

\$-0005-100-62-6

— RCAF RESEARCH & DEVELOPMENT PROJECTS  
— NUCLEAR DEBRIS COLLECTION PROGRAM

# RCAF

FOR CROSS REFERENCES SEE INSIDE COVER

**“B.F.”—DO NOT HOLD THIS FILE WHEN LAPSE  
IN ACTION MAY EXCEED 48 WORKING HOURS**

NNNNVV PCA218 TWC005 KWA155

UU

MM.RCCSBM RCCPMR RCCPFZ RCCABC

DE RCWTKW 116/05

M 052300Z

FM STN COLD LAKE

TO RCCABC/CHIEF SUPERINTENDENT DRCL SHIRLEY BAY OTTAWA ONTARIO

INFO RCCPMR/CANAIRMAT

RCCSBM/CEPE UPLANDS

RCCPFZ/CANAIRHED

RBDIXN/CANAIRLON

BT

UNCLAS Q2826 5 JUN

EACH 2 5W 2314 ROTARY ACTUATORS SHIPPED TO YOU IN ERROR

ON MY IV B3007 28 JAN OGS 2237 RECEIPTED BY MR HALEY PD

REQUEST YOU FORWARD THESE ITEMS TO CEPE UPLANDS FOR

CLEARANCE OF LOAN FROM RAF AS PER AMC LOGD8863 2 MAY PD

FOR AMC REF YOUR LOGD8666 30 MAY PD ITEMS WERE RECEIVED

THIS UNIT WITHOUT COVERING VOUCHERS 23 OCT 1961 AND WERE

BOC BY CRV AS HAVING BEEN RECEIVED DRO DRCL SHIRLEY BAY

PD A COVERING ISSUE VOUCHER WAS RECEIVED FROM STN UPLANDS

ON 25 OCT 1961 AND ORIGINAL CRV WAS CANCELLED BUT CONSIGNOR

③ CR-1A  
CBE checked to ensure  
with the  
the side  
Dec 2-3  
2-5-93

② ~~AEEM~~ DAED

This has been receiving the  
circular treatment. Apparently  
it refers to your msg  
AEEM 390 d 6 Dec 62 I discovered  
with AMCHQ.

PAGE TWO RCWTKW 116/05 UNCLAS

COLUMN IN INWARDS LOAN REGISTER WAS NOT AMENDED PD EQUIPMENT

WAS RETURNED BY CEPE AAED AND VOUCHER TO DRCL IN ERROR PD

FOR DRCL REQUEST YOU ADVISE ALL CONCERNED ACTION TAKEN

BT

05/2324Z

AFHQ  
COMM CENTRE  
41  
JUN 6 00 15 '63

6.6.90  
DMS  
SPY  
AEM 2  
Bm

0005-62-6  
C/405-100-62-6

402  
Winnipeg  
53-002

42/

MP4-3,  
Gjme 28575  
8442

DEPARTMENT OF NATIONAL DEFENCE

MINUTE SHEET

SECURITY CLASSIFICATION

FILE NUMBER

TD

REFERENCE

DATED

REFERRED TO

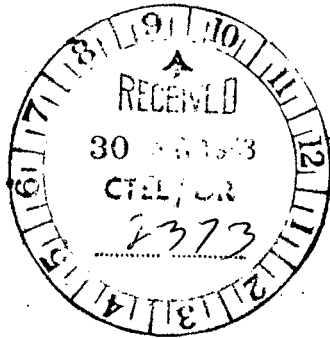
REMARKS

(To be signed in full showing Appointment, Telephone Number and Date)

DMP/MP4-2 ④ Air Div Q106 30 AM passed to  
you 2 days.

*J. L. M. H.* HK  
DMP4  
2.7.42  
5 Jun 63





AFHQ  
COMM CENTRE  
MAY 29 00 34 '63

NNNNVZ2 PCB018BQI00EA111

EEJBA315UU

RR RCCPMR RCCSBM RCWTKW RCCPFZ

DE RBDIXN 1450/28

R 281548Z

FMCANAIRLON

TO RCCPMR/CANAIRMAT

INFO RCCSBM/CEPE UPLANDS

RCWTKW/CEPE DET AAED COLD LAKE

RCCPFZ/CANAIRHED

BT

UNCLAS

Q.138

28 MAY

YOUR LOGD 8863 2 MAY CEPE DET COLD LAKE Q 65 6 MAY MY Q 106

30 APR PD ADVISE RE RETURN OF EACH TWO 5W/2314 ROTARY

ACTUATORS TO RAF

BT

28/1625Z MAY RBDIXN

ROUTINE

*DMS*

Referred to...

File No.....

Shgd to.....

