PROJECT

CRESTED ICE

USAF B-52 Accident at Thule,
Greenland, 21 January 1968

Report of Activities and Efforts by the Defense Atomic Support Agency Nuclear Emergency Team while TDY with the Strategic Air Command Disaster Control Team, from 22 January to 26 February 1968. Officer in Charge of the DASA NET, Captain Robert E. McElwee, U.S. Navy.

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ANNEX B

RADIOLOGICAL DIVISION

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APPENDIXES

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ANNEX B

A Initial Actions.

The initial element of the Defense Atomic Support Agency Nuclear Emergency Team (DASA NET) arrived at Thule Air Base with air-transportable vehicle and emergency equipment, from Sandia Base, New Mexico, at 1842Z, 22 January 1968, to provide radiological and contamination-control support for Crested Ice This element of six radiological monitors, two explosive ordnance disposal technicians, and one weapons technical advisor under the NET Commander, Captain R. E. McElwee, USN, was augmented by two instrument repairmen and equipment from Kelly Air Force Base, Texas Shortly after arriving at Thule AB, the NET positioned their equipment in hangar 6 and made preparations for the following day's activities, including practicing assembly of a prefabricated support shelter for later erection at the accident site.

At 0800 on 23 January 1968, NET members and other disaster control personnel were briefed that the B-52 with fou[redacted] weapons had crashed approximately 7-1/2 miles west of Thule AB and apparently burned through the ice and sank in the North Star Bay. Random beta-gamma checks at the accident site had been conducted by SAC personnel on 22 January, and no beta-gamma radiation was detected. Following the briefing, the Radiological Division was organized with Captain McElwee as the OIC and Major E. B. Dunnam as assistant OIC. NET personnel were assigned to this Division, along with a health physicist from the Air Force Directorate of Nuclear Safety, Kirtland Air Force Base, a SAC bioenvironmental engineer, and 11 radiological monitors supplied by Thule AB Action was then taken to set up an instrument-repair activity, designate team members for immediate deployment to the accident site, and establish a decontamination facility.

DNA (b)(1)

At 1010, 23 January, an 11-man team of radiological monitors and EOD technicians with AEC advisors proceeded by dogsled to the accident site to locate a suitable support site, build a helicopter pad, establish a zero alpha line, erect a support building with lights and communication equipment, perform beta-gamma monitoring, search for weapon components, and make spot checks for low-energy gamma (17 Kev.) from plutonium with a PG-1 probe. The team was relieved by a second team at 1800, and all assigned tasks were completed by 2400, except the zero alpha line. The highest beta-gamma readings (1.5 mr./hr.) were obtained from debris located in the northeast section of the crash area. Random checks with the PAC-1SAGA with AC-3 Probe revealed alpha radiation in excess of 2,000,000 CPM on debris scattered throughout the burn area.

The Hot Line was established in building 773 at 1100 Procedures had been established earlier to monitor sleds and personnel returning from the site, with all returning personnel transported by bus from the pier to the decontamination building. This procedure was continued when helicopters were added for transporting personnel to and from the site. Only one bus was used between pickup points and the decontamination building to restrict vehicle contamination.

Weather prevented any activity at the site on 24 January 1968. Radiological Division personnel used this period to locate and monitor indigenous personnel who had entered the contaminated area. On 25 January 1968, flagging of the zero alpha line was completed around an oval area approximately 3 miles long and 1 mile wide. During this operation, weapons components were discovered, and Radiological Division personnel were temporarily assigned to search operations the following day.

Other early actions consisted of refining the organization of the Division, modifying equipment for extreme cold weather use, generating plans for grid monitoring, and determining requirements for additional personnel and equipment.

B. Plans and Operations.

Plans and operations activities, including radiological monitoring of the accident site, monitoring Greenlanders who ventured into the contaminated area (and their lodges), assisting in the establishment of support facilities, and searching for weapons components, were accomplished by the Radiological Division between 22 January and 26 January. On 26 January, the Division was restructured for a more precise, functional basis, and the Plans and Operations Branch was established with seven radiological monitors under Major E. B. Dunnam, USA. On 27 January, 40 additional persons under Colonel K. O. Buckingham arrived from Sandia Base and were assigned to the Division. Two Lawrence Radiation Laboratory consultants (Dr. Tinney and Mr. Benedict) had arrived earlier (25 January) and were assigned to assist Plans and Operations personnel in establishing area radiation levels. (See attachment 1 for final organizational chart.)

Following completion of the zero alpha line around the accident site on 25 January, operations personnel temporarily suspended area monitoring activity and directed all efforts to assisting in location and recovery of weapons components. However, planning for later accomplishment of a radiological grid continued, and Base-support personnel were requested to stake a grid with 100-foot increments over the entire contaminated area. On 27 January, an east-west base line 2,700 feet long and a north-south line 3,000 feet long from the base line were completely staked; grid-survey work continued through 29 January and was then discontinued when a plan evolved for fixing the contaminated snow and debris by plowing it into windrows 300 feet apart. Grid stakes would interfere with this effort.

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Monitoring activity was resumed on 30 January. A zero point was established at the southern tip of the burn area, and work started using a radial plot to record alpha levels along radials of 30-degree increments extending outward to a maximum of 6,800 feet. Dr. Tinney, Mr. Benedict, Captain McRaney, and SSgt Bryant, using a Ludlum Model 16 Radiac instrument with a field instrument for detection of low-energy radiation, (FIDLER) scintillator probe, completed this task on 31 January. The following day, a second team of 12 monitors accomplished a resurvey of the radials for data comparison. The data from the two surveys were the same and, consequently, considered valid. These data were then given to Dr. Wright Langham and Dr. William Carter prior to their departure for Washington, D.C., on 3 February. Appendix III contains the results of the radial survey.

On 1 and 2 February, extension of the 30^{o} radials with the Ludlum instrument and FIDLER probe was accomplished. All area monitoring work was then discontinued; at this time, monitors were assigned to assist the Weapons Recovery Division in policing aircraft debris. On 6 February, a two-man team was assigned to search for weapon components using a PRM-5 with SPA-3 Probe, which is extremely sensitive to a region of gamma radiation (185 Kev.) associated with uranium-235 and proved useful in detecting weapon components buried in the snow. Some weapons components were discovered with this equipment; therefore, daily search activities with additional men and PRM-5/SPA-3 equipment continued until weapons search efforts were reduced.

On 13 February, six two-man teams were withdrawn from debris policing and assigned to obtain a second radial survey in 15^{o} increments. This work was completed that day; and, on 14 February, 21 radiological monitors performed a grid survey of a 2,000' by 800' area, using 50-foot increments. The results of the 15^{o} radial survey are contained in appendix IV; the grid survey in appendix V.

Information on further Plans and Operations Branch activities is contained in Appendix I, Daily Activities.

C. Contamination Control.

The SAC Disaster Control Team arrived at Thule AB at 0644Z on 22 January 1968. One team member, Major D. D. Higgins, SAC Bioenvironmental Engineer, was included to supervise contamination control for personnel and materiel. A decontamination station was established in the USAF Dispensary with TSgt Eggleston, preventive medicine technician of the 4683d Air Base Group, assigned to monitoring activities.

The initial four-man survey party was monitored, and readings up to 7,000 CPM were recorded. Greenlander's sleds and dog teams were monitored at Delong Pier and Dundas Village. When monitored with a PAC-1S, the natives'

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mittens were found contaminated to 4,000 CPM and the mukluks up to 750,000 CPM. These items were removed from the Greenlanders and replaced with military items. Sleds and dog teams indicated negligible contamination when monitored in -30° F. temperatures.

RCA personnel of BMEWS PMEL supplemented the equipment available by loaning two PAC-1S instruments and a calibration source. The total instrument inventory then available for contamination control was seven PAC-1S's, one calibration source, two PDR-27's, and one PG-1 Probe. RCA personnel also advised that the Air Force instruments with internal batteries were unsuitable for Arctic conditions. They then performed all necessary modifications and repairs to the instruments and returned them to the DCT (Disaster Control Team) Command Post. Based on RCA recommendations, batteries were ordered for modification of all PAC-1S instruments.

The decontamination facility in the Dispensary was inadequate for handling large groups of people; therefore, a survey of buildings available for decontamination activities was made at 0100 on 23 January. The prime prerequisites were sewage, water, and heating facilities. Building 773 (barracks) was selected, and initial modifications were made that night to convert the building into a suitable decontamination facility. TSgt Rumel, 4683d Air Base Group veterinary technician, and six airmen from the Base Disaster Control Group were assigned to the contamination control activity, and an OJT program on personnel monitoring was commenced at 0800. At 1100, the Hot Line was operational. The remainder of the day was devoted to refining procedures for monitoring personnel and establishing procedures for monitoring and decontaminating equipment and vehicles. Twenty-eight military and 13 Greenlanders were monitored for contamination.

The extent of possible beta-gamma exposure was not known; therefore, film badges were issued to the party entering the site on 23 January. Badges were worn until it was clear that beta-gamma radiation was not a problem.

On 24 January, the Danish Government requested that urine samples be obtained from the 12 Greenlander sled drivers and one Danish government employee. These individuals were started on coffee, milk, and juices at 1300. They were showered, given clean clothes, and lodged overnight in building 773. Using sterile techniques, urine samples were collected until 0600 on 25 January. The samples were turned over to Commander Olesen, Danish Liaison Officer, at Thule AB, for shipment to Denmark. Excess urine from five samples was mailed to the USAF Radiological Health Lab for analysis. The remaining samples were of insufficient quantity to split.

A single bus, equipped with a Radiac monitor and a radio, was permanently assigned on 25 January to transport personnel to the decontamination station from DeLong Pier and hangar 6. This prevented the spreading of contamination on Base

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by people returning from the site. Radiological monitors also were assigned to monitor vehicles at DeLong Pier and helicopters as they returned from the site. Also, on 25 January, decontamination center personnel attempted to decontaminate Greenlander and GI Arctic clothing by vacuum cleaning. This method was not successful.

LtCol Thompson of Hq SAC arrived on 26 January and was assigned as supervisor of the Contamination Control Branch. During this day, decontamination of mukluks was attempted at building 773. The recovery rate was 70 percent after two 5-minute scrubbing periods. Installation of additional sinks was requested to facilitate a production-line process for decontaminating mukluks, since they were in short supply.

The sinks were installed on 27 January. Five additional airmen were assigned to the decontamination process, and 41 pairs of mukluks were decontaminated. Also on 27 January, mukluk covers were issued for the first time; this resulted in reducing daily contamination of mukluks from 25 pairs to nine pairs, although the size of the site work party increased. The urine samples collected from the Greenlanders and B-52 crew were prepared for shipment to the USAF Radiological Health Laboratory, Wright-Patterson Air Force Base.

On 29 January, coveralls were issued to protect parkas and iron pants from contamination. The trial issue was successful, even though extra large coveralls were too small to fit over Arctic clothing of men over 6 feet or 210 pounds. Headquarters SAC, DM3, was advised that the coveralls could be used for onsite personnel.

Four bioenvironmental engineers, 12 preventive medicine technicians, and 7 disaster control technicians arrived and were assigned to the Contamination Control Branch on 30 January. Two USAF Radiological Health Laboratory technicians and laboratory instruments arrived from Wright-Patterson AFB. The laboratory instruments were set up in the Dispensary for local screening of nasal swabs, swipe samples, and air samples, so that information could be immediately available for operational purposes. Building 773 was altered a second time to increase operational capacity for monitoring the increasing work force. Use of mitten covers successfully reduced mitten contamination.

An onsite preliminary monitoring station was operational on 31 January. Procedures and operational instructions were written to cover all onsite and Thule AB monitoring and decontamination activities. Copies are attached for reference purposes (attachments 2 through 12).

The activities of the Contamination Control Branch for the period 31 January through 25 February are recorded in appendix I. Appendix VI contains tabulated data.

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D. Instrument Repair.

Instrument repair was accomplished by the Radiac Instrument Branch. From 22 January through 26 January, this branch consisted of two instrument repairmen (Mr. Dossett and Mr. Oliver from Kelly AFB). On 27 January, the Branch was expanded to eight repairmen, when additional personnel arrived from Sandia Base.

A very large maintenance burden resulted from monitoring activities between 23 January and 27 January, brought about by a high instrument-failure rate from low temperatures. The three most frequently occurring failures were (1) rapid loss of battery power (about 15-minutes operating time before failure), (2) internal breaking of probe cables, and (3) breakage of Mylar probe faceplates. A modification to the instrument packages, which enabled radiation-monitoring personnel to carry the batteries beneath their clothing, alleviated the power-loss problem. The modification to the PAC-1S was accomplished as follows:

> The internal battery pack and rear latch on the base were removed. Two strands of number 10 wire were routed through the two latch screw holes and soldered onto the instrument battery pins. These wires (approximately 5 feet long) were then attached to two BA-1082 mercury batteries. The wires were tied on the inside of the case to prevent stain on the soldered connections. The rear of the case was taped closed.

The PRM-5 instruments were modified by installing quick-disconnect terminals on the case so that the batteries could be attached and carried separately from the case.

The cable-breakage rate was reduced when improved probe cables were obtained from the Eberline Instrument Company of Santa Fe and installed on the instruments. Problems with the Mylar plates were indirectly caused by the cold. Breakage resulted from puncturing by wet and stiffly frozen hair on parka hoods during decontamination monitoring. Monitoring techniques were improved, and the breakage rate subsequently was reduced.

Daily activities of the Radiac Instrument Branch are contained in appendix I. The Radiac equipment used by the Radiological Division is listed in appendix II.

E. Division Support.

The Support Branch of the Radiological Division was organized with three officers and four enlisted personnel.

Missions assigned were:

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a. Supervise maintenance and storage of all Radiac instruments and special equipment, and maintain daily status report.

b. Provide administrative support for all elements of the Division.

c. Insure that daily requirements levied on the Division were assigned to responsible supervisors and that supply and other support requirements were passed to proper Crested Ice staff elements.

d. Publish daily schedules and the Daily Activities Report.

e. Maintain Division record files.

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AMERICAN SCIENTIFIC GROUP

COL (USA) J. C. Fitzpatrick

RADIOLOGICAL DIVISION

CAPT (USN) R. E. McElwee
Col (USAF) K. Buckingham

SUPPORT BRANCH

MAJ	(USA)	W. B. McNulty
Capt	(USAF)	J. Brown
1LT	(USA)	A. Slovensky
MSG	(USA)	G. M. Rowden
SFC	(USA)	J. O. Kelsey
SP4	(USA)	J. P. Dole
PFC	(USA)	K. L. Workman

RADIAC INSTRUMENTS

Mr.	(CIV)	O. Dossett
SFC	(USA)	H. Monroe
SGT	(USA)	N. Glover
Mr.	(CIV)	T. Oliver
SP6	(USA)	J. Nixon
SSgt	(USAF)	Vidmer
Mr.	(CIV)	D. Castro
TSgt	(USAF)	Hill
Mr.	(CIV)	D. Winters

FCDASA PERS ASGD TO WPNS REC DIV

COL	(USA)	Conarty
Lt Col	(USAF)	Muller
Maj	(USAF)	Crim
Maj	(USAF)	Gipple
CPT	(USA)	Coleman
MSgt	(USAF)	Wright
SP6	(USA)	Anelle
TSgt	(USAF)	Parker
MSgt	(USAF)	Stainaker
MSgt	(USAF)	Brinson

PLANS & OPERATIONS BRANCH

MAJ (USA) E. B. Dunnam

RAD TEAM 1

LTJG	(USN)	D. Dahlen
1LT	(USA)	E. Church
GMTC	(USN)	D. Hightower
GMTC	(USN)	D. G. Cook
SSG	(USA)	C. L. Moore
GMT1	(USN)	W. Morrell
Sgt	(USAF)	M. Lindfield
SP4	(USA)	J. R. Moore
SP4	(USA)	C. W. Hopkins

RAD TEAM 2

1LT	(USA)	B. P. Smith
LTJG	(USN)	R. L. Lawse
SFC	(USA)	A. R. Giles
CMTC	(USN)	E. D. Rose
GMT1	(USN)	Chadborne
SGT	(USA)	J. L. Wilson
SSG	(USA)	G. Artley
SSgt	(USAF)	G. Moret
SP5	(USA)	O. D. Barnum

RAD TEAM 3

CPT	(USA)	W. W. Warren
2LT	(USA)	D. McConnell
MSG	(USA)	C. Orr
SFC	(USA)	Schourenbrand
SSG	(USA)	J. Bryant
SSgt	(USAF)	J. Westfall
SGT	(USA)	C. Minesinger
SSgt	(USAF)	R. Schneehl
PFC	(USA)	J. Breneman

CONTAMINATION CONTROL BRANCH

Lt Col	(USAF)	Thompson	TSgt	(USAF)	Persinger
Maj	(USAF)	Higgins	TSgt	(USAF)	Sheffield
Maj	(USAF)	Johnson	SP5	(USA)	Cassorla
Capt	(USAF)	P. Smead	SSgt	(USAF)	Cunduff
Capt	(USAF)	Markland	SSgt	(USAF)	R. Emerson
Capt	(USAF)	Rudolph	SSgt	(USAF)	Garcia
MSgt	(USAF)	Allen	SSgt	(USAF)	Rhodes
MSgt	(USAF)	Brink	SSgt	(USAF)	Theline
MSgt	(USAF)	Hensley	SSgt	(USAF)	Thier
MSgt	(USAF)	L. Honn	SSgt	(USAF)	C. Truax
MSgt	(USAF)	Luttrell	Sgt	(USAF)	Pincelli
MSgt	(USAF)	Rivera	Sgt	(USAF)	Stringer
MSgt	(USAF)	Toten	A1C	(USAF)	Aycock
MSgt	(USAF)	W. Willis	A1C	(USAF)	B. Bryant
TSgt	(USAF)	Adney	A1C	(USAF)	Capaldo
TSgt	(USAF)	Kennedy	SP4	(USA)	Ranke
TSgt	(USAF)	McCracken	PVT	(USA)	Colwell
TSgt	(USAF)	J. Peard	Mr.	(CIV)	A. Lane

(Thule AB monitors were intermittently assigned to work for the Branch)

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ANNEX C

CONTAMINATION CONTROL

CRESTED ICE RECOVERY PLAN

1. General. Plutonium contamination must be controlled to prevent unnecessary spread to Base areas. Personnel supporting this operation will exercise rigid contamination control discipline in all activities.

2. Contamination Control.

a. Hazard-Control Line. The hazardous radiation exposure areas will be clearly delineated by the hazard-control line.

b. Hazard-Area Access. Entrance and exit to hazard area will be authorized only at specified checkpoints on the hazard-control line.

c. Access Corridors. Access corridors to hazard-control-line entrance and exit checkpoints connecting operational areas, transportation terminals, and material-transfer points will be clearly delineated; and no other access routes will be authorized.

d. Personnel.

(1) All personnel entering the hazard area will be wearing mitten and mukluk protective covers. These individuals, performing tasks in removing or working with contaminated material and equipment, will also wear protective coveralls before entering the hazard area.

(2) All personnel will be registered before entering the hazard area and will be monitored and remove contaminated clothing before leaving the hazard area at the onsite medical decontamination stations.

(3) Upon being transported to the Base, all personnel will receive final decontamination at the onbase medical decontamination station.

(4) No eating or smoking will be permitted in the hazard area. Coffee and water may be consumed only in approved, designated areas.

e. Material and Equipment.

(1) The material-transfer point on the hazard-control line is the only place material will be delivered or received from the hazard area.

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(2) Any contaminated material received from the hazard area must be in sealed containers. Exterior of containers will be monitored and decontaminated prior to delivery to Base.

(3) No vehicle that must return to the Base will enter the hazard area.

(4) No vehicle employed in contaminated material removal will leave the hazard area until end of operations, at which time vehicles will be decontaminated or otherwise disposed of. No grossly contaminated vehicle will be permitted to enter the Base.

(5) All vehicles and drivers entering the Base, but which have not entered hazard area, will be monitored at the DeLong Pier checkpoint. If vehicle contamination is detected, it will be removed or fixed. If the driver is contaminated, he will be decontaminated at the medical onbase decontaminating station. The decontamination-station vehicle will be used to transport personnel to the onbase medical decontamination station.

f. Base Facilities.

