Congress of the United States

JOINT COMMITTEE ON ATOMIC ENERGY

WASHINGTON, D.C. 20510

March 28, 1968

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Honorable Carl Walske
Assistant to the Secretary (Atomic Energy)
Department of Defense
Washington, D. C.

Dear Dr. Walske:

I am forwarding enclosed three copies of the executive session before the Joint Committee on Atomic Energy on March 20, 1968, at which you and representatives of the Defense Department testified concerning the aircraft accident in Greenland.

It would be appreciated if you would arrange to have the testimony reviewed for accuracy and for a corrected copy to be returned to the Joint Committee. In this connection, please furnish a separate letter setting forth any substantive changes.

Your assistance in these matters is appreciated.

Sincerely yours,

John T. Conway
Executive Director

Enclosures:
Copies 2-4 of 7 A
Transcript 3/20/68
No. 9542

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COPY 4 OF 7, SERIES A

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JOINT COMMITTEE ON ATOMIC ENERGY
CONGRESS OF THE UNITED STATES

EXECUTIVE

MEETING NO. 90-2-11 -- WEDNESDAY, MARCH 20, 1968

JOINT COMMITTEE ON ATOMIC ENERGY
CLASSIFIED DOCUMENT NO. 9542

The Joint Committee on Atomic Energy met, pursuant to call, at 10:00 a.m., in the Committee Room, the Capitol, Honorable Clinton P. Anderson (presiding).

Present were: Senators Clinton P. Anderson (presiding) and Bourke B. Hickenlooper; Representatives Melvin Price, Thomas G. Morris and John B. Young.

Committee staff present: John T. Conway, Executive Director, Edward J. Bauser, Deputy Director, George F. Murphy, Jr., Assistant Director, Captain F. C. Costagliola, Staff Consultant and John B. Radcliffe, Technical Advisor.

Representatives of the Department of Defense:

Honorable Carl T. Walske, Assistant to the Secretary (Atomic Energy) Major General Richard O. Hunziker, USAF, Major General Otto J. Glasser, USAF, Colonel Chester Hockett, USAF, Col. Donald Floyd, USAF and Lt. Commander William O. K. Rentz, USN.

Representatives of the Atomic Energy Commission:

Honorable James T. Ramey and Honorable Gerald F. Tape, Commissioners, Robert E. Hollingsworth, General Manager, Charles Winter, Deputy Director, Division of Military Application, George Kavanagh, Assistant Director for Reactors, Jack Rosen, Assistant to Commissioner Ramey and Robert D. O'Neill, Congressional Relations.

Representative of Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

Dr. Wright Langham

Senator Anderson. The Committee will come to order.

We meet this morning to receive testimony from representatives of the Department of Defense, the Air Force and the AEC

concerning the aftermath of the crash of a B-52 bomber carrying four nuclear weapons. The crash occurred on January 21, 1968, on the ice of North Star Bay seven miles southwest of the runway at Thule, Greenland. The B-52 was attempting an emergency landing. Six of the crew members parachuted to safety. The other crew member died.

As a result of the crash there were political repercussions. The Air Force immediately sent experts to recover the weapons and to survey the damage. Dr. Wright Langham from the Los Alamos Scientific Laboratory, a world-renowned authority on plutonium health hazards, was sent to the site of the crash to provide health and safety advice. Dr. Carl Walske, Assistant to the Secretary of Defense for Atomic Energy, went to Copenhagen to carry on discussions with representatives of the Danish Government on the political and scientific aspects of the accident.

This morning we will receive testimony from Dr. Walske, who will discuss the over-all aspects of this matter. We will also hear from Major General Richard Hunziker, who was in charge of the clean-up operation following the accident, and Dr. Wright Langham, who has had intimate experience with both the Palomares and the Thule accidents.

Dr. Walske, we are pleased to have you before us. Will you begin?

Dr. Walske. Mr. Chairman, we are very pleased to have this chance to sum up for you the results to date arising out of the accidental crash of a B-52 near Thule Air Base, Greenland, which occurred on 21 January earlier this year at 1540 hours EST.

My role here is mainly to introduce the two principals, who will tell you of the details of this accident and the follow-up, which occurred later.

I would like to say that over-all, starting from what appeared to be a very difficult situation, we have progressed steadily so that in our international relations with the Danes, as affected by the situation at Thule, we have made very great progress. We have no particular problem about that situation at Thule. We have made great progress in the recovery of the weapons parts and we are looking forward to the final termination of the operations at the site in the not too distant future.

Later on maybe you would like to hear a little about the discussions that we have had with the Danes. However, I would like to begin, if you are willing, with General Richard Hunziker, who is to my right, who can tell you about his operations at the Thule Air Base. He was on-site Commander there responsible to General ~~Nesaro~~ NAZZARO, the Commander-in-Chief of SAC who, in turn, was respnsible to the Chief of Staff of the Air Force. General Glasser, who is further to my right, was the Chief of Staff of the Air Force's responsible officer in connection with this crash.

If you are willing, I will ask General Hunziker to begin.

Senator Anderson. General Hunziker -

General Hunziker. Sir, I have chosen to give this in a chart briefing. I can go just as fast or as slow as you desire. At any time please stop me, if I don't make my point clear.

This project was designated Crested Ice. As Dr. Walske said, the crash happened on the 21st of January at ~~2:00 o'clock~~ 3:40 EST in the ~~morning~~ afternoon, 7½ miles west of Thule Air Base on the ice in North Star Bay.

We arrived at 0200 on 22 January with 10 officers and eight enlisted personnel. It was dark and remained dark 24 hours a day for several days, until Arctic twilight was slowly replaced by daylight.

Our objective was to recover the four weapons in whatever form we found them, to take care of the decontamination and to clean up the area. As the on-scene commander I had with me weapons recovery people, radiological, health, contamination control teams and the support that was necessary to ~~, to~~ do my job. I ended up with 565 people and 85 Danes helping, and I will say more about the Danes later on in the briefing. We used about 298,000 man hours in this project. It isn't completed, but most of the work is done. ~~of it is over with.~~

To orient you, this is Thule Air Base, this is the flight path of the aircraft and the impact point, 7½ miles from the base, almost in line with the runway. This is Saunders Island at this point -- and, let me just stop here for a minute.

~~with the runway -- and let me just stop here for a minute.~~ I will not discuss the aircraft accident. I am just going to discuss the decontamination problem and the recovery problem.

Senator Anderson. Who will discuss the other?

General Hunziker. Sir, it had not been planned to discuss the aircraft accident -- ~~how it happened or anything else~~. I can give you a brief summary, if you so desire.

Senator Anderson. I would like it.

Representative Morris. Yes.

General Hunziker. The B-52, some 90 miles from Thule, had a fire down in the lower compartment. They were unable to put out this fire and about at this point (pointing to chart) the crew members bailed out. All survived except one man. They were all

recovered, and one man landed right on the base. The aircraft, unattended, made a slow left turn, impacted here at about an angle of 20 to 25 degrees.

Is that sufficient on the accident?

Senator Hickenlooper. Personally I don't think it is anything on the accident.

Senator Anderson. I was going to say the same thing.

General Hunziker. I wasn't prepared to discuss the accident.

Dr. Walske. On the impact itself, if you would like to hear ~~some~~ about ~~about this~~ that, Dr. Langham is planning to analyze that.

Senator Hickenlooper. I thought there were some questions involved. I would assume if the fire ~~was out of control~~ was out of control they would have lost control of the airplane. Why did they abandon it unless the plane was out of control and they had to abandon it because of the danger of destruction in the air or something?

General Hunziker. At the time they arrived ~~over~~ the air base, the fire had become so severe and their attitude was such that they could not afford the risk of attempting to land the airplane. We can submit a detailed account for the record.

Senator Hickenlooper. No, that sounds reasonable.

Representative Morris. The other night we were discussing this at the White House and the President said the fire was caused by a faulty switch.

General Hunziker. No, sir. The fire was caused by intense heat on some cushions next to a heat duct.

Senator Anderson. I thought the purpose this morning was to find out about the accident. Go ahead.

General Hunziker. No, sir. I did not conduct the accident investigation. I did take care of the recovery and decontamination of the area.

Mr. Conway. Mr. Chairman, staff knew that Dr. Wright Langham was in town and that he and General Hunziker, who had responsibility for the clean-up of the accident were meeting with some officials of the Danish Government who were here. It seemed an opportune time for us to ask the General and Dr. Langham to come here, so the General is correct.

General Hunziker. Should I go ahead with my briefing?

Senator Anderson. Yes.

General Hunziker. I am going to pick it up from the impact point.

We arrived early in the morning with ten officers and eight enlisted men.

During the entire time we experienced some very low temperatures. Throughout the period, the 56 days that I was there, the average equivalent temperature was minus 40 degrees.

(LIFT)

day it was -110 degrees.

We had problems maintaining our equipment. For example, a wheel fell off a road grader. Carburetors froze up. Flashlight batteries went dead in 15 minutes and even Coleman lanterns lasted only a short time before they froze up. Later we obtained portable lights and diesel generators which enabled us to increase our effectiveness.

~~short period of time before they froze up. We did get portable lights at a later period of time with diesel generators. This afforded us an opportunity to increase our effectiveness.~~

Paramount through all our operations was our concern for Arctic storms which appeared with little warning.

(LIFT)

shifts out on the ice and the third shift working to maintain the

equipment.

We developed a site next to the impact area -- the crash area. We used plywood for a heliport. The helicopters couldn't land due to blowing snow, so we had to clear an area. We poured water over the heliport to maintain the plywood in its position.

We erected pre-fabricated huts, flew them out by helicopter, dropped them on the ~~ground~~ ice and erected them in position. We had radio communications. We developed ice roads and had the Eskimos, which I will speak about later on, build ~~us~~ emergency shelters in the form of igloos.

We finally got some heat and then, about a week after we were there, we were able to build a pre-fabricated 90 by 26 foot building.

Our concern, of course, was the safety of our people. I asked some Arctic experts to come from the United States. They core drilled the ice and found that it was approximately 2-1/2 to 3 feet thick. ~~We were given the feeling that 50,000 pound~~

We were told that 50,000 pounds was the maximum capability of the ice to hold our equipment in a particular area. One overall consideration was the date on which equipment operation on the ice must stop.

~~would be such that the ice would get slushy and start breaking~~ They computed that by 15 May the ice would get slushy and start breaking up. They said that their calculated date should be considered as plus or minus 15 days so I established 1 May as the completion date.

Mr. Conway. General, may I interrupt? Were these Arctic experts Americans?

General Hunziker. They ~~are~~ were a U.S. Army Arctic Research organization.

On 22 Jan our initial reconnaissance team of four men went out on dog sleds driven by Eskimos with a Danish guide who could speak Eskimo.

The crash area was difficult for the team to locate in the darkness, however, they did locate the impact point, the burn area and various small pieces of aircraft debris which were all contaminated. After about ten minutes operation, the team's radiac instruments went dead because of the severe cold.

~~and~~ they lasted about ~~te~~ minutes and ~~then~~ went dead.

We didn't see any major aircraft structure, but we did see millions a[redacted]s of little pieces -

Senator Hickenlooper. The aircraft apparently went through the ice.

General Hunziker. No, sir. This is the picture of the burn area and impact point. The aircraft came at this angle and impacted here at about an angle of 20 degrees. Dr. Langham will give more details on this. With the force of the impact, the fuel went forward and debris was in this area here.

Danish guide
The Arctic ~~consultant~~ was the only man we could find who could speak Eskimo. He controlled the 15 Eskimos and their 150 dogs in transporting our equipment out to the site and building emergency shelters (igloos). Many times we used the Eskimos, their sleds and dogs 24 hours per day. Since the Eskimos worked for us and could no longer hunt to obtain food for their dogs, it was necessary to provide them with dog food from the U.S., and from the commissary at Thule.