*unclassified 281548Z  
28 MAY 63*

*③ DMS 3-4  
Q106 was  
sent to you  
A Beauchamp  
CTEL/CR  
26773  
4 June*

*② DETH/OK  
Sis. pass this message to  
whenever you passed message  
Q106 - 30 Apr  
TMC 3P Mldw 22  
2.0806  
4 June 5012  
L-000211*

32686 *Spec*

WNNV

ORIGINAL AS IS

VV PCA270V FEB012V 0EA033DAEGA023

EJBA147

EHMA017

WV

FM RCCPMR RRCPTZ RRCSSM RCVTV

DE RBDIXN 1244/30

M 341052Z

FM CANAIRLON

TO RCCPMR/CANAIRMAT

INFO RRCPTZ/CANAIRHED

RCCSBM/CEPE UPLANDS

ACWTKW/CEPE DET AED COLD LAKE

BT

UNCLAS

Q126 30 APR REF YOUR LOGDS635 8 NOV 63 RE EXTENDED LOAN OF EA2

RAF 5W/2314 ROTARY ACTUATOR PD ADVISE IF PROJECT TERMINATING

SHORTLY AND IF EOPY BEING RETURNED

BT

30/10552 APR RBDIXN

NNNNVVVV PCB229TWC189KWA074

COMMUNICATIONS

FM RCCSBM RCCPMR RCCPFZ

MAY 7 05 34 '63

DE RCWTKW 62/07

M, 062330Z

FM CEPE DET COLD LAKE

TO RCCPMR/CANAIRMAT

INFO RCCSBM/CEPE UPLANDS

RCCPFZ/CANAIRHED

RBDIXN/CANAIRLON

BT

UNCLAS Q65 6 MAY

YOUR UNCLAS LOGD8863 2 MAY PD EA 2 RAF SW/2314 ROTARY ACTIVATORS

RETURNED TO CHIEF SUPERINTENDENT DRCL SHIRLEY BAY OTTAWA IN ACC/W

AFHQ AEM390 DATED 6 DEC 62 PD ITEMS SHIPPED SERVICE AIRCRAFT 7 JAN

AWB OD1058 STN COLD LAKE IVB3007 OGS2237

BT

06/2354Z

② DMP/MP4

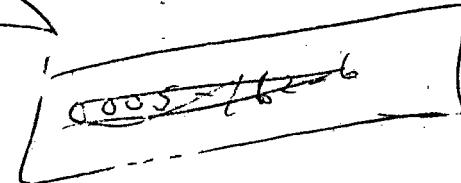
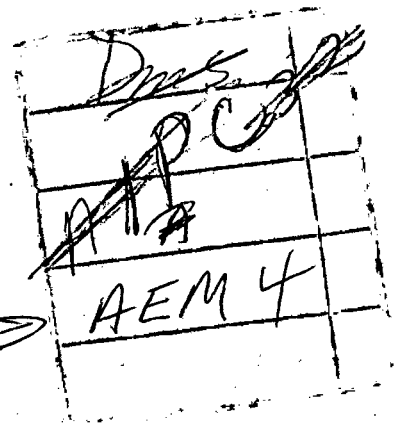
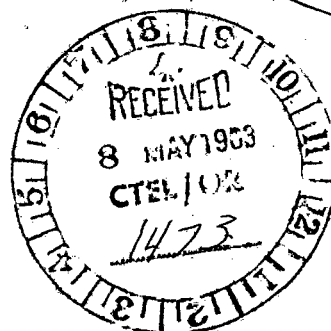
To note & 1A ps  
These apps are used  
on nuclear debris sample  
One sh  
May 7  
20540

16 May 63

Nuclear Debris

Sec 5

670K



AFHO  
COMM CENTRE

APR 30 14 02 '63

NNNV

100  
1005-62-6

VV PCA270V PEB012V OEA053DAEGA023

EJBA147

EHMA017

2595 AEM-349 6 Nov.

UU

MM RCCPMR RCCPFZ RCCSBM RCWTKW

DE RBDIXN 1244/30

M 301052Z

FM CANAIRLON

TO RCCPMR/CANAIRMAT

INNO RCCPFZ/CANAIRHED

RCCSBM/CEPE UPLANDS

RCWTKW/CEPE DET AAED COLD LAKE

BT

UNCLAS

Q106 30 APR REF YOUR LOGD8635 8 NOV 62 RE EXTENDED LOAN OF EA2  
 RAF 5W/2314 ROTARY ACTUATOR PD ADVISE IF PROJECT TERMINATING  
 SHORTLY AND IF EQPT BEING RETURNED

BT

30/1055Z APR RBDIXN

Refer AEM 349-6 Nov

①

→

31
D-MS MS 3-4
MP 4-2
AEM 4

② CR-PA

has been advised  
 with the return eqpt  
 over  
 Apr 4

6 Aug 63

2-0542

S. Am. 132686

S. Am. 025435

376K

## DEPARTMENT OF NATIONAL DEFENCE

## MINUTE SHEET

Referred to

## REMARKS

To be signed in full showing Appointment, Telephone Number &amp; Date

CR

CZPE letter 1905-62/93 (STE)  
dated 14 Dec 62 has been  
removed from this file and  
placed in file 004-74/34  
TD2331 because the  
original request from DRB and  
all other correspondence on the  
subject is on that file.

