretary of Defense from JCS Chairman Arthur Radford, “Possible Acquisition of Greenland by the United States,” 21 January 1955, Top Secret

Jan 21, 1955

Source: Dwight D. Eisenhower Library, DDE’s Papers as President, Administration Series, Box 40, Wilson Charles 1955 (3)

A Joint Chiefs of Staff policy paper from early 1955 spoke to the continuing U.S. government strategic interest in Greenland as defense officials had perceived it since World War II: as a base for “offensive air operations” but also a site for warning systems. Thus, the “large U.S. Air Force base at Thule provides an intermediate staging area for continental and Alaskan-based units” of the Strategic Air Command. If the U.S. lost access to other “forward air bases ... the importance of Greenland to the air offensive would increase correspondingly.”

To Secretary of Defense Charles Wilson's query as to whether it would be to the U.S. military advantage to acquire title to Greenland, Radford answered that the Chiefs "believe it to be axiomatic that sovereignty provides the firmest basis of assuring that a territory and its resources will be available for military use when needed" and that U.S. "sovereignty over Greenland would remove any doubt as to the unconditional availability of bases." Radford acknowledged that the Chiefs "recognize that there are political and economic problems involved which they are not in a position to assess."

Document 5

Memorandum from the Secretary of Defense to President Eisenhower, "Possible Acquisition of Greenland by the United States," 27 January 1955, Top Secret

Jan 27, 1955

Source: Dwight D. Eisenhower Library, DDE's Papers as President, Administration Series, Box 40, Wilson Charles 1955 (3)

The Secretary of Defense forwarded the 21 January JCS memo (Document 4) to President Eisenhower. Seeing no hurry to deal with the issue, but probably wanting to reply, a few weeks later, he asked that the memo be forwarded to Secretary of State John Foster Dulles for comment.

Document 6

Mr. Kerrigan to BNA [Bureau of European Affairs, Office of Northern European Affairs] - Robert Brandin, "Addendum to Briefing Notes on Greenland," 7 August 1959, Secret

Aug 7, 1959

Source: RG 59, Bureau of European Affairs, Office of Northern European Affairs, Records Relating to Greenland, 1952-1970, box 1, ORG – Organization and Administration Memos 1959

The State Department's response to Admiral Radford's query has not yet surfaced, but those involved did not forget it. According to this note on the "Purchase of Greenland" by Northern European Affairs desk officer William M. Kerrigan, "our view [was] that the time was long past when such a plan would be feasible." It would raise serious constitutional problems for Denmark because "Greenland is, under the Constitution of [1953], an integral part of Denmark, just as much as the State of New Jersey is an integral part of the United States." In addition, Greenland was psychologically important to Denmark, where there was "general ... sensitivity to threats to its sovereignty." Finally, an attempt to purchase Greenland "could be extremely dangerous for the retention of our activities there, and could hardly improve our status, since we are permitted to do almost anything, literally, that we want to."

II: "Green Light" for Nuclear Deployments in Greenland

Document 7

Deputy Under Secretary of State Robert Murphy to Assistant Secretary of Defense Mansfield Sprague, 23 August 1957, Top Secret

Aug 23, 1957

Source: RG 59, Records of Special Assistant to the Secretary of State for Atomic Energy Matters, Country and Subject Files, box 2, II- A-NN Greenland

William Kerrigan may have had nuclear weapons in mind when he wrote (in Document 6 from this EBB) that the U.S. was allowed to do “almost anything” it wanted to do in Greenland. The 1951 agreement included language about the U.S. ability to “store” supplies, but did not refer specifically to nuclear weapons. With the Defense Department seeking to deploy nuclear weapons to Greenland for SAC operations and air defense purposes, senior State and Defense Department officials discussed whether and how to inform the Danish government. The Defense Department was willing to go ahead without asking. While the State Department interpreted the 1951 agreement as “sufficiently broad” to permit the storage of nuclear weapons, it asked the U.S. Embassy in Copenhagen for its views on consulting the Danish government. The Embassy recommended asking the Foreign Office’s Political Director whether the government wanted to know.