~~dog breed 24 hours a day. The Eskimos couldn't go hunting to find food for their dogs so I had to bring some food up from the U.S. and we fed the dogs for the 10-12 day period that we utilized them.~~

During the initial days we did contaminate some of the Eskimos -- their clothing. We took that clothing and gave them

American Arctic gear. We went to their homes and checked to make sure their homes weren't contaminated. We checked their dogs to see that they weren't contaminated.

~~Mr~~ For the wonderful service to the Air Force the Danish Arctic ~~Consultant~~ Consultant, ~~Se~~ Mr. Zinglersen, was awarded the Air Force Exceptional Service Award, which was presented to him by Ambassador White during her visit to Thule on 25 Feb 1968.

I will break discussion of recovery operations into two main parts: weapons components and aircraft debris. I will speak more of the weapons components in just a minute.

in 14 aircraft engine cans, 136 barrels and 11 tanks sized from 10,000 to 12,000 gallon ~~tanks~~. ~~It is on the air base in the old munitions~~

The sealed containers of aircraft debris are stored and secured on Thule Air Base in the old munitions storage site which was used to support B-36's. All containers were checked for contamination as they were brought off the ice and all are free of exterior contamination.

This gives you a general pattern of the aircraft debris. About 2 miles back of the impact point we found pieces of the bombbay and some aircrew personnel gear. The aircraft had started to shed its skin just prior to impact. At this point, some 2 miles ~~away~~ to the south, we found the engines.

I personally have tramped this area many times and I found parts of the nose section at the impact point and at the end of the burn area. ~~I found ammunition, machine guns in this~~ I found ammunition and machine guns ~~in this area and this area.~~ at the impact point and at the end of the burn area

I might mention at this time the zero line. This is the line we used to mark the extent of the contaminated area. Outside ~~of which~~ this line we did not find any contamination.

Senator Hickenlooper. How long is that area?

General Hunziker. About 3 miles, sir.

Senator Hickenlooper. Why would the engines be found at the bottom of the impact zone and the skin of the airplane back of it?

General Hunziker. The speed of the aircraft was estimated to be 525 knots and ~~this~~ the skin portion started peeling off of the aircraft. When it peeled off the crew's food locker and jacket fell out ~~and that bombbay~~ -

Senator Hickenlooper. I am not questioning this. I just can't get it through my mind. I understand the airplane went almost straight down.

General Hunziker. No, sir. It was at a very shallow angle -

Senator Hickenlooper. Then I misread that diagram -- the earlier one. It looked like it went straight down.

I understand. It came in at an angle -

General Hunziker. A shallow angle -

Senator Anderson. How do you know it was a shallow angle?

General Hunziker. Dr. Langham will explain that, sir, and he has a diagram to show you, if you can defer that question until later -

Senator Hickenlooper. Were you following it by radar?

General Hunziker. Yes, sir, we ~~did~~ were

This map shows the weapon components and debris. Again here is the impact point, the zero line and these dots indicate where the major components were recovered the secondary case, reservoirs, parts of the (left) ... though we found one weapon parachute right in the middle of this burn area still in its canvas cover and not burned at all. I can't explain this, but this is what happened. This was found on the third day.

~~So you can see from the point of impact this debris was blown. I might say we are still searching for weapons debris.~~

This gives you a picture of where we stored the aircraft debris. Here is the point of impact -- 8 miles to shoreline. We used this road away from the main parts of the camp just in case we had problems with contamination. This is the old Strategic Air Command weapon storage area. We are using two igloos to store the aircraft debris. They are secure.

Here is the tank farm that we used to store the crusted snow we picked up from the burn area. I will say more about this in just a minute. This is the runway.

We had an on site decontamination center and an on base decontamination center. Prior to leaving the site all personnel went through the on site center where contaminated clothing was removed and uncontaminated clothing was issued. When the people arrived on base they were also processed through the on base center where a very searching, detailed examination was made. On base, showers were available if needed.

~~mittens were taken away from them. They were given clean mittens. When they got on the base they went through a very detailed, searching contamination control procedure.~~

Each time our vehicles left the contaminated area they were checked thoroughly for contamination and were decontaminated as much as possible. Vehicles which could not be cleaned at the site were processed through on base facilities where they were steamed and cleaned as necessary to remove contamination.

~~manner.~~

When we brought the aircraft debris in by trucks in tanks we made sure that the outside of the tanks weren't contaminated. We checked them before they left. On site We checked them when they were in the igloos. When we removed the crusted snow, we had used the same procedure

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for the trucks and tractors. We checked to be sure we didn't have any contaminated snow on the tractors that pulled ~~them~~ the trailers. and We checked them as they got off the ice just before they went onto the shoreline.

Going now to the methods that we used to search the area to pick up the weapons components and aircraft debris. Again to orient you, this is Thule and this is the main island --Saunders island. It is the biggest island in this local area. This is the impact point and zero line.

We first used explosive ordnance disposal people who have knowledge of what the weapons and their components look like.

~~look like.~~ We searched this area should to shoulder back and forth to be assured we picked up as much as we possibly could. ~~It~~

Since it was night or twilight we used flashlights which proved unsatisfactory. We then used Coleman lanterns. Later, as daylight increased, our efficiency increased.

Our radiac instruments were used in this area, and the area that I showed you previously to see if we couldn't pick up some more weapons debris. We went along the shoreline. We are now going to fill in this gap just to be sure we have picked up everything. I might ~~say~~ that last night they picked up some debris right in there. We had missed it.

As time went on the snowstorms ~~that we had~~ tended to cover up the debris. We had to design some system to float this debris to the top so people could pick it up. We used road graders with ~~scaly fingers~~ SCARIFIERS -- ~~little~~ long fingers that ~~they~~ are put down on the ice and ~~drove~~ moved along for mile after mile, ~~24 hours a day for about~~

lifting debris up on top of the snow to be picked up by hand. The scarifying went on 24 hours a day for two weeks **until the area shown** here had been covered.

Before we could pick up all of the contaminated debris, the first storms moved loose pieces in a northwesterly direction, thus enlarging the contaminated area. As a result, we had to go to Saunders Island -- shoulder to shoulder, and then back toward the burn area picking up the debris.

~~back toward the burn area picking up the weapons debris./~~Over all of this area we used weasels with 4 men in the front seat, some people sitting on top -- driving back and forth in an area 6 miles by 4 miles. We are still doing this~~. We are still~~ and still looking to be sure we don't miss anything.

We then put some of our radiac instruments in a helicopter and covered this area to the shoreline to see if we could pick up something from the air. From the impact point to the coast is 7½ miles. We took ice core samples in the impact area and the black burned area.~~tion, we core~~

The green dots represent no contamination in the ice. ~~The red dots represent the~~

The red dots represent ice cores in which contamination was found.

~~This is where the aircraft impacted and broke the ice. The~~

In this area the aircraft impacted and shattered the ice into many large odd shaped and sized blocks which then refroze into a jumbled rough surface. Ice in this area was found to be contaminated. To define the contaminated area we expended 500 manhours taking 198 corec samples.

~~[redacted]~~

To add to our fund of knowledge and see what contamination levels were throughout the area, a sampling program was undertaken in conjunction with Danish Scientists. Snow samples, bay bottom samples and plankton samples were taken. The green dots represent snow and ice samples and the yellow dots represent bay bottom, water and plankton samples.

~~these yellow dots represent bay bottom and plankton samples.~~

Senator Anderson. What did you find by examination?

General Hunziker. Sir, a very low level of contamination. Dr. Wright Langham will address himself to this subject. He will

tell you the levels that they found.

This line is a canyon we walked up taking samples. So we covered the whole area. Negative in many cases. ~~In most cases,~~ In most cases very low level of contamination - safe. ~~-- safe.~~ A total of 121 samples.

When we picked up the aircraft debris, sealed and stored it in the storage area and picked up and shipped the majority of the weapons components, we then turned our attention to the black burned area.

~~to the black burned area.~~

This represents about 37,000 gallons of fuel that broke out of the aircraft and came on over the ice, burned and formed a crust. ~~The crust was about one inch thick and it was about 3 inches~~

The crust contained a tremendous amount of contamination and small pieces of aircraft debris. My problem was to remove this crust.

I removed this by mechanical means -- put it into 60 ~~55~~ 25,000 gallon tanks. The Danish population, which is used to support the base, assisted us in putting the crusted ice and snow into these tanks. They operated the cranes to lift and dump the 11 cubic yard boxes into the tanks and in addition they gave us the most necessary support in maintenance of vehicles.

~~of maintenance of the vehicles.~~ We removed 230,000 cubic ...

After this removal we had to determine what the ~~radiological~~ radiation level was.

Mr. Conway. Are you going to explain what you did with the material that you removed, General?

General Hunziker. Yes, sir, I can do it right now. I have some pictures here, though, so if you would wait for just a minute I can explain them.

Senator Anderson. You mentioned 65 big tanks -

General Hunziker. Yes, sir. These tanks are still in Greenland. The problem is how we are going to get them off the island of Greenland. We are studying this problem.

Senator Anderson. Must they get off?

General Hunziker. Yes. The Danes have said they desire that the contaminated material be removed from Greenland. ; subject of an intense study, which is going on right now, as to how we are going to remove these tanks and barrels from Greenland. They have given concurrence to our using the time this summer and if we don't get it all off this summer, we can use next summer.

Senator Anderson. How much worry is there to these tanks?

General Hunziker. Sir, the tanks containing the aircraft debris are in the old munitions storage area with a high fence around it. The debris is sealed in metal cans. It is sealed in old oil tanks -- ~~welded~~ shut so no one can get at it.

Senator Anderson. How dangerous is it?

General Hunziker. ~~It isn't dangerous at all now, sir,~~ It isn't dangerous at all now, Sir, because the contaminated material is sealed in containers which have no contamination on their exterior surfaces. ~~barrels.~~

Mr. Conway. General, haven't you returned some parts of the weapons to the United States?

General Hunziker. The weapons, as we picked them up, were removed to the United States. We did this on a continuous basis.

To determine the degree that we had removed the contamination, we established a grid system. This represents the contaminated

area. We picked points along each one of these lines -- 15 of them, and took radiac readings. We summed up these readings and converted them into milligrams per meter squared. On 15 February we got a contamination level -- this height. This shows the impact point. On 1st March after we had removed all of the contaminated snow and crusted ice, our contamination level along this area, as you can see, was negligible.

The area we have not touched is the impact area, the area where all the ice is broken up. We did pick up aircraft debris, but there is about 10 to 100 gallons of contaminated fuel trapped in the ice. ~~This is contaminated~~. This which gives us a contamination level here. I say that I removed 93 percent of the contaminated debris, plutonium in the blackened area and over-all 83 percent when you take into account the burned or crushed ice area included between the impact point and the southern tip. made our weapons recovery. We have recovered the aircraft debris, put it in cans and brought it to shore. It is now in a safe condition to be removed at a later date, and we are thinking about using retrograde freighter cargo ships this summer. We have made our radiological surveys. 93 percent of the contamination has been cleaned up. We are now in a position to remove the camp.

There are a few things left to do. We are continuing our surveys. We are going to put some carbonized sand on the impact area to catch the fuel as it melts this summer, ~~mulcify~~ mulsify and sink it to the bottom.

I would like to show you some pictures of our operation.

Senator Hickenlooper. How much fissionable material from the weapons did you recover? Is that going to be discussed?

Dr. Walske. I can talk to the point of the weapons themselves and what has been recovered.

Senator Hickenlooper. I don't want to interfere with your presentation.

Senator Anderson. It is a good question.

Senator Hickenlooper. He is going to present it after a while.

Dr. Walske. I will give you a full rundown on the weapon recovery per se.

Senator Hickenlooper. It seems to be part of the recovery program.

Dr. Walske. I will give you that after the General finishes if that is all right?

Senator Hickenlooper. It is as far as I am concerned.

Senator Anderson. You say you have removed a certain amount. How dangerous is it going to be in this area?