20 Dec 62.

*[Signature]*  
A 004-2  
21-0548

*[Signature]*  
26-12-62  
ack

# MESSAGE FORM

Document disclosed under the Access to Information Act / Document divulgué en vertu de la Loi sur l'accès à l'information  
 1905-100-62-6(DMS)  
 FILE

FOR COMMEN/SIGNALS USE

NUMBER

PRECEDENCE - ACTION <b>DEFERRED</b>		PRECEDENCE - INFO DEFERRED	DATE - TIME GROUP <b>10:1340</b>	MESSAGE INSTRUCTIONS
FROM	CANAL RHED			PREFIX GR
TO	CEPE UPLANDS			SECURITY CLASSIFICATION UNCLAS
INFO	CEPE DET COLD LAKE STN UPLANDS			ORIGINATOR'S NUMBER DMS 371 <sup>18</sup> DEC

FURTHER TO AFHQ AEM 390 6 DEC F DASH 57 SAMPLING ASSEMBLIES  
 ARE TO BE SHIPPED BY MOST ECONOMICAL MEANS TO MCCLELLAN AFB

PAGE OF PAGES		REFERS TO MESSAGE		DRAFTER'S NAME		OFFICE 3141		TEL. 2-7442			
		CLASSIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>									
FOR OPR'S USE	R	DATE	TIME	SYSTEM	OPERATOR	D	DATE	TIME	SYSTEM	OPERATOR	RELEASING OFFICER'S SIGNATURE <i>[Signature]</i> (A CUNNINGHAM) F/L



## DEPARTMENT OF NATIONAL DEFENCE

1905-62-6 (ADDN)

## MINUTE SHEET

ADN 390 6 Dec.

Referred to

## REMARKS

To be signed in full showing Appointment, Telephone Number &amp; Date

DMS /ms 3-4 / The F-57 sampling assemblies  
 referred to in min ① and the 6  
 modified T 33 tip tanks obtained  
 from the USAF on loan for this  
 project. 3 are of CEPE hybrid and 3 of CEPE det  
 Cold Lake.  
 2/ As discussed, would  
 you please arrange to have these  
 units returned to the USAF at  
 Mc Chellan AFB California.  
 Logged folio below refers.

*Officer in Charge*  
 6 Dec 62. 2-0545

# MESSAGE FORM

FOR COMM/CEN/SIGNALS USE

FILE

NUMBER

PRECEDENCE - ACTION <b>ROUTINE</b>		PRECEDENCE - INFO DEFERRED	DATE - TIME GROUP <b>06</b>	MESSAGE INSTRUCTIONS
FROM	<b>CANAIRNED</b>			PREFIX <b>GR</b>
TO	<b>CEPE UPLANDS</b>			SECURITY CLASSIFICATION <b>UNCLAS</b>
INFO	<b>CEPE DET COLD LAKE</b>			ORIGINATOR'S NUMBER <b>AEN 390 6 DEC</b>

REF PARA 3 MY LETTER S1905 DASH 162 DASH 6 AEN 5 DEC CLOSING T AND  
BY 62 SLASH 6 PD ALL SCIENTIFIC EQUIPMENT OBTAINED ON LOAN FROM DRB  
FOR PROJECT IS TO BE RETURNED TO CHIEF SUPERINTENDENT DRCL SHIRLEY  
DAY OTTAWA PD UNUSED FILTERS ALSO TO BE RETURNED TO DRCL PD EXPOSED  
FILTERS MAY BE DESTROYED OR DISPOSED OF AT YOUR DISCRETION PD  
F DASH 57 SAMPLING ASSEMBLIES WILL BE RETURNED TO USAF AT MCLELLAN  
AFB CMM DETAILS FOR DISPOSAL AND SHIPMENT THESE ASSEMBLIES WILL  
FOLLOW ON SEPARATE SUPPLY MESSAGE

PAGE OF PAGES		REFERS TO MESSAGE		DRAFTER'S NAME		OFFICE		TEL.	
		CLASSIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>		(JH DYMAN) P/L		AEN 4-2, 2-0548			
FOR OPR'S USE	<b>R</b>	DATE	TIME	SYSTEM	OPERATOR	DATE	TIME	SYSTEM	OPERATOR
					<b>D</b>				
						RELEASING OFFICER'S SIGNATURE (JH DYMAN) P/L			

*file*

~~SECRET~~  
SI905-162-6 (AMTS)

Ottawa Ontario

DEC - 5 1962

Commanding Officer  
Central Experimental and Proving  
Establishment  
RCAF Station Uplands  
Ottawa Ontario

Research Projects - T&DI 62/6  
Nuclear Debris Sampling Flights

1 The value of subject project, both to DNB and to the USAF, has decreased to the point where continuation will produce only marginal results. The Defence Research Board therefore recommended that the project be discontinued, which recommendation is concurred in.

