

Bilag til udenrigsministerens
skrivelse

Udvalget vedrørende Grønlandske Forhold
(UGF alm. del Spørgsmål 16)
(offentligt)

Spørgsmål nr.: 16

Ministeren bedes sende udvalget de 9 spørgsmål med tilhørende svar, som Danmark i sin tid stillede til de amerikanske myndigheder om ulykken ved Thulebasen i 1968.

Svar:

Svarene på de ni spørgsmål stillet af den danske regering i 1995 er vedlagt.

FINAL RESPONSE TO
DANISH QUESTIONS ON THULE B-52 CRASH

TALKING POINTS

- WE ARE PLEASED TO RESPOND TO THE QUESTIONS SUBMITTED BY YOUR EMBASSY TO THE DEPARTMENT OF STATE ON MARCH 22, 1995. WE REGRET THE DELAY IN OUR RESPONSE, BUT THIS REFLECTS THE THOROUGHNESS OF OUR SEARCH FOR THE DETAILED INFORMATION THAT WAS REQUESTED BY THE DANISH GOVERNMENT CONCERNING THE 1968 B-52 CRASH NEAR THULE.
- WE WISH TO EMPHASIZE THAT WE HAVE SPARED NO EFFORT TO PROVIDE FULL AND COMPLETE INFORMATION, AS WE HAVE ALL ALONG IN RESPONDING TO DANISH INQUIRIES CONCERNING THIS SUBJECT.
- IT IS IMPORTANT TO NOTE, FOR THE RECORD, THAT THE CLEANUP OF THE 1968 CRASH WAS A JOINT U.S.-DANISH UNDERTAKING FROM THE START, INVOLVING THE PARTICIPATION OF DANISH SCIENTISTS. WE BELIEVE THE DANISH GOVERNMENT HAD FULL KNOWLEDGE OF EVERYTHING EXCEPT WEAPONS DESIGN, COMMUNICATIONS AND SIMILAR NATIONAL SECURITY RESTRICTED INFORMATION. HOWEVER, WE ARE PLEASED TO AUGMENT DENMARK'S UNDERSTANDING OF ALL RELEVANT ASPECTS OF THE INCIDENT BY RESPONDING TO THE NINE QUESTIONS.
- IN CONVEYING THIS INFORMATION TO THE DANISH GOVERNMENT, IT IS OUR BELIEF THAT WE HAVE NOW SHARED WITH YOU THE FULL EXTENT OF U.S. GOVERNMENT KNOWLEDGE CONCERNING THIS UNFORTUNATE INCIDENT. WE NOW CONSIDER THE MATTER CLOSED, ALTHOUGH WE REMAIN PREPARED TO ADDRESS ADDITIONAL INQUIRIES SHOULD THEY PERTAIN TO NEW ASPECTS OF THE 1968 CRASH.
- WE HAVE ALSO PASSED A COPY OF THE U.S. RESPONSE TO THE DANISH EMBASSY IN WASHINGTON ON SEPTEMBER 15.

U.S. RESPONSE TO DENMARK'S NINE QUESTIONS:

QUESTION 1.

IN ORDER TO MAKE OUR RECORDS OF THE 1968 ACCIDENT AS COMPLETE AS POSSIBLE, WE KINDLY ASK THAT THE INFORMATION DELETED FROM THE 317 DOCUMENTS THAT HAD BEEN RELEASED EARLIER ON, TOGETHER WITH A SMALL NUMBER OF DOCUMENTS THAT HAD BEEN WITHHELD IN TOTO FROM THE BATCH OF DOE DOCUMENTS (DOC. NR. 0107048, 0106961, 0106963, 0104810) BE PROVIDED OR EXPLAINED TO DANISH AUTHORITIES - IF NEED BE, ON A PRIVILEGED BASIS.

ANSWER 1.

