

DECLASSIFIED
Authority NND 989506
By NARA Date 3-23-07

S/S MEMOS

~~K.R.~~
G.R.
~~M.S.~~



DEPARTMENT OF STATE

Washington, D.C. 20520

7403910

XR-7403657

February 21, 1974

SECRET

[Handwritten mark]

Copies to:

- S
- E
- T
- M
- C
- EUR
- INR
- L
- PM
- SCI
- S/SM
- ACDA
- RF
- (ek)

The Acting Secretary:

Subject: Attached Memorandum on Soviet Venting

The attached memorandum recommends two actions:

1. That you (or Mr. Hartman) notify the Soviet Ambassador of our concern about the two most recent ventings (*see C-Sonnenfeldt Note*)

Approve: K.R.
FEB 22 1974

Disapprove: _____

I will notify _____

K.R.
Mr. Hartman should notify FEB 22 1974

2. That you approve the draft aide memoire at Tab A and authorize its dispatch.

Approve: K.R.
FEB 22 1974

Disapprove: _____

[Handwritten signature]
George S. Springsteen
Executive Secretary

MICROFILMED
BY S/SI

Attachment:
Memorandum

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

WASHINGTON

ACTION MEMORANDUM

February 20, 1974

OFFICE OF
THE DIRECTOR

MEMORANDUM

TO: The Acting Secretary

THROUGH: The Counselor - Mr. Sonnenfeldt *fs*

SUBJECT: Proposed Aide Memoire to Soviets on
Ventings from the Nuclear Tests of
September 12, 1973 and October 27, 1973

Attached (TAB A) is a draft aide memoire for use in bringing to the attention of the Soviet government the detection by the US in the Arctic area of gaseous radioactivity unambiguously attributable to the Soviet nuclear tests on September 12 and October 27, 1973.

We recommend that you or, if you are not available, Mr. Hartman notify the Soviet Ambassador of our concern about these two most recent Soviet ventings and of the need for greater efforts on their part to avoid recurrence of venting incidents. Before calling this matter to the attention of the Soviets, we plan to notify the British in accordance with established practice.

On October 31 INR sent to the Secretary a memorandum (TAB B) which provided some preliminary information on the September venting, presented three options for our response and recommended the option (number 2) of expressing to the Soviets a stronger concern than in the case of past ventings and asking for an explanation of the high yield of the test. The Secretary decided instead upon the first option of treating the September test in the normal manner, drawing attention by aide memoire to the importance of precautions by the USSR to assure compliance with the LTBT.

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CLASSIFIED BY 444/11/11/11/11
EXEMPT FROM GENERAL CLASSIFICATION
SCHEDULE OF EXECUTIVE ORDER 11652
EXEMPTION CATEGORY 3
AUTOMATICALLY DECLASSIFIED ON

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By NARA Date 3-23-07

slc MEMOS

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As we were about to call in the Soviets, new information was received concerning the two ventings. These two incidents are considered to be serious for three reasons:

(1) The intensity of detected gaseous radioactivity for the September 12 explosion was the highest observed from any Soviet venting since their test of October 27, 1966. The October 27, 1973 explosion also resulted in one of the largest ventings.

(2) Ventings from Soviet nuclear explosions continue to occur regularly year after year.^{1/}

(3) The circumstances of the September 12, 1973 explosion were such that the Soviets could reasonably have expected that venting would occur and that there was a virtual certainty of at least gaseous radioactive material escaping Soviet territory, although they appeared to have taken some precautions to reduce the amount escaping Soviet territory.

Since the entry into force of the LTBT (1963) and prior to the September venting, we have detected debris outside the USSR unambiguously associated with 15 Soviet events. For 12 of these events written statements (aides memoire in the last seven instances) were given to the Soviets identifying the specific events. The other three (1967-68 events) were alluded to in general statements about ventings but not identified specifically. In contrast since 1963 only three US nuclear explosions released radioactive material detected by U.S. sampling operations beyond the borders of the U.S. These three explosions were Plowshare excavation experiments, which were approved with the knowledge that there was a substantial risk that they would result in some detectable radioactivity outside the U.S. In addition radioactivity from one weapons test was probably detectable outside the U.S. and the Soviets reported to us that they detected it.

^{1/} A listing is attached (TAB C) of those Soviet nuclear explosions since 1970 for which the US has collected outside the Soviet Union radioactive materials giving unambiguous evidence of ventings.