2 I would like to pass on the many thanks the RCAF has received for the part they have played in this program, particularly from the USAF, who found the collection effort in the early stages invaluable in view of their apprehension over their own sampling capability. The Defence Research Board has also expressed sincere thanks for the continued quality and efficiency of RCAF support under especially trying conditions.

3 This project may now be closed; disposal instructions for sampling equipment held on loan will be forwarded under separate cover.

Original signed by:  
(RH BRAY) A/C  
(NW Boon) A/V/M  
for CAS

*Am. Only 4 Dec 62*  
S/L AM Conley/NVP

2-0548

AMTS

CAE

orig

circ

loc

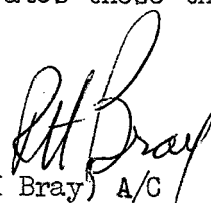
file

000219

DEPARTMENT OF NATIONAL DEFENCE

MINUTE SHEET

48<sup>1</sup>

Referred to	REMARKS
	<p>To be signed in full showing Appointment, Telephone Number &amp; Date</p> <p><u>AMTS</u></p> <p>1 For your signature please.</p> <p>2 Flagged letter from the Chairman DRB expresses gratitude for RCAF co-operation and support during the nuclear debris sampling project flights performed over the past decade.</p> <p>3 Letter for signature reiterates these thanks and officially closes the project.</p> <div><p>(RH Bray) A/C CAE 2-6273</p></div>

DEPARTMENT OF NATIONAL DEFENCE

MINUTE SHEET

Referred to

REMARKS

To be signed in full showing Appointment, Telephone Number & Date

MEY4

1. We spoke some time ago.
2. Will you prepare MITS letter to terminate project, dispose of sampling equip & materials, and command CEPE on behalf of USMF, DRB, & AFHQ.
3. Discuss aircraft establishment with me.

Richard Buck  
AFHQ

3 Dec 62

~~CONFIDENTIAL~~

430

DEPARTMENT OF NATIONAL DEFENCE

OFFICE OF CHIEF OF THE AIR STAFF

Chief of the Air Staff

SIGNED BY E.M. REYNOLDS  
D/VCAS

AMTS (then VCS) (and COPS - CPROG/DAI - RCD Gr)

1. The CTS has seen and agrees.
2. For your action, please.

Mitchell  
CTS/EA  
21 Nov 26175

③ OK  
Occ action

to Beam M/P/W  
AMTS  
to 2nd/62

④ AAEM  
For you please  
RHB  
3 Dec

2191c





DEPARTMENT OF NATIONAL DEFENCE  
DEFENCE RESEARCH BOARD

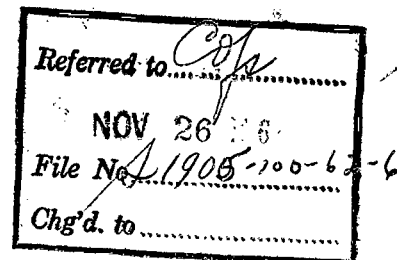
**CONFIDENTIAL**  
DRBTS 1680-09  
DSI Ref: F-463

OFFICE OF THE CHAIRMAN  
OTTAWA

19 November, 1962.

Chief of the Air Staff

NUCLEAR DEBRIS SAMPLING FLIGHTS  
CANCELLATION



You will be aware that since 1951 the RCAF has cooperated with DRB on a programme of nuclear debris collection.

This program was originally set up to assist the U.K. and the U.S. It involved the RCAF flying certain aircraft specially fitted with filters to catch nuclear debris and a radio-chemical analysis unit operated by DRB at its Chalk River laboratory.

As a result of the intensive Soviet nuclear testing which began in 1961, the U.S. increased their collection capabilities to such a degree that the Canadian effort was no longer essential. In turn, the U.S. provided the U.K. with superior nuclear debris samples to those provided by Canada due to the improved equipment which had been developed by the U.S.

Since our lack of knowledge of the more advanced techniques now used in nuclear weapons has meant that we were unable to reconcile our radio-chemical analysis of the nuclear debris collected to that of specific improvements in our enemies nuclear weapons, and since these results were no longer required by the U.S. nor the U.K., DRB closed this phase of the program in April of this year.


It was only recently that we obtained formal notification from the U.S. that the requirement for the further collection of nuclear debris samples was no longer required.

→ We would therefore ask you to consider this letter as our formal request to terminate your portion of this joint project which is defined in your RCAF Test and Development Instructions 62/6 issued under your 1905-62-6 (CAE).

I would like to take this opportunity to bring to your attention the efficient and cooperative attitude demonstrated by the RCAF aircrews and staff during this programme. They made maximum use of the equipment provided under all types of conditions some of which were very trying indeed. Many took a keen personal interest in the success of the flights. I am therefore pleased, in closing this project, to express the appreciation of the Defence Research Board for the effective support and enthusiastic cooperation of all the RCAF personnel who were involved in nuclear debris collection operations.