General Hunziker. As it is now, sir? I would prefer to let the scientists address themselves to the point of how dangerous it is.

Senator Anderson. Don't you have some idea about it?

General Hunziker. Sir, I walked back and forth in that area with protective clothing. It wasn't dangerous at all.

Dr. Langham. Senator, that is just like the situation in Spain. When plutonium is around in your environment there is a possibility you can get it in you. If you get it in you, there is a possibility it can produce lung or bone cancer -- very much like smoking cigarettes. In reality, plutonium is not dangerous at all unless it is taken into the body.

So when you have a contaminated accident like this, you clean up as much as you can just to lessen the possibility that

someone will get it in them. As far as I am concerned, out on this big cake of ice, which is going to break up and melt into the bay anyway before long, there is absolutely no risk whatsoever, particularly now that we have cleaned up 93 percent of it.

Mr. Conway. Is there any danger once it sinks into the bay that it will be ingested by the fish and subsequently eaten by natives in the area who might thus get plutonium within their bodies?

Senator Hickenlooper. That is exactly what is bothering the Danes.

Dr. Langham. Plutonium doesn't transfer readily through the ecological cycle. By the time it gets from the plankton and mussels into the seals, and the Greenlander who catches the seal and eats it, it has been diluted. He could get it into him by a factor of about a million.

Senator Anderson. I remember that we were on a submarine trip one time and some of us did get a little radiation exposure. This worried us at that time, but we learned it was not significant.

But what do you do about these tanks? How do you bury them? How dangerous was it in the first place?

Dr. Langham. It is not dangerous so long as it is kept confined.

Senator Anderson. Aren't you going to turn it loose?

Dr. Langham. You can't turn it loose really. You must keep it confined just like we buried the soil we brought from Spain. That is buried at Savannah River.

However, if it is diluted, as it would be by going into the ocean, it gets so low there is no hazard, but there seems

to be an attitude that radioactive materials should not be disposed of in the oceans. Personally, I think it is an excellent place to dispose of it.

Senator Anderson. I do too. Where do they want to bury it?

Dr. Langham. They are still arguing about this. I have heard two or three places mentioned, and no one of the three places want it particularly, but someone will get it.

Dr. Walske. AEC has agreed to accept the contaminated aircraft debris and take charge of the disposal of it.

Mr. Ramey. Of course, the levels of radiation in this are much less than the highly radioactive waste from our reactor operations that we have to keep contained, and have kept contained for 20-25 years, more or less.

Mr. Conway. Won't the snow and ice in these tanks melt and you will then be transferring liquids in the tanks?

General Hunziker. May I address that?

The question now is just how we remove these tanks. Do we fliter them and put the clean effluent back into the bay and take the empty tanks. These tanks weigh approximately 40 tons. It is not going to be easy to move them by freighter. So this is a subject on which we have to spend a great deal of time.

We do have time now. The Danes have agreed there is no special hurry ~~to get it off the island, but they do want it off,~~ **to get the stored contaminated material off the island, but they do want it off, therefore, we have to remove it properly at the least cost.**

Senator Anderson. It will be water?

General Hunziker. The snow and ice in these tanks will melt this summer. At that time there is an idea just to filter it right from the tanks into the bay.

The reason I put the tanks right next to the shoreline was to be sure we didn't contaminate the base camp, and also if we did choose to put it into the bay, we have easy access to it.

Representative Young. How did you get the tanks up there?

General Hunziker. Sir, these tanks were part of an abandoned system we used at one time for the B-36's. There were some 100 # 25,000 gallon tanks up there that were not being used. I to the tank farm pulled them out of the stanchions, brought them down, cut them open and poured snow into them.

Representative Young. Thank you.

Mr. Conway. Do you want to move to Dr. Langham now?

Senator Anderson. I want to know about the danger. Suppose that were a populated area. Could you walk through that area of contamination and still live? What is the strength of the contamination?

Dr. Walske. In all our clean-up work at Thule, both our scientists and the Danish scientists agreed what ~~you~~ we were doing was just in the nature of good housekeeping measures. We were not removing an identifiable hazard to people, animals, marine life or plant life. It was all in the nature of precautionary -- super-precautionary, if you like -- work. It was a lot of work but also it brought us a lot of good will from the Danes and a lot of understanding on their part.

Senator Anderson. We had testimony at one time about a test at Jackass Flats. I believe they said you had to stay about six miles away. Should this be 200 miles, 400 miles or what?

Dr. Walske. As Dr. Langham has pointed out, plutonium is a problem if you breath it into your lungs and get it stuck in your body, but in almost any other way that you come into contact with plutonium, it will not be a hazard.

Mr. Conway. In the case of the test at Jackass Flats, Senator, you had a nuclear explosion with radiation left behind. Here there was no nuclear explosion - no induced radiation - merely a scattering of the weapon material, plutonium.

Senator Anderson. If it has no effect, how do you know it is there?

Dr. Walske. When he says it has no effect, he means of biological importance unless you breath it into your lungs. Plutonium has alpha activity associated with it and some very low gamma ray activity, which is not a biological factor, as I understand it. The alpha activity is not important unless the plutonium is lodged in your lungs.

Senator Anderson. Then what danger is there to anyone?

Dr. Walske. In that position it was not really a danger, but if it should somehow become picked up in the atmosphere, someone could breathe some of it into their lungs and then it could, by extreme interpretation, be something of a hazard.

Senator Anderson. By extreme interpretation?

Dr. Walske. Yes -

Senator Anderson. How about an ordinary, common sense interpretation?

Dr. Walske. There are political factors involved in these things as well as the technical factors. I think if this accident had taken place in U.S. territory, we would have done much less

work. I believe that is correct. On the other hand, there was an added factor, which was mentioned, of this blackened area. The reason it was black was because there was a lot of fuel there. The fuel contained the plutonium pretty well and the plutonium was sort of suspended in this oil, which would float on water when it melted.

We couldn't say unequivocally to the Danes that the oil, when it melted in the summer time, wouldn't go over to the shoreline and ~~bring~~ carry plutonium over there. So rather than argue that we ought to wait and see if the oil got to the shoreline, we agreed with the Danes that we would pick up this blackened area. That was the major part of the clean-up operation.

I would like to say a few words about the weapons -

Senator Anderson. I am trying to find out if this isn't dangerous, why we worry about it?

Dr. Walske. I would say -

Senator Anderson. About ten years ago we had some difficulty with a certain type of reactor that someone said might cause some trouble. I don't think it did. Did you worry about that?

Dr. Tape. It was under control day by day, Senator -

Senator Anderson. It looked like a fishing rod down there.

Dr. Tape. I have also heard stories about our having to worry about people dropping things in the tank too.

Senator Anderson. Did you worry?

Dr. Tape. I had some worries about it. I wasn't part of it, but I heard that they controlled it by putting in meshes and screens so they couldn't drop things into it.

I think the point being made here is the following. As Dr. Walske pointed out, this did not happen on United States territory. It happened on foreign territory.

The Danish scientists were taking the same attitude you have been expressing here: What are the concerns with respect to health and safety and so on? They agreed that the levels we are talking about here are not concerns in health and safety -

Senator Anderson. What are the concerns?

Dr. Tape. Then the concern is to make sure that the public is truly assured that there is no such concern. The way you do this is to do the most reasonable and best job you can in getting whatever contamination there is under control. You get it under control by putting it in a place where you know where it is and you have some control over it and you don't expect the public then to be exposed. It is under control.

We ourselves worry about our own waste disposal programs in this country in terms of where will we put it so that we know it is under control. Our people are taking care of it and the public won't accidentally come into contact with it.

I think it is quite proper for the Danes to say, "Look, one of the best ways for you to have this under control for all time to come is for you to have it in the United States and not in Greenland. The ultimate objective is to get that part of the contamination which we would have to control over a long period of time out of Greenland and back here. As General Hunziker says there has to be some work done here as to whether one takes the snow/water combination or whether one can process it in such a way that the bulk of the water can be dumped back into the bay and one merely has the contamination to return.

The Danes are quite agreeable that we take time to study this and to do the thing which is the most sensible, but get the contamination back to this country. They too, I think, have been most sensible in the sense that even though there is some contamination left in various places, you don't go to the very last bit. You use common sense here and let that go.

I think you will find assurance after you hear Dr. Langham tell you about what he has found out -- what his measurements have shown. Also the Danes in their analyses and measurements have come up with numbers which are quite comparable.

So with your permission, I think it might be well to hear from Dr. Langham.

Dr. Langham. I don't want to bother you with too many details of data. But many of you manifested quite a bit of interest in the Spanish situation when it occurred. This again is the same plot, just different characters, and different scenery.

It is an incident where the plutonium in four nuclear weapons was spread over a territory that belonged to some other government. In this case, it was more fortunate than the one in Spain because in Spain we had a village of 200 or 300 people bracketed between the two nuclear weapon incidents in which the high explosive components went off and spread the plutonium.

In this case we had plutonium from four devices spread over a cake of ice out in the bay where people occasionally come to hunt seals, catch birds and a few other things that they live off of. In other words, they are a hunting people. They

make their living by hunting, and not by growing tomatoes as the Spanish did.

Insofar as I can see, there would not have been any particular hazard at all to the Greenlander and his ecology even if we had done nothing. I am sure the plutonium that was in the blackened area -- and it was several pounds of plutonium divided into very fine powder as plutonium oxide that was in this crusted area -- if this had been allowed to break up and go into the bay, it would have been diluted and dropped to the bottom of the bay except for this oil or fuel problem which made some of the plutonium clot. This could have been washed ashore and contaminated the shore line.

It is not, in my opinion, very likely that there would have been any hazard had we done nothing, but as one of the Danes very aptly put it, "Don't dump your garbage in someone else's doorway and walk away if you get caught." Indeed, there is no way you can hide the fact that you had an incident involving nuclear weapons.

So our problem again was much as it was in Spain of (1) making the people in the area feel we had made the proper gesture, and (2) to assure, as Commissioner Tape was saying, the public - and the Danish public primarily - that indeed we have this under control where in the future it will not come up to haunt them when they least expect it.

An extensive laboratory effort was put into getting General Hunziker technical support so he would know where the plutonium was, how much was there, and the best way of going about recovering it. Of course, sooner or later we have to face the question of the best way to get it out of Greenland.

Senator Anderson. I think at one time they were afraid of a nuclear ship that was going to Sweden -

Dr. Langham. In fact, to Denmark.

Senator Anderson. You and I know there was no real hazard at all. How much of this is just plain imagination and how much is real hazard?

Dr. Langham. There is no doubt but that radiation and radioactive substances can be dangerous including the x-ray machine, if it is not under control.

Of course, in bringing a nuclear ship into harbor the things you worry about are: Is this a dangerous device and do they really have it under control? The nuclear ship and our nuclear submarines have had trouble in many places. A lot of this is imagination and apprehension. The same thing applies to reactor sites. You find all kinds of problems involved with the people in the local area because they know radiation can be dangerous. I am sure, Senator, that the development and use of electricity went through the same process of evolution and this is just part of it.

In the technical sense it became rather important to determine the attitude of the airplane as it hit the ice, the reason being we were wanting to convince the Danish people that most of the plutonium was on the surface and not underneath; that very little of the plane debris went through the ice and contaminated the bottom of the bay and would be lying there for the next hundred of years with plutonium in it. So a rather extensive study was made by means of the photographs blown up to scale and a little model airplane which showed this airplane came in in a left bank with the left wing 60 degrees low and the nose 15 degrees down. It was a rather flat, glancing angle with one wing low.