All Base facilities frequently used by onsite personnel or used to handle, store, or maintain equipment and material transported from site, will be monitored with Radiac survey instruments at frequent intervals and decontaminated, as required, to minimize spread of contamination to Base facilities.

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Attachment 1

Annex C

Exit Contamination Control Crested Ice Recovery Plan

1. The purpose of these procedures is to insure that personnel, material, and equipment do not leave Thule Air Base with contamination.

2. These procedures are effective immediately.

a. A centrally located area in the MAC Terminal will be established as a monitoring point for all personnel and equipment leaving Thule, Greenland.

b. Personnel will report to the MAC Passenger Terminal at least 4 hours prior to scheduled departure with all equipment they intend to transport from the Base.

c. At this time, there will be a radiological monitor who will monitor equipment in the presence of the owner or custodian. Each individual will personally unpack and repack his belongings as directed by the radiological monitor.

d. Any item of personal equipment with contamination levels over 450 counts per minute will be either decontaminated or detained at Thule AB, Greenland. If the personal effects cannot be decontaminated to an acceptable level, they will be disposed of in accordance with existing directives. In the event personal effects are disposed of because of contamination, those owners should be instructed to contact the claims officer at their next duty station for procedures to obtain reimbursements for their loss.

e. A receipt will be given to all individuals whose belongings are impounded. Every effort will be made to decontaminate personal items and return them to individuals prior to their departure.

f. Contaminated personnel will be decontaminated within the capability of the radiological monitoring team at the terminal or will be directed to the base decontamination station.

g. All personnel will be checked, using the passenger manifest provided by MAC Liaison Office. Personnel will not be permitted to board the aircraft until they have been monitored. (Persons as well as belongings.)

h. All general cargo departing Thule AB will be monitored to insure that it does not exceed the maximum limit of 450 CPM fixed contamination.

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(1) All mail sacks will be monitored using the PAC-1SAGA meter.

(2) Cargo will be monitored at hangar 6 and the MAC Terminal.

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ATTACHMENT 2

ANNEX C

CRESTED ICE RECOVERY PLAN

PURPOSE: This SOP established procedures for minimizing the spread of contamination in and around Camp Hunziker and to Thule AB.

1. Mukluks and mitten covers are the minimum requirement. Protective coveralls, as available, will be worn for operations involving contaminated material removal.

2. Protective outer clothing will be issued at hangar 6 by the contamination control monitor. Team chiefs and command personnel will insure that all personnel are wearing protective outer clothing prior to boarding bus or helicopter.

3. All personnel leaving the contaminated area must be monitored.

4. The decontamination station will perform the following operations:

a. Each item of protective outer clothing will be removed from the individual and monitored for contamination.

b. Removed clothing will be segregated by type and degree of contamination and each group placed in marked plastic bags. The degrees of contamination are (1) 0-450 CPM (maximum criteria level), (2) 450-1,000 CPM, and (3) 1,000 CPM and above.

c. After removal of protective outer clothing, Arctic clothing will be spot checked for gross contamination. Any item of Arctic clothing that is grossly contaminated, 100,000 CPM and above, will be removed and placed in a plastic bag. An emergency supply of Arctic clothing will be on hand to replace grossly contaminated clothing.

d. Persons leaving the contaminated area temporarily will be monitored. If protective clothing is not contaminated, it will not be removed. Any contaminated item will be removed and held for reissue to the individual when he returns to the contaminated area. Items will be reissued by contamination control monitors outside of the decontamination station.

e. There will be no access to the contaminated area through the decontamination station.

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f. At end of day, all removed clothing items will be transported to onbase decontamination station in sealed plastic bags properly marked for processing.

g. Minor skin breaks will be swabbed with soapy water and bandaged. Individuals with skin breaks will be directed to report to the Base Dispensary for medical attention after processing through base decontamination station and Camp Commander. Persons with injuries more serious than minor skin breaks will be handled as directed by the Camp Commander in accordance with policies of the Commander, Base Dispensary.

h. The decontamination station will be monitored daily with a PAC-1S meter for surface contamination. Floor will be covered by Kraft paper sheets. Contaminated portions of paper will be replaced as detected. Swipe and air samples will be taken daily. Sample filter paper will be placed in envelopes, properly identified, and transmitted to the USAF Radiological Health Lab, Field Counting Station, located in Base Dispensary, for processing.

i. Decontamination station will be kept in a clean and orderly condition at all times.

5. Contamination control personnel will monitor for surface contamination inside and outside of all buildings in the camp and advise on contamination actions as required.

6. All vehicles, equipment, and material will enter or leave contaminated area only at the designated material checkpoint on the hazard-control line. All vehicles, equipment, and exterior surfaces of contaminated-material containers will be monitored for surface contamination by contamination-control personnel. Any contaminated item will be tagged and transported to building 865 for decontamination.

7. All personnel departing for Thule AB will be transported to Base decontamination station for final completion of decontamination procedures.

8. Trash generated in contaminated area will be monitored. Noncontaminated trash will be placed in Dempster Dumpster for disposal at Base trash dump. Contaminated trash will be placed in sealed, marked plastic bags and transported to building 773 for disposal.

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ANNEX H

MEDICAL

CRESTED ICE RECOVERY PLAN

1. Director: Senior medical service member of Headquarters SAC Disaster Control Team.

a. Responsibilities.

(1) Directs and coordinates medical activities in support of weapons search/recovery and contamination-control operations.

(2) Coordinates Base medical support.

b. Duties.

(1) Monitors and reports radiological-contamination exposure of all team personnel.

(2) Conducts personnel-contamination control.

(3) Advises on contamination control of all equipment and materials exposed to radiation.

(4) Provides contamination surveillance of all Base facilities.

2. Base Medical Support.

a. Provides inpatient and outpatient care for all team members.

b. Provides onsite medical aid, as required.

c. Provides support as required for collection, processing, and shipment of biological samples.

d. Provides support for personnel monitoring and decontamination.

e. Provides support for contamination surveillance of Base facilities.

3. Personnel Monitoring.

a. Exposure Register--A register containing name, rank, serial number, organization, and home base of all personnel entering hot side of hazard-control

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line will be maintained at onbase decontamination station. Register will show date and time period of each exposure. Contaminated clothing will be removed and processed with contaminated items from onsite station.

b. Exposure-register data will be taken on each person entering decontamination station.

c. Bagged, contaminated clothing will be received, unpacked, and surveyed for decontamination possibilities. Clothing that is not practical to decontaminate will be packed for shipment to designated U.S. bases.

d. Decontamination methods to be used are vacuum cleaning for clothing and limited scrubbing for boots. Laundering will not be used.

e. Nasal swabs will be taken on each person and placed in envelopes. Exposure-register data will be entered on each envelope. Each day's envelopes will be sent to the Base dispensary. Counting results will be made available for further action as required.

4. Environmental Sampling.

a. Air Samples--Staplex Air Sampler will take air samples at designated sites during removal of contaminated materials. Air sampling will be conducted at decontamination stations.

b. Representative samples of snow and ice will be taken to determine extent of contamination removal. Samples should be of 1-gallon minimum quantity.

c. Swipe samples will be taken from surfaces of material and equipment to confirm suspected contamination, as indicated.

d. All samples will be identified with date, time, and location and shipped to the USAF Radiological Health Lab, Wright-Patterson AFB, Ohio, for analysis.

5. Contamination Monitoring.

a. External Contamination--Each person exiting the hot side of the hazard-control line will be carefully surveyed for presence of surface contamination on outer clothing and exposed skin.

b. Surface Decontamination.

(1) Clothing contaminated in excess of 450 CPM will be removed from all persons before returning to the Base.

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(2) Any skin contamination will be removed by swabbing with a hot soap solution.

(3) Internal Contamination.

(a) A nasal swab will be taken from each person exiting the hot side of the hazard-control line. The swab will be placed in an envelope identified with exposure-register data.

(b) Each swab will be counted with a Radiac counting instrument to determine evidence of internal contamination.

(c) Any swab count exceeding 300 CPM will be considered evidence of internal contamination. After operations have closed, urine samples will be collected at home base, based on evaluation of nasal swab by USAF Radiological Health Laboratory. Only those urines requested by Radiological Health Laboratory will be collected. The affected person will be removed from operations involving further radiation exposure. A report on each case will be forwarded to Hq SAC (SU), with request for final disposition of case.

6. Personnel Contamination Control.

a. Personnel Decontamination Facility Onsite.

(1) Facility--Prefabricated building, approximately 250 square feet, will be erected near the hazard-control-line-exit checkpoint on the access corridor.

(2) Facility Manning--Minimum personnel manning per 8-hour shift will consist of the following:

(a) Bioenvironmental Engineer, AFSC 9124------------1

(b) Preventive Medicine Technician, AFSC 907XX------2

(3) Equipment and Supplies--Minimum facility equipment and supplies will consist of PAC-1S Radiacmeter, 2 each; nasal swabs and envelopes, one per man entering hazard area.

Atch 5

Gauze pads	100 each
Pan, soap solution	2 each
Magic markers, black	1 dozen
Brushes, hand	1 dozen
Plastic bags, large	100 each
GI cans, 50-gal.	6 each
Exterior items of Arctic clothing, assorted sizes, as required.	
Kraft paper, rolls	4 each
Masking tape, 1-1/2"-wide, rolls	1 dozen
Register book and pen	2 sets
Table	2 each
Chairs	2 each
Bench, 6-ft	2 each
Space heater	2 each
Lights	as required
Sign, "Decontamination Station"	1 each
Signs, "Entrance" and "Exit"	1 each

(4) Procedures.

(a) All protective outer clothing will be surveyed with PAC-1S Radiacmeter. After survey, protective outer clothing will be removed, with contaminated and uncontaminated items going into separate, plastic-bag-lined GI cans. After removal of protective outer clothing, surface areas of Arctic clothing will be surveyed. If contamination of any item of Arctic clothing is detected, which should be very infrequently, it will be removed and placed in separate containers. A clean item of Arctic clothing will be issued to replace contaminated items.

(b) Any portion of exposed skin, primarily on face, indicating any degree of contamination will be swabbed clean with soap-solution gauze pad. Used pads will be deposited in plastic bags.

(c) Radiacmeters used in hazard area will be monitored; and, if contaminated, they will be placed in sealed plastic bags for decontamination at Base decontamination station.

(d) <u>End-of-Shift Procedures.</u>

1. Kraft paper floor covering in station will be surveyed and contaminated portions replaced.

2. Sealed bags of contaminated clothing will be placed in covered containers and transported to Base for decontamination and/or disposal action.

Atch 5

[redacted] [redacted]

3. Uncontaminated, outer protective clothing will be placed in covered container and transported to Base for reissue.

b. Personnel Decontamination Stations on Base.

(1) The onbase decontamination station will be located in building 773.

(2) Functions and Procedures.

(a) All personnel arriving from site will be routed through onbase decontamination station for recheck of possible contamination of Arctic clothing.

Atch 5

[redacted]

[redacted] [redacted]

SOP 1

Procedures for Wipe/Swipe Sampling

1. Due to the possibility of contamination as the project workload increases, the following procedures will be used for swipe sampling techniques.

a. Swipes and envelopes will be obtained from building 773, decontamination control, duty NCOIC.

b. Only the proper material will be utilized in obtaining samples.

(1) Whatman #1 filter paper.

(2) AFLC Form 1250, "Wipe or Swipe Container."

2. Five samples will be obtained at different locations within the buildings.

a. Entrances.

b. Center right.

c. Center left.

d. Latrine/wash area.

e. Center.

(Locations are dependent on interior structure of buildings.)

3. Filter paper will be slightly damp, NOT WET, prior to taking sample.

4. When taking sample, do not rub/swipe area too hard or paper will tear.

5. After taking swipe, mark location by magic marker/masking tape, identifying by numbers 1 through 5.

6. Put sample into envelope, record date, time, and location by building number and sample number, and return to building 773, duty NCOIC.

atch 6

[redacted]

[redacted] [redacted]

CONTAMINATION CONTROL

SOP 2

6 February 1968

Procedures for Monitoring and Decontamination of Vehicles

1. Vehicles used in recovery operations must be monitored for radiation, and if they are contaminated beyond 450 counts per minute (CPM), they must be decontaminated to the acceptable limits as set by directing authority whenever possible.

2. The following information concerning all vehicles monitored will be entered in the "Vehicle Decontamination Record Log":

   a. Date.

   b. Time.

   c. Vehicle number.

   d. Type of vehicle.

   e. Remarks.

3. Monitoring of vehicles will be conducted with a PAC-1S and/or PAC-3G alpha-reading instrument. Two of the instruments will be available in vehicle-decontamination center at all times.

4. Various areas are of prime concern in monitoring vehicles for contamination. Normal monitoring of vehicles includes:

   a. Tires or treads.

   b. Tire rims.

   c. Underneath sides of fenders.

   d. Bottom of frames.

   e. Cargo-carrying areas.

   f. Passenger seats.

   g. Floorboards.

   h. Steering wheel.

atch 7

[redacted]

Areas contaminated above 450 CPM, or as directed by command authority, will decontaminated by scrubbing with soap and water. If contamination cannot be reduced to 450 CPM, the duty NCOIC in building 773, phone 3194, will be contacted for evaluation.

5. Before ending each workshift, the following procedures will be accomplished.

a. The decontamination-bay gutter area will be monitored for contamination.

b. If contaminated, the area will be scrubbed thoroughly with soap and water.

c. The gutter area will be remonitored, and the results before and after decontamination entered in the vehicle-decontamination record log.

d. All personnel will be monitored for contamination before changing shifts. Those articles of clothing found contaminated above acceptable limits will be bagged and turned in to the personnel decontamination center, building 773, and reported to the personnel decontamination center.

e. Brief oncoming shift concerning activities and/or any specific problems, if applicable.

Atch 7

[redacted] [redacted]

CONTAMINATION CONTROL

SOP

Monitoring Procedures 6 February 1968

The following procedures apply to ALL personnel performing monitoring procedures and to individuals being monitored for radiation contamination.

A. Monitors will wear disposable rubber gloves while monitoring and handling suspected or contaminated clothing, equipment, and materials.

B. Monitors will have incoming "hot" personnel stay on the "hot" side of the Hot Line. Monitoring for contamination should be performed on the hat, hair, face, pockets, jackets, pants (knees and seat), stocking or woolen inserts, gloves, and hand and footwear. If the CPM exceeds 450 CPM on any of these items, they will be placed in the provided containers.

C. The footgear should be the last item monitored. If the CPM exceeds 450, the individual being monitored will remove the footgear and place the uncontaminated foot on the "cold" side of the Hot Line. The individual will remove the other contaminated item and place it in the container while at the same time stepping across the Hot Line with the other foot.

D. If 450 CPM is exceeded on any part of the body, that part will be washed, scrubbed, and remonitored to a safe level. Zero readings for the Greenlanders and 450 CPM or less for military personnel.

E. Nasal swabs will be taken before baths or scrubbings.

F. As soon as personnel are decontaminated, they will proceed to station 1 to have nasal swabs taken and then will give the following information to the clerk.

1. Last name, first name, and middle initial.

2. Serial number and Social Security number.

3. Organization or base.

4. If they had to take a shower or had to strip down to their original clothing because of a high CPM.

G. As soon as they are done at station 1, they will proceed to station 2 and report to the supply clerk at station 3. The clerk at station 2 will keep a daily log of all pertinent information conducted at the decontamination station, such as:

atch 8

[redacted]

[redacted] [redacted]

1. Number of personnel monitored.

2. Daily count and list of items on hand and items to order.

3. List of items decontaminated and placed into issue status.

H. At the end of each day, or as required, the decontamination center will be cleaned up and monitored. All contaminated materials that can be decontaminated will be accomplished and monitored. Upon completion, these items will be returned for reissue.

I. As soon as personnel monitoring is completed, the monitors and the decontamination center will be surveyed for possible contamination. Whether they have detected any contamination or not, the individuals will wash their hands with soap and water.

Atch 8

[redacted]

[redacted] [redacted]

CONTAMINATION CONTROL

SOP

Procedures for Staplex Air Sampling 6 February 1968

1. The following procedures will be strictly adhered to when obtaining air samples using the Staplex air sampling instrument.

a. Staplex will be mounted on tripod, if available. If tripod is not available, Staplex will be put in position at least 4 feet to 5 feet above floor level in the area being sampled.

b. Prior to starting sampler, put new filter paper, type Whatman TFA #41 if 4" scoop is used and Whatman #141 if 8" x 10" scoop adapter is used.

c. After starting Staplex, insure that flow meter shows at least 40-60 CPM before noting start time.

d. In order to insure an adequate sample, Staplex must be operated for a minimum of 45 minutes. This assures a minimum sample of 1,000 CPM across the filter paper.

e. As soon as flow-rate meter shows 40-60 CPM, note time and flow rate on masking tape which will be affixed to the Staplex prior to putting it into position.

f. After Staplex has been operated for a minimum of 45 minutes, note time and flow rate below previous notation. Turn off Staplex and repeat operation at farthest point away from the area sampled.

g. Filter samples will be put into envelopes with the following information noted on outside of envelopes:

(1) Start time and flow rate.

(2) Stop time and flow rate.

(3) Inlet diameter (4" or 8" x 10" scoop).

(4) Type filter paper.

(5) Type Staplex.

(6) Location of sample (building number and general location in building).

Atch 9

[redacted]

[redacted] [redacted]

2. Envelopes with samples will be turned into duty shift NCOIC at building 773.

3. Duty NCOIC at building 773 will compute the volume rate prior to sending to the Radiological Health Laboratory at the Thule Hospital, using the following formula:

$$V_S = \frac{V_R \times T}{35.3}$$

4. Volume rate will be noted on front of envelope, and sample will be forwarded as described in paragraph 3.

Atch 9

[redacted]

[redacted] [redacted]

CONTAMINATION CONTROL

6 February 1968

SOP

Procedures for Obtaining ETA and ETD of all Nonscheduled Aircraft

1. The Command Post Operations Section OIC or NCOIC will telephone the decontamination center, building 773, extension 4179, to inform the OIC or NCOIC of ETA and ETD turnaround of all nonscheduled aircraft at Thule AB, Greenland.

2. The decontamination center's OIC or NCOIC will make a written record of this information.

3. The decontamination center's OIC or NCOIC will then contact Mr. Lane at the PAX Terminal, telephone extension 3155; or, if not during duty hours, extension 5269; relaying the information he received from the Command Post.

Atch 10

[redacted]

[redacted] [redacted]

Camp Hunziker OI
Number 2

SAC DCT Thule AB, Greenland
13 February 1968

Radiological Division

PROCEDURES FOR MOVING SEALED 30-GALLON BARRELS TO THULE AIR BASE

1. Barrels will be numbered; exterior readings will be taken with PAC-1S and recorded. A swipe sample of a representative number of barrels, at least 10, will be taken for later analysis.

2. Any barrel over 150 CPM (PAC-1S reading) will be reduced to 150 CPM by brushing. If level cannot be reduced below 150 CPM after repeated brushing, contamination will be assumed to be fixed, and the barrel will be prepared for shipment. Any barrel reading over 450 CPM after brushing will be sent to the Base decontamination station for removal or fixing of contamination.

3. Barrels will be banded four to a pallet for transport on flatbed trucks.

4. Truck wheels and bed will be monitored prior to leaving site.

5. As each load is moved out, the barrel numbers and time of departure will be noted.

6. Trucks will follow route shown below (see Base map, attachment 1).

   a. Proceed on ice road to post 44 on Base.

   b. From post 44 to Beach Road.

   c. Turn left on Beach Road to Paars Road.

   d. Turn right on Paars Road to Danner Road.

   e. Proceed northeast on Danner Road to Campbell Road.

   f. Proceed southeast on Campbell Road to Ortman Road.

   g. Turn left on Ortman Road to Crescent Road.

   h. Turn right on Crescent Road to ammunition storage area (about 2 miles).

   i. Proceed to igloo number 1826 or 1828, as directed by OIC in area.