THE DOCUMENTS WERE REVIEWED FOR CLASSIFICATION BY THE COGNIZANT UNITED STATES (U.S.) GOVERNMENT AGENCIES PRIOR TO THEIR DEPOSITION IN THE COORDINATION AND INFORMATION CENTER IN THE LATE 1980'S. IN RESPONSE TO YOUR QUERY, THOSE DOCUMENTS WITH THE INFORMATION REDACTED, ALONG WITH THOSE THAT WERE COMPLETELY WITHHELD, WERE RETRIEVED AND RE-EXAMINED IN ORDER TO VERIFY THAT THE INFORMATION WITHHELD, EITHER NATIONAL SECURITY INFORMATION OR RESTRICTED DATA, WAS STILL CLASSIFIED PROPERLY. THIS WAS A COMPREHENSIVE REVIEW CONDUCTED WITH AN EYE TOWARD RELEASE. ALL OF THE INFORMATION WITHHELD DURING THE FIRST REVIEW WAS CONFIRMED TO STILL REQUIRE PROTECTION UNDER THE ATOMIC ENERGY ACT OR OTHER SECURITY GUIDANCE. TO REVEAL THIS INFORMATION WOULD JEOPARDIZE U.S. SECURITY INTERESTS AND VIOLATE U.S. POLICY TO PREVENT THE PROLIFERATION OF NUCLEAR WEAPONS.

NONE OF THE INFORMATION WITHHELD WOULD HAVE ANY DIRECT OR INDIRECT BEARING ON ENVIRONMENTAL, SAFETY OR HEALTH MATTERS. IN ORDER TO EXCHANGE RESTRICTED DATA WITH THE DANISH GOVERNMENT, AN AGREEMENT OF COOPERATION UNDER SECTION 144 (D) OF THE ATOMIC ENERGY ACT OF 1954 (AS AMENDED), WOULD HAVE TO BE NEGOTIATED BETWEEN THE COUNTRIES OF DENMARK AND THE UNITED STATES. TO DO SO, HOWEVER, WOULD APPEAR TO BE INCONSISTENT WITH ESTABLISHED DANISH POLICY.

QUESTION 2.

WE WOULD LIKE TO REQUEST A CONFIRMATION OF THE FACT THAT THE FOUR BOMBS ON BOARD OF THE CRASHED AIRCRAFT HAVE, ESSENTIALLY IN THEIR ENTIRETY, BEEN FOUND AND RECOVERED.

ANSWER 2.

WHEN THE B-52 CRASHED, ALL OF THE HIGH EXPLOSIVE IN THE FOUR WEAPONS DETONATED, DISPERSING APPROXIMATELY 6 KG OF PLUTONIUM. DURING THE PERIOD IMMEDIATELY FOLLOWING THE CRASH, IT BECAME APPARENT FROM THE RADIOLOGICAL SURVEYS AND THE RESULTING SURFACE CONTAMINATION MAP THAT THE GREATEST PERCENT OF ALL RADIOACTIVE

MATERIAL WAS IN THE BLACKENED AREA CAUSED BY THE FIRE. IT WAS DETERMINED BY US AND DANISH SCIENTISTS THAT REMOVING THE BLACK SNOW AND ICE WOULD LIKELY REMOVE ALMOST ALL OF THE PLUTONIUM CONTAMINATION IN THE AREA OF THE CRASH SITE. AT THE TIME, DANISH AND AMERICAN SCIENTISTS MET TO DEVISE A METHOD OF ESTIMATING THE AMOUNT OF PLUTONIUM CONTAINED IN THE BLACKENED AREA. THIS RESULTED IN AN ESTIMATE OF 3.15 KILOGRAMS PLUS/MINUS 20 PERCENT OF PLUTONIUM.

AT THE TIME OF THE ACCIDENT, THE US FURNISHED THE DANISH SCIENTISTS WITH A VERY REASONABLE ESTIMATE - 6 KILOGRAMS - OF THE ACTUAL AMOUNT OF PLUTONIUM INVOLVED IN THE FOUR WEAPONS. BY SUBTRACTING THE ESTIMATE FOR THE BLACKENED AREA FROM THE ESTIMATE OF THE TOTAL, IT WOULD APPEAR THAT HALF OF THE PLUTONIUM WAS CONTAINED IN THE BLACKENED AREA. RECORDS OF THE FREQUENT MEETINGS BETWEEN DANISH EXPERTS AND MEMBERS OF THE US ATOMIC ENERGY COMMISSION (AEC) INDICATE THAT THERE WAS AGREEMENT THAT THE REMAINDER OF THE PLUTONIUM WAS : (I) CONTAINED ON RECOVERED AIRCRAFT WRECKAGE, (II) ATTACHED TO UNRECOVERED AIRCRAFT WRECKAGE THAT FELL INTO THE BAY; (III) LOFTED BY THE EXPLOSION AND FIRE, CARRIED INTO THE ATMOSPHERE AND FELL WELL BEYOND THE CRASH SITE; OR, (IV) CONTAINED IN WEAPON COMPONENTS THAT FELL TO THE BOTTOM OF THE BAY, BECAUSE OF THE UNCERTAINTY, THERE WAS GENERAL AGREEMENT AMONG US AND DANISH SCIENTISTS THAT IT WAS UNLIKELY THAT A PRECISE INVENTORY WOULD EVER BE POSSIBLE TO OBTAIN.