It is far from clear exactly why SAC wanted to store nuclear weapons in Greenland; the documents are not available. Possible reasons include: supporting emergency deployments of B-47 bombers to carry the weapons during an offensive, having bombs available for re-strike missions, and the fact that having bombs on base was SAC’s standard procedure. Also possibly salient was that, by 1957, the U.S. was seeking nuclearization of NATO, which involved the deployment of a wide range of delivery systems on alliance territory.[18]

Document 8

Philip J. Farley, Special Assistant to the Secretary of State for Atomic Energy, to Ambassador Val Peterson, 22 October 1957, Top Secret

Oct 22, 1957

Source: RG 59, Records of Special Assistant to the Secretary of State for Atomic Energy Matters, Country and Subject Files, box 2, II- A-NN Greenland

State Department official Philip J. Farley sought the views of U.S. Ambassador Val Peterson on whether to “inquire informally” with Danish foreign office officials about storing nuclear weapons at Thule. Noting that the Defense Department opposed any prior approach to the Danish Government, Farley said “we are inclined to agree that it probably would be better simply to take the action without creating the opportunity (or, in view of public sentiment, perhaps the necessity) for the Danish Government to raise some objection.” To better determine the best approach, Farley asked Peterson what he would recommend. Because the Pentagon wanted to move promptly on the deployments, once it started doing so, Peterson could, if he thought it was “advisable to do so ... inform appropriate Danish officials in the manner you thought best.” In

any event, Farley writes, “the fact that the necessary storage facilities are ready should reduce to a minimum the likelihood of particular notice being taken of our action.”

Document 9

U.S. Embassy Denmark Telegram 419 to Department of State, 18 November 1957, Top Secret Nov 18, 1957

Source: Excerpted from State Department Historical Research Project No. **1421**, Nuclear Accidents at Palomares, Spain, in 1966, and Thule Greenland in 1968, prepared by James E. Miller, Office of the historian, 1985 (MDR release by State Department)

The State Department’s consultations with Ambassador Peterson concluded that it was best to “make a very private and informal approach to the Danish Government.” The Department authorized him to ask Prime Minister H.C. **Hansen**, who also was the Foreign Minister, whether he wanted to be “informed in the event that the United States should place nuclear weapons in Greenland.” Peterson met with Hansen on 13 November, where he brought up the proposed deployment, and then met with him again on 18 November, where the Prime Minister replied with the following “informal written statement”:

“During your visit here some days ago you made some remarks about the possible storing of supplies of munitions of a special kind in the defence areas in Greenland.

I gathered that your Government did not see any problem in this matter, which in its opinion was covered by the Agreement of April 27, 1951, according to which each Government will take such measures as are necessary to carry out their responsibilities in Greenland and the US Government is entitled to store supplies, provide for the protection of the area, etc. and all materials, supplies, etc. shall be permitted entry into Greenland free of inspection.

*You did not submit any concrete plan as to such possible storing, nor did you ask questions as to the attitude of the Danish Government to this item. I do not think that your remarks give rise to any comments from my side.”***[19]**

In his telegram about the meeting, Hansen did not include the text of the paper (which so far has shown up only in Danish archives) but briefly summarized the gist of the discussion. Treating Hansen’s paper as an implicit go-ahead, Peterson observed that, with this exchange, “we have now fulfilled our obligation to Prime Minister.” He further noted that Hansen was “adamant that there should be no publicity of any kind now or later.” Peterson urged that “every effort be made to avoid leak.”