Atch 11

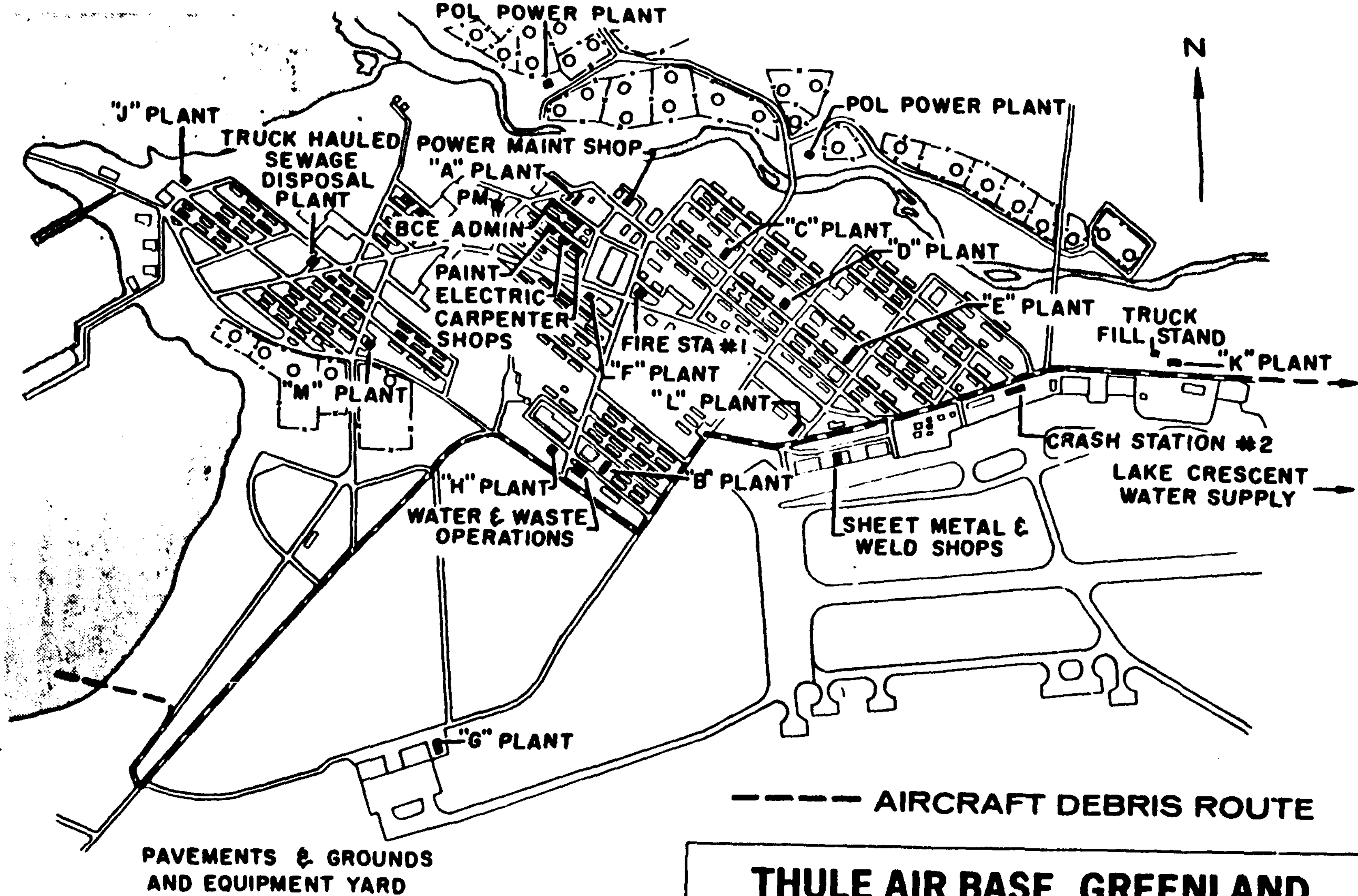
[redacted]

7. Barrel numbers and time of arrival of each truckload at the ammunition area will be recorded.

8. As each pallet is unloaded, a PAC-1S meter reading on each barrel will be recorded.

Atch 11

[redacted]



THULE AIR BASE GREENLAND

BASE LAYOUT UTILITIES

[redacted]

Camp Hunziker OI
Number 3

SAC DCT Thule AB, Greenland
14 February 1968

Radiological Division

PACKAGING AND MOVEMENT OF CONTAMINATED AIRCRAFT DEBRIS

1. Purpose: To establish procedures and exterior contamination limits for packaging of contamination aircraft debris prior to movement to and from the Thule AB storage facility.

2. General: Containers will be leakproof (metal barrels, engine cans, or tanks depending on the size of debris pieces). Containers will not be moved to Thule AB until they have been monitored with a PAC-1S and will not be removed from Thule AB until they have again been checked for removable contamination. Procedures given below are for small containers; except where impracticable, each procedure also will apply for large containers, such as engine cans and tanks.

3. Procedures for filling containers:

a. Empty containers will be numbered and stored just inside the Hot Line at the crash site (in a low-level area of contamination). These containers will be moved to the filling areas on a "hot" vehicle which operates only inside the Hot Line.

b. Containers will be protected during the filling operation to preclude contamination of exterior. Protection methods can vary, depending on the size and type of container; i.e., exterior covers, filling hoppers, etc.

c. Filled containers will be covered and taken to the control-monitoring point (located just inside the Hot Line) in a "hot" vehicle.

4. Monitoring and contamination control:

a. The filled containers will be removed from the "hot" vehicle at the control-monitoring point, checked with a PAC-1S meter, and swipe samples taken for later analysis. Containers with less than 150 CPM will be banded together and secured to a pallet, which will be placed on a clean vehicle positioned outside the Hot Line for shipment to the Thule AB storage site.

b. Stiff brushes will be used to field decontaminate containers which have readings above 150 CPM. If, after repeated brushing, a container cannot be reduced below 450 CPM, contamination will be assumed to be fixed, and the container will be prepared for shipment on pallets.

Atch 12

[redacted] [redacted]

c. Containers with readings above 450 CPM, after repeated field decontamination efforts, will be sent to the Base decontamination station for removal or fixing to preclude spreading of contamination during transport to the storage facility.

d. Container numbers, time of departure from the loading site, and time of arrival at the Thule AB storage area will be recorded. Movement of containers on Thule AB will be by approved route.

Atch 12

[redacted]

[redacted] [redacted]

APPENDIX I

DAILY ACTIVITIES

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ACTIVITIES REPORT FOR 22 JANUARY 1968

RADIOLOGICAL DIVISION

I. General.

A portion of the DASA Nuclear Emergency Team (DASA NET) consisting of 10 personnel commanded by CAPT R. E. McElwee, USN, arrived at Thule, Greenland, at 1442, local time. Also arriving on the same plane were two civilian Radiac instrument repairmen from Kelley AFB, Texas.

All DASA NET equipment and the Kelley AFB Air Transportable Radiac Package was off loaded and stored in hangar 6.

Five members of the NET reported to hangar 6 for instruction on the erection of a prefabricated hut. This was the first building erected at the accident site.

II. Radiac Repair.

Two instrument repairmen began checking and calibrating all alpha instruments in preparation for the following day's activity.

III. Contamination Control.

Five PAC-1S instruments were modified for Arctic use and delivered to the Command Post by the following RCA PMEL employees:

Fred Hinkle--PMEL Supervisor
Ed Hawks--PMEL Technician

They also loaned two PAC-1S's and one calibration source to the Disaster Control Team.

Decontamination facilities were located in the Base Dispensary. The initial-entry party of four military personnel was monitored and found lightly contaminated (up to 7,000 CPM). Six Greenlanders' sleds and dog teams were monitored at the Base pier. Mittens and mukluks were found contaminated up to 750,000 CPM and were replaced with military issue. Dog teams and sleds were not contaminated.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 23 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. A briefing was held for all personnel at the Command Post at 0800. Missions assigned were:

1. Find the four weapons.

2. Define the limits of alpha contamination.

3. Find aircraft debris and explosive material.

4. Construct a helicopter pad and erect a prefabricated hut.

B. The helicopter pad and hut were completed at the site.

II. Contamination Control.

A. A permanent decontamination facility was established in building 773. The facility included a "Hot Line," air-sampling equipment, provisions for obtaining nasal swabs, storage facilities for contaminated clothing, and clothing supply.

B. Twenty-eight military and civilian personnel were processed. Additionally, 13 Greenlanders were monitored. Most Greenlanders were found to be contaminated--some up to 2,000-3,000 CPM. New clothing was issued for all contaminated articles.

C. Film badges were issued to the teams deployed to the site.

III. Radiac Repair.

Repairmen continued to modify alpha instruments for Arctic use and calibrated all instruments. Fourteen Mylar probe faces were repaired. Twelve instruments required major repair.

[redacted]

ACTIVITIES REPORT FOR 24 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

No division activities were conducted at the site due to inclement weather.

II. Contamination Control.

A. Complete and thorough monitoring of Greenlander sled drivers who had been to the accident site was accomplished. Results of the 12 drivers involved showed three with some alpha contamination and nine were clean as follows:

1. One driver: top and pants, 400-600 CPM; mukluks, clean.

2. One driver: parka, 1,200-1,300 CPM; pants, 900 CPM, mukluks, 1,000 CPM.

3. One driver: parka, 100 CPM; pants, 5,000 CPM; undertop, 5,000-6,000 CPM; glove inserts, 400 CPM.

The contaminated clothing was replaced with military issue. Since all drivers reside in one house in a nearby village, a monitor was sent to the residence to check for contamination; none was present.

B. Thirteen Greenlanders were prepared for urine samples in response to a request by the Danish Government via the Danish Liaison Officer. Preparations included showering the Greenlanders and issuing them clean clothes. Urine samples were collected over a 12-hour period. Of the 13 samples taken, five were split and samples were retained for shipment to the AF Radiological Health Lab. The remainder were prepared for shipment to the Danish Government.

III. Radiac Repair.

Cold-weather modifications to the Radiac equipment were continued. Routine repair and calibration continued.

[redacted] [redacted]

ACTIVITIES REPORT FOR 25 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. The monitoring team completed a zero line around a 3-mile by 1-mile area, using PAC-1S instruments. The basis of this survey was to establish a zero line for the surface alpha contamination. Its authenticity could not be verified due to the limited capability of the AG-3 Probe under the existing environmental conditions of ice and snow at the crash site.

B. Assistance was provided Weapons Recovery Division in search for weapons components.

C. A monitoring team conducted random beta-gamma checks. A maximum of 1.5 mr./hr. with background of 0.7 mr./hr. was recorded for debris scattered throughout the accident area.

II. Contamination Control.

A. The Greenlander village, where the 12 sled drivers live, was thoroughly monitored, and a house in Dundas visited by one of the drivers was also monitored. No contamination was found.

B. Urine samples obtained from the Greenlanders were given to the Danish Liaison Officer for shipment to Denmark.

C. An effort was made locally to decontaminate Greenlanders clothing by vacuuming. The effort was unsuccessful.

D. Thirty-eight assigned personnel and 12 Greenlanders were processed through the decontamination facility.

E. Procedures for monitoring hangar 6, helicopters, and equipment returning from the site were established.

III. Radiac Repair.

A. The instrument repairmen repaired, checked, and calibrated all Radiac equipment.

B. Dr. Tinney and Mr. Benedict of Lawrence Radiation Laboratory arrived and began assembling an instrument that could detect weak gamma rays emitted from plutonium. The instrument consisted of a FIDLER probe with the electronic circuitry provided by one of two commercial, single-channel analyzers.

[redacted]

[redacted] [redacted]

either the Ludlum Model 16 or the Eberline Model PRM-5. The instrument measures the 60 Kev. gamma ray emitted by Am^{241}, the daughter of Pu^{241}.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 26 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

All operations personnel assisted in weapon-recovery activities.

II. Contamination Control.

A. LtCol Thompson, USAF, arrived and was placed in charge of contamination control.

B. Sinks were installed in building 773 for the decontamination of mukluks. Decontamination efforts resulted in an immediate recovery rate of 70 percent.

C. Eighty-eight persons were processed through the decontamination facility.

III. Radiac Repair.

Additional PAC-1S instruments were modified for cold-weather use. Repairmen performed routine maintenance on 20 instruments.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 27 JANUARY 1968

RADIOLOGICAL DIVISION

I. General.

Forty-five personnel from Field Command and Test Command, DASA (DASA NET), arrived at Thule at 0945, local time. Five EOD personnel were assigned to Weapons Recovery Division from the newly arrived team. The remainder were assigned to this Division. The Division was reorganized to include the Command Section, Radiological Health, Division Support, Contamination Control, Radiac Repair, and Plans and Operations. Radiological Health was later made a separate activity.

II. Operations.

A. Assistance was provided Weapons Recovery Division in weapons search.

B. Five two-man monitoring teams conducted a preliminary survey using the PG-1 Probe. This probe is capable of detecting contamination below the surface of the snow. Survey results revealed contamination beyond the zero line established for surface contamination. Consequently, the zero line was changed to include the newly defined contaminated area.

III. Radiac Repair.

Additional equipment brought by the DASA NET increased the instrument inventory to the following:

A. Forty-three PAC-1S.

B. Three PAC-1SAGA.

C. Sixteen AN/PDR-27.

D. Twelve PAC-3G.

IV. Contamination Control.

A. Five airmen were added to decontamination operations.

B. Forty-one mukluks were decontaminated.

C. Ninety-nine persons were processed through the decontamination facility.

[redacted]

[redacted] [redacted]

D. Issue of mukluk covers to personnel working at the site began. Consequently, mukluk contamination was drastically reduced.

E. Urine samples from B-52 crew members were prepared for shipment to the AF Radiological Health Lab.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 28 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. Twenty-seven persons assisted Weapons Recovery Division in policing up debris at the crash site.

B. Capt McRaney and two Danish scientists obtained snow samples along a 5-kilometer strip of the coastline southwest of the crash site. These samples were retained by the Danish scientist for analysis.

II. Contamination Control.

A. One hundred and forty-four persons were monitored through the decontamination building.

B. SAC advised that a special laundry facility for contaminated clothing will be established at Loring AFB. Contaminated Greenlander clothing subsequently was prepared for shipment to Loring. (Destination for contaminated clothing was subsequently changed to Westover AFB to an already established AEC-licensed facility.)

III. Radiac Repair.

Repairmen completed modifications of all Radiac instruments on hand. Instrument-repair requirements were reduced to about 10 units per day, as personnel became more proficient in cold-weather operations.

[redacted]

ACTIVITIES REPORT FOR 29 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

Inclement weather prevented any work at the site.

II. Contamination Control.

Personnel were issued coveralls for use over Arctic gear. Coveralls should reduce contamination of parkas and iron pants, but they are considered too small for large men.

III. Radiac Repair.

No work performed.

[redacted] [redacted]

ACTIVITIES REPORT FOR 30 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. Teams totalling 25 men assisted Weapons Recovery Division in policing debris at the site. Scraps of a classified map were found and turned in to security. An area 2 miles north of the burn area was searched by helicopter for 45 minutes for aircraft debris. No debris was located.

B. A four-man monitoring team started a radial survey of the site, using a Ludlum Model 16 with FIDLER probe. Four 30-degree increment radials were completed.

II. Contamination Control.

A. Four additional bioenvironmental engineers and 12 preventive medicine technicians were assigned. A lab for analysis of nasal swabs, swipes, and air samples was established in the Base Dispensary.

B. One hundred and forty-nine persons were processed through the decontamination building.

III. Radiac Repair.

The instrument repairmen repaired 20 instruments and assisted Dr. Tinney in setting up experimental equipment for detecting gamma emissions from plutonium.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 31 JANUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. Teams totaling 26 men assisted Weapons Recovery Division in policing debris at the site.

B. Four water samples were taken east of the accident site.

C. Four men completed the radial survey started on 30 January.

II. Contamination Control.

A. The alterations to increase the available area in building 773 were completed, and the Hot Line operation was expanded to accommodate much larger groups.

B. The onsite monitoring station started operation on a 14-hour, two-shift-a-day basis. Duties of this activity are to collect protective clothing worn in the contaminated area and briefly check all personnel for contamination before they boarded transportation to return to the Base.

C. Monitoring stations were set up at the pier and building 953 to monitor equipment and material returning from the site.

D. One hundred and twelve persons were processed through decontamination.

III. Radiac Repair.

Twenty-three instruments were calibrated.

[redacted]

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ACTIVITIES REPORT FOR 1 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. Twenty-six men assisted in policing debris at the site.

B. Two men began a resurvey of the radial plot of the site, using the Ludlum instrument with a FIDLER probe.

C. Five Danish scientists were accompanied by LTJG Dahlen, USN, on a reconnaissance trip to the site.

D. SSgt Bryant accompanied General Hunziker to several points on the highlands surrounding the site to monitor for contamination. None was found.

E. Three water samples were taken at random at the site. These samples were then sent to the AF Radiological Health Lab.

II. Contamination Control.

A. One hundred and seventy-five persons were monitored through the decontamination building. Nine vehicles on the site were monitored and found clean.

B. Twelve 3' by 17' boxes of contaminated clothing were shipped to Westover AFB for cleaning. Arrangements were made for shipment of an additional 80 cubic feet of clothing.

III. Radiac Repair.

The shop received seven PAC-1SA instruments but did not modify them or place them in use. Normal calibration and battery replacement continued.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 2 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. A 12-man monitoring team completed radial plots of the site. These data was plotted for Dr. Wright Langham, LASL, for use in his briefings in the United States.

B. Seven men assisted in policing debris at the site.

C. Three water samples were taken from the locations used on 1 February. These samples were shipped to the AF Radiological Health Lab.

D. Mr. Wittman, Arctic ice expert, NAVOCEANO, conducted a preliminary survey of the ice at the site.

II. Contamination Control.

One hundred and sixty-nine persons were monitored through the decontamination building. Sixteen vehicles were monitored and decontaminated as necessary.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 3 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Operations.

A. Three water samples were obtained from the locations used on 1 and 2 February. These were shipped to the AF Radiological Health Lab for analysis.

B. Eleven men assisted Weapons Recovery Division in policing debris at the site.

C. A monitor team was sent to the site at 1100 to extend the radial survey effort accomplished on 30 and 31 January and on 1 and 2 February.

II. Contamination Control.

One hundred and thirty-four persons were monitored through the decontamination facility. Eighteen vehicles were monitored and decontaminated as necessary.

III. Radiac Repair.

Twenty-two instruments were repaired.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 4-5 FEBRUARY 1968

RADIOLOGICAL DIVISION

4 February 1968

There was no activity at the site due to inclement weather.

5 February 1968

I. Operations.

A. Twenty-five men assisted in policing debris at the site.

B. Saunders Island was spot checked for contamination. None was found.

C. Three men were assigned to the instrument-repair shop to prepare two PRM-5 instruments (LRL experiment) for a dual-reading grid plot measuring 17- and 60-Kev. energy peaks. These instruments will be used in resurveying the area covered in the earlier survey.

D. Three snow samples were obtained and prepared for shipment.

II. Contamination Control.

One hundred and eighteen personnel were monitored through the decontamination facility. Seven vehicles were monitored and decontaminated as necessary.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 8 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel Status.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	28
D.	Radiological Health Branch	3
E.	Ice Prediction Branch	1
F.	Contamination Control Branch	34
G.	Radiac Instrument Branch	9
		84

II. Operations.

A. A seven-man team left at 1400 to assist the Weapons Recovery Division in policing up debris. Major Dunnam was OIC, and Captain Warren was the team leader of the six-man ice team. Team is due to return about 2200.

B. Three division technicians, with the assistance of one LRL man, calibrated two Ludlum Model 16 Radiac instruments. These instruments will be used in tomorrow's operation in monitoring the southern portion of the crash site in an attempt to locate significant weapon components which may be buried in the snow.

III. Contamination Control.

A. The following items of contaminated clothing have been packed and manifested for the first available airlift:

Parkas	82	Iron pants	56	Mukluk inserts	16 pr.
Mukluk	17 pr.	Caps	6	Mittens	215 pr.
		Glove inserts	106 pr.		

[redacted]

[redacted]

B. Personnel monitoring:

1. Personnel monitored; 97.

2. Hq SAC Disaster Control Team film badges were forwarded to the Radiological Health Laboratory, Wright-Patterson AFB.

C. Vehicle monitoring:

1. Four weasels all were within acceptable limits.

2. One snowplow; 0 CPM.

3. One decontamination shuttle bus; within acceptable limits.

4. One 1-1/2-ton truck; 0 CPM.

D. Equipment monitoring:

1. Two BT-400 heaters; within acceptable limits.

2. One vehicle tire (dismounted); 1,150 CPM.

3. One ice core box; 10K CPM.

E. Building monitoring:

1. Building 773; within acceptable limits.

2. Building 953; within acceptable limits.

F. Personnel decontamination:

One individual was required to shower and get a complete change of clothing.