MOST OF THE TRITIUM IN ALL FOUR WEAPONS WAS DISPERSED TO THE ATMOSPHERE BY THE HIGH EXPLOSIVE DETONATION. LANGHAM ESTIMATED THAT ABOUT 1950 CI OF THE TRITIUM (AS TRITIUM DIOXIDE, I.E. WATER) WAS CONTAINED IN THE BLACKENED CRUST AND REMOVED.

QUESTION 3.

THE RELEASED DOCUMENTS INDICATE THAT THE U.S. AUTHORITIES SEARCHED IN VAIN FOR A "MISSING OBJECT" AT THE CRASH SITE IN AUGUST 1968. WOULD IT BE POSSIBLE TO MAKE PUBLICLY AVAILABLE INFORMATION ON THIS OBJECT? IN CASE THIS OBJECT SHOULD BE SITUATED ON THE BOTTOM OF THE SEA, WE WOULD LIKE TO KNOW ABOUT THE ENVIRONMENTAL RISKS THIS OBJECT POSES TODAY ON THE BOTTOM OF THE SEA. IN THIS RESPECT, REFERENCE IS MADE TO THE LETTER FROM SANDIA CORP. TO THE U.S. ATOMIC ENERGY COMMISSION DATED APRIL 16TH 1968 (FILE NR. RS 1500/1547). (CIC DOCUMENT NUMBER 107032(1)) WE SHOULD ALSO LIKE TO ASK FOR INFORMATION ABOUT WHAT EXTENT PARTS OF THE WRECK AND REMNANTS OF THE BOMBS STILL CAN BE FOUND ON THE BOTTOM OF THE SEA. IN LIGHT OF THIS, AND TAKING INTO CONSIDERATION ENVIRONMENTAL AND HEALTH RISKS, WE WOULD LIKE TO REQUEST THAT THE AMERICAN AUTHORITIES ENSURE THAT EVERYTHING WHICH TODAY IS TECHNICALLY FEASIBLE WILL BE UNDERTAKEN IN ORDER TO REMOVE ANY REMAINING RADIOACTIVE PARTS OF THE WRECK THAT STILL MIGHT BE FOUND ON THE BOTTOM OF THE SEA. IN THIS CONTEXT WE SHOULD LIKE TO SOLICIT YOUR AUTHORITIES ASSESSMENT OF WHETHER THE

ENVIRONMENT AND HEALTH RISKS ENTAILED BY THE REMOVAL OF THE REMNANTS MIGHT BE OUT OF PROPORTION TO THE ENVIRONMENTAL EFFECTS EXPERIENCED TODAY.

ANSWER 3.

U.S. AIRMEN WALKING SHOULDER TO SHOULDER SEARCHED 30 SQUARE MILES FOR DEBRIS AND CONTAMINATION. AT THE TIME OF THE CRASH, IT WAS -24 DEGREES FAHRENHEIT WITH A 7 KNOT NNW SURFACE WIND. THREE DAYS LATER THE WIND WAS GUSTING TO 45 KNOTS DURING A STORM THAT LASTED 24 HOURS, WHICH COULD HAVE CONTRIBUTED TO SOME SPREAD OF PLUTONIUM CONTAMINATION. THE WEATHER AND THE FACT THAT THULE AFB WOULD NOT SEE THE SUN FOR TWO MORE WEEKS EXACERBATED CLEAN-UP PROBLEMS. CRASH DEBRIS -- WHICH COULD HAVE INCLUDED WEAPON COMPONENTS -- ENTERED THE BAY FROM A BRIEF HOLE IN THE ICE CAUSED BY THE FUEL FIRE, ALTHOUGH NO WEAPON PART WAS EVER FOUND THERE. THE LARGEST PIECES OF DEBRIS REMAINING ON THE ICE AFTER THE CRASH WERE SOME OF THE AIRCRAFT'S ENGINES. SUBSEQUENT SEARCHES IN THE BAY BY SMALL SUBMERSIBLES EQUIPPED WITH FIDLER INSTRUMENTS FOUND ONLY A FEW AIRCRAFT PARTS AND NO WEAPON COMPONENTS. SUBSEQUENT ENVIRONMENTAL STUDIES OF THE CRASH SITE AND THE SURROUNDING AREA CONDUCTED BY BOTH THE U.S. AND DENMARK HAVE NOT REVEALED OR UNCOVERED ANY WEAPON PARTS, OR OTHER MISSING OBJECTS.