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It has been suggested by some that there is a difference in meaning between the English and Russian language texts of the treaty provision here involved. This difference involves the term "radioactive debris" in the English text and whether the Russian text should be translated "radioactive fallout" and should be interpreted to mean only particulate debris rather than either gaseous or particulate debris. This is discussed at (TAB D). In these latest venting incidents as in most others the US detected radioactive debris in the form of airborne gases, but no particulate matter was collected. The US in the past has notified the USSR of ventings when radioactive material has been collected outside Soviet territory regardless of whether particulate matter was detected.

In accordance with the Secretary's decision and these latest data we have prepared the attached draft aide memoire. The wording of the first two paragraphs is drawn from past aides memoire. To bring to the attention of the Soviets the importance of precautions to avoid ventings, we have stated our own course of action and asked the Soviets for information about the two incidents. We believe the aide memoire is consistent with the instructions of the Secretary in response to INR's October 31 memorandum.

Fred C. Ikle
Fred C. Ikle
Director

Clearances:

Arthur A. Hartman
Arthur A. Hartman
Assistant Secretary
Bureau of European Affairs

Seymour Weiss
Seymour Weiss
Director, Bureau of
Politico-Military Affairs

Attachments:

- TAB A - Draft Aide Memoire
- TAB B - INR Memo of October 31, 1973
- TAB C - AFTAC Listing of Soviet Ventings
- TAB D - Note on Interpretation of LTBT

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Clearances:

PM/AE - Mr. Handyside *JH*
EUR/SOV - Mr. Humphrey *EH*
AEC - Dr. Poor *JH*
INR/RSG - Mr. Meyers *JH*
L/UNA - Mr. Matheson *JH*
SCI/AE - Dr. Webber *JH*
NSC - Col. Boverie *JH*

Drafted by:

ACDA/NWT/AT:FS*JH*ouck:ems:2/5/74

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D R A F T

TAB A

A I D E M E M O I R E

The United States has collected outside of the Soviet Union radioactive material directly associated with the Soviet nuclear explosions of September 12 and October 27, 1973.

In view of Paragraph 1 (b) of Article I of the Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, the United States wishes to draw the attention of the Government of the Soviet Union to this matter and to the importance of due precautions to assure compliance with that treaty. The United States considers these incidents to be most regrettable because of the relatively large amounts of radioactive material collected outside the Soviet Union and because ventings of radioactive material outside Soviet borders continue to occur year after year.

Over the years the U.S. has developed increasingly effective measures to reduce the possibility of leakages of radioactive material from underground nuclear explosions. During the past few years we have taken even more rigorous precautions, and these measures have proved especially effective. The United States Government would welcome any

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pertinent information the Soviet Government could offer about these two incidents and the recurrence of ventings of radioactive material outside Soviet borders.

Washington, D.C.

February 5, 1974

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DEPARTMENT OF STATE

ACTION MEMORANDUM

S/S ^{ea}

TAB B

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7320685

11/3

OCT 31 1973

COPIES TO:

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TO : The Secretary ✓

THROUGH: P - Ambassador Porter

FROM : INR - Ray S. Cline (RSC)

Underground Testing, Radioactivity and the LTBTBACKGROUND

1. On September 12, the USSR conducted the largest underground nuclear test ever undertaken, with an estimated yield of 6-1/2 megatons. Radioactivity from the test escaped to the atmosphere and was detected by the US outside Soviet borders, thus constituting a technical violation of the 1963 Limited Test Ban Treaty. When he was briefed on this matter October 17, Ambassador Porter asked that we prepare a report to you recounting previous occasions when the US detected radioactivity which could be attributed to Soviet underground tests, the history of US representations to the USSR regarding those tests, and suggested options regarding the US reaction to the September 12 test.

2. Meanwhile, on October 27 the USSR set off another high-yield test, estimated at 5 megatons, in a different area of Novaya Zemlya. While we expect confirmatory data shortly, it seems that this test may not have resulted in radioactivity outside Soviet borders. We will brief you later in detail on these new developments but believed it advisable to raise the option question with you before your departure from Washington.

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2.

3. Attached (Tab A) is a list of Soviet underground tests since 1963 to which radioactivity outside Soviet borders can be unambiguously attributed. There have been 15 such tests and we have called all but the latest one to Soviet attention in a factual, uncritical way, either orally or in an aide memoire. No representations have been made to the Soviets regarding the much larger number of tests to which radioactivity can be "possibly" or "probably" attributed.