  
Chairman.



  
Chief of the Air Staff,  
Air Force Headquarters,  
Ottawa.

RESTRICTED  
1905-62-6 (CAE)  
004-74/34

DATE: 28 Aug 62

ROYAL CANADIAN AIR FORCE

AIR FORCE HEADQUARTERS

TEST AND DEVELOPMENT INSTRUCTION 62/6

ROUTINE AND SPECIAL NUCLEAR DEBRIS

SAMPLING FLIGHTS FOR DRB

ISSUE 2

INFORMATION

1 The RCAF has accepted the responsibility for providing support to DRB, which will include aircraft flights, for the collection of nuclear debris over Canadian territory.

2 CEPE will be responsible for providing suitably modified aircraft and the crews to collect these samples and will exercise control of aircraft flights. The project is an annual requirement for which a new T&DI will be issued each year.

3 Sampling flights will be on a routine and special basis; the special flights will normally be flown in Western Canada in the Cold Lake area.

4 This Issue 2 of T&DI 62/6 replaces T&DI 62/6 dated 19 Jul 62.

INTENTION

5 CEPE, in co-operation with the DRB co-ordinator, is to provide support for high level, routine and special, nuclear debris sampling flights.

METHOD

General

6 Nuclear debris sampling flights will be carried out using T33 aircraft fitted with F57 filter assemblies provided by DRB.

Routine Flights

- 7
- (a) The Cold Lake UE T33 fitted with the F57 filter assembly will carry out routine sampling flights from Cold Lake every two weeks, 3000 feet below the tropopause.
  - (b) The two UE T33 aircraft from CEPE Uplands equipped with the F57 filter assembly will carry out routine sampling flights from Uplands every two weeks above the tropopause.
  - (c) On routine flights sampling will be done along the meridian. Since the predominating path of radioactive clouds is from west to east a more representative sample is obtained if flights are carried out along the meridian.

RESTRICTED

- 2 -

Special Flights

8 Special flights will be carried out with the objective of obtaining one good sample from each nuclear cloud to be intercepted during a series of nuclear tests. DRB will be responsible for ensuring that all relevant information on which operations can be planned and conducted is provided to CEPE. On demand for special flights, the CEPE sampling operations officer (SOO) and 1 T33 and supporting ground crew will deploy from CEPE Uplands to Cold Lake. The Cold Lake UE T33 aircraft and the CEPE Uplands T33 will operate from Cold Lake under the operational control of the SOO. If necessary, the second T33 from CEPE Uplands will also deploy to Cold Lake. Meteorological and ground tracking data will be relayed directly to the SOO at CEPE Detachment Cold Lake. AFHQ/AAEM is to be advised of all special requests requiring flights from a base other than Cold Lake (reference para 10).

9 CEPE is to take the necessary steps for radiation protection of personnel and decontamination of equipment and aircraft.

10 Deployment of aircraft and support facilities for sampling operations from locations other than Cold Lake is to be taken only on the approval of AFHQ/AAEM.

11 All samples from routine flights and those active samples from special flights requiring no further measurement, as directed by the DRB co-ordinator, are to be shipped to Chief Superintendent, Defence Research Chemical Laboratories, Shirley Bay, Ottawa. Each sample is to be suitably labeled so that it can be identified in respect to particular explosion or sampling flight. The best sample from each special flight, provided it is sufficiently active, will be shipped according to instructions from DSI. A total count instrument will be provided to CEPE for the purpose of measuring the radiation count of filters after each flight.

SUPPLY

12 Additional aircraft other than those detailed in paragraph 7 will be arranged by AFHQ as required.

13 DRB shall be responsible for:

- (a) Supplying all scientific equipment required by the RCAF for the efficient conduct of this project. This includes sampler assemblies to be installed in the aircraft, airborne direct reading detection equipment, and laboratory radiation measuring equipment.
- (b) Ensuring that an ample supply of unexposed filters and screens are available for use.

PRIORITY

14 This project is allotted "C" priority and routine flights are to take precedence over all other "C" priority projects. Special flights are allotted "B" priority. Specially requested flights are to take precedence over other "B" priority projects.

SECURITY

15 The existence of this project and this directive are classified RESTRICTED. Some aspects of the project are classified higher than

...3

RESTRICTED

- 3 -

RESTRICTED; these will be the subject of separate correspondence. Generally, information concerning sample counts and their relation to specific nuclear explosions is classified SECRET.