ENVIRONMENTAL STUDIES BY DANISH AND US SCIENTISTS HAVE SHOWN THAT THERE HAS BEEN NEGLIGIBLE IMPACT ON THE ENVIRONMENT AS A RESULT OF THE THULE INCIDENT. THERE ARE SEVERAL DOCUMENTS, INCLUDING THE "PROJECT CRESTED ICE" REPORT, THAT WERE RELEASED BY DOE THAT INDICATE THE US AND DANISH SCIENTISTS COOPERATED EXTENSIVELY AND AGREED THAT THERE WOULD BE NEGLIGIBLE ENVIRONMENTAL IMPACT.

QUESTION 4.

PROCEEDING FROM THE RELEASED INFORMATION THAT 6 KILOGRAMS OF PLUTONIUM WERE INVOLVED IN THE CRASH, WE WOULD APPRECIATE BEING PROVIDED WITH MORE DETAILED FACTS ABOUT BOTH THE NATURE AND QUANTITY OF THOSE SUBSTANCES RELEASED IN THE CRASH WHICH INVOLVE HEALTH OR ENVIRONMENTAL RISKS - AND PARTICULARLY RADIOACTIVE SUBSTANCES (RADIONUCLIDES). WE WOULD FURTHERMORE LIKE TO KNOW IF THERE WAS A CHANCE OF THESE SUBSTANCES COMBINING WITH EACH OTHER (CHEMICALLY) EITHER BEFORE OR IN CONNECTION WITH THE PLANE CRASH.

ANSWER 4.

THE PLUTONIUM IN NUCLEAR WEAPONS IS A COMBINATION OF PU-238, PU-239, PU-240, PU-241, PU-242 AND AM-241. AM-241 IS A DECAY PRODUCT OF PU-241. APPROXIMATELY 93 PERCENT IS PU-239 AND ABOUT 6 PERCENT IS PU-240. THE AMOUNT OF AM-241 VARIES WITH THE AGE OF THE PLUTONIUM. FOR EXAMPLE, 5-YEAR-OLD PLUTONIUM CONTAINS ABOUT 0.1 PERCENT AM-241, WHEREAS 15-YEAR-OLD PLUTONIUM CONTAINS ABOUT 0.3 PERCENT, AND 30-YEAR-OLD CONTAINS APPROXIMATELY 0.4 PERCENT. APPROXIMATELY 6 KILOGRAMS OF PLUTONIUM WERE INVOLVED IN THE CRASH. FOLLOWING THE HIGH EXPLOSIVE DETONATION AND FIRE, THE

PLUTONIUM WOULD BE IN THE FORM OF PLUTONIUM OXIDE. ABOUT HALF WAS ESTIMATED TO BE IN THE BLACKENED AREA AROUND THE ACCIDENT SITE AND WAS REMOVED AND RETURNED TO THE U.S. AN UNKNOWN FRACTION WAS SENT ALOFT BY THE EXPLOSION AND FIRE AND WIDELY DISPERSED. AN ADDITIONAL FRACTION WAS EMBEDDED IN AIRCRAFT WRECKAGE THAT WAS REMOVED AND RETURNED TO THE U.S.

AN ESTIMATED 0.35 KG (21 CI) OF PLUTONIUM (2) REMAINED ON THE ICE, AND FOLLOWING THE CLEANUP IT EVENTUALLY ENTERED THE BAY AS THE ICE MELTED. WE ARE AWARE OF AT LEAST TWO ENVIRONMENTAL STUDIES THAT WERE CONDUCTED AS A RESULT OF THE THULE ACCIDENT. THESE TWO STUDIES WERE A PART OF THE COLLECTION OF DOCUMENTS RELEASED BY THE DEPARTMENT OF ENERGY (DOE) IN SEPTEMBER 1994. THE AUTHORS ARE ASKER AARKROG (3), HEALTH PHYSICS DEPARTMENT, RESEARCH ESTABLISHMENT RISO (DANISH ATOMIC ENERGY COMMISSION), DENMARK AND W. C. HANSON (4), BATTELLE, PACIFIC NORTHWEST LABORATORY. AARKROG CONCLUDED THAT:

"THE PLUTONIUM CONTAMINATION AT THULE RESULTING FROM THE B-52 ACCIDENT IN 1968 WAS MAINLY CONFINED TO THE SEDIMENTS WHICH CONTAINED ABOUT 25 TO 30 CI. BEYOND 40KM FROM THE POINT OF IMPACT THE ENVIRONMENTAL PLUTONIUM LEVELS WERE NOT SIGNIFICANTLY ABOVE THE FALLOUT BACKGROUND."