Whether Hansen had in mind a “green light” or an “indirect acceptance” of a U.S. right to deploy the weapons, his insistence on keeping his paper secret showed recognition of its danger. He had raised no objections to the proposed deployment and had not asked for any details. Any publicity would have invited a strong Soviet reaction and blown apart the coalition government that was ruling Denmark.**[20]**

Document 10

Deputy Under Secretary of State Robert Murphy to Assistant Secretary of Defense Mansfield Sprague, 26 November 1957, Top Secret

Nov 26, 1957

Source: RG 59, Records of Special Assistant to the Secretary of State for Atomic Energy Matters, Country and Subject Files, box 2, II- A-NN Greenland

Murphy informed Sprague of Ambassador Peterson's conversation with Prime Minister Hansen. Seeing Hansen's statement as permission to "go ahead," Murphy recommended taking "every precaution" to protect knowledge of the deployments in Greenland.

Document 11

John Foster Dulles, Memorandum of Conversation with Prime Minister Hansen of Denmark, 18 December 1957, Secret

Dec 18, 1957

Source: RG 59, Executive Secretariat Conference Files, box 140, CF 947 NATO Hds of Govt Meeting, Paris, Dec. 1957, Memcons

During a meeting with Hansen, in an apparent reference to the nuclear weapons discussions, Dulles "expressed appreciation ... for the helpful arrangements that had been made for our establishments in Greenland." Showing how NATO burden-sharing controversies never go away, Hansen expressed "displeasure" about U.S. criticisms of Denmark's supposedly "inadequate defense effort."

Document 12

Memorandum of Conversation, "Withdrawal of US Equipment and Personnel from Greenland," 7 May 1965, Secret

May 7, 1965

Source: RG 59, Subject-Numeric Files, 1964-1966, box 1649, Def 15-10 Greenland-US

As previously noted, the deployment of nuclear weapons at Thule Air Base for Nike-Hercules ended during 1965. Howard Brandon, a State Department desk officer, told a Canadian diplomat that the Defense Department had decided to withdraw the missiles and presumably the warheads. According to Brandon, the "advancing technology and the declining nature of the manned bomber threat" had made the Nike-Hercules units "of only marginal usefulness for continental defense." The U.S. would announce the end of the deployments in Denmark, Greenland, and Washington at a future date.

III. Airborne Alert and the BMEWS Monitor

Document 13

Excerpts on “DEW Line” and “BMEWS” from L. Wainstein et al., *The Evolution of U.S. Strategic Command and Control and Warning, 1945-1972*, Institute for Defense Analyses, June 1975, Top Secret

Jun 1, 1975

Source: Document 2: National Security Archive Electronic Briefing Book

“Declassified Pentagon History Provides Hair-Raising Scenarios of U.S. Vulnerabilities to Nuclear Attack through 1970s,” 12 November 2012

Beginning in the mid-1950s Greenland’s strategic salience increased as U.S. defense officials worried about the possibility of Soviet bomber and missile attacks. To provide two hours of early warning of bomber attacks, the U.S. established the radar-based Distant Early Warning (DEW) line, deployed at sites above the Arctic Circle. By 1961, the U.S. had 57 DEW line stations running across Alaska, Canada, Greenland, Ireland, and Scotland. Four of the sites were in Greenland separated by average distances of 263 miles.

During the 1960s, the Ballistic Missile Early Warning System (BMEWS) became the “basic” ICBM warning system for the U.S. With radars deployed in Alaska, Greenland, and the United Kingdom, BMEWS could provide 15 minutes of warning time of a Soviet ICBM attack. Besides providing the Strategic Air Command with enough warning time to launch bombers, BMEWS would also enable “SAC to exploit the unique capability of bombers to launch under positive control, even in ambiguous or equivocal circumstances, without pre-commitment to strike—a ‘launch-on-warning’ and recall option that was not available in the case of missiles.”

BMEWS had “serious shortcomings, primarily in geographic coverage and in the amount, quality, and timeliness of the information that it provided.” Moreover, it could be “deliberately spoofed, blacked out, or attacked,” although “such events could be treated as potential indicators of attack and ... easily interfere with surprise.”