4. Also attached (Tab B) is a list of US tests which have resulted in the passage of radioactivity beyond US borders. There have been 20 such tests through the end of 1970. We are advised that there have been none which vented externally during the 1971-73 period (the December 1970 test resulted in considerable adverse publicity and Congressional scrutiny). Of the 20, radioactivity was detected outside the US in connection with 3; "possibly" with 4 more; and in 13 cases the data is insufficient to make a determination. The Soviets have made representations (of a nature comparable to ours) to the US in connection with 7 tests. These include the 3 known to have led to activity outside the US, 1 of those in the "possible" category, 2 on which the data is inadequate for a determination, and 1 which is not believed to have produced radioactivity outside the US. In addition, the USSR presented an aide memoire in connection with a well-publicized safety experiment, not a weapons test, in which a nuclear reactor was deliberately destroyed by subjecting it to a rapid increase in power, and which did not result in detectable amounts of radioactivity beyond US borders.

US OPTIONS

In evaluating possible US reactions to the September 12 Soviet test, it must be recognized that the US has also technically violated the LTBT on about as many occasions as the USSR. We suggest there are three basic options:

1. Treat the September 12 test in a factual manner, drawing attention by aide memoire to the importance of precautions by the USSR to assure compliance with the Treaty, and welcoming any pertinent information.

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3.

PRO:

-- This follows our usual pattern, and registers interest but not concern.

-- The incident was fairly typical of the past, in terms of radioactivity vented, despite its high yield underground.

-- The test was the first since August 1972 to produce detectible radioactivity outside the USSR.

-- This is an appropriately low-key way of raising the issue at a time when we have other major issues with the USSR.

-- We may well vent externally in our own program.

CON:

-- A test of such magnitude should not be treated in the standard fashion, particularly at a time when the USSR is testing new missiles, developing MIRVs, and has been resupplying Arab belligerents with very large quantities of arms.

2. By aide memoire express concern to the USSR more strongly than in the past, noting the magnitude of the test and the venting beyond Soviet borders, and asking for an explanation of the reasons for such high yield.

PRO:

-- Given the magnitude of the September 12 Soviet test, a better case can be made for a somewhat more forceful presentation than we have made in the past.

-- A more forceful indication of concern would underscore our belief such tests and their venting are significant in US/USSR relations, but we would not be challenging the USSR's good faith in complying with the LTBT.

-- Such expression of concern might inhibit the Soviets in the future from very high yield underground tests, which would be in the US interest.

-- We might obtain some indication of the reason for this high-yield testing, which would have intelligence and planning benefits.

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4.

CON:

-- US-Soviet relations involve both cooperation and opposition on the Middle East and other issues and a strong US reaction on this matter would add an additional complication.

-- The USSR is not apt to be inhibited in its testing program by US indications of concern without implications of damage to vital Soviet interests in US cooperation.

-- The Soviets may view such strong US reaction as indicating sufficient concern about Soviet weapons developments to provide some "bargaining chip" leverage stiffening USSR positions in SALT.

3. Make no representation to the Soviet Union at this time, deferring to a later moment of our choice.

PRO:

-- In the past, the US has allowed as much as 11 months to elapse between Soviet test venting and raising the issue with the USSR, so that it would be appropriate to delay now until ascertaining the optimum relationship between such query and general US-USSR relations.

CON:

-- This is only one in a series of Soviet underground tests, and we might as well raise the issue as a matter of course without worrying about its relation to more complicated politico-military aspects of US-USSR relations.

RECOMMENDATION:

That the Department proceed in accordance with Option 2, expressing stronger concern than in the past, noting that

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SOVIET TESTS TO WHICH RADIOACTIVITY OUTSIDE THE USSR CAN BE ATTRIBUTED a/

<u>Date</u>	<u>Yield (KT)</u>	<u>Area Where Radioactivity Detected</u>	<u>US Action</u>
1/15/65	250	Japan and Far East ground stations	Oral statement followed by Aide Memoire
10/27/66	1,200	Arctic area	Oral Statement
12/18/66	140	Scandinavia	Oral Statement
5/28/67	33	Japan	Oral Statement (combined as 3 unspecified events)
1/7/68	9	Japan	
10/21/68	1	Kamchatka	
10/14/70	3,000	Polar region	Oral Statement (noting October and December event)
12/17/70	-6,000 30	Japan	
11/4/70	50	Japan	Aide Memoire on May 14, 1971
3/22/71	90	Japan	
3/23/71	140	Japan	
9/27/71	2,000	Arctic area	Aide Memoire on December 16, 1971
2/10/72	60	Arctic area	Aide Memoire on January 11, 1973
6/7/72	22	Japan	
8/28/72	950	Arctic area and Japan	
9/12/73	6,500	Arctic area	

a/ Includes only those tests to which radioactivity outside the USSR can be unambiguously attributed; not included are a larger number of tests which are "possibly" or "probably" responsible for such radioactivity.