"WHEN COMPARED WITH THE INITIAL SAMPLING IN 1968, THE PU CONCENTRATIONS IN 1970 AND 1974 WERE GENERALLY LOWER BY AN ORDER OF MAGNITUDE;...

"NEITHER IN 1970 NOR IN 1974 DID WE FIND EVIDENCE OF ANY SIGNIFICANT INCREASE OF THE PLUTONIUM CONCENTRATION IN THE HIGHER ANIMALS SUCH AS FISH, SEABIRDS AND MARINE MAMMALS AT THULE."

HANSON REPORTED THAT:

"MODEST AMOUNTS OF PU-239, PU-240 ATTRIBUTABLE TO THE JANUARY 1968 AIRCRAFT ACCIDENT NEAR THULE, GREENLAND WERE FOUND IN LICHENS COLLECTED NEAR THE SITE DURING JULY-AUGUST 1968."

THE TRITIUM IN ALL FOUR WEAPONS WAS DISPERSED TO THE ATMOSPHERE BY THE HIGH EXPLOSIVE DETONATION. DR LANGHAM(5) ESTIMATED THAT 1950 CI OF TRITIUM (AS TRITIATED WATER) WAS DEPOSITED IN THE BLACKENED CRUST AREA AND WAS REMOVED. ALTHOUGH THIS VALUE MAY

APPEAR TO BE LARGE, THIS AMOUNT OF TRITIUM WOULD ONLY HAVE TO BE DILUTED INTO 6.6×10^4 M³ TO BE AT THE MAXIMUM PERMISSIBLE CONCENTRATION FOR CONTINUOUS CONSUMPTION.

IT IS UNLIKELY THAT THESE RADIOACTIVE SUBSTANCES COMBINED WITH EACH OTHER CHEMICALLY EITHER BEFORE OR IN CONNECTION WITH THE PLANE CRASH.

QUESTION 5.

WE WOULD VERY MUCH APPRECIATE YOUR AUTHORITIES ASSESSMENT OF WHETHER THE FOLLOWING ACCOUNT OF THE QUANTITIES OF PLUTONIUM INVOLVED IN THE CRASH CAN BE CONFIRMED. PROPOSAL FOR AN ACCOUNT OF THE PLUTONIUM:

PLUTONIUM ON BOMB AND AIRCRAFT REMNANTS BROUGHT TO THE USA: 3.05 PLUS/MINUS 0.85 KG, (2.2 TO 3.9 KG) PLUTONIUM ON THE SURFACE OF THE ICE: 3.15 PLUS/MINUS 0.63 KG PLUTONIUM BOUND IN THE ICE: 0.35 PLUS/MINUS 0.09 KG PLUTONIUM SPREAD BY THE WIND: UNKNOWN SUM: 6.55 PLUS/MINUS 1.06 KG

THE QUANTITY OF PLUTONIUM ON THE BOTTOM OF THE SEA HAS BEEN MEASURED TO BE 0.5 PLUS/MINUS 0.1 KG. IT IS ESTIMATED THAT THIS PLUTONIUM CONTAINS ALL THE ABOVE LISTED QUANTITY OF PLUTONIUM BOUND IN THE ICE, AND ABOUT 5 PERCENT OF THE ABOVE LISTED QUANTITY OF PLUTONIUM ON THE SURFACE OF THE ICE, WHICH HAD NOT BEEN REMOVED. IN THIS CONTEXT, WE WOULD APPRECIATE BEING INFORMED ON THE QUANTITY OF PLUTONIUM FOUND IN THAT SNOW AND ICE WHICH WAS BROUGHT TO THE USA.

IN THIS REGARD, WE SHOULD LIKE TO INQUIRE AS TO THE LIMITS AND UNCERTAINTIES CONNECTED TO THE ABOVE MENTIONED ACCOUNT, PARTICULARLY AS TO WHETHER IT IS POSSIBLE TODAY TO ESTIMATE THE QUANTITY OF PLUTONIUM THAT WAS SPREAD BY THE WIND.