G. Vehicle decontamination: None required.

H. Equipment decontamination:

1. Vehicle tire was scrubbed and readings reduced from 1,150 CPM to a fixed level of 450 CPM.

2. Ice core box was decontaminated from 10K CPM to 1.2K CPM.

[redacted]

[redacted] [redacted]

I. Buidling decontamination: None required.

J. The following clothes were issued to personnel being processed through the decontamination center:

Undershirts	3	Drawers	1	Socks	21 pr.
Gloves, leather	14	Gloves, inserts	19	Mittens	11
Masks	4	Caps	3	Mukluk	10
Mukluk inserts	9	Parkas	6	Iron pants	7

[redacted]

[redacted]

ACTIVITIES REPORT FOR 7 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel Status.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	28
D.	Radiological Health Branch	5
E.	Ice Prediction Branch	1
F.	Contamination Control Branch	38
G.	Radiac Instrument Branch	9
		90

II. Operations.

A. A 20-man team departed at 0800 to assist the Weapons Recovery Division in policing debris. A second team of seven men left at 1000 to assist the Weapons Recovery Division. CAPT (USN) McElwee was OIC of the Operations Center at the site, and MAJ Dunnam (USA) was OIC on the ice.

B. Two division personnel, MSgt Orr and SFC Schourenbrand, with Dr. Tinney from LRL, monitored the southern portion of the crash site in an attempt to locate significant weapon components which may have been buried in the snow. At the time of this report, no results of this survey have been obtained.

III. Contamination Control.

A. Activities.

1. Supply. LtCol Kerr advised that all contaminated clothing shipped to Westover on 29 January 68 had been decontaminated except Greenlander mukluks and mittens (6 each), which had a residual, fixed contamination of 70,000 CPM. All other Greenlander bearskin clothing had been hand-decontaminated to zero level.

[redacted]

[redacted] [redacted]

2. Contaminated clothing (14 boxes) was shipped out of Thule AB to McGuire AFB. 8AFDM3 was notified of shipment.

3. Onsite contamination personnel have been increased to four per shift. The additional monitor was stationed at the site command building to monitor equipment and materials leaving the contaminated area.

B. Monitoring.

1. Personnel monitored; 206.

2. Vehicles monitored:

a. Three weasels; all within acceptable limits.

b. One grader; within acceptable limits.

c. Two flatbed trucks; within acceptable limits.

d. One 2,000-gallon water tank truck, within acceptable limits.

e. Two trucks, 6' by 6'; within acceptable limits.

3. Equipment monitored:

a. Four BT-400 heaters; within acceptable limits.

b. One power-supply generator; within acceptable limits.

c. All mukluk covers returned from site.

4. Buildings monitored:

Building 953; within acceptable limits.

5. Personnel decontaminated; none required.

6. Vehicles decontaminated; none required.

7. Equipment decontaminated; twenty pairs of mukluk covers were successfully reduced to less than 1,000 CPM and are available for reissue.

8. Buildings decontaminated; none required.

[redacted]

[redacted] [redacted]

9. Clothing issued:

Gloves, inserts	6 pr.	Mukluk inserts	9	Gloves, leather	6 pr.
Mukluks	2 pr.	Socks	16 pr.	Mittens	6 pr.
Masks	0	Caps	1	Parkas	5
Iron pants	2				

[redacted]

[redacted]

ACTIVITIES REPORT FOR 8 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel Status.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	28
D.	Radiological Health Branch	5
E.	Contamination Control Branch	38
F.	Radiac Instrument Branch	9
		89

II. Operations.

A. A 24-man team from the Division left at 0800 to assist Weapons Recovery Division in policing up debris. Colonel Buckingham was the OIC of the Operations Center at the site, and Major McNulty was OIC on the ice. Team leaders of the four teams were as follows:

TEAM 1	TEAM 2	TEAM 3	TEAM 4
CPT Warren	LTJG Dahlen	Lt Smith	LTJG Lawse

B. Monitoring accomplished on 7 February 1968 by MSgt Orr and SFC Schourenbrand resulted in recovering bits of active material within, south, and east of the burn area.

III. Contamination Control.

A. At site: LtCol Thompson visited site to observe contamination-control procedures. Everything proceeding according to plan. Received two types of protective clothing for testing: (1) 1016XL, some problems encountered; (2) 1015XL, no problems encountered with this suit.

B. At the Base:

1. Personnel monitored; 188.

[redacted]

[redacted]

2. Monitored 11 vehicles; including one weasel, four buses, one trailer, one truck, and four helicopters. Only one bus required decontamination.

3. Equipment monitored:

a. All lanterns; 200 to 1,000 CPM.

b. All radio packs; 100 to 650 CPM.

c. All coffee containers; within authorized limits.

4. Monitored buildings 773 and 953; within authorized limits.

5. Persons decontaminated; 1 (final readings = 200 CPM face, 400 CPM hands).

6. Twenty-six various pieces of contaminated clothing collected.

7. One crate of contaminated clothing sent to transportation for shipment; 128 cubic feet.

[redacted]

[redacted] [redacted]

DAILY ACTIVITIES REPORT FOR 9 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	28
D.	Radiological Health Branch	5
E.	Contamination Control Branch	38
F.	Radiac Instrument Branch	9
		89

II. Operations.

A. Three teams from the Branch left at 0800 to assist Weapons Recovery Division in policing up debris. CAPT McElwee was the OIC of the Operations Center at the site, and MAJ Dunnam was the OIC on the ice.

These teams were to visually search for weapons components and police aircraft debris from the edge of the burn area to the zero line. This task was conducted in a counterclockwise sweep around the burn area.

B. Two teams, using four PRM-5 instruments with SPA-3 Probes, searched for weapons components.

C. A team of five men departed for the site at 0800 to assist the Weapons Recovery Division in filling and closing 30-gallon drums with contaminated aircraft debris. As of 1200, these personnel had filled and packaged 18 drums.

III. Contamination Control.

A. New activities. Personnel are scrubbing all mukluk covers that are in serviceable condition. After being scrubbed, the mukluks are hung to dry to prevent freezing. When mukluk contamination is reduced below 450 CPM, the mukluks are made available for reissue.

[redacted]

B. Personnel monitored; a total of 188 persons were monitored on 8 February 1968.

C. Vehicles monitored; a total of two weasels, two snowplows, one snow-blower, one wrecker, one snowcat, three buses, two tractor-trailers, and two helicopters was monitored. All these items were within acceptable limits. One tractor required decontamination (63D381).

D. Equipment monitored; water containers, mukluk covers, and food bags.

E. Buildings monitored; 953, 865, and 773.

F. Vehicles decontaminated; tractor tires could not be decontaminated below 300 CPM. Tires are to be changed in building 865.

G. Equipment decontaminated; food bags and water containers to zero CPM, mukluk covers to less than 450 CPM (60 pr.).

H. Buildings decontaminated; building 953 exhibited less than 450 CPM on the floor area after cleaning operations.

I. Items of clothing contaminated and collected on 8 February were:

Mittens	16	Mukluk inserts	7
Mukluks	14	Parkas	14
Iron pants	16		

NOTE: Subsequent daily activities reports will carry contamination control data for the previous day on reports through 13 February.

J. Outgoing personnel.

Three aircraft departed Thule. No passenger or baggage cargo was contaminated. Manifests are on file in building 773.

K. Air sample: Air samples were taken at the site drying room. No contamination was evident.

IV. Instrument repair branch.

1 C

[redacted]

[redacted]

The Radiac instrument inventory as of 7 February 1968 is as follows:

PAC-1S	48
PAC-1SAGA	3
AN/PDR-27	16
PAC-3G	12
PAC-1SA	7
LRL Instruments	5

[redacted]

DAILY ACTIVITIES REPORT FOR 10 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	28
D.	Radiological Health Branch	5
E.	Contamination Control Branch	38
F.	Radiac Instrument Branch	9
		89

II. Operations.

Due to Phase I condition, no activity was conducted at the site.

III. Contamination Control (9 February 1968).

A. New activities: The filling of the 30-gallon drums with contaminated debris proceeded without problems. Exterior contamination did not exceed 150 CPM on any of the barrels. Fifty-four drums were filled.

B. Personnel monitored; 195.

C. Vehicles monitored; a total of three weasels, two snowplows, one grader, one tractor-trailer, three buses, one dumpster, one snowblower, one crew cab, one 1/2-ton truck, and three helicopters was monitored.

D. Equipment monitored; coffee jugs, water containers, snow shovels, and all mukluk covers returned from the site.

E. Buildings monitored; building 773.

F. Equipment decontaminated; one snow shovel, 127 pairs mukluk covers.

G. Vehicles decontaminated; one bus, one snowplow, and one snowblower.

H. Contaminated clothing collected:

Mittens	14 pr.	Gloves	18 pr.
Mukluks	6 pr.	Parkas	15
Iron pants	7		

63

[redacted]

[redacted]

DAILY ACTIVITIES REPORT FOR 11 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	18
D.	Radiological Health Branch	5
E.	Contamination Control Branch	48
F.	Radiac Instrument Branch	9
		89

II. Operations.

Sixteen radiological monitors assisted Weapons Recovery Division in policing debris at the site. A five-man team filled 30-gallon drums with contaminated debris. A six-man team used two special detection instruments in the search for weapons components. Two men assisted Danish scientists in obtaining ecological samples around the site.

III. Contamination Control (10 February 1968).

A. Ten monitors from the Rad Monitoring Branch were made available to the Base decontamination station.

B. Personnel monitored; 52.

C. Vehicles monitored; three weasels and one payloader.

D. Buildings monitored; 953, 773, and 865.

E. Contaminated clothing collected:

Parkas	7	Glove inserts	8 pr.	Mittens	2 pr.
Gloves	8 pr.	Mukluk inserts	3 pr.	Mukluks	4 pr.

[redacted]

F. Items decontaminated:

Four Coleman lanterns, three water thermos jugs, 117 pairs of mukluk covers.

[redacted]

DAILY ACTIVITY REPORT FOR 12 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	19
D.	Radiological Health Branch	5
E.	Contamination Control Branch	48
F.	Radiac Instrument Branch	8
		89

II. Operations.

A. One four-man team assisted Weapons Recovery Division in policing aircraft/weapon debris at the site.

B. One six-man team continued packaging aircraft debris in 30-gallon drums. Seventeen drums were packaged.

C. Two three-man teams continued their survey for weapons components. A burned thermal battery and bits of bomb casing were found.

III. Contamination Control (11 February 1968).

A. Arctic supply received 10 crates of decontaminated clothing from Westover AFB for reissue.

B. Personnel monitored; 184.

C. Vehicles monitored; two weasels, three graders, two trackmasters, four buses, two crew cabs, one wrecker, one skidoo, one tractor, and one helicopter.

D. Buildings monitored; 773, 865, 953.

[redacted]

[redacted] [redacted]

E. Contaminated clothing collected:

Parkas	12	Caps	6	Sox	23 pr.
Iron pants	6	Glove inserts	37 pr.	Drawers	8
Mukluks	7 pr.	Gloves	39 pr.	Undershirts	9
				Mittens	34

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 13 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	7
C.	Plans and Operations Branch	19
D.	Radiological Health Branch	5
E.	Contamination Control Branch	48
F.	Radiac Instrument Branch	8
		89

II. Operations.

A. Six two-man monitoring teams, using PRM-5 with FIDLER probes, performed a radial survey of the site. Radials with 15° increments were obtained using the same zero point and 0° radial line employed on the initial survey.

B. Seven men filled seven barrels with debris for movement to the Base.

III. Contamination Control (12 February 1968).

A. Operation instruction (OI) was published for moving 125 30-gallon cans of contaminated aircraft debris from the crash site to an onbase storage site. Random swipe samples were obtained from 10 of the cans, and no contamination was detected.

B. A draft of an OI was prepared for packing, movement, and storage of aircraft debris preparatory to shipment.

C. An altered protective coverall (insert sewn in to enlarge body and legs) was field tested to determine suitability for use at the site. The results proved satisfactory, and an order for alteration of 200 coveralls was placed with the Base dry-cleaning plant.

[redacted]

[redacted]

D. No freezing of the filter of the M17 Respirator occurred during a 30-minute trial at -35° F.

E. Planning for future collection of urine samples from personnel was accomplished.

F. Monitored 256 personnel, 15 vehicles, 1 generator, building 865, hangar 6, and guard shacks 44 and 45.

G. Contaminated clothing collected:

Parkas	8	Iron pants	1
Leather gloves	3 pr.	Glove inserts	3 pr.
Mukluks	3 pr.		

H. Nasal swabs taken, 269; swipes, 21.

I. Protective clothing collected:

Contaminated Mukluk Covers	13 pr.
Clean Mukluk Covers	160 pr.
Contaminated Mitten Covers	14 pr.
Clean Mitten Covers	146 pr.
Contaminated Coveralls	0
Clean Coveralls	125

IV. Radiac Instrument Branch.

The following instruments are currently on inventory:

PAC-1S	70
PAC-1S	3
PDR-27	16
PAC-3G	12

[redacted]

[redacted] [redacted]

PAC-1SA	7
PRM-5	7
PAC-5G	1

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 14 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	6
C.	Plans and Operations Branch	19
D.	Radiological Health Branch	5
E.	Contamination Control Branch	48
F.	Radiac Instrument Branch	8
		88

II. Operations.

A. Six two-man monitoring teams with two two-man transit teams ran a grid plot of the burn area. PRM-5 instruments with FIDLER probes were used.

B. A seven-man team closed and moved to the Base 30-gallon drums filled with contaminated debris.

III. Contamination Control.

A. Monitored shipment of 127 barrels and three engine cans of contaminated aircraft debris.

B. Site visited by LtCol Thompson to observe filling and monitoring of engine cans.

C. Monitored personnel; 242 on 13 February 1968, and 225 on 14 February 1968.

D. Monitored all camp buildings on site for carbon monoxide; all negative.

E. The following contaminated clothing collected:

[redacted]

Parkas	3	Glove inserts	8 pr.
Iron pants	3	Mukluks	4 pr.
		Leather gloves	5 pr.

F. Paper will be placed on the floor of coffee wanigans, even though swipes taken were indicating contamination below criteria.

[redacted]

[redacted] [redacted]

ACTIVITIES REPORT FOR 15 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	6
C.	Plans and Operations Branch	19
D.	Radiological Health Branch	5
E.	Contamination Control Branch	48
F.	Radiac Instrument Branch	8
		88

II. Operations.

A. Two teams closed and moved 30-gallon cans filled with contaminated aircraft debris.

B. Four teams used special detection instruments in an attempt to locate weapon components.

III. Contamination Control.

A. The Officer, NCO, and Airmen Clubs were added as weekly survey points to the Base contamination surveillance program.

B. Monitored 226 personnel, 19 vehicles, four heaters, hangar 3 (swipe), Dining Hall 5 (swipe), and building 865.

C. Contaminated clothing collected:

Parkas	17	Iron pants	4	Mukluks	7 pr.
Mittens	22 pr.	Gloves	3 pr.	Caps	5
Glove inserts	22 pr.				

[redacted]

[redacted] [redacted]

D. SSG Donald McAvally was successfully decontaminated after findings of 500 CPM on his hands and 600 CPM on his neck. He was involved in loading debris in a 10,000-gallon tank.

E. Twenty parkas were delivered to transportation for shipment to Westover AFB for decontamination.

F. The drying shack was monitored with a PAC-1S and Staplex Air Sampler during removal of debris to a storage container. Readings on the interior surfaces ranged from 200 to 300 CPM on the upper walls to 8,000 to 100,000 CPM on the perforated floor. The crew removing debris all wore M17 protective masks.

[redacted]

[redacted]

DAILY ACTIVITIES FOR 16 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Radiological Health Branch	5
E.	Contamination Control Branch	48
F.	Radiac Instrument Branch	8
		87

II. Operations.

A. An 11-man team closed and moved 30-gallon cans filled with contaminated aircraft debris. Thirty-two cans were processed.

B. A six-man monitoring team checked containers at the loading site for weapons parts. The PRM-5 with SPA-3 Probe was used. No parts were found.

C. A three-man monitoring team began checking containers at the igloo storage area on Base for possible location of weapons parts. Work was not completed and will be finished tomorrow.

III. Contamination Control.

A. Monitored 253 personnel, 28 contaminated; 20 vehicles, 3 decontaminated to greater than 450 CPM. A grader was returned to the site without decontamination, to be used there until operation is complete. Also monitored was one building, hangar 3 (swipe).

B. Coverall loss has doubled from previous day due to large number (111) that have unexplained large tears in front and back.

C. Welders wearing protective coveralls and M17 respirators worked on covering 10,000-gallon tanks filled with debris (hangar 6).

[redacted]

[redacted] [redacted]

D. Canvas was used to cover openings of containers filled with debris to prevent spread of contamination en route to Thule AB.

E. Monitoring of the five engine containers and flatbed truck, after extreme brushing, revealed that the contamination was removed to 50 CPM on the containers and 1,200 CPM on the trailer (flatbed).

[redacted]

DAILY ACTIVITIES FOR 17 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
F.	Radiological Health Branch	5
		87

II. Operations.

A. A four-man monitoring team assisted contamination control in monitoring barrels in the onbase storage igloo for surface alpha contamination. All barrels were within accepted limits.

B. Two four-man monitoring teams assisted contamination control in monitoring debris containers and in operating the decontamination building at the site.

C. A 13-man detail began cleaning DASA NET equipment stored in hangar 6.

III. Contamination Control.

A. Two hundred personnel were monitored, of which nine were found to be contaminated (4.5 percent).

B. Monitored 25 vehicles of various types. Four of these required decontamination.

C. Aircraft debris containers were monitored with PAC-1S, PDR-27, and swipes. All were found to be within acceptable limits.

D. Buildings monitored; hangar 3 and hangar 1. (Swipe samples.)

E. There were 258 nose swabs counted, with none showing activity. There were 93 swipes counted, with four exhibiting activity above 300 dpm.

[redacted]

DAILY ACTIVITIES FOR 18 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	2
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		82

II. Operations.

A. An 11-man team completed maintenance and cleaning of DASA NET equipment.

B. A four-man team monitored barrels at the storage igloo, using PAC-1S and the PRM-5/SPA-3 Probe. All barrels were within accepted limits.

C. Two four-man teams monitored debris-loading operations, using the PRM-5/SPA-3 Probe to check for possible inclusion of weapons components with the aircraft debris.

III. Contamination Control.

A. Monitored 169 personnel, of which 19 (11 percent) were found to be contaminated.

B. Monitored 16 vehicles of various types. One tractor (62D126) had to be released after numerous washings showed that the reading of 1,200 CPM on the tires was fixed.

C. Aircraft-debris containers were monitored with both PAC-1S and PDR-27 instruments. All showed no detectable activity. Thirty-four of these were sent to the igloo storage area.

[redacted]

D. There were 216 nose swabs counted, with one showing activity. The swipes counted numbered 41.

E. Building 1 was torn down. The door and floor of the building read 1,000 CPM and were kept on the hot side of the operation.

[redacted] [redacted]

DAILY ACTIVITIES FOR 19 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	1
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		81

II. Operations.

A. A three-man team took eight snow samples along the east shoreline of Saunders Island. These samples were requested by the American scientific group.

B. A four-man team dismantled the onsite drying shed.

C. A four-man team monitored debris-loading operations, using the PRM-5/SPA-3 Probe in search of weapons components. None were found.

D. A four-man team monitored debris containers for surface alpha contamination, using PAC-1S instruments. All containers were within accepted limits.

III. Contamination Control.

A. Personnel monitored numbered 182, with 39 (21 percent) of these contaminated.

B. Items of contaminated clothing collected included 39 parkas, 22 iron pants, 16 pair of mukluks, and 29 pair of mittens.

C. There were 22 vehicles of various types monitored, with one requiring decontamination.

D. Two containers (tanks) filled with aircraft debris were monitored with PAC-1S and PDR-27 instruments, and both showed no detectable activity.