You can just explain this beautifully. The marks on the ice can only be explained provided you assume that the plane did indeed come in about 15 degrees nose down with its left wing 60 degrees low. It just lines up beautifully that way. When a plane travelling 600 or more miles an hour, hits something that has the inertia of three foot thick ice, and three-fourths the momentum of the wreckage and everything is in the forward direction and only one fourth downward, it can only just splatter along the surface. That is indeed what happened. In other words, there were 225,000 pounds of jet fuel, four bombs in a 183,000 pound aircraft hitting something as hard as ice at 600 miles an hour. This has a lot of momentum. When it did, the oil just spread down the ice. The weapons went off when the plane crushed back to the wing spars because that is when the greatest G-force would be exerted on the weapon. When the plane had crushed to that length the four weapons went off in this great mass of wreckage.

Mr. Ramey. You mean the high explosive.

Dr. Langham. Yes, the high explosive component of the weapon. They are always sensitive about whether you are talking about nuclear explosives or high explosives.

(Laughter)

And incidentally a search was made to see if there had been any nuclear criticality and there was none. This is the first thing, of course, that one should do in an accident of this type. So we were only concerned with the plutonium contamination.

When the nuclear high explosive components went off, this just helped propel this wreckage, oil and plutonium, which was blown into the oil, down the ice.

Analyses showed there was (b)(1),(b)(3):42 USC §262a(h) of plutonium in this blackened crust. When General Hunziker's teams did surveys outside of this blackened crust, it soon became obvious that 99 percent of the plutonium that was spread on the surface -- still there on the surface -- could be picked up if this blackened crust was picked up and put into tanks. In other words 99 percent of the plutonium was contained in that area. If we had picked up 100 percent, then we would have 99 percent of what is there. He has gotten 93 percent.

Senator Anderson. That is a very small amount left.

Dr. Langham. Yes, it is a very small amount.

In this crushed ice area, where he showed the diagram of the core samples, we figure there is about (b)(1),(b)(3):42 USC §2168(a) (1)(C)--(FRD) (b)(1),(b)(3):42 USC §2168(a) (1)(C)--(FRD) and it was all the way through the thickness of the ice. The ice is three feet thick so if one tried to get this plutonium he would have to dig up all of this ice to a depth of three feet, which would be a momentous job. So we were in hopes the Danes would agree to let us leave that behind, and indeed they have, provided we would put this carbonized sand on top of it because the sun hitting the carbonized sand will increase the temperature and this will melt first and fall into the bay. Not only that but this carbon sand will absorb what oil is in it and sand being heavy enough will sink to the bottom and therefore it will not wash over the bay.

Senator Hickenlooper. How deep is the water there?

General Hunziker. About 621 feet.

Dr. Langham. In other words, we have accounted for about (b)(1),(b)(3):42 USC §2162(a)--(RD) of the plutonium total inventory in the weapon. The

rest went up in the cloud, which rose to 2400 feet, and, of course, dissipated with the cloud and fell out gradually over many thousands and thousands of square miles which, of course, was over Baffin Bay where this land mass is.

Some of the plutonium stuck to the airplane parts, which General Hunziker already has in the cans, and we will never know how much is on the aircraft parts. We will never know how much went up in the cloud, but it looks as if at least (b)(1),(b)(3) 42 USC §2168(a) (1)(C)--(FRD) of the weapons at least was somewhere on the surface of the ground or in the crushed ice and the rest is dispersed in ways that we would never find anyway.

I would like to reiterate again it is my feeling that no hazard particularly was imposed on the Greenlanders or on their ecology. If you have to have such an accident, this is a fortunate place to have it -- in a wilderness of that kind where very few people live. There are only 60 or so Greenlanders who live in this immediate area and never more than 200 parade through this whole section of the country hunting seals. You will remember in Spain we had 200 people growing tomatoes between two of these things.

I am sure Mr. Tape made a good case for why one goes to somewhat ridiculous lengths, in my opinion, from the common sense point of view, as you were saying, to clean up these things. Remember it wasn't our country and the other fellow has something to say about what you do with the mess you have created. In this case we have done a very fine job already and the only question, as far as I can see, that remains is how one gets this back to the United States and when you do, who can you find who will take it

off your hands and bury it somewhere because that is the standard way of disposing of highly contaminated waste at the present time.

I chose not to give you any specific details. In other words, General Hunziker flew plane loads of samples to us. People analyzed these samples and we have reams and reams of data on where the plutonium is. It is particle size. Whether it floats in the oil or whether it sinks we have just any amount of technical information to support our arguments that we were doing (1) a good job, and (2) help convince the Danish people that what we proposed would be adequate to take care of any problem they might foresee growing out of this in the years to come.

Dr. Tape. Would you say a word about the measurements the Danes made on some of this? Part of convincing the Danes was to give them some of the material so they themselves could measure what was there and not have to take our word for it. It also was very interesting for us to see what they have analyzed in terms of results and compared to what Wright's people have done.

Dr. Langham. Of course, we have rather elaborate facilities in the various AEC installations in this country to do this type of analysis. The Danes have had very little experience with plutonium. They wanted certain samples and, of course, we had to give them samples because they had a perfect right to have them.

At the meeting yesterday and the day before they seemed in many instances to want to compare their results with ours so they could see how good they really were. It was amazing how good the agreement was when I am sure they did not have at their disposal the facilities we had. They had analyzed for many of the things we had, and their results were quite in agreement. Their estimate

of the limit of error was much broader, but if you took an average of the numbers it is amazing how closely they check, which means you have to be honest with them and tell them how much is here and how much is there because they are perfectly capable of finding it out for themselves, as they have demonstrated.

Senator Hickenlooper. Did you see any evidence of investigative activity by Russian submarines under the ice or surveillance by airplanes over the site at all?

General Hunziker. No, sir, we didn't.

Senator Anderson. Congressman Price -

Representative Price. No questions.

Senator Anderson. Congressman Morris.

Representative Morris. I have no questions, Mr. Chairman, but I want to commend this group on the excellent job they apparently have done. It is perfectly clear, I think, that a great deal of the care and extra precautions that were taken were not so much because of an actual hazard but because of the political situation that might exist with respect to our relations with another country. It seems to me you have done an excellent job both respect to cleaning up and handling the political implications.

You know ignorance is one of the greatest evils we have. Sometimes I think ignorance and fear of the unknown go together, and that we may have held some of this information too closely. It is like playing a poker hand. If you keep a little bit too close, you may not win as much money as if you played another way.

I read an article in a paper the other day - I don't remember which it was -- that some of our nuclear submarines had been in certain harbors and some character said that there was a change

in the radiationlevel of the area. I don't know whether there is or not, but it seems to me we ought to try to put forth what the real hazards are, if any, in some of these areas. We may believe it will not harm us or anybody else, but if other people don't know this, we ought to try to make sure they do know what we are doing and that there isn't any risk.

Am I wrong about this?

Dr. Langham. I think you are exactly right.

Representative Morris. It is a matter of public acceptance of radiation and radioactive materials, nuclear energy for that matter. Even though there may be some of us who have known this for 25 years, and to us it is old, insofar as public acceptance is concerned it is still very new. You are going to have this ignorance and fear factor for a long time yet, I am sure. Moreover, it seems to me it is holding up the advancement of civilization. The quicker we allay this fear of this unknown, even though it is known to us, the quicker we can use it to help mankind in many other ways. We can use nuclear energy to help.

I realize everything you did here had to be done, and I agree 100 percent that you had to do it. I think you have done an excellent job but I hope in addition there may be some way to get this sort of information to the public. It is much like overeating. You can, if you want to be a hog, kill yourself by eating too much food. I guess drinking liquor too -

Senator Anderson. You go too far there.

(Laughter)

Representative Morris. In smoking cigarettes and in most anything. I don't know how you do it but there may be something you people can figure out.

Representative Price. Of course, we have been trying actually for 25 years to educate the public. We release stories. We release reports.

As a matter of fact, the story you are talking about came from the Joint Committee printed hearings on the nuclear propulsion program, which were completed in February. This has been available for some time. It is not in fine print either. It is one of the lead articles in the Appendix, and in full size print so it is easy to read. It has had press coverage.

I believe we have done everything possible to lay things out before the public. It is the same with nuclear reactors. They still think they are going to explode. It is just a very difficult matter. It isn't because there has been any reluctance to put out the information. It has been put out many, many times.

Mr. Ramey. Mr. Chairman, in talking to the Danes and their Public Health people who have been in town, and I saw some of them yesterday, I asked if they were familiar with the Joint Committee Hearings on Fall-out and Radiation Standards. They said that this was one of their text books. They used those originally in low level radiation effects. You will remember Dr. Langham testified in those original hearings in 1957 as well as subsequently.

Senator Anderson. Are there any further questions?

Senator Hickenlooper. I have none, but I want to say I think you did almost a superhuman job there. I think it was well done. I realize the benefits of bending over backwards to assure our hosts that we are not going to contaminate their population nor their food supply and that there is no danger. As a matter of fact, I think it is worth the extra expense.

General Glasser. May I add a comment, Senator?

We seem to have stressed the satisfaction of the Danes, or over-stressed the satisfaction of the Danes. We couldn't have asked for a more cooperative group to work with than the Danes. As a matter of fact, they were joining us and saying, "We need to convince the less friendly countries."

It was not the Danish people we had to convince we were doing right. It was some of the others. Throughout the incident there were articles coming out of much less friendly nations saying what a great hazard we had created in scattering this stuff around. The Danes were simply joining us and saying, "If we bend over backwards to do a good job, this will blunt the propaganda activities of these other people." That was the reason for doing it. It was not for the satisfaction of the Danish Government itself. They were willing to leave it there.

Dr. Walske. I want to second what General Glasser has said, Mr. Chairman. May I read a sentence to you from the press release that was jointly agreed to by the American and Danish scientists who reviewed the situation in meetings in Copenhagen on the 15th and 16th of February. This was a jointly agreed position. (Reading) "It was agreed that under present conditions the radioactivity spread in the area is not a hazard to people or biological species, nor is any hazard foreseen in the future. Nevertheless an effort will be made to remove the main part of the radioactivity which is on the ice."

Then again at the same meeting we had what we call a "gentlemen's understanding" of what would be done. After describing ~~this~~ the removal of the blackened area from the ice, this statement was jointly agreed with the Danish scientists and

officials and it said, "All steps of the program are to be best efforts to clean up in a housekeeping sense, not necessary steps to remove a demonstrated hazard."

So what General ~~Gloeser~~ Glasser said about the Danish scientists and officials being reasonable, I think is absolutely true. They realized they had a public relations problem and a good job should be done in cleaning up what could be cleaned up.

Senator Hickenlooper. Mr. Chairman, I apparently misstated my compliments here. I think this information about the Danes should have been presented as part of the presentation. All the evidence I heard was that we were doing this for the Danes. I think this is wonderful to know. I think it should be part of the record and we should know it.

Senator Anderson. I concur.

Senator Hickenlooper. I was under the impression we were doing this for the Danes based upon the testimony and the statements here. I am glad to know the Danes are cooperating in allaying the fears of other nations who were critical.

Representative Young. I would like to add my commendation to those that have already been expressed on the very fine job that has been done.

I am a little bit curious. Do you have any figures on how much it cost -- not the loss of the aircraft, but the clean-up process?

General Glasser. Not at the present time.

Representative Young. I was just curious. I don't think it is important at all.

Thank you, Mr. Chairman.

Mr. Conway. There is one point I might make in following up on Congressman Morris' comment. Dr. Langham may recall that after cleaning up at Palomaris there was the possibility that some who participated in cleaning up that area may have become contaminated. As I recall, there was a Spanish official. I wonder whether that has been put to rest, and whether you have conducted any bio-analysis of those participating in this clean-up so there would be no question in their minds about becoming contaminated.

Dr. Langham. There has been local monitoring all the time. The people who are working in the area get very careful monitoring, as General Hunziker showed you.

You will remember the problem in Spain came about when they went out to the contaminated area and tried to collect urine specimens, and got them contaminated. We are not making that mistake this time. The thing to do is to watch carefully with monitoring equipment. Then when these people are released from this assignment they will get a careful urinalysis. In fact, I think the program is set up already to see that these people, when the operation is over, get treatment - primarily to relieve their own minds.