IN THIS CONTEXT WE SHOULD FINALLY LIKE TO KNOW WHETHER IT WILL BE POSSIBLE TO FURNISH A CORRESPONDING ACCOUNT FOR OTHER RADIOACTIVE SUBSTANCES INVOLVED (RADIONUCLIDES).

ANSWER 5.

DETERMINATION OF THE ABSOLUTE QUANTITIES OF PLUTONIUM ASSOCIATED WITH EACH OF THE POSSIBLE MODES OF DISPERSAL AND DEPOSITION IS NOT POSSIBLE NOR WAS IT POSSIBLE AT THE TIME OF THE ACCIDENT. FROM THE PRACTICAL VIEWPOINT, HOWEVER, THE MOST IMPORTANT CONSIDERATIONS WERE THE AMOUNT, FORM, AND FIXATION OF THE PLUTONIUM ON THE SURFACE OF THE ICE IN THE IMMEDIATE VICINITY OF

THE CRASH SITE AND IN THE REFROZEN ICE AT THE TIME IMPACT POINT, WHERE DECONTAMINATION OPERATIONS WERE TECHNICALLY FEASIBLE.

APPROXIMATE AMOUNT OF PLUTONIUM INVOLVED IN THE ACCIDENT.

THE FACT THAT A TOTAL OF APPROXIMATELY 6 KILOGRAMS OF PLUTONIUM WAS INVOLVED IN THE CRASH OF THE B-52 BOMBER NEAR THULE, GREENLAND, ON JANUARY 21, 1968, WAS APPROVED FOR RELEASE TO THE DANISH GOVERNMENT BY THE UNITED STATES ATOMIC ENERGY COMMISSION (USAEC) ON APRIL 15, 1968 (6), AND AGAIN ON JUNE 18, 1968 (11). THESE TWO DOCUMENTS CONTAIN ABOUT THE SAME TEXT; THAT THE USAEC HAD DETERMINED THAT:

"(A) THE FACT THAT APPROXIMATELY 6 KG OF PLUTONIUM WAS INVOLVED IN THE GREENLAND ACCIDENT, AND (B) OUR BEST ESTIMATE OF THE AMOUNT OF PLUTONIUM REMOVED FROM THE SITE OF THE ACCIDENT COULD BE PUBLISHED WITHOUT UNDUE RISK TO THE COMMON DEFENSE AND SECURITY."

THE APRIL 15, 1968 MEMORANDUM CONTINUED:

"IT IS IMPORTANT TO NOTE THAT THE COMMISSION IN TAKING THIS DECLASSIFICATION ACTION CONCLUDED THAT THE DATA SHOULD BE PROVIDED TO REPRESENTATIVES OF THE DANISH GOVERNMENT AS 'PRIVILEGED INFORMATION' WITH A REQUEST THAT ITS DISSEMINATION BE CAREFULLY CONTROLLED AND THAT ADMINISTRATIVE MEASURES SHOULD BE TAKEN TO APPROPRIATELY CONTROL ITS DISSEMINATION WITHIN THE UNITED STATES."

MORE RECENTLY, DURING A PRESS CONFERENCE ON JUNE 27, 1994, SECRETARY OF ENERGY O'LEARY REAFFIRMED THAT THE TOTAL AMOUNT OF PLUTONIUM IN THE 4 NUCLEAR WEAPONS INVOLVED IN THE THULE, GREENLAND, ACCIDENT WAS APPROXIMATELY 6 KILOGRAMS (4).

THE QUANTITY OF PLUTONIUM ON BOMB AND AIRCRAFT REMNANTS BROUGHT TO THE UNITED STATES.

AN ESTIMATE THAT 3.05 KG OF PLUTONIUM WAS CONTAINED ON BOMB AND AIRCRAFT REMNANTS RETURNED TO THE UNITED STATES MIGHT REPRESENT THE HIGHEST POSSIBLE QUANTITY THAT COULD HAVE BEEN CONTAINED IN THOSE PARTS. HOWEVER, IT IS MORE LIKELY THAT THE PLUTONIUM WAS DISPERSED AS INDICATED ALONG THE LINES OF ANSWER 2.

PLUTONIUM ON THE SURFACE OF THE ICE.

APPROXIMATELY 3.15 KG PLUS/MINUS 20 PERCENT (I.E., PLUS/MINUS 630 GRAMS) OF PLUTONIUM WAS ESTIMATED TO HAVE BEEN REMOVED FROM THE ICE CAP AND RETURNED TO THE UNITED STATES.