[redacted]

E. Monitoring activity at the site included 172 personnel, 34 pieces of equipment, 14 vehicles, and seven buildings.

F. Fifty metal signs (500-549) are on hand to identify contaminated material sent to the igloo.

[redacted]

DAILY ACTIVITIES FOR 20 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	1
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		81

II. Operations.

A. A three-man team took 12 snow samples, two from the east shoreline of Saunders Island and 10 from the mainland shoreline west of Thule. These samples were requested by the American scientific group.

B. A four-man team loaded the dismantled drying skid into storage tanks.

C. A three-man monitoring team, using three PRM-5/SPA-3 Probes mounted on a Trackmaster, searched an area 2 miles south of the zero line in the hope of locating weapon components.

III. Contamination Control.

A. There were 190 personnel monitored, of which 28 (14 percent) were found to be contaminated.

B. Items of contaminated clothing collected included 11 parkas, three iron pants, five pair of mukluks, and four pair of mittens.

C. There were 21 vehicles of various types monitored, with four requiring decontamination (two trucks and two frontloaders).

D. The buildings monitored included 773, 865, hangar, NCO Club, and Airmen's Club. Only 865 required decontamination measures.

[redacted]

[redacted] [redacted]

E. One engine can containing aircraft debris was monitored with PAC-1S and PDR-27 instruments, with no detectable activity shown.

F. There were 192 nose swabs counted, with none showing activity. Also counted were 68 swipes, with eight exhibiting over 300 dpm.

[redacted]

[redacted] [redacted]

DAILY ACTIVITIES FOR 21 AND 22 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	1
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		81

II. Operations. (No activities 22 February 1968 due to holiday.)

A. A three-man monitoring team, using the PRM-5/SPA-3 Probes attached to a Trackmaster, searched the area south of the contamination control (zero) line for weapons components. None were found in the area up to 3 miles south and 1 mile west of the line.

B. A three-man sampling team collected eight snow samples for the American scientific group. Samples were collected adjacent to the accident site.

III. Contamination Control.

A. There were 204 personnel monitored, of which 17 (8.3 percent) were found to be contaminated.

B. Items of contaminated clothing included the following: parkas 2, mukluks 4 pr., mittens 6 pr.

C. There were 14 vehicles of various types monitored, with two front-loaders and one grader requiring decontamination.

D. The buildings monitored were 773, 865, hangar 3, and the Officers Club.

E. There were 359 nose swabs counted, and 80 swipes counted (one over 300 dpm).

[redacted]

[redacted] [redacted]

DAILY ACTIVITIES FOR 23 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	1
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		81

II. Operations.

A. A four-man monitoring team, using the PRM-5/SPA-3 Probes attached to a Trackmaster, searched the area southwest of the contamination control (zero) line for weapons components. None were found. (See inclosure 1.)

B. A four-man monitoring team checked ice core samples in building 865.

III. Contamination Control.

A. There were 190 personnel monitored, with six (3 percent) found to be contaminated.

B. The clothing found to be contaminated included one pair of iron pants and one pair of mittens.

C. Of the 16 various types of vehicles monitored, only one tractor required decontamination.

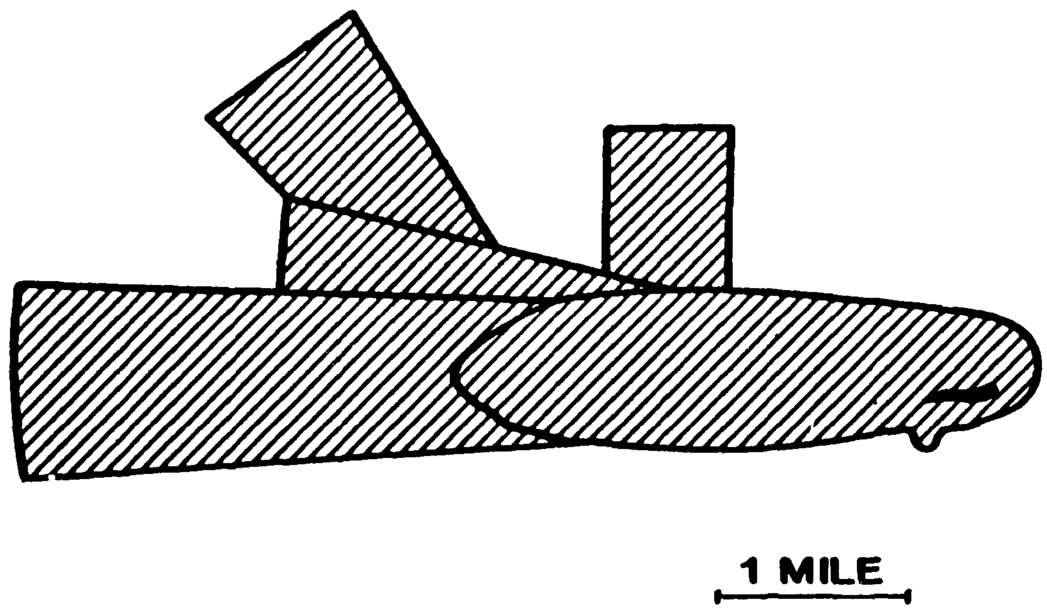
D. There were two tanks containing aircraft debris monitored with PAC-1S and PDR-27 instruments. The results showed no detectable activity.

E. The Radiological Health Lab counted 56 nose swabs and nine swipes.

F. The steam washing equipment has been successfully installed in building 865 and is in full operation.

[redacted]

[redacted]



AREAS SEARCHED USING PRM-5 INSTRUMENT WITH SPA-3 PROBE

[redacted]

[redacted] [redacted]

DAILY ACTIVITIES FOR 24 FEBRUARY 1968

RADIOLOGICAL DIVISION

I. Personnel.

A.	Division Chief Section	1
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		81

II. Operations.

No operations activities at the site, due to Phase I conditions.

[redacted]

DAILY ACTIVITIES FOR 25 FEBRUARY 1968

RADIOLOGICAL DIVISION

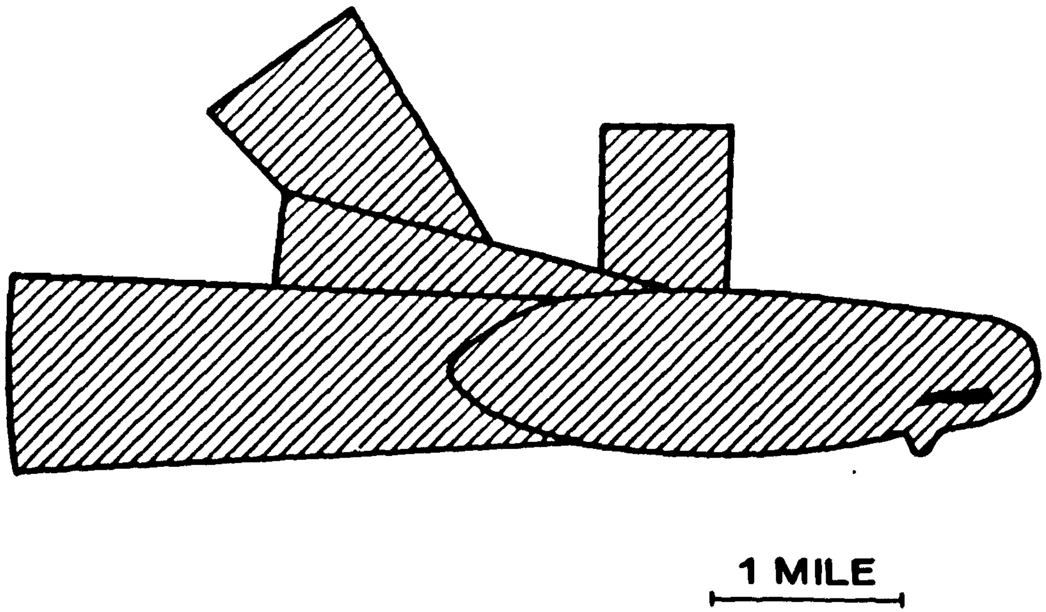
I. Personnel.

A.	Division Chief Section	1
B.	Support Branch	6
C.	Plans and Operations Branch	18
D.	Contamination Control Branch	48
E.	Radiac Instrument Branch	8
		81

II. Operations.

A four-man monitoring team, using PRM-5 instruments with SPA-3 Probes attached to a Trackmaster, searched inside the contamination-control line and 1 mile west of the line for weapons components. None were found. (See inclosure.)

[redacted]



AREAS SEARCHED USING PRM-5 INSTRUMENT WITH SPA-3 PROBE
AS OF 25 FEBRUARY 1968

[redacted]

APPENDIX II

RADIAC EQUIPMENT

[redacted] [redacted]

APPENDIX II

RADIAC EQUIPMENT

		Quantity Available During Operations
1.	PAC-1S with AC-3 Probe	70
2.	PAC-1SAGA with AC-3 and PG-1 Probes	3
3.	AN/PDR-27	16
4.	PAC-3G (AN/PDR-54)	12
5.	AN/PDR-43	2
* 6.	PAC-1SA with AC-3 Probe	7
** 7.	Ludlum No. 16	1
** 8.	PRM-5 (Eberline)	4
* 9.	PG-1 Probe	8
**10.	FIDLER Probe	6
***11.	PRM-5/SPA-3 Probe	3
12.	Staplex Air Sampler	3
13.	Radio Transceiver (Motorola)	5
14.	Water sample implement (manufactured locally by the Base Civil Engineer)	2
15.	10085-05 Calibration Source	1
16.	BC-1 Charger for LR-5 Batteries	2

[redacted]

[redacted]

* The PAC-1S, 1SA, 1SAG, and 1SAGA are all variations of the standard AN/PDR-60 instrument, which measures alpha contamination by either of the two following methods:

A. Using the AC-3 Probe, the instrument detects the number of alpha disintegrations by contact monitoring. It measures only contamination on the surface. The counts per minute (CPM) registered on the meter face is not equal to the number of disintegrations that the probe experiences. Factors for converting the CPM reading to micrograms of Pu^{239} per meter squared (μg./m.^{2}) depend on the type of surface. A very conservative factor would be 0.006 (CPM x 0.006 = μg./m.^{2}).

B. Using the PG-1 Probe, the instrument detects low-energy (17 Kev.) gamma rays, which occur 4 percent of the time during plutonium decay. This probe measures in CPM, but no general conversion factors are available to μg./m.^{2}, since the probe only detects the presence of the plutonium and does not measure the amount. Conversion factors could be experimentally determined, but they would be of little value due to the inherent inaccuracy of the probe.

** The FIDLER instruments are fabricated by LRL personnel. The FIDLER probe is an advanced PG-1 type of probe with electronic circuitry provided by one of two commercial, single-channel analyzers, either the Ludlum Model 16 or the Eberline Model PRM-5. This instrument measures the 60-Kev. gamma rays emitted by Am^{241} which is the daughter of Pu^{241}.

*** The SPA-3 Probe, used in conjunction with the Eberline PRM-5, was used for weapon-component detection. The SPA-3 Probe is extremely sensitive to 185-Kev. gamma rays emitted by U^{235}, but has no capability for Pu detection. CPM readings obtained by the PRM-5/SPA-3 Probe can be converted to μg./m.^{2} through a conversion factor.

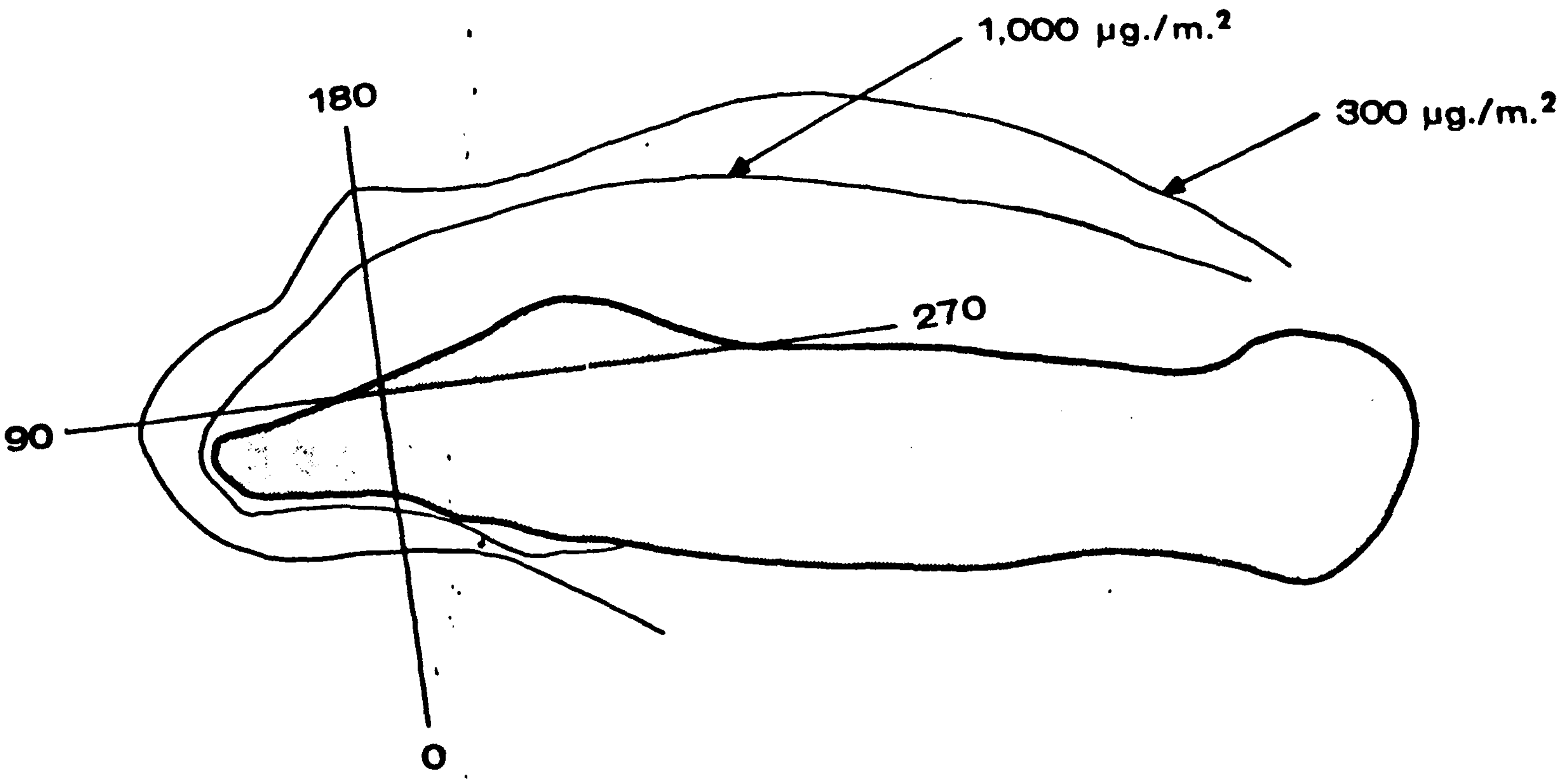
[redacted]

APPENDIX III

INITIAL RADIAL SURVEY
30° RADIALS

1 FEBRUARY 1968

RADIAL PLOT



Bearing of 0° Radial is 78°30' True

LEGEND

Date of Survey - 1 February 1968
Contours in µg./m.²

Inner Contour = 1,000 µg./m.²
Outer Contour = 300 µg./m.²

[redacted]

RADIAL SURVEY

1 February 1968

0^{o}

PACES	READING (CPM)	READING (μg./m.^{2})
0	48,000	10,560
6	80,000	17,600
7	350,000	77,000
11	200,000	44,000
16	250,000	55,000
29	100,000	22,000
30	50,000	11,000
35	25,000	5,500
43	15,000	3,300
49	10,000	2,200
57	5,000	1,100
62	3,000	660
86	2,000	440
102	1,500	330
112	1,000	220
130	500	110
141	800	180
147	500	110
168	450	100
188	60,000	13,200
208	350	80
219	200	40
234	200	40
251	170	40
256	150	30

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted]

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

30^{o}

PACES	READING (CPM)	READING (μg./m.^{2})
0	45,000	9,900
10	160,000	35,000
12	370,000	81,500
14	200,000	44,000
21	150,000	33,000
23	250,000	55,000
28	100,000	22,000
32	50,000	11,000
36	30,000	6,600
42	20,000	4,400
52	10,000	2,200
64	5,000	1,100
66	4,000	880
72	3,000	660
90	2,000	440
103	1,500	330
119	10,000	2,200
135	500	110
167	400	85
194	300	66
209	250	55
234	200	44

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted]

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

60^{o}

PACES	READING (CPM)	READING (μg./m.^{2})
0	50,000	11,000
6	50,000	11,000
9	100,000	22,000
13	130,000	28,600
20	250,000	55,000
25	100,000	22,000
28	200,000	44,000
33	300,000	66,000
35	450,000	99,000
37	250,000	55,000
43	150,000	32,000
46	100,000	22,000
50	40,000	8,800
51	30,000	6,600
110	10,000	2,200
114	5,000	1,100
117	4,000	880
148	3,000	660
149	2,000	440
175	1,000	220
190	500	110
198	400	88
212	300	66
305	200	44

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted]

RADIAL SURVEY

1 February 1968

90°

PACES	READING (CPM)	READING ($\mu g./m.^2$)
0	35,000	7,700
6	47,000	10,500
14	80,000	17,600
17	45,000	9,900
25	40,000	8,800
50	30,000	6,600
51	50,000	11,000
60	22,000	4,840
77	18,000	4,000
84	10,000	2,200
100	18,000	4,000
119	13,000	2,860
138	12,000	2,640
146	15,000	3,200
170	3,500	770
184	2,000	440
190	1,000	220
196	500	110
219	450	100
230	400	90
247	400	90
264	350	80
270	300	65
287	250	55
300	200	45
331	170	40
347	150	30
381	130	30
412	150	30
425	200	45

[redacted] [redacted]

90° (Continued)

PACES	READING (CPM)	READING (μg./m.²)
436	300	65
448	250	55
458	200	45
469	150	30
486	130	30
497	900	200
504	350	80
510	250	55
522	150	30
535	150	30
552	170	40
586	150	35
617	150	35
630	170	40
634	210	45
653	150	30
665	130	30
685	150	30
780	250	55
800	200	45
811	150	30
856	150	30
876	130	30
910	130	30
957	130	30
989	130	30
1,036	120	25
1,080	150	30
1,103	160	35
1,122	120	25
1,134	130	30
1,171	130	30

[redacted]

[redacted] [redacted]

90° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
1,200	130	30
1,261	130	30
1,270	210	45
1,274	220	50
1,281	200	45
1,291	230	50
1,303	220	50
1,314	200	45
1,324	230	50
1,333	170	40
1,349	220	50
1,373	200	45
1,400	200	45
1,425	220	50
1,440	280	60
1,459	230	50
1,467	700	150
1,477	180	40
1,480	220	50
1,500	220	50
1,518	200	45
1,547	200	45
1,567	180	40
1,582	200	45
1,598	200	45
1,617	250	55
1,623	200	45
1,633	280	60
1,636	300	65
1,658	220	50

[redacted]

[redacted] [redacted]

90° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
1,679	200	45
1,706	200	45
1,743	220	50
1,798	250	55
1,808	220	50
1,824	170	40
1,829	150	30
1,860	130	30
1,882	130	30
1,893	150	30
1,915	150	30
1,956	150	30
1,984	150	30
1,997	120	30
2,040	150	30
2,070	130	30

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted]

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

120°

PACES	READING (CPM)	READING (μg./m.^{2})
0	50,000	11,000
6	50,000	11,000
8	40,000	8,800
20	32,000	7,000
40	20,000	4,400
42	20,000	4,400
45	10,000	2,200
65	5,000	1,100
70	4,000	880
85	3,000	660
100	4,000	880
109	3,000	660
140	2,000	880
141	1,000	440
147	3,300	750
150	2,000	440
161	1,000	220
167	500	110
179	400	90
215	300	65
265	200	45

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted]