General Hunziker. We have a tri carb lab at ~~the site~~ Thule. We are getting urinalyses, nasal swabs, and the necessary sort of things to follow on with a program. After these people go home, they will have a continuation of analysis just to be sure we haven't made an error.

Mr. Conway. Am I correct that in the Palomaris situation, follow-up examinations have indicated no one who participated in

the clean-up or lived in the area received what might be considered a heavy dose of radiation.

Dr. Langham. That is right. We set the Spanish up with a rather comprehensive follow-up program, and they are doing very well and finding essentially negative results.

Senator Anderson. Are there further questions?

If not, thank you all very much for coming here.

(Whereupon at 11:30 a.m. the meeting was adjourned.)

File/Thule

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DR CARL WALSKE ASSISTANT TO THE SECRETARY OF DEFENCE

(ATOMIC ENERGY)

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3-2

18 MAR 1970

Mr. Hans H. Koch
Chairman
Executive Committee of the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

We were very pleased to hear of the enthusiastic reception accorded the Project Crested Ice report in Denmark. The publication was favorably received here, as well. May I once again express our appreciation for your helpful cooperation and many contributions to the success of this project.

Insofar as the supplementary ecological investigation is concerned, while we would certainly be interested in your findings, we do not have any scientists to propose as "official participants." We do understand that Dr. Wayne Hanson, of the Battelle Northwest Laboratory, has been informally contacted by Mr. Aarkrog. If Dr. Hanson proposes to participate again, I believe that the USAEC will give him every consideration, depending on available financial support.

If circumstances permit, I would take great pleasure in again seeing you, here or in Denmark.

Warm regards,

CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Col Stansberry/18 Mar 70/pap

Book
18 MAR 70

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file - Crested Ice

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TO: MR. HANS KOCH
CHAIRMAN, EXECUTIVE COMMITTEE, AEK
STRANDGADE 29
1401 COPENHAGEN K, DENMARK

INFO: MR. HANS VON BULOW
HEAD OF COMMISSION SECRETARIAT, AEK
STRANDGADE 29
1401 COPENHAGEN K, DENMARK

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3-6

FEB 1 ? 1970

Mr. Hans Koch
Chairman
Executive Committee of the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Mr. Koch:

Mr. Hans von Bülow mentioned in his letter of February 6, 1970, to Dr. Walske that you had not yet received Dr. Walske's letter of January 27, 1970. Since it appears that Dr. Walske's letter may have gone astray in the mail, I have enclosed a second copy.

Sincerely,

Signed: Roger Ray

Roger Ray
Colonel, USA
Deputy Assistant to the Secretary
of Defense (Atomic Energy)

Enclosure

LTC Stansberry/sed/12Feb70

FEB 12
Book

3-7

FEB 12 1970

Mr. Hans von Bülow
Head of Commission Secretariat
Atomic Energy Commission
29 Strandgade
Copenhagen K., Denmark

Dear Mr. von Bülow:

Since Dr. Walske is away from the office until later in February, I am taking the liberty of responding to your letter of February 6, 1970.

Your understanding of the February 27th release date is correct and may I add that we greatly appreciate the understanding and cooperation from your office on this necessary adjustment. Since you indicated that Mr. Koch had not yet received Dr. Walske's prior letter, I have forwarded a copy to Mr. Koch under separate cover. A copy is also enclosed herewith for your information.

Sincerely,

Signed: Roger Ray

Roger Ray
Colonel, USA
Deputy Assistant to the Secretary
of Defense (Atomic Energy)

Enclosure

LTC Stansberry/sed/12Feb70

FEB

3-8

JAN 2 7 1970

Mr. Hans Koch
Chairman
Executive Committee of the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

This is further to my letter of January 13 and recent conversation with Hans Von Bulow in which we arranged a February 13, 1970 release date for the "Crested Ice" issue. Unfortunately, a short delay is necessary.

The printer has been working for several weeks on the last set of revisions stemming from your last editorial suggestions to which we agreed. His efforts had been directed until late last week toward making minimum shifts in the original layout.

Last week, he concluded that these shifts would not be adequate. Rather than take a chance on loss of quality in the appearance of the publication, I have agreed to a two-week delay, which will allow the printer time to do a complete new layout. Thus, we are now planning for February 27, 1970 as the release date. All other arrangements concerning release time, advance copies and distribution remain unchanged.

While I regret the delay and any inconvenience this may have caused you, I do believe it to be the best course of action under the circumstances.

With warm regards,

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

LtColonel Stansberry/26 Jan 70/pap

JAN 2 7 1970
BOK

Life Magazine

3-9

January 30, 1970

Dr. Walske

Carl,

Called von Bülow 1/30 to be sure that he had been advised of the delayed release. He had not, and was most appreciative. Said it will give them no difficulty.

The TV exposure alluded to in the letter is based upon an old promise. von B anticipates a non-inflamatory 5 minute interview with one of their scientists.

I thanked him. He thanked me. He sent you his warmest.

Royce Ray

NNNN

JAN 14 AM 10 44

3-10

ZCZC AWA044 KNB053

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KOEBENHAVN 37 14 1612

DR CARL WALSKE

OFFICE OF THE SECRETARY OF DEFENSE

WASHINGTONDC20301

REF YOUR CALL JANUARY 6 WE CONFIRM RELEASE FEBRUARY 13TH 1600
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3-11

JAN 13 1970

Mr. Hans von Bülow
Head of Commission Secretariat
Atomic Energy Commission
29 Strandgade
Copenhagen K, Denmark

Dear Hans:

This is in reply to your letter of November 18, 1969, and confirms several of the details we discussed in our telephone conversation on January 6. I am pleased that we can finally complete this project which has required a good deal of effort on both sides of the Atlantic. As agreed, release of the publication will be late afternoon, February 13, Danish time. Present plans call for the U.S. release to be made by the U.S. Air Force in Albuquerque, New Mexico, with no public announcement contemplated.

Your editorial recommendations and suggested sequence for the Danish articles have been incorporated in the publication. In order to make the descriptions of the hole in the ice more consistent, I have taken the liberty of changing slightly the description in each of the three articles in question.

Printing of the publication is expected to be completed near the end of January and I shall arrange to have your advance copies shipped to you via air mail as soon thereafter as possible, so they will be in your hands well in advance of the release date. You mentioned the possible need for more than 20 advance copies. Therefore we shall send you 50 and I shall notify you by telegram the day shipment is made. The remainder of your 800 copies will be shipped via air mail, but in larger packages. They should arrive a short time after the advance copies. All of the copies shipped to you will be complete with covers.

I am pleased to tell you that there will be no charge to the Danish Government for publication and shipment costs of the Crested Ice issue.

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

8 January 1970

3-12

MEMORANDUM FOR RECORD

SUBJECT: Publication of "Crested Ice" Issue of Air Force Nuclear Safety Magazine

Colonel James Brower provided OATSD(LA) concurrence on the above on 29 December 1969. Mr. Wolf Lehmann provided State Department concurrence on 30 December 1969.

James W. Stansberry
Lt Colonel, USAF
Executive Assistant to the
ATSD(AE)

3-13

8 JAN 1970

MEMORANDUM FOR MAJOR GENERAL BOX, AFIGO

SUBJECT: Publication of "Project Crested Ice" Issue of the Air Force Nuclear Safety Magazine

This is to confirm our conversation of 31 December 1969, relative to the subject publication. All necessary clearances outside the Air Force have now been given for publication and release of the magazine on 30 January 1970. Details concerning coordination of the joint release, here and in Denmark, can be worked out directly with your staff, if that is agreeable.

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

LTC Stansberry/sed/2Jan70

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

December 24, 1969

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (PUBLIC AFFAIRS)

SUBJECT: Publication of "Crested Ice" Issue of Air Force Nuclear Safety Magazine

This is further to Mr. Friedheim's memorandum of October 21, 1969, concerning the above subject. Chairman Holifield, Representative Price, and Representative Hosmer of the JCAE have now indicated to me that publication and release of the "Crested Ice" issue is acceptable to them. Secretary Laird has been so informed and agrees that our plans can now go ahead. I therefore propose simultaneous public release in Denmark and the United States on January 30. Will you now join with me in lifting the previous administrative suspension of publication?

Carl Walske
Carl Walske
Assistant to the Secretary of Defense (Atomic Energy)

Concur ISA R Pfferson

Agree to lifting administrative suspension Upon concurrence by State and OSD (LA). DBH

3-15

OCT 14 1969

Mr. Hans von Bülow
Head of Commission Secretariat
Atomic Energy Commission
29 Strandgade
Copenhagen K, Denmark

Dear Hans:

Thank you for your letter of September 22, 1969, which reported Mr. Koch's reactions after his first look at the proof copy of the articles on Operation Crested Ice.

As you suggested, the proofs had been printed prior to our conversation on July 22 and therefore do not reflect your suggestion of that date. Your point, however, regarding the fact that Hobo 28 did deviate from the planned flight path and approached Thule Air Base under emergency conditions, has been passed to the editors for inclusion in the article.

The change to the sequence of articles you mentioned can be accomplished with little difficulty. I agree that placing Professor Koch's article nearer the front of the magazine will make the grouping of subject matter more orderly and enhance the readability of the publication. This revision has also been given to the editor and Professor Koch's article will be placed as you suggested.

Publication is still being delayed, but I am hopeful we can soon proceed to complete this project.

Sincerely,

SIGNED CARL WALSKE
Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Maj Christensen/mv/14 Oct 69

OCT 14 1969
Book

3-16

SEP 16 1969

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF DEFENSE (PUBLIC AFFAIRS)

SUBJECT: Crested Ice Articles for Nuclear Safety Magazine

In our telephone conversation on September 11, 1969, I was able to relate the developments regarding the current suspension of efforts to publish the articles on Crested Ice and respond to the request contained in your memorandum of September 10, 1969. Further to that conversation, and with particular reference to the problems cited in your memorandum of April 26, 1969, let me summarize the situation.

It is desirable to complete the preparatory work which now lacks only the OASD(PA) clearance of Dr. Langham's article. The article has been determined to be unclassified and well within the guidelines established for the author. Your staff has obtained both AEC and State Department clearance and I have already obtained favorable reaction from the Danes. Your clearance of the article, therefore, would complete the clearance of all proposed articles. Administrative suspension would still, however, continue until publication is determined to be opportune.

In accordance with my guidance from Secretary Laird, it is our intention to reopen in a couple of months the question of whether or not to publish the magazine. Well in advance of reactivation of the publication effort we fully intend to coordinate with your office and most importantly, of course, with Chairman Holifield. I shall certainly keep you informed of any further developments.

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Col Clark/pap/15 Sep 69
Distr: Orig + 1 - Addressee
P&Y - OATSD(AE) files

16 SEP 1969

3-17

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

PUBLIC AFFAIRS

1 0 SEP 1969

MEMORANDUM FOR THE ASSISTANT TO THE SECRETARY
(Atomic Energy)

SUBJECT: CRESTED ICE Articles for NUCLEAR SAFETY Magazine

This has reference to the August 2, 1969 letter to Secretary Laird from the Chairman of the Joint Atomic Energy Committee and your reply of August 5, 1969, concerning suspension of plans to publish the articles on CRESTED ICE.

In light of this development, and because the problems outlined in my memorandum to you of April 26, 1969 remain, further action on the article "Technical and Laboratory Support" by Dr. Wright H. Langham has been suspended and the article is being returned to the Department of the Air Force without clearance.

Because of the sensitivity of the subject matter involved in the CRESTED ICE series of articles, it is requested that you coordinate with this office well in advance any plans to revive publication.

Jerry

Jerry W. Friedheim
Deputy Assistant Secretary

~~FOR OFFICIAL USE ONLY~~

11 SEP 1969
6001

3-18

AUG 2 8 1969

Mr. Hans H. Koch
Chairman of the Executive
Committee of the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

On my return from my vacation I was pleased to find your letter of August 12, 1969, waiting. I deeply appreciate your understanding the delay in publishing the joint report of Operation Crested Ice.