THERE IS CONSIDERABLE AMOUNT OF QUANTITATIVE INFORMATION IN THE UNCLASSIFIED REPORT BY DR. WRIGHT LANGHAM (7) CONCERNING THE AMOUNTS OF PLUTONIUM IN THE ICE AFTER THE B-52 CRASH AND ESTIMATES OF THE AMOUNT OF PLUTONIUM THAT WAS REMOVED. HIS REPORT WAS

QUESTION 6.

WE KINDLY ASK THAT INFORMATION ON HEALTH ASSESSMENTS/EXAMINATIONS (INCLUDING URINE ANALYSIS FOR PLUTONIUM) OF AMERICAN PERSONNEL PARTICIPATING IN THE CLEANUP OPERATION AFTER THE INCIDENT BE PROVIDED.

WE WOULD ALSO LIKE TO KNOW WHETHER THERE ARE OR HAVE BEEN BROUGHT TO COURT ANY LAWSUITS BY AMERICAN PERSONNEL CLAIMING LIABILITY FOR HEALTH INJURIES SUFFERED IN THE CLEANUP OPERATION.

ANSWER 6.

ONLY 3.5 PERCENT OF THE 10,000 NASAL SWIPES TAKEN AT THULE SHOWED ANY EVIDENCE OF ALPHA ACTIVITY. NEARLY 800 URINE SAMPLES WERE COLLECTED FROM THE PERSONNEL INVOLVED IN THE SEARCH AND RECOVERY OPERATIONS AT THULE. THESE SAMPLES WERE ANALYZED FOR PLUTONIUM BY THE UNITED STATES AIR FORCE (USAF) RADIOLOGICAL HEALTH LABORATORY, WRIGHT-PATTERSON AIR FORCE BASE (AFB), OHIO, (NOW THE ARMSTRONG LABORATORY, BROOKS AFB, TEXAS) AND NONE SHOWED ANY EVIDENCE OF PLUTONIUM UPTAKE. (PERSONNEL WERE INFORMED AS THE RESULTS OF THEIR PLUTONIUM URINE ANALYSIS RESULTS.)

DANISH WORKERS WERE NOT PERMITTED TO ENTER THE "ZERO LINE" (A ZERO READING IN DETECTION EQUIPMENT) AREA. THEY WERE, HOWEVER, PERMITTED TO ENTER THE "TANK FARM" AREA WHICH WAS DESIGNATED A RADIATION AREA FOR PURPOSES OF CONTROLLING ACCESS. THESE PEOPLE WERE THERE TO OPERATE CRANES AND TRUCKS. AT THE CONCLUSION OF THE CRESTED ICE OPERATIONS, THE ENTIRE "TANK FARM" WAS SURVEYED IN DETAIL FOR PLUTONIUM CONTAMINATION USING FIDLER INSTRUMENTS. NINE SMALL AREAS OF CONTAMINATION WERE FOUND. MEASUREMENTS MADE WITH PAC-IS ALPHA SURVEY INSTRUMENTS SHOWED NO CONTAMINATION, INDICATING THAT THE PLUTONIUM HAD ERODED INTO THE GRANITE BASE. ALL AREAS WERE DECONTAMINATED AND THE MATERIAL RETURNED TO THE UNITED STATES. THE RESULTS OF THE "TANK FARM" AND OTHER SURVEYS IS CONTAINED IN AN AIR FORCE REPORT "FINAL HEALTH PHYSICS REPORT ON PROJECT CRESTED ICE"(9)

THE AUGUST 1988 MEETING AT OAK RIDGE ASSOCIATED UNIVERSITIES (ORAU) WITH THE DANES WAS ORIGINALLY SCHEDULED FOR JUNE. THE MEETING WAS POSTPONED AT THE REQUEST OF THE DANES TO ALLOW THEM TIME TO ANALYZE THE BIOASSAY DATA THEY HAD RECENTLY RECEIVED FROM THE USAF ARMSTRONG LABORATORY, BROOKS AFB, TEXAS, (FORMERLY THE USAF OCCUPATIONAL AND ENVIRONMENTAL HEALTH LABORATORY, BROOKS AFB AND THE USAF RADIOLOGICAL HEALTH LABORATORY WPAFB, OHIO) THROUGH THE DEPARTMENT OF STATE, WHO PROVIDED ALL OF THE BIOASSAY SUPPORT FOR THE THULE AND PALOMARES ACCIDENTS. THE FACT THAT THE DANES ALREADY HAVE THIS INFORMATION IS VERIFIED IN A DANISH REPORT(10) THAT WAS DISSEMINATED BY THE DANES AT THE AUGUST 1988 MEETING. AT A MEETING AT THE LOS ALAMOS LABORATORY IN SEPTEMBER 1968, THE DANISH SCIENTIFIC EXPERTS (DRS. KOCH AND GJORUP) STATED THAT A REPORT OF THE BIOASSAY RESULTS PERFORMED BY THE U.S. AIR FORCE RADIOLOGICAL HEALTH LABORATORY "US CRESTED ICE" PARTICIPANTS WOULD BE OF VALUE, AND THAT THEY DID NOT CONSIDER IT NECESSARY TO