Document 14

General Earle Wheeler, Director, Joint Staff, to Secretary of Defense, “SAC Airborne Alert Indoctrination Program,” 8 August 1961, Top Secret

Aug 8, 1961

Source: Digital National Security Archive (DNSA)

With the B-52 bomber’s intercontinental capabilities, Thule had lost its purpose as a major strategic base, but the BMEWS facility stationed there had significant importance for U.S. defense. Worried about the vulnerability of the site, Joint Staff director General Earle Wheeler informed Secretary of Defense McNamara that SAC had modified an airborne alert route to include a “24-hour airborne monitor” of the installation to ensure that it was secure. The change would go in effect on 15 August 1961 and would involve “no

degradation of target coverage.” As Scott Sagan has noted, with this “operational innovation [SAC] created its own twenty-four-hour-a day warning system.” In case of a disruption of BMEWS communications with NORAD, SAC would know through its bomber circling BMEWS at Thule whether the facility was safe and secure.[21]

Wheeler did not mention Denmark but probably took it for granted that the 1951 agreement gave SAC *carte blanche* to fly nuclear-armed B-52s over Greenland.

Document 15

Excerpt from State Department telegram 106059 to U.S. Embassy Denmark, 27 January 1968, Top Secret [To be published in full in Part II]

Jan 27, 1968

Source: LBJ Library, National Security File, Country File, Denmark, Vol. 1

This is an excerpt from a telegram that the State Department sent to the U.S. Embassy to summarize what U.S. officials had found in the declassified record about U.S.-Danish official interactions on nuclear issues before 1968. It included the summary of a meeting between Denmark’s Under Secretary for Greenland, **Eske Brun**, and U.S. Ambassador William M. Blair after a January 1964 accident when a nuclear-armed B-52 **crashed** in western Maryland killing three of the five crew members. Brun asked about nuclear flights over Thule and the possibility of a similar accident. If such an “unfortunate incident” occurred, Blair said, the government of Denmark could say the purpose of such overflights was in the “defense interests of the Free World” and that the U.S had carried them out “in full cooperation” with Denmark under the 1951 agreement.

According to this summary of the discussion, Brun did not take exception to Blair’s proposal. The detailed U.S. record of the discussion remains classified at the National Archives. What Blair did not know was that, after this conversation, Brun asked the Foreign Ministry if there were any restrictions on nuclear-armed overflights over Greenland. The response was that there were no such limits and that the government had “no knowledge as to whether SAC aircraft with nuclear weapons came anywhere near Greenland territory.” The Foreign Ministry did not believe that the Government would be willing to raise the matter with the U.S. [22]

Document 16

Deputy Secretary of Defense Cyrus Vance to the President, “Strategic Air Command Airborne Alert Indoctrination Training Program for FY 1965,” 4 May 1964, Top Secret

May 4, 1964

Source: **Digital National Security Archive** (DNSA)

Keeping President Johnson informed of airborne alert operations, Vance mentioned that the U.S. did not need “formal clearance or notification” from either the Danish or Spanish governments because of “existing

service-to-service agreement.” The memorandum included maps that showed the “North Route” or “Hard Head” route to Greenland, which provided for daily B-52 surveillance of the BMEWS installation at Thule Air Base.

Document 17

Memorandum by the J-5 for the Joint Chiefs of Staff on SAC Airborne Alert Indoctrination Program, 5 December 1965, with attachments, including memorandum from Joint Chiefs of Staff Chair Earle Wheeler to the Secretary of Defense, “Strategic Air Command Airborne Alert Program,” 9 December 1965, Top Secret

Dec 5, 1965

Source: Digital National Security Archive (DNSA)

Before the B-52 accident at **Palomares**, Spain, in January 1966, Secretary of Defense Robert McNamara wanted to discontinue the airborne alert program for budgetary and strategic reasons (for example, bombers were a shrinking element of U.S. strategic forces). JCS Chair Wheeler opposed discontinuing the program but accepted cutting back on the flights to six sorties a day. Part of his defense included the role of SAC airborne alert bombers in monitoring BMEWS at Thule, which he saw as an “important benefit.” According to Wheeler, “Visual/electronic surveillance of those facilities is maintained on a continual basis at all times; thus, the airborne alert indoctrination itself becomes a positive link in our improved warning capability.” During 1966, after the Palomares crash, the debate continued. McNamara wanted to end airborne alert but he accepted Wheeler’s compromise proposal for four daily sorties. Airborne alert continued, including the Thule Monitor.[\[23\]](#)