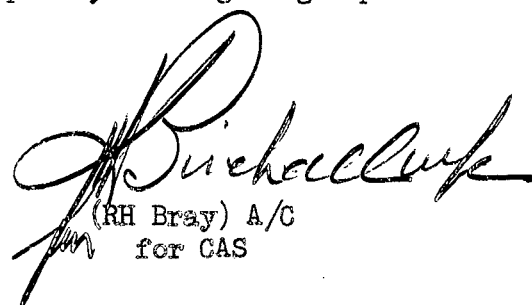
CO-ORDINATION

16 Individual responsibilities are assigned to:

- (a) DRB/DSI which is the DRB co-ordinator for this project and which will fulfill the DRB responsibilities under this T&DI. Direct communication between DSI and CEPE on scientific matters is authorized. Copies of all correspondence in this respect are to be sent to AFHQ/AAEM and CO CEPE Uplands. The DRB Project Officer is Dr. R.S. Eaton, Room 4609, "B" Building, Ottawa, telephone 2-5635; Home Telephone, TA8-2193. The CEPE Sampling Officer is 32144 F/L Wright, W.A., Hangar #10, RCAF Stn Uplands, Telephone 5-3235, Home Telephone TA2-0524.
- (b) CEPE. Direct liaison on scientific matters is authorized between CEPE and the DRB co-ordinator.
- (c) AFHQ/CAE/AAEM. AFHQ co-ordination will be provided by AAEM who will deal with DRB/DSI on the details of policy matters pertaining to this program.

REPORTS

17 CEPE is to maintain flight statistics including route and timing, hours flown, aircraft used, and frequency of flights on all routine and special air sampling flights, and is to submit a report in two copies to AFHQ/CAE/AAEM annually, by the 1st of March following the project period. Teletype reports will be sent to AFHQ/AAEM and copies to DRB/DSI on each day on which routine or special flights take place, stating flight particulars, sample count and sample disposal.

  
(RH Bray) A/C  
for CAS

References: T&DI 61/6 and CEPE Report 1619.

DISTRIBUTION

CEPE Uplands	21
AMTS Circ	1
CAE	1
DRB/DSI	4
AEM4	1
ADCHQ	2
AMC/DCLD/IC/P	2
COR/Co-ord	1
DNDO	1
AHFE	1
File	2

# MESSAGE FORM

FOR COMMEN/SIGNALS USE

NUMBER

21905-100-62-6

PRECEDENCE - ACTION <b>DEFERRED</b>	PRECEDENCE - INFO <b>DEFERRED</b>	DATE - TIME GROUP <b>06</b>	MESSAGE INSTRUCTIONS
FROM <b>CANATHED</b>			PREFIX <b>GR</b>
TO <b>CANATHAT</b>			SECURITY CLASSIFICATION <b>UNCLAS</b>
INFO			ORIGINATOR'S NUMBER <b>ARM 349 6 Nov</b>

CEPE UPLANDS

YOUR LOG 3686 1 NOV PD T AND DI 62 SLASH 6 CONTINUING BUT

EARLY TERMINATION INDICATED PD SUGGEST FURTHER SIX MONTH

LOAN PERIOD

PAGE OF PAGES	REFERS TO MESSAGE	DRAFTER'S NAME	OFFICE	TEL.							
	CLASSIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>	(AM CONLEY) S/L	ARM 4	2-0548							
FOR OPR'S USE	R	DATE	TIME	SYSTEM	OPERATOR	D	DATE	TIME	SYSTEM	OPERATOR	RELEASING OFFICER'S SIGNATURE
											(AM CONLEY) S/L

file

AFHQ  
COMM CENTRE

Nov 3 06 59 '62

PA 1905-62-6

31  
CAE/AAEM 4

VV PCB161MRB100

UU

MM RFEMBM RFEPFZ RFWEKW

DE RFEPMR 691/01

M 012100Z

FM CANAIRMAT

TO RFEPFZ/CANAIRHED

INFO RFEMBM/CEPE UPLANDS

RFWEKW/CEPE DET AAED COLD LAKE

RNDPXN/CANAIRLON

BT

UNCLAS LOG3686 1 NOV

FL BORDEN  
32-545

①

FOR CAE AA EM ADVISE IF PROJECT EP 62/6 TO CONTINUE PD INFO REQUIRED

AS CANAIRLON QUERYING RETURN OR EXTENSION OF LOAN EA2 RAF 5W/2314

ROTARY ACTUATORS PD IF PROJECT TO CONTINUE EXTENSION OF LOAN WILL BE

REQUESTED PD FOR CANAIRLON YOUR Q407 29 OCT REFS PD CEPE T779 30 OCT

BT

01/2120Z

② CR-PA

On AEM 349 this  
late admin path smooth

6N-62

ack  
AEM-4  
20548

5-11-40



DEPARTMENT OF NATIONAL DEFENCE

MINUTE SHEET

SECRET

Referred to

REMARKS

To be signed in full showing Appointment, Telephone Number & Date

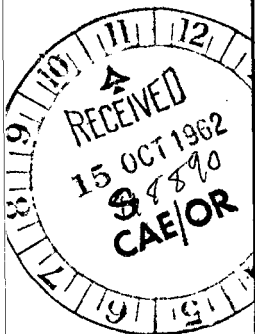
AEM 4  
(thru CAS/SA)

Min (3)

1 You will have received my Min (3) on file C3-3306(DAI) dated 9 Oct which was written as a result of verbal information received. Min (1) is much more specific.