As you note from the attached proof copy of the magazine, our people have proceeded with preparatory work on the complete magazine which is forwarded for editorial proofing by the Danish contributors. They have pointed out that the quality of the printing and pictures as you see them now is not representative of the final product which will be in full color. We would like to have your approval of the proofs, when convenient.

While I am personally looking forward to the publication of the report in its entirety, I believe there is good merit in your suggestion for at least a Danish status report by Jørgen should the full report be long delayed. I would hope that we could settle this by, say, the end of October.

With warmest regards,

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Attachment

Col Clark/28 Aug 69/pap
Distr: Orig + 1 - Addressee
P&Y - OATSD(AE) files

AUG 2 8 1969

~~CONFIDENTIAL~~

3-20

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

July 18, 1969

AW-52 - Thule mag.

MEMORANDUM FOR RECORD

Dr. Walske learned of the JCAE's reluctance to see the DoD proceed, at this time, with the joint US-Danish publication of articles regarding the Thule accident and cleanup measures following. The sensitivity, based to a large measure on the current national and Congressional division on effects of nuclear weapons, was sufficiently real for members to recommend delay from the anticipated 15 August 1969 release. After consultation, Dr. Walske called Mr. Hans von Bülow, Danish AEK, to advise of a considered delay and learned that the delay would be welcomed by the Danes who did not look forward to having to use the administrative personnel to proofread the Danish technical articles in the absence of the scientific authors. The latter were not expected to return from holiday until mid or late August.

The plan is to continue to complete the preparations for the publication and then hold it in readiness for release following a later review, perhaps in the fall. General Hunziker was advised by telephone and has passed appropriate instructions to the editorial staff at Kirtland regarding the delay.

Charles V. Clark
Colonel, USAF
Military Assistant to the
ATSD(AE)

~~CONFIDENTIAL~~

DEPARTMENT OF DEFENSE
NATIONAL MILITARY COMMAND CENTER
MESSAGE CENTER

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3-21

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TO MR CARL WALSKE OFFICE OF THE SECRETARY OF DEDENSE WASHDC
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COULD YOU CABLE APPROXIMATE WEIGHT SINCERELY.
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1 OF 1

EX CY: ASD/ADM-1 (7) 14JUL69AT

15 JUL 1969

3-23

July 8, 1969

Mr. Hans von Bülow
Head of Commission Secretariat
Atomic Energy Commission
29 Strandgade
DK 1401 Copenhagen K, Denmark

Dear Hans:

Thank you for the prompt dispatch of the final materials needed for the magazine. All has now been passed to the editorial staff who are busy assembling the printers text. I shall forward the Danish proofs to you as early as possible and, as you requested, return the dia-positives.

Regarding the dimensions of the publication, as I told you the Air Force usually prints the pages on 16-1/2 X 10-1/2 inch sheets. They are then folded, bound and trimmed. The finished dimensions are approximately 8 X 10-1/2 inches, with small variations due to the trimming. As we discussed, I shall ask that the copies furnished you be untrimmed (hence approximately 8-1/2 X 10-1/2 inches) so that after your covers are mounted the copies can be smoothly finished.

Your comments on the Danish articles have all been incorporated and should be shown on the proofs which I shall forward to you. Danish comments on the U.S. articles were most constructive and have also been passed to the editing staff for inclusion. I had neglected to mention previously that we have had only one comment on the Danish articles. This comment related to the term Eskimo, which we have been advised should be changed to read Greenlander. The U.S. State Department on the advice of the Danish Embassy brought this to our attention so we have taken the liberty of making that change throughout. Unless you advise to the contrary I shall assume this to be satisfactory.

Leek
8 JUL 1969

3-24

MAY 1 5 1969

Mr. Melvin E. Neef
Chief, Weapons Branch
Division of Classification
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dear Mr. Neef:

A review of Dr. Wayne Hanson's paper, "Radionuclide Distribution in Lichen Communities of the Thule, Greenland, Region During the Summer of 1968," has been conducted. The paper should not be released in its present form.

The report focuses attention on Cesium-137 and other fission products in a manner that would lead to the erroneous conclusion that these fission products were a direct result of a nuclear contribution following the Thule accident.

It is believed that his presentation could be revised to avoid this unfavorable and inaccurate reaction by dividing the matter into separate articles, one in which the $^{239, 240}$Pu readings in the Thule area during the summer are presented; the other, drawing on his expertise and area of interest in observing fission fallout in Artic regions, to relate in better perspective the Thule readings incidental to his summer activities as part of the worldwide fallout measurements.

Following a rewrite of the articles we would like to review them prior to publication and to obtain the consent of the Danes pursuant to our understanding with them.

Sincerely,

CVClark/ger/14 May 1969

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

MAY 15 1969

MAY 2 7 1969

3-25

MAY 2 7 1969

MEMORANDUM FOR DIRECTORATE FOR SECURITY REVIEW, OASD(PA)

ATTENTION: Mr. Willis D. Lawrence

SUBJECT: USAF Nuclear Safety Magazine Article

Confirming the conversation this date between Mr. Lawrence, Security Review, OASD(PA), and Colonel Clark, OATSD(AE), regarding the processing of Dr. Langham's article for the USAF Nuclear Safety Magazine, we are forwarding copies of the unclassified manuscript for Danish clearance.

The AEC, who have also agreed that the article is unclassified, have prepared a letter of notification to the JCAE advising of the removal of the original administrative restriction. The Commission proposes to advise the JCAE when notified that the ATSD(AE) has obtained Danish clearance of the manuscript.

Signed: Frank D. McMillan

Frank D. McMillan
Captain, USN
Deputy Assistant to the Secretary
of Defense (Atomic Energy)

Col Clark/mv/27 May 69

A w - [illegible] Corres [illegible]

3-26

MAY 27 1969

Mr. Hans Koch
Chairman
Executive Committee of the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Mr. Koch:

As Dr. Walske indicated to you in his May 22, 1969 letter, I am forwarding as an attachment to this letter Dr. Langham's article as the final U.S. contribution proposed for inclusion in our joint publications.

The article speaks to the issues which will most interest the Health Physics community and had to be sufficiently detailed to convey meaningful information. We would appreciate any comments you wish to make regarding the article at your earliest convenience.

Sincerely,

Signed: Frank D. McMullen

Frank D. McMullen
Captain, USN
Deputy Assistant to the Secretary
of Defense (Atomic Energy)

Attachment

CVClark/ger/27 May 1969

MAY 27 1969

Book

3-28

MAY 27 1969

Honorable Angier Biddle Duke
American Ambassador
Copenhagen, Denmark

Dear Ambassador Duke:

The attached articles, forwarded for your information, are copies of the final set of U.S. contributions submitted to Mr. Hans Koch, AEK, for Danish clearance.

We are now awaiting the Danish articles which are expected to arrive any day so that compilation and publication of the Air Force magazine may soon be accomplished.

The excellent cooperation enjoyed in our interactions with Mr. Koch and his colleagues has permitted us to accomplish our objective without requesting your assistance. However, your continued interest has been appreciated.

Sincerely,

Signed: Frank D. McMullen

Frank D. McMullen
Captain, USN
Deputy Assistant to the Secretary
of Defense (Atomic Energy)

Attachment

CVClark/ger/27 May 1969

MAY 1969

3-29

MAY 2 2 1969

Mr. Hans Koch
Chairman of the Executive
Committee of the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

The attached copies of three additional magazine articles intended for inclusion in our joint publications are forwarded for your consideration and clearance. The remaining article is in the final stage of clearance and should be forwarded within one week, concluding the U.S. contributions.

It was good to receive your letter of April 30, advising that the U.S. articles reviewed had met with your approval except for a few minor points. We are anxious to have the Danish articles, which you indicated were to be provided this month. Our people who are charged with preparation and publication of the magazine have begun to voice some anxiety.

As I shall be travelling through southern Europe for the next three weeks, my deputy, Captain McMullen, will forward the remaining article.

With warmest regards,

Sincerely,

SIGNED CARL

CVClark/ger/21 May 1969

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Attachments

MAY 2 8 1969

Book

AW-Thule Corres.

~~SECRET~~

3-30

APR 29 1969

Mr. Robert E. Hollingsworth
General Manager
U.S. Atomic Energy Commission
Washington, D. C. 20545

Dear Bob:

As you know, the Air Force is devoting a special issue of the USAF Nuclear Safety magazine to the activities resulting from the B-52 accident near Thule Air Base in January 1968. Among the articles being prepared for this publication is one by Dr. Wright H. Langham of LASL. Certain of the information in Dr. Langham's article is presently classified or administratively controlled, but release would be particularly valuable for training personnel in both the military and civilian communities and would be a means of releasing findings and data on the Thule incident to the Danes, the press, and other interested agencies. A copy of this article has been furnished to the Commission.

(b)(1),(b)(3):42 USC §2162(a)-- (RD)

Accordingly, it is requested that the Atomic Energy Commission join with the Department of Defense in the determination, under the provisions of Section 142a of the Atomic Energy Act of 1954, as amended, that measurements revealing that a total of approximately [redacted] of tritium confined to the so-called blackened pattern may be published without constituting an unreasonable risk to the common defense and security.

(b)(1),(b)(3):42 USC §2162(a)-- (RD)

Further, it is requested that the Commission join with the DoD in removing the connotation of privileged information associated with the value of [redacted] of plutonium removed from the blackened area.

[redacted]

For the information of the Commission, release of this information is being coordinated with Danish authorities, as well as cognizant U.S. agencies.

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

diLorenzo/lc/29 April 69

O + 1 - Addee

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

3-31

AW - Thule Greenland.

PUBLIC AFFAIRS

26 APR 1969

MEMORANDUM FOR ASSISTANT TO THE SECRETARY OF DEFENSE
(Atomic Energy)

SUBJECT: Dr. Langham's Article for NUCLEAR SAFETY Magazine

Our review of subject article has resulted in concern over the unusual circumstances surrounding the declassification action on the estimate of the amount of plutonium removed from the site of the Thule accident. AEC General Manager Hollingsworth's letter of March 20, 1968, to Senator Pastore, contains the statement that the DoD plans to "avoid any public release of the information" and indicates that the Danes will be asked to treat the information as "privileged" and carefully control its dissemination.

I can find no record of this office having coordinated on this commitment; nevertheless, a commitment was volunteered to the Congressional Joint Committee on Atomic Energy in justifying the unique declassification action. I believe that the contents of this article, when published in an official DoD publication under the by-line of an author of Dr. Langham's stature in his field, would constitute a violation of that commitment.

It is understood that this article has come to your attention. I'm sure you have considered both the benefits and harm--from a DoD standpoint--which open publication might bring. Perhaps you have in mind the means of negating the commitment and conditions indicated above, but it appears that such action will be necessary before the article could be cleared for publication. I am not disposed to clear the article at this time but solicit your thoughts on this matter before making a final decision.

Jerry W. Friedheim

Jerry W. Friedheim
Deputy Assistant Secretary

~~FOR OFFICIAL USE ONLY~~

N/C

3-33

MAR 1 0 1969

Honorable Angier Biddle Duke
American Ambassador
Copenhagen, Denmark

Dear Ambassador Duke:

In my letter of February 26, 1969, I provided you with information regarding the joint effort being undertaken by Danish personnel and ourselves in publishing a magazine relating the story of the Thule accident. I also forwarded copies of cleared articles, for your information, that were being transmitted to the Danes.

There are attached hereto informational copies of additional articles which were forwarded to Mr. Hans Koch, AEK, on this date. I am pleased to inform you that our joint effort continues to progress nicely.