ALSO THE TOPIC OF A PRESENTATION BY LANGHAM AT THE ANNUAL HEALTH PHYSICS SOCIETY MEETING IN DENVER, COLORADO, IN JUNE 1968. MUCH OF THE INFORMATION CONTAINED IN THIS REPORT WAS DISCUSSED WITH THE DANISH SCIENTIFIC OFFICIALS THROUGHOUT THE AFTERMATH OF THE ACCIDENT AND DURING THE CLEANUP. THE CONTENTS WERE DISCUSSED AT JOINT UNITED STATES/DANISH MEETINGS HELD IN COPENHAGEN IN FEBRUARY 1968, AND IN WASHINGTON, D.C. IN MARCH 1968. IN ADDITION, THIS DOCUMENT APPEARS IN TWO FORMS IN THE DOCUMENTS RELEASED BY DOE IN SEPTEMBER 1994 (CIC DOCUMENT NUMBERS 138079 AND 75939). DR LANGHAM'S REPORT SERVED AS THE BASIS FOR HIS REPORT IN THE AIR FORCE PUBLICATION "USAF NUCLEAR SAFETY 'PROJECT CRESTED ICE" (4) WHICH IS ALSO RELEASED IN SEPTEMBER 1994 BUT HAS BEEN READILY AVAILABLE SINCE 1970.

ACCORDING TO THE LANGHAM REPORT(7), THE CONTAMINATED SNOW AND ICE WAS REMOVED TO A DEPTH OF ABOUT 4 INCHES OUT TO THE EDGE OF THE BLACKENED CRUST AREA WHICH CORRESPONDS ROUGHLY WITH THE 0.9 MG/M² CONTAMINATION CONTOUR AND WHICH CONTAINED ABOUT 3,150 GRAMS (PLUS/MINUS 20 PERCENT) OF PLUTONIUM (I.E., 3150 PLUS/MINUS 630 GRAMS). THIS MATERIAL WAS REMOVED FROM THE ICE CAP, STORED IN 25,000 GALLON OIL TANKS IN THULE "TANK FARM", AND WAS RETURNED TO THE UNITED STATES BY MARINE SEA TRANSPORT SERVICE SHIPS AFTER THE PORT OPENED IN THE SUMMER OF 1968.

PLUTONIUM BOUND IN THE ICE.

WE CAN CONFIRM THAT THE TOTAL AMOUNT OF PLUTONIUM CONTAINED IN THE ICE WAS ESTIMATED AT THE TIME TO BE ABOUT 0.35 PLUS/MINUS 0.09 KG. (LANGHAM REPORT, PAGE 42) (2))

PLUTONIUM SPREAD BY THE WIND.

THE HIGH EXPLOSIVE COMPONENTS IN ALL FOUR WEAPONS DETONATED DISPERSING PLUTONIUM OVER A WIDE AREA. WE KNOW THAT BOTH THE UNITED STATES AND DANISH GOVERNMENTS MEASURED VERY LOW LEVEL PLUTONIUM CONTAMINATION AT SAUNDERS ISLAND AND ELSEWHERE SO AN UNKNOWN FRACTION WAS DISPERSED BEYOND THE AREA OF THE ICE CAP THAT WAS DECONTAMINATED.

THE SAFETY EVALUATION PANEL(8) APPOINTED BY THE USAEC AND CHAIRED BY MR. HERBERT M. PARKER, BATTELLE, PACIFIC NORTHWEST LABORATORY, CONSIDERED THAT PERHAPS 1 TO 2 KILOGRAMS OF PLUTONIUM IN THE FORM OF PLUTONIUM OXIDE COULD HAVE GONE INTO THE INITIAL FIRE PLUME ALONG WITH THE TOTAL LOAD OF TRITIUM PRESUMABLY CONVERTED TO TRITIATED WATER. (CIC DOC NO 104811M PAGE 4)