2 On the strength of Min (1), there is no point in the RCAF continuing air sampling unless or until completely new arrangements are made. I intimated in my earlier Min that this matter may be discussed with the USAF thru the office of the Scientific Adviser to the CAS. Depending on the outcome of any direct negotiations with USAF (AFTAC) the RCAF decision regarding a sampling programme will be taken.

3 In my Min it was suggested that we might retain the T-33 scoops. This is contrary to the instruction listed at Min (1). Since they were obtained thru DRB liaison and on behalf of the DRB programme, there would appear to be no option but to return them to the USAF.



*Min 4*  
*agree with Min. 3.*  
*There will be a visit to AFTAC*  
*(USAF) next month & it might*  
*be worth delaying return of*  
*10 Oct 62 T-33 scoops until*  
*C3-3306(DAI) then. 2/10/10*

*L. C. Dilworth*  
(LC Dilworth) G/C  
DAI  
2-3598

(J. C. ARNELL)  
Scientific Advisor  
Chief of the Air Staff

Serial  
number. 4846

TRANSIT SLIP

File reference.....

Charge to.....Date..10-10-62

Directed to

Registry Point	Staff Officer PA or BF	Date	Initials
DAI		10-10-62	
CAS/SA		10-10-62	
REM 4		12/10	

If new file required  
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Transit Slips are to be treated in  
exactly the same manner as files.

Transit Slip is not to be buried under  
other correspondence.

000230

DEPARTMENT OF NATIONAL DEFENCE

SECRET

MINUTE SHEET

to DRBTS 1680-09

DSI Ref: F418

Dated: 5 Oct 62

Referred to

REMARKS

To be signed in full showing Appointment, Telephone Number & Date

Min (2)

DAI

1 Further to discussion on this subject, minute one would appear to suggest terminating this project altogether. In view of the fact that DRB are no longer analysing the debris, perhaps the RCAF cannot continue with samplings unless a new analysing center is found.

2 For your comment please add further direction.

9 Oct 62

*AM Conley*  
(AM Conley) S/L  
AEM 4  
(2-0548)

RECEIVED	
DAI	OR
DATE	OCT 10 1962
FILE	C3-3306
REFERRED TO	DAI
TS No.	4846

SIGN AND RETURN TO ORIGINATOR

TOP SECRET	
SECRET	X
CONFIDENTIAL	
RESTRICTED	
UNCLASSIFIED	

TO: Chief of Aeronautical  
Engineering,  
RCAF HQs, Ottawa.

**SECRET**

5 October 1962

Attn: W/C K. Birchall, Rm.B3090

QUANTITY	REFERENCE NUMBER	DESCRIPTION
1	DSI F-418	Letter re Nuclear Debris Sampling Flights RCAF Test and Development Instruction 62/6.

RECEIPT ACKNOWLEDGED  9 OCT 62 SIGNATURE <i>[Signature]</i>	FROM AND RETURN TO: DSI/DRB Rm.4603 "A" Bldg.  DEFENCE RESEARCH BOARD. DEPT. OF NATIONAL DEFENCE. OTTAWA, CANADA. SIGNATURE <i>R. Wilkins</i>
----------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------

DRB-4-100M

2-0548  
**CONSIGNEE'S COPY**

000232

SECRET  
IN REPLY PLEASE QUOTE

DSI Ref: F-418  
DRBTS 1680-09



DEPARTMENT OF NATIONAL DEFENCE  
CANADA

## DEFENCE RESEARCH BOARD

Ottawa 4, Ontario,  
5 October 1962.

Chief of Aeronautical Engineering,  
RCAF Headquarters, Ottawa.

Attn: W/C K. Birchall, Rm. B3090

### Nuclear Debris Sampling Flights RCAF Test and Development Instruction 62/6

1. Since the inception of the joint RCAF/DRB nuclear debris sampling project, DSI has from time to time reviewed the effectiveness of these operations and attempted to evaluate the usefulness of the Canadian debris sampling and analysis programme. This has always been done in close consultation with the agencies responsible for this type of activity in the U.S. and U.K. Since Canada does not have access to nuclear weapons diagnostic information, DRB is not able to evaluate properly nuclear debris analytical data in the context of Soviet weapons composition, efficiency and design. Therefore the justification for the Canadian sampling and analysis programme has always been based primarily on its value to the U.S. and U.K.