RADIAL SURVEY

1 February 1968

150°

PACES	READING (CPM)	READING (μg./m.^{2})
0	50,000	11,000
2	100,000	22,000
4	50,000	11,000
6	30,000	6,600
9	40,000	8,800
11	50,000	11,000
12	40,000	8,800
15	30,000	6,600
24	25,000	5,500
26	15,000	3,300
41	10,000	2,200
45	5,000	1,100
51	4,000	880
54	4,500	990
65	10,000	2,200
66	4,000	880
70	3,000	660
71	2,000	440
99	1,500	330
116	1,000	220
134	500	110
145	400	90
147	1,000	220
148	400	90
149	300	60
189	250	55
233	200	45

150° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
255	200	45
279	200	45

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE - 30 inches

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

180°

PACES	READING (CPM)	READING (μg./m.^{2})
0	75,000	16,500
2	100,000	22,000
5	30,000	6,600
35	20,000	4,400
62	10,000	2,200
79	5,000	1,100
80	2,500	550
100	2,000	440
132	1,000	220
136	1,000	220
160	500	110
184	400	90
198	300	60
234	250	55
258	200	50
322	250	55
330	150	30
388	150	30
414	130	30
419	200	50
422	500	110
430	300	60
442	200	50
460	150	30
490	150	30
500	180	40
522	300	60
528	150	30

[redacted]

[redacted] [redacted]

180° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
552	350	70
564	300	60
574	200	50
584	150	30
609	150	30
643	250	60
675	200	50
680	150	30
695	150	30
765	250	70
766	1,000	220
775	450	100
787	150	30
830	200	50
838	1,300	270
844	500	110
850	250	55
860	200	50
873	150	30
922	150	30
1,026	150	30
1,040	200	50
1,050	200	50
1,069	200	50
1,102	150	30
1,122	200	50
1,128	150	30
1,164	150	30
1,190	150	30
1,227	200	50

[redacted]

180° (Continued)

PACES	READING (CPM)	READING ($\mu g./m.^2$)
1,240	150	30
1,277	350	70
1,291	250	55
1,298	150	30
1,329	150	30
1,377	150	30
1,402	700	150
1,412	400	90
1,415	300	65
1,430	200	45
1,437	150	30
1,486	150	30
1,540	150	30
1,585	250	55
1,645	150	30
1,711	150	30
1,719	325	70
1,731	250	55
1,739	150	30
1,765	150	30
1,825	150	30
1,886	150	30
1,926	400	90
1,927	500	110
1,936	700	140
1,938	400	90
1,947	250	55
1,953	200	50
1,956	150	30
1,976	400	90

180° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
1,978	500	110
1,984	700	140
1,998	400	90
2,003	300	60
2,014	200	50
2,027	300	60
2,043	200	45
2,083	150	30
2,102	500	110
2,118	500	110
2,121	250	55
2,131	150	30
2,175	200	45
2,212	150	30
2,236	150	30
2,265	350	70
2,279	250	55
2,289	200	45
2,295	150	30
2,364	150	30
2,420	150	30
2,448	150	30
2,475	125	30
2,489	250	55
2,490	350	70
2,498	300	65
2,509	400	90
2,517	300	65

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

210°

PACES	READINGS (CPM)	READING ($\mu g./m.^2$)
0	40,000	8,800
2	100,000	22,000
7	50,000	11,000
9	40,000	8,800
17	30,000	6,600
35	40,000	8,800
48	30,000	6,600
51	20,000	4,400
55	10,000	2,200
71	5,000	1,100
75	4,000	880
79	5,000	1,100
93	4,000	880
97	3,000	660
102	2,000	440
111	3,000	660
123	2,000	440
140	1,500	330
153	1,000	220
160	1,500	330
176	1,000	220
182	11,000	2,420
188	1,500	330
191	500	110
212	500	110
237	500	100
255	420	90
262	400	90

[redacted]

210° (Continued)

PACES	READINGS (CPM)	READING (μg./m.^{2})
276	300	65
280	1,500	330
283	400	90
301	5,000	1,100
302	500,000	110,000
307	500	110
320	400	90
337	300	65
364	250	55
380	200	45
417	200	45

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

240°

PACES	READING (CPM)	READING (μg./m.^{2})
0	40,000	8,800
7	100,000	22,000
12	50,000	1,100
23	40,000	8,800
33	50,000	1,100
36	100,000	22,000
41	50,000	1,100
45	100,000	22,000
51	50,000	1,100
87	30,000	6,600
100	10,000	2,200
106	5,000	1,100
144	10,000	2,200
149	30,000	6,600
156	4,000	880
161	10,000	1,100
167	4,000	880
182	4,000	880
187	60,000	13,200
196	2,000	440
219	1,800	400
224	50,000	11,000
246	2,000	440
315	1,000	220
326	1,300	300
392	2,000	440
397	1,400	300
400	800	175

[redacted]

PACES	READING (CPM)	READING (μg./m.^{2})
426	500	110
431	700	155
439	25,000	5,500
446	500	110
469	450	100
489	500	110
502	700	155
509	800	175
539	450	100
555	500	110
572	800	175
578	500	110
589	400	90
682	450	100
696	400	90

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

270°

PACES	READING (CPM)	READING (μg./m.^{2})
0	32,000	7,040
2	50,000	11,000
29	100,000	22,000
32	50,000	11,000
40	100,000	22,000
47	40,000	8,800
51	50,000	11,000
70	50,000	11,000
103	40,000	8,800
109	40,000	8,800
123	50,000	11,000
150	50,000	11,000
178	50,000	11,000
188	100,000	22,000
200	50,000	11,000
204	20,000	4,400
205	300,000	66,000
207	150,000	33,000
219	100,000	22,000
223	230,000	50,600
227	290,000	63,800
231	200,000	44,000
238	100,000	22,000
245	250,000	55,000
250	150,000	33,000
255	100,000	22,000
260	50,000	11,000
271	100,000	22,000

[redacted]

270° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
274	500,000	110,000
277	250,000	55,000
285	350,000	77,000
295	200,000	44,000
298	100,000	22,000
304	50,000	11,000
321	100,000	22,000
345	150,000	33,000
371	100,000	22,000
375	200,000	44,000
379	450,000	99,000
381	500,000	110,000
391	300,000	66,000
399	200,000	44,000
410	100,000	22,000
414	50,000	11,000
438	40,000	8,800
458	30,000	6,600
500	40,000	8,800
503	30,000	6,600
510	20,000	4,400
524	220,000	48,400
525	20,000	4,400
549	15,000	3,300
555	10,000	2,200
569	5,000	1,100
578	4,000	880
589	3,000	660
604	2,000	440
615	1,500	330

[redacted] [redacted]

270° (Continued)

PACES	READING (CPM)	READING (μg./m.²)
635	1,000	220
662	500	110
668	400	90
687	350	80
704	300	70
714	250	60
749	200	40
780	200	40
839	220	40
900	220	40
922	170	40
954	150	40
1,000	180	40
1,003	220	40
1,011	150	40
1,023	200	40
1,047	200	40
1,075	170	40
1,107	150	40
1,143	180	40
1,183	160	40
1,294	150	40
1,349	170	40
1,364	150	40
1,390	200	40
1,405	200	40
1,426	170	40
1,454	150	40
1,475	180	40
1,500	200	40

[redacted]

270° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
1,508	150	40
1,545	170	40
1,560	200	40
1,600	180	40
1,617	180	40
1,637	200	40
1,664	180	40
1,706	200	40
1,750	200	40
1,772	150	40
1,814	150	40
1,879	170	40
1,884	200	40
1,903	160	40
1,920	150	40
1,927	190	40
1,940	160	40
1,958	150	40
2,009	200	40
2,022	200	40
2,070	180	40
2,082	200	40
2,100	200	40
2,200	140	30
2,300	140	30
2,400	140	30
2,500	140	30

270° (Continued)

PACES	READING (CPM)	READING ($\mu g./m.^2$)
2,600	170	40
2,700	170	40

LEGEND: 4.5 CPM = 1 $\mu g./m.^2$
1 PACE = 30 inches

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

300°

PACES	READING (CPM)	READING (μg./m.^{2})
0	50,000	11,000
11	100,000	22,000
13	150,000	33,000
17	200,000	44,000
22	100,000	22,000
30	150,000	33,000
36	300,000	66,000
39	400,000	88,000
41	250,000	55,000
44	180,000	39,600
49	250,000	55,000
54	200,000	44,000
56	350,000	77,000
59	500,000	110,000
60	300,000	66,000
69	400,000	88,000
72	500,000	110,000
75	450,000	99,000
81	450,000	99,000
83	500,000	110,000
85	250,000	55,000
87	500,000	110,000
88	200,000	44,000
92	400,000	88,000
96	200,000	44,000
98	50,000	11,000
113	40,000	8,800
121	30,000	6,600

[redacted]

300° (Continued)

PACES	READING (CPM)	READING (μg./m.^{2})
131	50,000	11,000
134	40,000	8,800
140	30,000	6,600
149	20,000	4,400
163	15,000	3,300
179	50,000	11,000
180	10,000	2,200
182	5,000	1,100
206	4,000	880
225	3,000	660

LEGEND: 4.5 CPM = 1 μg./m.^{2}
1 PACE = 30 inches

[redacted] [redacted]

RADIAL SURVEY

1 February 1968

330°

PACES	READING (CPM)	READING (μg./m.^{2})
0	50,000	11,000
3	100,000	22,000
5	150,000	33,000
6	400,000	88,000
14	200,000	44,000
15	400,000	88,000
18	300,000	66,000
19	220,000	48,400
25	200,000	44,000
30	100,000	22,000
34	150,000	33,000
36	350,000	77,000
39	500,000	110,000
41	250,000	55,000
43	120,000	26,400
45	50,000	11,000
46	20,000	4,400
59	10,000	2,200
77	5,000	1,100
81	4,000	880
108	3,000	660
112	8,000	1,760
113	2,000	440
135	1,500	330
161	1,000	220
174	500	110
202	400	90

[redacted]

[redacted] [redacted]

330° (Continued)

PACES	READING (CPM)	READING ($\mu g./m.^2$)
206	4,000	880
247	300	70

LEGEND: 4.5 CPM = 1 $\mu g./m.^2$
1 PACE = 30 inches

[redacted]

[redacted] [redacted]

APPENDIX IV

RADIAL SURVEY 2
15° RADIALS

13 FEBRUARY 1968

[redacted]

[redacted] [redacted]

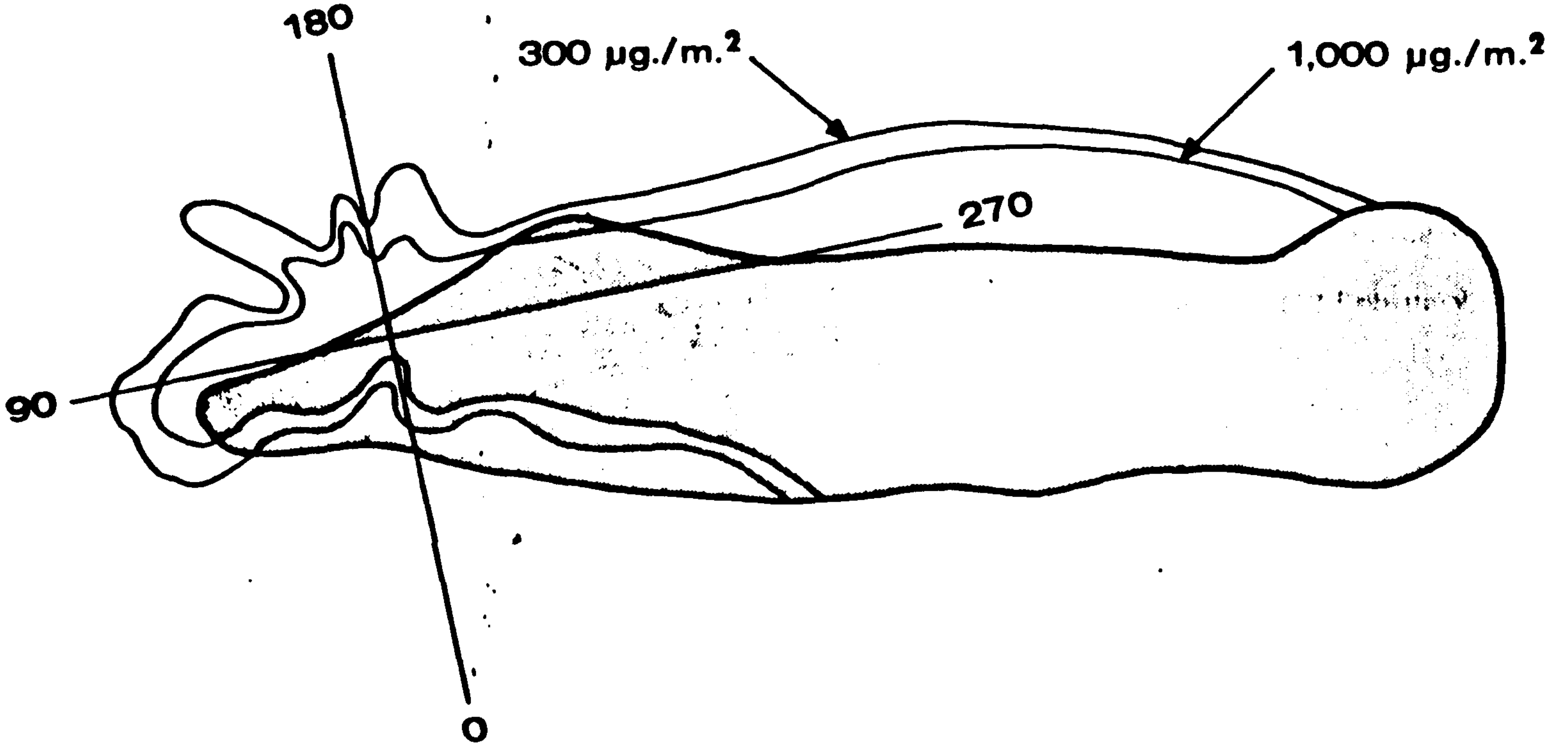
The following numbers were used for normalizing the data taken with the LRL (FIDLER probe) on 13 February 1968. The normalizing factors are tentative and subject to the reevaluation of the instrument calibration data.

FIDLER 1	5 CPM/μg./m.^{2}
FIDLER 2	5.8 CPM/μg./m.^{2}
FIDLER 3	4.7 CPM/μg./m.^{2}
FIDLER 4	6.3 CPM/μg./m.^{2}

[redacted]

[redacted]

RADIAL PLOT



Bearing of 0° Radial is 78°30' True

LEGEND

Date of Survey - 13 February 1968

Contours in µg./m.²

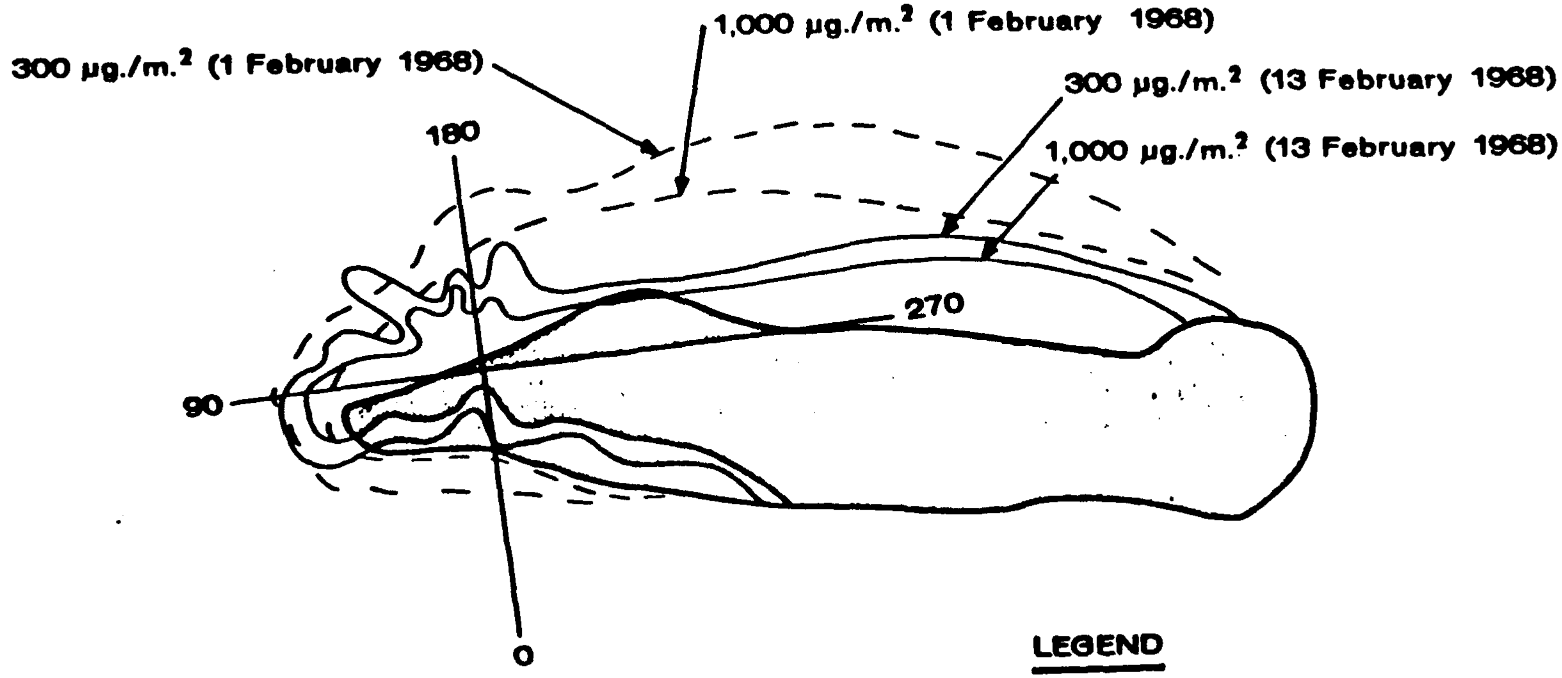
Inner Contour = 1,000 µg./m.²

Outer Contour = 300 µg./m.²

[redacted]

[redacted]

COMPARISON RADIAL PLOT



LEGEND

Upper Broken Line - 300 µg./m.²
Lower Broken Line - 1,000 µg./m.²
Radial Run on 1 February 1968

Upper Solid Line - 300 µg./m.²
Lower Solid Line - 1,000 µg./m.²
Radial Run on 13 February 1968

[redacted]

[redacted] [redacted]

^{0} RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	26,000	5,200
40/100	7,000	1,400
80/200	325	65
120/300	125	25
160/400	125	25
200/500	125	25
240/600	100	20
280/700	100	20
320/800	100	20
360/900	100	20
400/1,000	100	20

[redacted]

15° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	20,000	4,000
40/100	3,000	600
80/200	200	40
120/300	150	30
160/400	100	20
200/500	100	20
240/600	100	20
280/700	125	25
320/800	125	25
360/900	100	20
400/1,000	100	20
440/1,100	100	20
480/1,200	100	20

[redacted] [redacted]

30° RADIAL LINE

FIDLER 2 5.8 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	6,000	1,034
40/100	450	78
80/200	250	43
120/300	175	30
160/400	125	22
200/500	125	22
240/600	100	17
280/700	100	17
320/800	100	17
360/900	100	17
400/1,000	100	17
440/1,100	250	43
480/1,200	150	26
520/1,300	100	17
560/1,400	100	17

[redacted]

[redacted] [redacted]

45° RADIAL LINE

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	17,000	2,700
40/100	10,000	1,588
80/200	350	56
120/300	150	24
160/400	175	28
200/500	100	16
240/600	125	12
280/700	125	12

[redacted]

[redacted] [redacted]

60° RADIAL LINE

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	30,000	6,383
40/100	50,000	10,640
80/200	2,000	426
120/300	400	87
160/400	200	43
200/500	150	32
240/600	130	28
280/700	120	26
320/800	130	28
360/900	150	32
400/1,000	150	32
440/1,100	130	28
480/1,200	120	26
520/1,300	200	43
560/1,400	100	22
600/1,500	100	22
640/1,600	100	22
680/1,700	100	22
720/1,800	100	22
760/1,900	100	22
800/2,000	100	22
840/2,100	100	22
880/2,200	100	22
920/2,300	100	22
960/2,400	100	22
1,000/2,500	100	22

[redacted]