IV. The Crash: the Search for Weapons Parts and Impact on SAC Operations

Document 18

State Department telegram 102249 to U.S. Embassy Denmark, 22 January 1968, Secret
Jan 22, 1968

Source: Digital National Security Archive (DNSA)

In the mid-afternoon of 21 January 1968, a B-52 on a Thule monitor mission crashed in the ice near Thule Air Base. A fire had broken out in its heating system, and an attempt at an emergency landing having failed, the crew bailed out. Six survived except and one crew member was lost. As the four 1.1 megaton bombs on board fell onto the ice, their conventional high explosives detonated, scattering plutonium and weapons parts across the ice field. The bombs themselves did not detonate, owing to safety devices. While the likelihood of an accidental nuclear detonation was low, it was not impossible.[\[24\]](#)

Word of the crash spread quickly. With this message, the State Department provided basic information to the U.S. Embassy in Copenhagen. The wreckage apparently covered five miles, and “difficult climate conditions and lack of daylight” obstructed the search for wreckage. The State Department agreed with the Danish ambassador’s insistence that his government should be the first to announce the crash officially.

Document 19

Tape recording of telephone conversation between Secretary of Defense Robert McNamara and President Lyndon B. Johnson, 22 January 1968

Jan 22, 1968

Source: University of Virginia **Miller Center** on the Presidency Presidential Recordings Program

0:00 / 0:00

Heading towards the presidency of the World Bank, Robert McNamara’s tenure as Secretary of Defense was about to end. One of his last duties was to report to President Johnson on the crash of a B-52 carrying nuclear weapons in Greenland. The bomber or a major part of it crashed through the ice in 250 feet of water about seven and a half miles from Thule. McNamara told Johnson that the State Department was working with the Danish government in preparing a news release acknowledging the crash that was scheduled for 10 a.m. and that the two countries were in “complete agreement on what should be said.” That was an overstatement because Danish officials wanted clearer reference to the question of radioactivity.^[25] According to Harold Brown and other experts on nuclear technology, there was “no danger” from the accident. McNamara did not mention airborne alert or the BMEWs monitor aspect. He then reported on a “long expected” attack on Khe Sanh in South Vietnam.

Document 20

Brig. General Edward B. Giller, Assistant General Manager for Military Application, to Atomic Energy Commission, “B-52 Crash at Thule Air Base, Greenland,” 22 January 1968, Secret, Excised copy

Jan 22, 1968

Source: National Security Archive, B-52 Crash in Greenland Collection (DOE records)

This early report on the B-52 accident at Thule demonstrated the imperfect state of knowledge about what caused it, only noting that the smoke caused by a fire in the navigator’s compartment. As the crashed plane burned on the ice of North Star Bay, the “main part of the aircraft” sank into 600 feet of water. Major General James Hunziker, the head of SAC’s Disaster Control Team, had surveyed the wreckage from a helicopter and saw the engines, a tire, and other debris still on the surface.

According to Giller, the location of the four bombs was unknown; the “present evaluation,” which was quite optimistic, was that they stayed on the racks and “sank with the fuselage.” He had learned of no report of

explosions or radioactive contamination. Besides the SAC team, the Air Force had sent two teams and an AEC/Albuquerque Operations office (ALO) team was on the way. Two public relations officers from the Pentagon and the European Command were also due to arrive.