Sincerely,

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Enclosures

cc: Asst to DIG/IS, USAF

3-34

MAR 10 1969

Mr. Hans H. Koch
Chairman of the Executive
Committee to the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

As indicated in my letter of February 26, 1969, additional magazine articles have been cleared and I am forwarding them to you today. While these do not complete the U.S. submissions, it seemed that forwarding increments as they became available might facilitate the work load. The remainder will be forwarded as soon as possible.

With warmest regards,

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Col Clark/mv/7 Mar 69

repo cy to Asst to DIG/IS, USAF

3-35

FEB 26 1969

MEMORANDUM FOR ASSISTANT TO THE DEPUTY INSPECTOR GENERAL/INSPECTION & SAFETY, USAF

SUBJECT: USAF Nuclear Safety Magazine Report on Thule Accident

Attached are copies of letters transmitting five of the magazine articles to the Danes for clearance and to the American Ambassador, Copenhagen, for his information. Two copies of each article as cleared by the AEC, State Department, and DoD are also provided. You will be advised when Danish clearance is obtained.

Please take note also of the requested index change reflected in the copy of the letter from Mr. Hans Koch to which Dr. Walske's comments are addressed.

SIGNED
Charles F. Clark
Colonel, USAF
Military Assistant to the
ATSD(AE)

Attachments
Ltr fm Hans Koch, Danish AEK
Ltr to Hans Koch
Ltr to American Ambassador, Copenhagen, Denmark
Fidler on the Roof of the World (2)
Removal of Contaminated Waste from Thule (2)
The Thule Affair (2)
USAF Radiological Health Laboratory Report (2)
Ice Operations (2)

Col Clark/mv/25 Feb 69

→ Rubr Corus

3-36

FEB 26 1969

Honorable Angier Biddle Duke
American Ambassador
Copenhagen, Denmark

Dear Ambassador Duke:

You will be interested, I believe, in the enclosed copies of the first group of articles which comprise part of the USAF Nuclear Safety magazine story of the Thule accident and recovery. These articles have been cleared through the Atomic Energy Commission, the Department of State and, of course, the Department of Defense. This publication, planned as a joint one with our Danish colleagues, is intended to provide the public with a factual report of the entire episode.

Copies have been transmitted to Mr. Hans Koch of the AEK for Danish review and clearance. Additional articles are now being processed and will be forwarded to him, as well as to you for your information, shortly. I have asked Mr. Koch to advise me if there are necessary amendments in any of the articles and I shall be pleased to keep you informed of any significant problems which may arise.

Sincerely,

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Enclosures

Col Clark/my/25 Feb 69

copy: Asst to DIG/IS, USAF

1969

3-37

FEB 2 6 1969

Mr. Hans H. Koch
Chairman of the Executive
Committee to the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

Thank you for your letter of February 5, 1969, with comments on the joint publication.

There are several points on which I can comment. First, as you point out, there is no need to separate the two Danish articles on scientific and technical support, as shown in our revised index. Please prepare them as one and the editor will amend his table of contents accordingly. Secondly, if you wish to prepare a contribution from the Danish health physics side on the disposal operation, that will be most welcome. I would hope that this can be available on the same time scale as your other contributions. Finally, you may feel free to publish the full content of the U.S. magazine, including the introduction and epilogue, as you may desire.

Under separate cover I am forwarding copies of the first five magazine articles for your consideration. They have been reviewed by U.S. authorities and approved for public release. In the process of final editing when all articles are combined, some minor changes or deletions may be made where repetitive statements appear. It will not be necessary that the copies be returned to me unless you should find it useful to return one with your comments directly on the copy.

FEB 2 6 1969

3-38

3 JAN 1969

Mr. Hans H. Koch
Chairman of the Executive
Committee to the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

The suggestions contained in your letter of December 9, regarding our mutual effort to produce a report on the Thule accident, are most helpful.

Your outline is in full accord with the plans agreed to at Los Alamos in September. Some minor rearrangements have been made by the editor. These are reflected in the enclosed revised index. This outline is still not the index to be used in the publication. For example, an abbreviated listing of the Danish articles is shown because further details were unknown.

Your intention regarding identification of the contributors is fully acceptable. While the magazine customarily credits authorship to the individual, that formulation is not a requirement, nor is variation unprecedented; therefore, you should feel free to select the course that best suits you. For our part, all our articles will be credited to an author, or authors.

We suggest that the role of the Danish Thule Committee in arranging and coordinating the Danish portion of the publications should be indicated in an editor's note at the beginning of the magazine. You might similarly credit the Office of the U.S. Secretary of Defense in the versions which you publish.

It occurs to me that we should consider using separate introductions and epilogues, one for the Danish and the other for the U.S. publications.

3 JAN 1969

Book

Our brief introduction would be by General Hunziker and the epilogue by me. This treatment could provide for addressing the varied points of view natural to the two national audiences. May I have your reaction to this suggestion?

"Project Crested Ice" is simply a short title used to identify the theme. It fails in its descriptive value but has been a useful device. Of course, the U. S. magazine will use the standard title Nuclear Safety. You may wish to use a different, more descriptive title in the Danish publications.

Jorgen had identified the misinterpretation that could arise from use of the word "Phase" in the outline and, of course, he was right. Its use was only intended to establish some chronological order for the indexing by the editors and has since been deleted. As the revised outline indicates, these terms have been dropped in favor of others which will appear only as section headings in the index.

With regard to the consultations in Washington and Copenhagen, General Hunziker plans to make brief reference to them in his article on "The Commander's Point of View" and to state the general nature of the agreements that resulted. I would think that the "gentlemen's agreements" should not be published verbatim since they were not given a rigorous editing. In any case, if the U. S. /Danish interactions are to be described in some detail, the story would be more convincing if written by you from the Danish point of view, rather than if written by one of us.

Repositioning the Star III Bottom Survey article as part of the Scientific Summer Expedition is certainly in order and had already been planned by our editor.

A recent conversation with Dr. Wayne Hanson related that his effort is proceeding well, though slowly. I believe Mr. Aakrog is in touch with him. His classification of lichen and a limited number of marine samples, into species, before proceeding with further analysis will not permit him to reach conclusions in sufficient time to provide a report for this publication; therefore, he would prefer not to contribute an article at this time.

Rather than a "Summary and Conclusions", I am of the opinion that a short note, an epilogue, may best serve our purpose. This form of report termination is a means of concluding a series of factual reports without drawing on the experiences to recommend future courses of action. While "Appendices" may be useful for attachments, if authors choose to use them, I would not expect that press releases should be composed and appended since the whole magazine will become public domain. We plan to use it as our standard reference in any future press inquiries.

A copy of the magazine Nuclear Safety is enclosed. It should be recognized that the issue on the Thule accident, although similar, will be larger, will contain more illustrations and will be devoted solely to the agreed Danish and American reports. Those reports, containing sizable amounts of technical data, will make this special issue a more sophisticated issue than the one enclosed. From our point of view, the normal distribution of this magazine is ideal as it reaches the people who will most profit from the data and accounts.

In regard to our progress, I am pleased to inform you that General Hunziker's people have already forwarded a number of completed articles which are now undergoing review. Upon completion of the review I shall forward these to you.

With warmest regards,

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Enclosures

Col Clark/mv/3 Jan 69

HW - B-52 Thule Crash

3-39

9 DEC 1968

Colonel Britt May
Director of Nuclear Safety
Kirtland Air Force Base
Albuquerque, New Mexico 87118

Dear Britt:

Attached is the brief article requested as the Epilogue for the special issue of the Nuclear Safety magazine.

Your processing of this submission should follow the routine established for the other articles presented for publication.

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Attachment

Col Clark/mv/6 Dec 68

9 DEC 1968

The Thule accident was a shock to us all. We were saddened by the death of one of the crew and concerned with the harsh realitiss which would face our accident control team's efforts. The threat that the unforgiving arctic climate could exact a further toll made the outlook ominous. The situation seemed grim.

And yet, from such a harsh beginning, the days that followed saw a monumental performance by the team at Thule charged with surveying the accident scene and taking remedial housekeeping actions. Under the leadership of General Hunziker, Air Force personnel, with the assistance of their colleagues from the other Services and of Danish and American scientists, moved forward rapidly in the most extreme climatic conditions. Operation Crested Ice was concluded successfully without further loss of life and with the best possible public acceptance.

This happy conclusion was due to the skill and devotion of all those involved. It attested to the dedication of each participant. We owe much to those who participated including, to be sure, our Danish friends. Once again the record reveals that the combined efforts of men, well led, can triumph over the greatest adversities.

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3-41

October 21, 1968

Professor Jørgen Koch
Physical Laboratory II
University of Copenhagen
H. C. Ørsted Institute
Universitetsparken 5
Copenhagen, Denmark

Dear Jørgen:

Many thanks for your letter of October 15. We, of course, were delighted to have you visit us here. Informal reports from the field indicate that all of our people profited from their conversations with you.

With best regards,

Sincerely,

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

3-42

15 OCT 1968

MEMORANDUM FOR CHIEF OF STAFF, UNITED STATES AIR FORCE

ATTENTION: Lt General J. H. Moore
Major General O. J. Glasser

SUBJECT: Special Issue of USAF's Nuclear Safety Magazine

Tentative plans for publication of a special issue of the USAF's Nuclear Safety magazine featuring a consolidation of articles on the Thule accident were discussed during September 1968. It was mutually agreed that the publication would serve the purpose of providing a general "wrap up" for public consumption, if unclassified articles from both the U. S. and Danish participants were included.

The Chairman of the Executive Committee of the Danish AEC, Mr. Hans Koch, has favorably responded to the idea of the publication. The attached copy of his letter reflecting agreement is forwarded for your information. It should be noted that the Danes have accepted our offer for them to publish the entire issue simultaneously in Denmark.

Since the publication date must be deferred until evaluation of the data from the ecological survey is concluded and reported, I shall continue to emphasize to the Danish authorities our desire to distribute the completed publication by April 1969.

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Attachment
CVClark/ger/14 Oct 68
Dist Orig + 1 ccy - Addee
1 ccy - ASD(PA) Attn: Mr. Fryklund)
P&Y - ATSD(AE) Files

Declassified 1968

3-43

15 OCT 1968

Mr. Hans H. Koch
Chairman of the Executive
Committee to the AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

Thank you for your letter of October 8, 1968, which affirmed your approval of the plan to publish a final report in Nuclear Safety and your willingness to contribute articles to the publication. The product, which will simultaneously appear in the Risø Report as a full translation should, I believe, put the full story forward in good order.

The need for sufficient time to assess the results from your ecological survey is certainly understandable, and we are in full agreement that the final release would be less than satisfactory without including those findings. At the same time, we are both confronted with the probability that until the full release is made, there will continue to be some pressure from the news media for additional information. While I know that to be a problem of secondary importance which can be accommodated as necessary, I feel that it will be beneficial to produce the publication as soon as your findings will permit. Therefore, your proposal to facilitate drafting the full report by exchanging contributions as they become available is most acceptable and I shall instruct our people accordingly.

Any additions to the outline which you feel useful will be most welcome.

It was a pleasure to have had the opportunity of visiting with both your brother and Mr. Gjørup here in Washington in September. The preliminary discussions were highly useful in establishing the form of our joint effort.

With warmest regards,

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Col Clark/mv/15 Oct 68

AUG 2 9 1968

3-44

Mr. Hans H. Koch
Chairman of the Executive
Committee of AEK
Strandgade 29
Copenhagen K., Denmark

Dear Hans:

In our conversation regarding our joint statement of August 19, 1968 and the associated contingent questions and answers, we anticipated a future release of findings and data on the Thule accident. I have given further thought to what might be an appropriate mechanism on our side.

The U.S. Air Force publishes an unclassified magazine entitled Nuclear Safety, which I feel is keyed to the proper audience level and is professionally respected. Accordingly, we have decided to prepare a special edition devoted entirely to the accident, cleanup and subsequent survey operations. Advance copies will be released to the press. Of course, we shall send the entire manuscript to you for your approval before any release.