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US TESTS WHICH MAY HAVE RESULTED IN RADIOACTIVITY OUTSIDE THE US

<u>Date</u>	<u>Yield (KT)</u>	<u>Detected Outside the US</u>	<u>Soviet Action</u>
12/12/63	5.3	Cannot be determined	-
3/13/64	1.1	Possible	-
12/16/64	1.2	Cannot be determined	-
2/12/65	0.3	Cannot be determined	-
4/14/65	4.3	Yes	Aide Memoire
5/7/65	7.0	Cannot be determined	-
6/16/65	7.1	Cannot be determined	-
3/5/66	2.8	Possible	-
4/25/66	11.4	Possible	-
6/15/66	7.0	Cannot be determined	-
9/12/66	7.8	Cannot be determined	Oral Statement
1/19/67	39.0	Cannot be determined	-
6/29/67	9.7	Cannot be determined	Oral Statement
8/31/67	5.5	Cannot be determined	-
1/18/68	7.4	Cannot be determined	-
3/12/68	5.5	Yes	Oral Statement
12/8/68	35.0	Yes	Aide Memoire
10/29/69	10.0	Cannot be determined	-
4/21/70	11.0	Cannot be determined	-
12/18/70	11.0	Possible	Oral Statement

a/ In addition to those Soviet actions listed, the Soviets presented an aide memoire in connection with a January 12, 1965 reactor experiment (not a nuclear test) which did release radioactivity, none of which was detected outside the US. The Soviets also objected in an oral statement in connection with a November 24, 1971 US test which is not believed to have produced radioactivity outside the US.

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TABLE I. HIGHEST IODINE AND XENON CONCENTRATIONS FROM RECENT SOVIET UNDERGROUND EVENTS (S)

Event	Date	Location	Yield (KT)	pC/M ³ at Collection Time			pC/M ³ at Zero Time		
				I-131	Xe-133 Average Value	Xe-133 Individual Sample	I-131	Xe-133 Average Value	Xe-133 Individual Sample
J-282	4Nov70	Konystan	50	No	37	NA ¹	-	130	-
J-284	17Dec70	Degelen	40	No	4.5 ²	NA	-	17	-
J-287	22Mar71	Degelen	90	No	8.2	NA	-	16	-
J-288	23Mar71	Kama-Pechora Canal	140	0.0021	2.7	NA	0.0045	8.5	-
J-297	27Sep71	Novaya Zemlya	2000	No	1700	2300	-	6500	8700
J-306	10Feb72	Shagan River	60	0.013	78	110	0.023	180	260
J-310	7Jun72	Degelen	22	No	3.0	200	-	22	1500
J-316	28Aug72	Novaya Zemlya	980	No	67	680	-	100	1000
J-333	12Sep73	Novaya Zemlya	6000	(0.0009)	(1600)	(4000)	(0.0016)	(5000)	(11,000)
J-339	27Oct73	Novaya Zemlya	5100		(410)			(2300)	

¹ NA - Individual samples were not analyzed

² The highest J-284 xenon concentration was collected by a surface sampler

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TAB C

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 EXEMPT FROM GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652
 EXEMPTION CATEGORY: 3
 DECLASSIFY ON: (UNDETERMINED)

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TAB D

Note on Interpretation of the Limited Test Ban Treaty

The English language text of the treaty prohibits underground nuclear explosions which "cause radioactive debris to be present outside the territorial limits" of the state involved. When the treaty was presented to the Senate, Senator Pastore raised a question as to whether the Russian text on this point had the same meaning as the English text. Secretary Rusk replied in a classified letter that it did.

Nevertheless, contentions have been made from time to time by Dr. Teller and some other Americans, that the most accurate translation of the Russian text would refer to "radioactive fallout" rather than "radioactive debris," and that fallout means particulate debris that has actually fallen to the ground.

While it is conceivable that the Soviets could so understand it, there is no clear evidence that they do. In fact, they have sent us diplomatic complaints about U.S. venting in cases where there is no reason to believe that they had found evidence of particulate debris on the ground outside the U.S. Likewise, our past complaints about Soviet ventings have included cases in which no particulate debris had been found on the ground.

Since a reinterpretation of the treaty as covering only radioactive "fallout" would weaken the protection the treaty provides against careless testing practices, and would not be of any significant help in removing the inhibition the treaty places on nuclear excavation projects, it would seem unwise to base our complaints about Soviet ventings on such a reinterpretation, especially in the absence of any assertion by the Soviets that our interpretation is incorrect.

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