Document 21

U.S. Embassy Denmark telegram 2814 to State Department, 22 January 1968, Secret
Jan 22, 1968

Source: [Digital National Security Archive](#) (DNSA)

Responding to the State Department message, a telegram signed by Ambassador White noted that the Danes had not yet made a statement about the accident but that the Embassy's Air Attache had received information from a Danish Air Force officer. The Embassy had not yet spoken with the Foreign Ministry to explore what it was thinking about a line of approach. With elections taking place the next day, Prime Minister Jens Otto Krag might be delaying an announcement to avoid a political impact. The Embassy worried about "severe" repercussions "in light [of] nuclear sensitivities." In the meantime, the Embassy would take a "no comment" position, referring all questions to Danish authorities.

Document 22

U.S. Embassy Denmark telegram 2835 to State Department, 22 January 1968, Secret
Jan 22, 1968

Source: [Digital National Security Archive](#) (DNSA)

According to a statement made by the Danish Foreign Ministry, the B-52 crashed in an attempted emergency landing and was not based in Greenland. It included statements that would receive a poor reception in Washington [See Part II]: "Danish policy regarding nuclear weapons also applies to Greenland and also to air space over Greenland. There are no nuclear weapons in Greenland." Moreover, U.S. "authorities are aware of Denmark's policy and the Danish Government assumes that there are no American overflights by aircraft carrying nuclear weapons." With such statements, the Danish Government was ending the double-standard policy by applying its no-nuclear approach to Greenland.

Document 23

Note from Tom Johnson to the President, enclosing notes of the President's Tuesday Luncheon, 23 January 1968, Top Secret

Jan 23, 1968

Source: Lyndon B. Johnson Library, Tom Johnson's Notes of Meetings, box 2

Secretary of Defense Robert McNamara began the top-level meeting by observing, "this what it is like on a typical day. We had an inadvertent intrusion into Cambodia. We lost a B-52 with four H-bombs aboard. We had an intelligence ship [*Pueblo*] captured by the North Koreans." His successor Clark Clifford then asked, "May I leave now?" Most of the discussion was about the *Pueblo*, but President Johnson asked for an explanation of the B-52 crash. According to the notes, JCS Chair Earle Wheeler said the cause was a fire in the navigational compartment causing the plane to plunge to the ice about seven and a half miles from Thule Air base. The Pentagon had sent technical and disaster teams to the area to "locate the nuclear device [sic]."

McNamara reported that he and Wheeler had agreed yesterday that "no more live bombs will be carried aloft at any time." Wheeler added that "there is no need for this and the practice will be discontinued."

This report to President Johnson was prepared by **Tom Johnson**, who became a White House fellow in 1965. He worked in various roles, ranging from Deputy to the Press Secretary and Special Assistant to the President, soon becoming a note taker for presidential meetings, including the Tuesday Lunches of top national security officials.[\[26\]](#)

Document 24

Message from USAEC Lee Hancock to USAEC Charles Winter, "Thule Broken Arrow" 24 January 1968, Secret, Excised copy

Jan 24, 1968

Source: Department of Energy Open-Net

This early account by AEC official W. Lee Hancock of the initial survey work at the crash site provides detail on the tough winter conditions near Thule: "continuous darkness and the extreme cold minus 27 degrees limit the duration and effectiveness of survey." The debris in the area "generally ranges in size from a dime to three feet in length" with the "average size ... about the size of a cigarette package... Thousands of [small] pieces [are] upon the snow and the ice." Noting the absence of portions on the airframe on the ice, Hancock suggested that it either sank or blew up because of a "violent explosion" caused by the conventional high explosives in the weapons. He wrote that the "existence of thousands of pieces of small debris and the contorted form of the larger pieces discovered" could support the violent explosion hypothesis. So far, the survey had not made a "positive identification of weapons parts [or] segments."

According to Hancock, the "contamination is generally confined to the burn and debris pattern extending south and southwest from the impact point" and appears to be light, fixed, and closely confined." Noting that Air Force personnel, "Eskimo [sic] drivers," and the Danish guide had picked up "limited amounts of low level contamination," the AEC had established "controls" so that "personnel visiting the crash site are processed through a decontamination center." In addition to controlling access, they were establishing a "zero reading line" demarcation with a "dye marker around the entire contaminated area."