75° RADIAL LINE

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	15,000	3,192
40/100	45,000	9,500
80/200	120,000	25,530
120/300	3,000	640
160/400	300	64
200/500	180	38
240/600	130	28
280/700	150	32
320/800	120	26
360/900	120	26
400/1,000	120	26
440/1,100	120	26
480/1,200	100	22
520/1,300	100	22
560,1,400	100	22
600/1,500	150	32
640/1,600	150	32
680/1,700	120	26
720/1,800	120	26
760/1,900	120	26
800/2,000	120	26
840/2,100	120	26
880/2,200	120	26
920/2,300	120	26
960/2,400	100	22
1,000/2,500	100	22

[redacted] [redacted]

75° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING ($\mu g./m.^2$)
1,040/2,600	100	22
1,080/2,700	100	22
1,120/2,800	100	22
1,160/2,900	100	22
1,200/3,000	100	22
1,240/3,100	100	22
1,280/3,200	100	22
1,320/3,300	100	22
1,360/3,400	100	22

[redacted]

[redacted] [redacted]

90° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.²

PACES/FEET	READING (CPM)	READING (μg./m.²)
0/0	25,000	5,000
40/100	13,000	2,600
80/200	20,000	4,000
120/300	7,000	1,400
160/400	300	60
200/500	200	40
240/600	200	40
280/700	150	30
320/800	175	35
360/900	100	20
400/1,000	125	25
440/1,100	100	20

[redacted]

[redacted] [redacted]

105° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.²

PACES/FEET	READING (CPM)	READING (μg./m.²)
0/0	20,000	4,000
40/100	10,000	2,000
80/200	4,000	800
120/300	1,000	200
160/400	250	50
200/500	175	35
240/600	250	50
280/700	100	20
320/800	100	20
360/900	100	20
400/1,000	150	30
440/1,100	150	30
480/1,200	150	30

[redacted]

[redacted]

120° RADIAL LINE

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0		
40/100	10,000	1,588
80/200	1,700	270
120/300	700	111
160/400	350	56
200/500	275	44
240/600	225	36
280/700	275	44
320/800	300	32
360/900	250	40
400/1,000	500	80
440/1,100	225	36
480/1,200	200	32
520/1,300	200	32
560/1,400	190	30
600/1,500	200	32

[redacted]

[redacted] [redacted]

135° RADIAL LINE

FIDLER 4 $6.3 \text{ CPM} = 1\ \mu g./m.^2$

PACES/FEET	READING (CPM)	READING ($\mu g./m.^2$)
0/0	35,000	5,556
40/100	30,000	4,762
80/200	2,500	400
120/300	1,700	270
160/400	500	800
200/500	200	32
240/600	225	36
280/700	200	32
320/800	175	28
360/900	175	28
400/1,000	200	32
440/1,100	190	30
480/1,200	175	28
520/1,300	150	24
560/1,400	175	28
600/1,500	175	28

[redacted]

150° RADIAL LINE

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0		
40/100	3,000	640
80/200	1,000	213
120/300	300	64
160/400	150	32
200/500	100	26
240/600	100	26
280/700	100	26

5° RADIAL LINE

FIDLER 3 $4.7\ CPM = 1\ \mu g./m.^2$

PACES/FEET	READING (CPM)	READING ($\mu g./m.^2$)
0/0	20,000	4,255
40/100	8,000	1,702
80/200	375,000	70,000
120/300	275	59
160/400	200	43
200/500	100	26
240/600	150	32
280/700	50	13
320/800	100	26

[redacted] [redacted]

180° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.²

PACES/FEET	READING (CPM)	READING (μg./m.²)
0/0	27,000	5,400
40/100	10,000	2,000
80/200	800	160
120/300	350	70
160/400	200	40
200/500	150	30
240/600	125	25
280/700	125	25
320/800	150	30
360/900	150	30
400/1,000	150	30
440/1,100	150	30
480/1,200	150	30
520/1,300	125	25
560/1,400	800	40
600/1,500	150	30
640/1,600	275	55
680/1,700	175	35
720/1,800	150	30
760/1,900	1,000	200
800/2,000	150	30
840/2,100	150	30
880/2,200	150	30
920/2,300	125	25
960/2,400	100	20
1,000/2,500	100	20

[redacted]

180° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
1,040/2,600	200	40
1,080/2,700	200	40
1,120/2,800	225	45
1,160/2,900	100	20
1,200/3,000	100	20
1,240/3,100	100	20
1,280/3,200	100	20
1,320/3,300	150	30

195° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	18,000	3,600
40/100	5,000	1,000
80/200	800	160
120/300	300	60
160/400	150	30
200/500	150	30
240/600	150	30
280/700	150	30
320/800	150	30
360/900	150	30
400/1,000	125	25
440/1,100	125	25
480/1,200	125	25
520/1,300	125	25
560/1,400	125	25
600/1,500	225	45
640/1,600	750	150
680/1,700	125	25
720/1,800	125	25
760/1,900	125	25
800/2,000	175	35
840/2,100	375	75
880/2,200	150	30
920/2,300	150	30
960/2,400	150	30
1,000/2,500	125	25

[redacted] [redacted]

195° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING (μg./m.²)
1,040/2,600	175	35
1,080/2,700	150	30
1,120/2,800	150	30
1,160/2,900	150	30
1,200/3,000	150	30
1,240/3,100	250	50
1,280/3,200	150	30
1,320/3,300	150	30
1,360/3,400	150	30
1,400/3,500	125	25
1,440/3,600	150	30
1,480/3,700	500	100
1,520/3,800	100	20
1,560/3,900	150	30
1,600/4,000	100	20

[redacted]

[redacted] [redacted]

210° RADIAL LINE

FIDLER 2 5.8 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	32,000	5,520
40/100	35,000	6,033
80/200	2,300	400
120/300	1,600	278
160/400	2,300	400
200/500	250	43
240/600	225	39
280/700	275	47
320/800	200	33
360/900	225	39
400/1,000	200	33
440/1,100	300	50
480/1,200	250	43
520/1,300	200	33
560/1,400	225	39
600/1;500	200	33
640/1,600	200	33
680/1,700	275	39
720/1,800	200	33
760/1,900	200	33
800/2,000	200	33
840/2,100	200	33
880/2,200	200	33
920/2,300	175	30
960/2,400	175	30
1,000/2,500	175	30

[redacted]

[redacted] [redacted]

210° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
1,040/2,600	175	30
1,080/2,700	175	30

[redacted]

[redacted]

5° RADIAL LINE

FIDLER 4 $5.8\ CPM = 1\ \mu g./m.^2$

PACES/FEET	READING (CPM)	READING ($\mu g./m.^2$)
0/0	20,000	3,400
40/100	7,500	1,300
80/200	1,750	302
120/300	500	86
160/400	750	129
200/500	475	82
240/600	425	74
280/700	400	70
320/800	375	66
360/900	325	58
400/1,000	250	43
440/1,100	300	51
480/1,200	250	43
520/1,300	400	70
560/1,400	300	51
600/1,500	1,000	174
640/1,600	250	43
680/1,700	275	47
720/1,800	5,000	862
760/1,900	250	43
800/2,000	300	51
840/2,100	225	39
880/2,200	750	130
920/2,300	250	43
960/2,400	200	33
1,000/2,500	1,600	200

[redacted]

[redacted] [redacted]

225° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
1,040/2,600	250	43
1,080/2,700	200	33
1,120/2,800	225	36
1,160/2,900	175	30
1,200/3,000	250	43
1,240/3,100	750	130
1,280/3,200	225	36
1,320/3,300	500	86
1,360/3,400	250	43
1,400/3,500	225	36
1,440/3,600	200	33
1,480/3,700	225	36
1,520/3,800	225	36
1,560/3,900	225	36
1,600/4,000	200	33
1,640/4,100	300	33
1,680/4,200	225	39
1,720/4,300	200	33
1,760/4,400	200	33
1,800/4,500	250	43
1,840/4,600	275	47
1,880/4,700	250	43
1,920/4,800	225	36
1,960/4,900	250	43
2,000/5,000	500	86
2,040/5,100	300	51
2,080/5,200	375	66

[redacted]

225° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING ($\mu g./m.^2$)
2,120/5,300	200	33
2,160/5,400	225	36
2,200/5,500	225	36
2,240/5,600	250	43
2,280/5,700	275	47
2,320/5,800	225	36
2,360/5,900	225	36
2,400/6,000	300	51

[redacted] [redacted]

240° RADIAL LINE

FIDLER 3 $\quad$ 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	7,000	1,489
40/100	10,000	2,126
80/200	5,000	1,065
120/300	2,000	426
160/400	400	86
200/500	400	86
240/600	500	130
280/700	500	130
320/800	300	78
360/900	250	51
400/1,000	250	51
440/1,100	200	43
480/1,200	200	43
520/1,300	250	51
560/1,400	250	51
600/1,500	200	43
640/1,600	200	43
680/1,700	200	43
720/1,800	200	43
760/1,900	200	43
800/2,000	220	46
840/2,100	220	46
880/2,200	200	43
920/2,300	150	32
960/2,400	15,000	3,191
1,000/2,500	250	51

[redacted]

240° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
1,040/2,600	150	32
1,080/2,700	150	32
1,120/2,800	150	32
1,160/2,900	150	32
1,200/3,000	100	26
1,240/3,100	120	29
1,280/3,200	120	29
1,320/3,300	150	32
1,360/3,400	100	26
1,400/3,500	100	26

[redacted]

[redacted] [redacted]

255° RADIAL LINE

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	5,000	1,065
40/100	15,000	3,095
80/200	5,000	1,065
120/300	5,000	1,065
160/400	3,000	639
200/500	550	140
240/600	500	130
280/700	400	86
320/800	450	98
360/900	450	98
400/1,000	350	82
440/1,100	350	82
480/1,200	250	51
520/1,300	200	43
560/1,400	200	43
600/1,500	150	32
640/1,600	160	34
680/1,700	150	32
720/1,800	150	32
760/1,900	150	32
800/2,000	200	43
840/2,100	150	32
880/2,200	100	26
920/2,300	100	26
960/2,400	100	26
1,000/2,500	100	26

[redacted]

[redacted] [redacted]

255° RADIAL LINE (Continued)

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
1,040/2,600	100	26
1,080/2,700	100	26
1,120/2,800	100	26
1,160/2,900	100	26
1,200/3,000	100	26
1,240/3,100	100	26
1,280/3,200	100	26
1,320/3,300	100	26
1,360/3,400	100	26
1,400/3,500	100	26
1,440/3,600	100	26
1,480/3,700	100	26

[redacted]

[redacted] [redacted]

70° RADIAL LINE

DLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	7,000	1,489
40/100	25,000	5,325
80/200	14,000	2,882
120/300	8,000	1,702
160/400	16,000	3,308
200/500	16,000	3,308
240/600	50,000	10,650
280/700	50,000	10,650
320/800	37,000	7,900
360/900	25,000	5,325
400/1,000	17,000	3,521
440/1,100	2,500	533
480/1,200	425,000	90,430
520/1,300	225,000	50,000
560/1,400	400	86
600/1,500	175	38
640/1,600	100	26
680/1,700	75	20
720/1,800	75	20
760/1,900	50	13
800/2,000	50	13

[redacted]

285° RADIAL LINE

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	3,000	639
40/100	10,000	2,126
80/200	10,000	2,126
120/300	13,000	2,769
160/400	7,000	1,489
200/500	20,000	4,252
240/600	10,000	2,126
280/700	8,000	1,704
320/800	2,000	426
360/900	1,000	213
400/1,000	900	200
440/1,100	500	130
480/1,200	350	82
520/1,300	400	86
560/1,400	30,000	6,390
600/1,500	175	38
640/1,600	100	26
680/1,700	100	26
720/1,800	100	26
760/1,900	100	26
800/2,000	80	21
840/2,100	50	13

300° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.²

PACES/FEET	READING (CPM)	READING (μg./m.²)
0/0	50,000	10,000
40/100	150,000	30,000
80/200	250,000	50,000
120/300	30,000	6,000
160/400	3,500	700
200/500	2,000	400
240/600	1,000	200
280/700	500	100
320/800	450	90
360/900	350	70
400/1,000	300	60
440/1,100	250	50
480/1,200	200	40
520/1,300	150	30
560/1,400	125	25
600/1,500	100	20

315° RADIAL LINE

FIDLER 1 5 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	50,000	10,000
40/100	100,000	20,000
80/200	3,500	700
120/300	2,500	500
160/400	500	100
200/500	350	70
240/600	250	50
280/700	200	40
320/800	150	30
360/900	150	30
400/1,000	125	25
440/1,100	100	20
480/1,200	125	25
520/1,300	125	25
560/1,400	125	25
600/1,500	150	30

[redacted] [redacted]

330° RADIAL LINE

TDLER 3 4.7 CPM = 1 μg./m.²

PACES/FEET	READING (CPM)	READING (μg./m.²)
0/0	20,000	4,252
40/100	75,000	15,975
80/200	400	86
120/300	200	43
160/400	150	32
200/500	140	31
240/600	100	26
280/700	75	20
320/800	75	20

[redacted]

[redacted] [redacted]

345° RADIAL LINE

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

PACES/FEET	READING (CPM)	READING (μg./m.^{2})
0/0	20,000	4,252
40/100	9,000	1,917
80/200	350	82
120/300	225	46
160/400	200	43
200/500	100	26
240/600	100	26
280/700	75	20

[redacted]

[redacted] [redacted]

APPENDIX V

GRID PLOT

14 FEBRUARY 1968

[redacted]

[redacted] [redacted]

The following numbers were used for normalizing the data taken with the LRL (FIDLER probe) on 14 February 1968 only. The normalizing factors are tentative and subject to the reevaluation of the instrument calibration data.

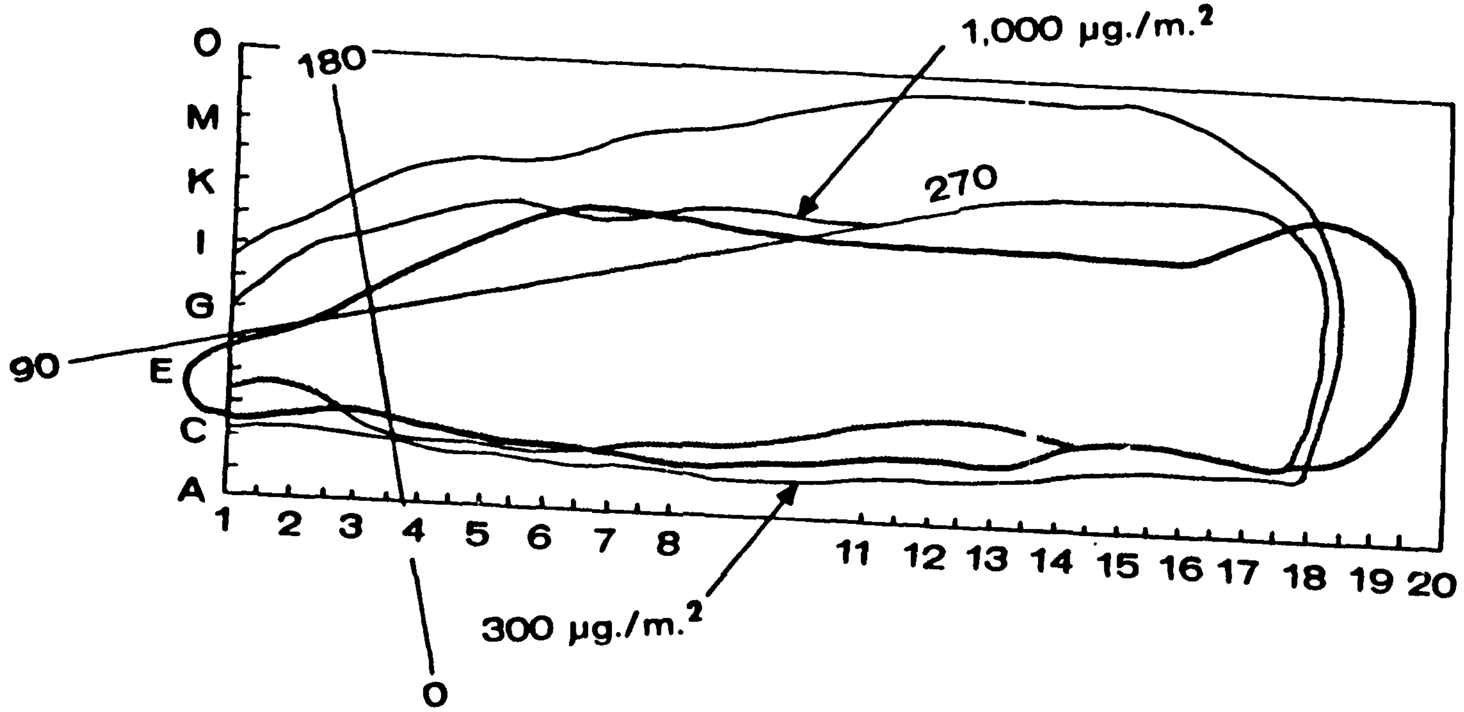
FIDLER 1	4.7 CPM/μg./m.^{2}
FIDLER 2	5.0 CPM/μg./m.^{2}
FIDLER 3	4.7 CPM/μg./m.^{2}
FIDLER 4	6.3 CPM/μg./m.^{2}

[redacted]

[redacted]

G[redacted] PLOT

[redacted]



Bearing of 0° Radial is 78°30' True

LEGEND

Date of Survey - 14 February 1968
Contours in µg./m.²

Inner Contour = 1,000 µg./m.²
Outer Contour = 300 µg./m.²

[redacted]

[redacted] [redacted]

LEG 1

FIDLER 1 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	350	74.5
B	500	106
C	1,000	213
D	5,000	1,060
E	150,000	31,900
F	8,000	1,700
G	3,500	745
H	1,500	319
I	700	149
J	425	90.5
K	400	85.3
L	375	79.8
M	250	53.3
N	250	53.3
O	150	31.9

[redacted]

[redacted] [redacted]

LEG 1.5
FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	450	90
B	15,000	3,000
C	2,500	500
D	10,000	2,000
E	200,000	40,000
F	30,000	6,000
G	15,000	3,000
H	5,000	1,000
I	35,000	7,000
J	15,000	3,000
K	1,000	200
L	15,000	3,000
M	300	60
N	300	60
O	250	50

[redacted]

LEG 2

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	375	80
B	1,200	260
C	1,700	360
D	7,000	1,500
E	180,000	38,000
F	26,000	5,300
G	15,000	3,200
H	5,000	1,100
I	3,500	750
J	2,500	520
K	1,000	210
L	450	95
M	350	75
N	250	50
O	225	50

[redacted]

LEG 2.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	500	80
B	1,000	160
C	1,500	240
D	8,000	1,280
E	250,000	40,000
F	30,000	4,750
G	20,000	3,170
H	10,000	1,600
I	4,000	640
J	2,000	320
K	800	130
L	1,500	240
M	800	130
N	375	60
O	350	55

[redacted]

[redacted] [redacted]

LEG 3

FIDLER 1 4.7 CPM = 1 μg./m.²

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.²)
A	900	192
B	1,700	362
C	17,000	3,620
D	200,000	42,600
E	35,000	7,450
F	24,000	5,110
G	20,000	4,260
H	7,000	1,490
I	2,400	511
J	1,800	384
K	1,700	362
L	475	101
M	380	81
N	350	74.5
O	200	42.6

[redacted]

[redacted] [redacted]

LEG 3.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,000	200
B	3,000	600
C	100,000	20,000
D	125,000	25,000
E	60,000	12,000
F	35,000	7,000
G	100,000	20,000
H	10,000	2,000
I	7,000	1,400
J	2,000	400
K	2,000	400
L	1,000	200
M	500	100
N	325	65
O	325	65

[redacted]

LEG 4
IDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,200	250
B	2,600	550
C	50,000	10,700
D	125,000	26,600
E	50,000	10,700
F	35,000	7,500
G	26,000	5,300
H	11,000	2,350
I	5,000	1,100
J	3,700	800
K	2,000	420
L	1,500	320
M	3,600	770
N	325	70
O	260	55