We should like to have Danish contributions on your environmental sampling (1) in the period immediately following the accident and (2) during this summer. If that is not possible on our projected time scale, the next best thing would be to indicate in the magazine that Danish articles would be published in a later issue. The current outline of the magazine, indicating Danish contributions, is attached.

With regard to schedule, we are aiming for manuscripts to be submitted by September 30, with clearances and editing to result in publication by end November.

30 AUG 1968

All this material can be published by you also in Denmark, if you so desire. We could then coordinate our release dates.

Since I imagine Jørgen would have a role in the Danish articles I shall give him a copy of this letter and discuss the details with him during his visit here next week.

With warmest regards,

Sincerely,

SIGNED CARL

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Attachment
CWalske/ger/29 Aug 68
Dist: Orig + 1 ccy - Addee
1 ccy w/atch - Prof. Jørgen Koch
1 ccy w/atch - Mr. Fryklund, DASD(PA)
1 ccy w/atch - Mr. E. Klebenov, Eur/Scan State
1 ccy w/atch - Mr. C. Winter, DMA/AEC
1 ccy w/atch - Col. B. May, DINS, Kirtland AFB
Telephone Coordination:
Col. B. May, USAF (AFINS)
Col. O. J. Sundstrom, USAF (AFSSS-G0
Mr. E. Klebenov, Eur/Scan Dept of State

Classification: UNCLASSIFIED

PROPOSED FORMAT

USAF NUCLEAR SAFETY
Vol 61 Oct/Nov/Dec 1968 Issue

TOPIC	SCOPE	CONTRIBUTOR
FOREWORD	Introduction and Acknowledgements	Director of Nuclear Safety (Col Britt S. May)
THE EVENT	1. Activities Leading Up to Accident The Accident Survival and Rescue	Dir of Operations, Hq SAC
	2. Air Force Control and Response Activation of Broken Arrow Control Group (BACGP) Activities of the BACGP	Hq USAF (AFSSSG) (Col O. J. Sundstrom)
PHASE I: JAN-APR 1968	1. Command Response and On-Scene Operations Initial Notification First Actions Organization Weapons Recovery Monitoring Results Contamination Control Scientific Advisory Group Disaster Coordinating Group Ice/Snow Confinement Operations	On-Scene Commander (Maj Gen R. O. Hunziker)
	2. Scientific and Technical Support	
	a. American Scientific Group Establishment Activities Conclusions and Recommendations	Los Alamos Scientific Laboratory (Dr Wright Langham)

TOPIC	SCOPE	CONTRIBUTOR
PHASE II: MAY-AUG 1968	1. Operation Pacer Goose (Disposal)	Director of Special Weapons (Col L. J. Otten, Jr.)
	2. Bottom Survey	Directorate of Nuclear Safety (Lt Col M. E. Neal)
	3. Danish Ecological Survey	ATSD-AE to Contact Danish Government

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON

3a

April 3, 1973

Honorable Carl Walske
Chairman
Military Liaison Committee

Dear Carl:

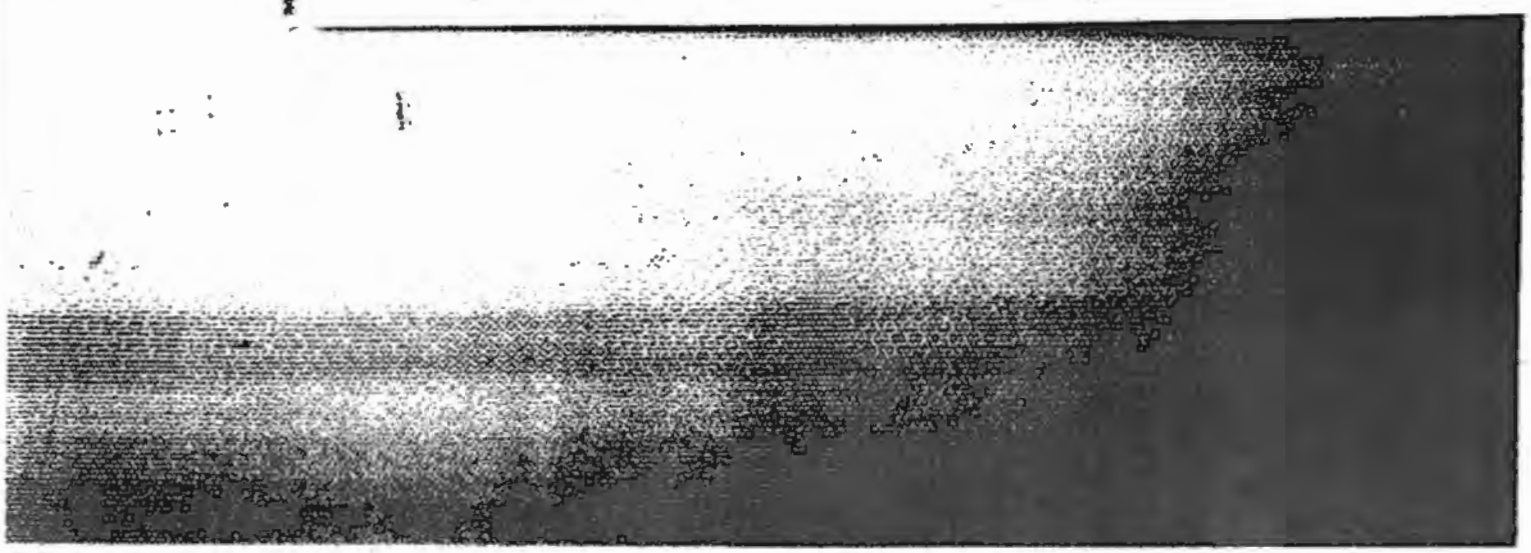
Enclosed is a copy of Wayne Hanson's letter and Aarkrog's response. It looks as if the Danes are not particularly concerned about Thule. The concentration in the lichens probably results from mechanical entrapment.

Sincerely,

Dave

H. Davis Bruner, M.D.
Special Assistant to the
Chairman

Enclosure:
As stated



DOE

3n

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

NOV 12 1968

Lt. Col. L. V. diLorenzo
Military Assistant for Security
and Classification (Atomic Energy)
Department of Defense
Room 3E-1074, The Pentagon
Washington, D. C. 20301

Dear Vince:

Reference is made to your request concerning the tritium involved in the Thule Broken Arrow incident.

We are advised by Dr. Redman, LASL, that one cannot reasonably deduce the physical form in which the tritium was present in the accident.

In addition, so far as LASL knows, no information whatsoever regarding the source of tritium contamination was offered by the United States representatives or suggested by the Danes.

Sincerely yours,

C L. MARSHALL

C. L. Marshall, Director
Division of Classification

cc: E. H. Calvert, USAF

FD
E-NATO

30

CR 20 (C)
Mar 20, 1968

Honorable John O. Pastore
Chairman, Joint Committee
on Atomic Energy
Congress of the United States

Dear Senator Pastore:

The Department of Defense advised the Atomic Energy Commission that it was necessary to provide the following items of information to representatives of the Danish Government in connection with the recovery operations involved in the Greenland Bay accident:

a. The fact that approximately [redacted]

b. Our best estimate of [redacted] (b)(1)

Before declassifying the information, the Commission considered the possibility of providing it to the Danes through the NATO Agreement for Cooperation. This is the only avenue for communicating Restricted Data to the Danish Government, since there is no separate bilateral agreement for cooperation with it on the mutual defense applications of atomic energy.

Examination of the existing statutory determinations under the NATO Agreement indicated that none appeared broad enough to cover this particular information. A new statutory determination, while possible, had disadvantages:

a. Time -- referral of a joint AEC-DOD action to the President for a fifteen day waiting period. While a waiver of the waiting period was possible, emergency treatment involving the President did not seem to be warranted.

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

GROUP 3
Downgraded at 12 year intervals; not automatically declassified

CONFIDENTIAL

SURNAME ▶

DATE ▶

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

MAY 22 1969

Honorable M. Carl Walske
Assistant to the Secretary of Defense
for Atomic Energy
The Pentagon
Washington, D.C. 20301

Dear Dr. Walske:

The Commission has considered the proposal for declassification in your letter of April 29, 1969, and has determined, in accordance with Section 142a. of the Atomic Energy Act of 1954, as amended, that the information shown in the following table regarding tritium contamination on the ice field at the site of the B-52 crash, Thule, Greenland, can be published without undue risk to the common defense and security.

Distribution of Tritium on the surface in the vicinity of the crash (excluding that picked up on aircraft debris)

Enclosed Area[1] (square meters)	Tritium Deposition[2] (Curies)	(% of total)
1.97×10^3	365	27.2
1.10×10^4	657	49.1
2.49×10^4	986	73.7
3.90×10^4	1337	100

[1] Consecutively larger areas corresponding to the fallout pattern.

[2] Total out to the specified boundary.

Book
22 MAY 1969

AW 13-52 Thule Survey Residue

~~SECRET~~

12 NOV 1968

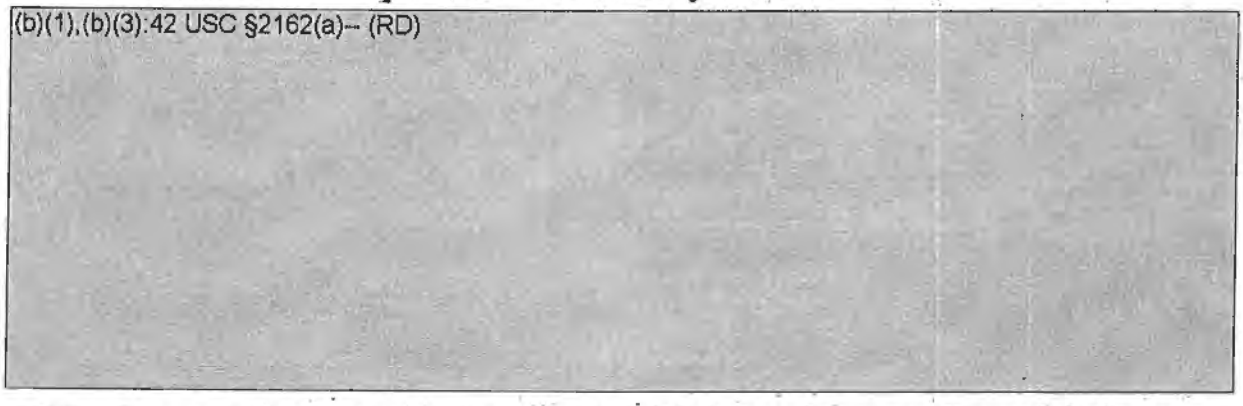
34

MEMORANDUM FOR VICE CHIEF OF STAFF, UNITED STATES AIR FORCE

SUBJECT: USAF Nuclear Safety Magazine (Project Crested Ice)

(U) A summary of Air Force intentions with respect to publication of the special issue of the USAF Nuclear Safety magazine was presented in your letter of October 29, 1968. The plan for publication and rationale expressed should serve to accomplish the desired objectives.

(b)(1),(b)(3):42 USC §2162(a)-- (RD)



(U) Communications with the Danish authorities have confirmed their enthusiastic support of the entire proposal. To assist in obtaining the necessary clearances for all articles my staff will obtain, on behalf of the Air Force, OSD, AEC, State, and Danish clearances. This function will be facilitated by your transmission of increments of the magazine to this office at the earliest possible time as portions become available.

(U) The Assistant Secretary of Defense (Public Affairs) has advised me that 50 copies of the magazine will be sufficient for press release.

SIGNED CARL WALSKE

Carl Walske
Assistant to the Secretary
of Defense (Atomic Energy)

Col Clark/mv/8 Nov 68

~~SECRET~~

RESTRICTED DATA AS DEFINED IN ATOMIC ENERGY ACT OF 1954

DISSEMINATION AND REPRODUCTION
DOD DIR 5200.10 DOES NOT APPLY

~~SECRET~~

12 NOV 1968