Document 25

Message from Chief of Staff Air Force to Joint Chiefs, National Military Command Center, "Supplemental Report Number 3 of Nuclear Accident," 27 January 1968, Excised copy
Jan 27, 1968

Source: National Security Archive, B-52 Crash in Greenland Collection (DOE records)

This message sent by the disaster team reported on the ongoing discovery of weapons parts and radioactive contamination readings within a "rectangular area, approximately 3 miles by 1 mile." A security area had been established, and so far evidence suggested the occurrence of a "low order high explosive detonation," with all four weapons "broken up in varying degrees."

Document 26

Message from SAC Disaster Control Team to AEC/ALO Sandia Base, "Fifth Report by Paul R. Smith, AEC/ALO," 27 January 1968, Secret, Excised copy
Jan 27, 1968

Source: Department of Energy Open-Net

AEC official Paul R. Smith provided details on "weapons items" discovered on 25 January. Declassified portions of the message reveal that bomb lugs, portions of three "secondaries," and a portion of a "weapon case" were among the items found. (Secondaries referred to the technology facilitating the fusion stage of a thermonuclear explosion, which is triggered by a fission explosion, the primary.) Smith also saw "convincing evidence that at least three separate WH [warhead?] H.E. [high explosives] detonated high order on or above the surface of the ice," a conclusion based on the location of the four weapon parapacks, three tritium bottles, and portions of three separate weapon secondaries. Work was already started on "collecting and moving weapons parts/debris to a heated [Thule] base building." So far, the disaster control team had set up six buildings at the site. At the close of his message, Smith asked if the AEC would provide barrels for "packaging AEC material [presumably weapons debris]" and whether it would "bury contaminated aircraft debris."

Document 27

Brig. General Edward B. Giller, Assistant General Manager for Military Application, to Atomic Energy Commission, "B-52 Crash at Thule Air Base, Greenland," 30 January 1968, Secret, Excised copy
Jan 30, 1968

Source: National Security Archive, B-52 Crash in Greenland Collection (DOE records)

Gillert recounted some of the information already sent from Thule about the discovery of weapons parts, the detonation of high explosives, and the scope of contamination. Additional information had come in concerning the discovery of the parachutes that had been affixed to the bombs. Gillert identified some of the U.S. experts that had arrived at the scene, including **Wright Langham**, with Los Alamos Laboratory, who had “provided advice and assistance” during the 1966 Palomares accident investigation and cleanup. The Danish government also sent a team to investigate any radioactive dangers.

Document 28

Headquarters Strategic Air Command, History and Research Division, History of Strategic Air Command, January-June 1968, Historical Study No. 112, February 1969, Top Secret (excerpt)
Feb 1, 1969

Source: FOIA release by U.S. Air Force

According to this SAC history, on 22 January 1968, the day after the accident, the JCS instructed SAC to immediately stop carrying nuclear weapons on airborne alert sorties. The instructions permitted SAC to continue airborne alert without nuclear weapons, but SAC’s commander in chief, General Joseph Nazzaro, had no interest in doing so. SAC halted airborne alert, but it continued two daily sorties, without nuclear weapons, over the BMEWS facility in Greenland through April 1968. At that point, SAC began to instead monitor the BMEWS site in Clear, Alaska, using KC-135 tanker aircraft instead of bombers. In the meantime, SAC began to develop a new alert concept, Selective Employment of Air and Ground Alert (SEAGA), that could involve nuclear-armed flights during periods of international tension.

NOTES

[1] . In 2023, Thule Air Base was renamed Pittufik Space Force Base, indicating its transfer to the U.S. Space Force and adopting the Inuit name for the region.