EG 4.5

IDLER 4 6.3 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	800	130
B	2,500	400
C	100,000	16,000
D	70,000	11,100
E	90,000	14,300
F	18,000	2,850
G	27,000	4,300
H	25,000	3,960
I	4,500	710
J	6,000	950
K	2,500	400
L	1,300	200
M	800	130
N	400	65
O	425	65

[redacted] [redacted]

LEG 5

FIDLER 1 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	2,500	533
B	2,000	426
C	4,000	853
D	240,000	51,100
E	100,000	21,300
F	80,000	17,000
G	50,000	10,600
H	15,000	3,190
I	13,000	2,770
J	3,500	745
K	2,300	490
L	2,100	447
M	1,000	213
N	500	106
O	400	85.3

[redacted]

[redacted] [redacted]

LEG 5.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	300
B	3,000	600
C	10,000	2,000
D	150,000	30,000
E	125,000	25,000
F	45,000	9,000
G	30,000	6,000
H	35,000	7,000
I	150,000	30,000
J	5,000	1,000
K	3,000	600
L	1,500	300
M	1,000	200
N	1,500	300
O	450	90

[redacted]

LEG 6

FIDLER 3 4.7 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	1,700	360
B	5,800	1,230
C	23,000	4,900
D	50,000	10,700
E	50,000	10,700
F	50,000	10,700
G	25,000	5,300
H	30,000	6,400
I	9,000	1,900
J	2,700	580
K	2,000	420
L	3,000	630
M	2,300	490
N	1,200	250
O	600	125

[redacted] [redacted]

LEG 6.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	800	127
B	3,000	476
C	11,000	1,750
D	150,000	23,800
E	60,000	9,540
F	70,000	1,110
G	40,000	6,350
H	25,000	3,970
I	22,000	3,500
J	3,000	476
K	2,000	318
L	10,000	1,590
M	1,500	238
N	3,500	555
O	600	95.4

[redacted]

[redacted] [redacted]

LEG 7

FIDLER 1 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	800	170
B	2,300	490
C	8,000	1,700
D	75,000	15,950
E	50,000	10,600
F	80,000	17,000
G	100,000	21,300
H	35,000	7,450
I	11,000	2,340
J	2,000	426
K	2,000	426
L	2,200	468
M	1,200	256
N	1,000	213
O	500	106

[redacted]

[redacted] [redacted]

LEG 7.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	2,000	400
B	3,000	600
C	10,000	2,000
D	50,000	10,000
E	100,000	20,000
F	40,000	8,000
G	40,000	8,000
H	50,000	10,000
I	20,000	4,000
J	10,000	2,000
K	3,500	700
L	2,250	450
M	2,000	400
N	1,500	300
O	1,500	300

[redacted]

[redacted] [redacted]

LEG 8
FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	320
B	3,000	640
C	8,000	1,700
D	24,000	5,100
E	310,000	64,000
F	46,000	9,800
G	130,000	27,700
H	48,000	10,200
I	12,000	2,550
J	3,700	790
K	8,000	1,700
L	2,000	420
M	1,500	320
N	1,500	320
O	1,200	260

[redacted]

[redacted] [redacted]

LEG 8.5

FIDLER 4 6.3 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	800	130
B	2,000	320
C	6,000	950
D	15,000	2,400
E	100,000	15,900
F	100,000	15,900
G	60,000	9,500
H	140,000	22,200
I	35,000	5,500
J	4,000	640
K	2,700	430
L	3,000	480
M	2,500	400
N	1,500	240
O	1,000	160

[redacted]

[redacted] [redacted]

LEG 9

FIDLER 1 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	800	170
B	1,500	319
C	8,000	1,700
D	35,000	7,450
E	110,000	23,400
F	100,000	21,300
G	125,000	21,600
H	175,000	37,300
I	20,000	4,260
J	7,000	1,490
K	13,000	2,770
L	18,000	3,840
M	2,300	490
N	1,300	277
O	2,200	468

[redacted]

[redacted] [redacted]

LEG 9.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	300
B	2,250	450
C	3,500	700
D	15,000	3,000
E	50,000	10,000
F	200,000	40,000
G	125,000	25,000
H	350,000	70,000
I	25,000	5,000
J	8,000	1,600
K	5,000	1,000
L	10,000	2,000
M	2,500	500
N	1,500	300
O	1,250	250

[redacted]

[redacted] [redacted]

LEG 10

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	320
B	2,200	470
C	3,000	640
D	10,000	2,100
E	60,000	12,750
F	100,000	21,000
G	200,000	42,000
H	370,000	79,000
I	30,000	6,400
J	10,000	2,100
K	3,500	750
L	3,200	580
M	2,300	490
N	1,600	340
O	1,500	320

[redacted]

[redacted] [redacted]

LEG 10.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	700	110
B	1,000	160
C	2,500	400
D	5,000	800
E	40,000	6,350
F	170,000	27,000
G	220,000	35,000
H	200,000	31,800
I	40,000	6,350
J	6,000	950
K	4,000	635
L	3,500	560
M	1,500	240
N	1,500	240
O	1,200	190

[redacted]

LEG 11

FIDLER 1 4.7 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	900	190
B	1,500	320
C	1,500	320
D	9,000	1,900
E	27,000	5,800
F	125,000	26,600
G	150,000	32,000
H	350,000	74,500
I	175,000	37,300
J	10,000	2,130
K	9,000	1,900
L	3,000	640
M	1,900	405
N	1,700	360
O	2,800	600

[redacted] [redacted]

LEG 11.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	300
B	2,000	400
C	3,500	700
D	5,000	1,000
E	20,000	4,000
F	175,000	35,000
G	250,000	50,000
H	350,000	70,000
I	400,000	80,000
J	20,000	4,000
K	7,000	1,400
L	3,750	750
M	3,500	700
N	2,000	400
O	2,000	400

[redacted]

[redacted] [redacted]

LEG 12

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	320
B	2,200	470
C	2,700	570
D	4,000	850
E	18,000	3,840
F	125,000	26,600
G	140,000	30,000
H	400,000	85,000
I	325,000	69,000
J	14,000	3,000
K	6,000	1,280
L	3,500	750
M	2,500	530
N	2,200	470
O	1,500	320

[redacted]

[redacted] [redacted]

LEG 12.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,000	160
B	1,200	190
C	2,000	320
D	4,000	635
E	10,000	1,590
F	300,000	47,600
G	175,000	27,800
H	475,000	75,500
I	275,000	43,600
J	13,000	2,000
K	4,500	720
L	3,000	475
M	2,200	365
N	1,300	200
O	1,000	160

[redacted]

[redacted] [redacted]

LEG 13

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,300	280
B	1,600	340
C	2,200	470
D	3,500	750
E	5,200	1,070
F	220,000	47,000
G	250,000	53,000
H	400,000	85,000
I	280,000	60,000
J	33,000	7,000
K	6,000	1,280
L	3,500	750
M	3,000	640
N	2,500	530
O	2,000	420

[redacted]

LEG 13.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	300
B	2,000	400
C	3,500	700
D	5,000	1,000
E	10,000	2,000
F	200,000	40,000
G	300,000	60,000
H	500,000+	100,000+
I	375,000	75,000
J	30,000	6,000
K	125,000	25,000
L	15,000	5,000
M	5,000	1,000
N	10,000	2,000
O	15,000	3,000

[redacted] [redacted]

G 14

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	320
B	1,800	380
C	2,400	510
D	4,000	850
E	7,000	1,500
F	130,000	27,700
G	470,000	10,000
H	440,000	9,400
I	380,000	81,000
J	30,000	6,400
K	7,000	1,500
L	17,000	5,600
M	2,600	560
N	2,300	490
O	1,500	320

[redacted]

[redacted] [redacted]

LEG 14.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	700	110
B	1,200	190
C	1,700	270
D	3,000	475
E	4,500	715
F	75,000	1,190
G	375,000	59,500
H	475,000	75,500
I	500,000+	79,400+
J	25,000	4,000
K	8,000	130
L	3,500	550
M	4,000	635
N	1,500	240
O	1,200	190

[redacted]

LEG 15

FIDLER 2 5.0 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	2,000	400
B	2,000	400
C	3,000	600
D	5,000	1,000
E	10,000	2,000
F	50,000	10,000
G	500,000+	100,000+
H	100,000	20,000
I	500,000+	100,000+
J	50,000	10,000
K	10,000	2,000
L	5,000	1,000
M	3,500	700
N	2,500	500
O	1,500	300

[redacted] [redacted]

LEG 15.5

FIDLER 2 $5.0 \text{ CPM} = 1\ \mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	1,500	300
B	2,000	400
C	3,000	600
D	4,500	900
E	15,000	3,000
F	40,000	8,000
G	500,000+	100,000+
H	500,000+	100,000+
I	500,000+	100,000+
J	225,000	45,000
K	15,000	3,000
L	75,000	15,000
M	45,000	9,000
N	2,000	400
O	1,500	300

[redacted]

[redacted] [redacted]

LEG 16

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,200	250
B	1,800	380
C	3,000	640
D	35,000	7,500
E	50,000	10,700
F	28,000	6,000
G	70,000	12,800
H	500,000+	107,000+
I	480,000	102,000
J	250,000	53,000
K	12,000	2,560
L	4,300	910
M	2,000	430
N	1,700	350
O	1,500	320

[redacted]

[redacted] [redacted]

LEG 16.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	500	80
B	2,000	320
C	2,000	320
D	125,000	19,900
E	125,000	19,900
F	30,000	4,800
G	140,000	22,000
H	100,000	15,900
I	50,000	8,000
J	130,000	20,600
K	45,000	7,200
L	2,000	320
M	1,300	200
N	800	130
O	800	130

[redacted]

[redacted] [redacted]

LEG 17

FIDLER 4 $6.3\ CPM = 1\ \mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	600	95
B	600	95
C	1,000	160
D	18,000	29,000
E	50,000	7,900
F	30,000	4,800
G	25,000	4,000
H	32,000	5,100
I	50,000	7,900
J	45,000	7,200
K	5,000	800
L	2,000	320
M	1,500	240
N	1,000	160
O	700	110

[redacted]

[redacted] [redacted]

LEG 17.5

FIDLER 2 5.0 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	1,500	300
B	1,500	300
C	2,000	400
D	7,500	1,500
E	4,500	900
F	4,000	800
G	4,500	900
H	5,000	1,000
I	25,000	5,000
J	100,000	20,000
K	350,000	70,000
L	2,000	400
M	1,500	300
N	1,000	200
O	500	100

[redacted]

LEG 18

FIDLER 3 4.7 CPM = 1 μg./m.²

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.²)
A	450	95
B	425	90
C	500	100
D	1,300	280
E	1,500	320
F	1,600	340
G	1,600	340
H	1,800	380
I	2,000	430
J	1,500	320
K	1,500	320
L	700	150
M	450	95
N	380	80
O	320	70

[redacted] [redacted]

LEG 18.5

FIDLER 4 6.3 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	400	60
B	375	60
C	425	70
D	500	80
E	525	80
F	750	120
G	800	130
H	800	130
I	1,200	190
J	1,000	160
K	1,000	160
L	450	70
M	400	60
N	400	60
O	400	60

[redacted]

[redacted] [redacted]

LEG 19

FIDLER 4 6.3 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	400	60
B	400	60
C	450	70
D	500	80
E	500	80
F	700	110
G	500	80
H	475	80
I	500	80
J	450	70
K	450	70
L	350	60
M	300	50
N	300	50
O	300	50

[redacted]

[redacted] [redacted]

LEG 19.5

FIDLER 2 5.0 CPM = 1 $\mu g./m.^2$

DISTANCE (50' INTERVAL)	READING (CPM)	READING ($\mu g./m.^2$)
A	300	60
B	375	75
C	500	100
D	450	90
E	450	90
F	500	100
G	500	100
H	450	90
I	1,000	200
J	400	80
K	400	80
L	300	60
M	250	50
N	300	60
O	275	55

[redacted]

[redacted] [redacted]

LEG 20

FIDLER 3 4.7 CPM = 1 μg./m.^{2}

DISTANCE (50' INTERVAL)	READING (CPM)	READING (μg./m.^{2})
A	225	50
B	250	50
C	275	55
D	275	55
E	275	55
F	300	65
G	300	65
H	260	50
I	250	50
J	275	55
K	225	50
L	250	50
M	425	90
N	325	70
O	260	50

[redacted]

[redacted] [redacted]

APPENDIX VI

CONTAMINATION CONTROL DATA

(Includes data through 15 February 1968. For data subsequent to 15 February 1968, see Daily Activities, Appendix I.)

[redacted]

APPENDIX VI

CONTAMINATION CONTROL

PERSONNEL CONTAMINATION CONTROL AT BASE

DATE	JANUARY 26	27	28	29[4]	30	31	FEBRUARY 1	2	3	4[4]	5[5]	6	7	8	9	10	11	12	13	14	15
PERSONNEL MONITORED[1]	85	54	144	0	149	112	175	169	134	0	118	97	206	188	195	52	184	256	242	225	226
PERSONNEL CONTAMINATED[2]	29	9	22	0	45	20	72	45	25	0	19	6	9	16	18	8	39	23	3	8	2
PERCENT CONTAMINATED	34	17	15	0	30	18	41	27	19	0	16	6.2	4.4	8.5	9.2	15	24	9	1.2	3.5	9.8
ITEMS OF CLOTHING CONTAMINATED[3]	63	48	123	0	222	156	372	287	137	0	108	32	26	67	60	42	181	62	13	22	81
PARKAS	11	2	16		33	20	43	36	9		6	5	9	14	15	7	12	8	3	3	17
PANTS	10	1	22		22	17	38	34	21		7	2	5	16	7	0	6	2	1	2	4
PR MITTENS	6	5	20		36	45	61	46	25		11	6	1	16	14	2	34	0	0	0	22
PR MUKLUKS	25	9	16		45	16	72	30	15		10	2	9	14	6	4	7	6	3	4	

1. Total number of exits from contaminated area.
2. Total number exiting with one or more items of clothing contaminated.
3. Based on PAC-1S reading of 450 CPM as maximum allowable for alpha surface contamination.
4. No work on ice site because of severe weather.
5. Sufficient quantity of protective clothing for general issue was available to all persons working in contaminated area subsequent to this date.

[redacted] [redacted]

APPENDIX VI

CONTAMINATION CONTROL

BUILDINGS MONITORED AT BASE

As of 15 February 1968

BLDG	NUMBER TIMES MONITORED TOTAL	MAX PAC-1S READINGS		NUMBER BUILDINGS DECONTAMINATED TO 450 CPM	SWIPES	
		0-450 CPM	450 OR MORE		TAKEN	COUNTED DPM
#773	7	6	1	1	12	12[1]
#865	2	2			5	5
Hangar 6	2	2			5	
Hangar 3	1	1			6	
Hangar 2	1	1				
D. H. #1	1				4	
D. H. #2	1				4	

1. More than 300 DPM-1

[redacted]

[redacted] [redacted]

APPENDIX VI

CONTAMINATION CONTROL

VEHICLES MONITORED AT BASE

As of 15 February 1968

VEHICLE TYPE	NO. VEHICLES USED	NO. TIMES MONITORED MAX PAC-1S READING		NO. DECONTAMINATED REDUCED TO 450 CPM
		0-450 CPM	450 OR MORE	
Weasel	6	50	1	1
Bus	10	44	1	1
Truck	20	70	2	2
Grader	4	10	1	1
Front Loader	3	3		
Tractor	2		3[1]	2
Helicopter	6	22		

1. Fixed contamination in tires, 1,000 CPM

[redacted]

APPENDIX VI

CONTAMINATION CONTROL

AIR FORCE ARCTIC CLOTHING DECONTAMINATION

As of 15 February 1968

CLOTHING ITEM	SHIPPED	RETURNED
Parka	188	120
Iron Pants	103	94
Mukluks, pr.	64	56
Arctic Mittens, pr.	289	279

Contractor: Interstate Industrial Uniform Rental Company
Indian Orchard, Massachusetts
AEC License

PROTECTIVE CLOTHING

As of 15 February 1968

(AVG/DAY)	ISSUE	LOSS	PERCENT LOSS
Coveralls	156	16[1]	10
Mukluk Covers	142	21[2]	15
Mitten Covers	119	29[3]	25

1. Loss due to tearing. No loss from contamination, which was removed by by washing.
2. Loss due to wearing holes in soles. No loss from contamination, which was removed by washing.
3. Loss due to tearing and contamination. Not economical to ship out for laundering.

[redacted] [redacted]

APPENDIX VI

CONTAMINATION CONTROL

AIRCRAFT DEBRIS CONTAINERS MONITORED

As of 15 February 1968

TYPE READING	MAXIMUM READING	NO. DRUMS W/ACTIVITY	NO. ENGINE CANS W/ACTIVITY	NO. TANKS, 10,000 GAL MAX W/ACTIVITY
PAC-1S CPM	100-150	3		
	50-100	6	5	
	less than 50	46		
	N.D.A.	105		
		160 TOTAL	5 TOTAL	TOTAL
PDR-27 mr./hr.	4.5	1		
	1.5	1		
	N.D.A.	125	3	
		127 TOTAL	3 TOTAL	TOTAL
SWIPE DPM	8	1	1	
	4	3		
	N.D.A.	123	2	
		127 TOTAL	3 TOTAL	TOTAL

N.D.A. - No detectable activity

CPM - Counts per minute

mr./hr. - Milliroentgen per hour-gamma

DPM - Disintegrations per minute-alpha

[redacted]

[redacted]

APPENDIX VI

CONTAMINATION CONTROL

PERSONNEL CONTAMINATION CONTROL AT SITE

DATE 1968	PERSONNEL MONITORED	PROTECTIVE CLOTHING COLLECTED					
		MUKLUK COVERS		MITTEN COVERS		COVERALLS	
		CONTAM.	CLEAN	CONTAM.	CLEAN	CONTAM.	CLEAN
6 Feb	79						
7 Feb	179	59	5				
8 Feb	160	15	53				
9 Feb	219	30	44	35	38		
10 Feb	14						
11 Feb	276	74	37	58	32	31	42
12 Feb	334	57	146	32	100	6	131
13 Feb	307	13	160	14	146		125
14 Feb	349	21	159	9	120	4	139
15 Feb	279	70	110	49	84	18	105

[redacted]

APPENDIX VI

CONTAMINATION CONTROL

VEHICLES AND EQUIPMENT MONITORED AT SITE

As of 15 February 1968

DATE 1968	EQUIPMENT			VEHICLES		
	No. Pieces	Maximum PAC-1S Readings		No. Vehicles	Maximum PAC-1S Readings	
		0-200 CPM	200 or More		0-200 CPM	200 or More
2 Feb	14	14		5	5	
3 Feb	24	23	1	2	1	1
5 Feb	17	15	2	1		1
6 Feb	13	11	2	3	3	
7 Feb	42	41	1	3	3	
8 Feb	20	20	20	15	15	
9 Feb	36	36	36	12	12	
11 Feb	32	31	1	14	13	1
12 Feb	48	48		11	9	2
13 Feb	26	26		8	5	3
14 Feb	44	44		30	26	4
15 Feb	72	72		13	13	

[redacted]

APPENDIX VI
CONTAMINATION CONTROL
BUILDING MONITORED AT SITE

BLDG	NO. TIMES MONITORED TOTAL	NO. PAC-1S READINGS		NO. SWIPES		NO. AIR SAMPLES	
		0-450 CPM	450 OR MORE	TAKEN	COUNTED	TAKEN	COUNTED
2	3	8	8	8	8	3	
3	3	11	13	12	12	2	
4	3	5	11	16	16[1]	3	
5	3	9	15	9	9[2]	2	
Coffee Wanigan	1	5		5	5[3]	1	
CP	2	12		5	5		
7	12	21	3	48	48[4]	6	

1. More than 300 DPM - 1
2. More than 300 DPM - 2
3. More than 300 DPM - 2
4. More than 300 DPM - 2

[redacted]

[redacted] [redacted]

APPENDIX VI

CONTAMINATION CONTROL

USAF RADIOLOGICAL HEALTH LABORATORY

FIELD COUNTING STATION--THULE AIR BASE

Start Operation--31 January 1968

Strength--2 Technicians

Nose swabs counted: 2,330

No significant activity detected.

Swipe samples counted: 508

Samples greater than 300 DPM--7

As of 15 February 1968

FC/03680039

[redacted]

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