[2] . The Danish study is *Grønland under den kolde krig: Dansk og amerikansk sikkerhedspolitik 1945–1968*, 2 vols. (Copenhagen: Danish Institute of International Affairs, 1997). A well-presented English-language summary appeared as ***Greenland During the Cold War: Danish and American Security Policy 1945-1968*** (Danish Institute of International Affairs, 1997).

[3] . Nikolaj Petersen, “SAC at Thule: Greenland in the U.S. Polar Strategy,” *Journal of Cold War Studies* 13 (2011), 95.

[4] . See James Graham Wilson, “**The deep history behind America’s Greenland gambit**,” *Engelsberg Ideas*, 11 February 2025.

[5] . Melvyn P. Leffler, *A Preponderance of Power: National Security, the Truman Administration, and the Cold War* (Stanford: Stanford University Press, 1992), 171, 182.

[6] . *Greenland During the Cold War*, 13-15; Petersen, “SAC at Thule,” 92-93.

[7] . *Greenland During the Cold War*, 15-16. For a full discussion of the negotiations and their outcome, see Nikolaj Petersen, “Negotiating the 1951 Greenland Defense Agreement: Theoretical and Empirical Aspects,” *Scandinavian Political Studies* 21 (1998): 1-28.

- [8] . Influencing this discussion of Denmark's policy dilemmas are these articles by Danish scholars: Thorsten Borring Olesen's "Tango for Thule: The Dilemmas and Limits of the 'Neither Confirm nor Deny' Doctrine in Danish-American Relations, 1957–1968," *Journal of Cold War Studies* 13 (2011): 116-147, and Nikolaj Petersen's, "The H. C. Hansen Paper and Nuclear Weapons in Greenland," *Scandinavian Journal of History* 23 (1998): 21-44 (which characterized the Hansen paper as "vague and indefinite"). Olesen and Petersen were members of the group that produced *Grønland under den kolde krig*.
- [9] . Olesen, "Tango for Thule," 126-129; Petersen, "The H. C. Hansen Paper," 31-35.
- [10] . *Greenland During the Cold War*, 37. See also Peterson, "The H.C. Hansen Paper," 41.
- [11] . Olesen, "Tango for Thule," 142, 145
- [12] . Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton: Princeton University Press, 1993), 167-173.
- [13] . Sagan, *The Limits of Safety*, 180-182. For a useful account of the accident, see also Eric Schlosser, ***Command and Control: Nuclear Weapons, the Damascus Incident, and the Illusion of Safety*** (New York: Penguin Press, 2013), 319-325.
- [14] . Robert S. Norris, William M. Arkin & William Burr, "Where They Were," *The Bulletin of the Atomic Scientists* 55 (1999), 32; and Petersen, "The H. C. Hansen Paper," 22. See also Hans Kristensen, **"Denmark's Thulegate: U.S. Nuclear Operations in Greenland."**
- [15] . Petersen, "SAC at Thule," 91-92.
- [16] . Petersen, "Negotiating the 1951 Greenland Defense Agreement: Theoretical and Empirical Aspects," 1-28.
- [17] . For details on the negotiation of defense areas, see Peterson, "Negotiating the 1951 Greenland Defense Agreement."
- [18] . Petersen, "SAC at Thule," 104-105, and Petersen, "The H. C. Hansen Paper," 29-30.
- [19] . Text of Hansen paper from Peterson, "The H.C. Hansen Paper," 21-22.
- [20] . For "indirect acceptance," see Petersen, "The H. C. Hansen Paper," 36 and 43.
- [21] . Scott D. Sagan, *The Limits of Safety*, 171-173.
- [22] . Quotation from *Greenland During the Cold War*, 30-31.
- [23] . Scott D. Sagan, *The Limits of Safety*, 179.
- [24] . Sagan, *The Limits of Safety*, 183-188.
- [25] . Olesen, "Tango for Thule," 131-132.
- [26] . David M. Barrett, "Doing 'Tuesday Lunch' at Lyndon Johnson's White House: New Archival Evidence on Vietnam Decisionmaking," *PS: Political Science and Politics* 24 (1991): 676-679.

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