2. Recent discussions and correspondence with the USAF agency responsible for nuclear test detection have made it quite clear that, although the Canadian effort was greatly appreciated in the past, particularly during the period when this agency considered its coverage inadequate, the Canadian programme is no longer considered essential as a contribution to the U.S. programme. Increasing Soviet use since 1957 of their Arctic test area for high-yield weapons tests has created a situation such that the majority of "first-time-around" debris trajectories have passed well north of the operating capability of the RCAF aircraft assigned to the project. In addition the increasing heights of burst and yields of the more recent Soviet test series have caused the bulk of the debris to be deposited at such high altitudes that only aircraft with extreme altitude capabilities have a reasonable chance of sampling it anywhere in the world on its first time around. Thus the U.S. found itself forced to expand greatly the extent and frequency of its Arctic sampling flights, to rely more and more heavily on U-2 aircraft, and to investigate other possible means of sampling at extreme altitudes. They feel now that their coverage of all approaches to North America is as good as can possibly be provided by aircraft and gives them virtually 100% assurance of intercepting any Soviet debris deposited in the lower stratosphere.

3. In addition to the decreasing usefulness of our sampling activity, we have also been informed recently that our radiochemical analyses are no longer providing data of any use to the U.S. At the same time the U.K. have informed us that they expect to be adequately supplied with debris samples by the U.S. and hence have no requirement for Canadian samples any more. In view of the above, DRB has recently disbanded its analytical team at Deep River. We have now been instructed to advise the RCAF that neither DRB nor the U.S. and U.K. have any further requirement for

... 2

SECRET

- 2 -

Canadian nuclear debris samples and that arrangements should be made to formally terminate the project. We have also ascertained that there is no longer any requirement for routine sampling flights and arrangements for terminating these can be made immediately.

4. All scientific equipment provided by DRB to the RCAF should be returned at the earliest practicable date to the Chief Superintendent, Defence Research Chemical Laboratories, Shirley Bay, Ottawa. Unused filters should also be returned to DRCL; however all exposed filters may be destroyed or otherwise disposed at the discretion of local personnel. The F-57 sampling assemblies obtained on loan from the USAF should be returned to their place of origin. It is suggested that shipment by rail freight would be adequate for this purpose.

5. We would like to take this opportunity of expressing our sincere thanks to all RCAF personnel who provided support for the debris collection programme in past years. The declining value of the programme in the past year or so in no way reflects upon the quality and efficiency of RCAF support. We understand that an official expression of gratitude in this regard will be passed to the Chief of the Air Staff by the Chairman of the Defence Research Board.



J. Koop,  
for  
Director of Scientific Intelligence.



DEPARTMENT OF NATIONAL DEFENCE

C3-3306 (DAI)

MINUTE SHEET

SECRET

Referred to

REMARKS

To be signed in full showing Appointment, Telephone Number & Date

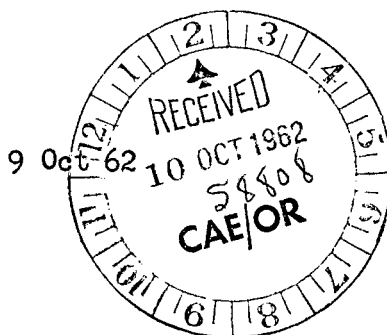
AAEM

Min (3)

1 Attached for your information are copies of correspondence between DSI, the JIC and the Air Force Technical Applications Centre (AFTAC) regarding Canadian participation in the Nuclear Air Sampling Programme.

2 You will note that the JIC has encouraged continuation of a programme. The Chairman DRB required reassurance that our present activities were actually required by AFTAC before providing funds for the modification of the air scoops. This was not forthcoming from AFTAC and the decision has now been taken by DRB that they will discontinue participation in the programme.

3 It would appear that the only way that the RCAF programme could be meaningful would be to establish a bilateral arrangement with the USAF which controls AFTAC. The feasibility and desirability of such a bilateral programme will be explored in the near future through the office of the Scientific Adviser to the CAS. In the meantime, it is suggested that we retain the scoops recently acquired from the USAF but take no further action to implement a programme.



*L. C. Dilworth*

(LC Dilworth) G/C

DAI

2-3598

DEPARTMENT OF NATIONAL DEFENCE

MINUTE SHEET

4/10/62

Referred to

REMARKS

To be signed in full showing Appointment, Telephone Number & Date

Min. (2)

Cpl Rintoul  
DAI

1. Re telecons Rintoul / Koop 3 & 4 Oct 62.

Herewith a copy of our letter to Sec JIC, with appropriate attachments, for retention by DAI.

2. Re para 3 of letter to JIC. We have delayed advising the RCAF, in order to give members of the JIC time to note & possibly comment on the DRB decision. In the absence of comments to date, we now intend to formally advise RCAF Hqs that DRB has no further requirement for nuclear debris samples.

Koop  
DSI

Ends (Secret)

HRBFS 1680-09  
DSI Ref: R-372

Ottawa 4, Ontario,  
5 September, 1962.

Secretary,  
JIC.

Nuclear Debris Collection  
DSI/RCAF Programme

At the 900th Meeting of the JIC, DSI explained to the members that in view of the current austerity programme DSI could not provide the funds necessary to modify the nuclear debris collection equipment fitted to RCAF aircraft without strong justification for the continuing need of the project. Members unanimously agreed to the continued requirement for nuclear debris collection and the views of the JIC were expressed to CMCB in a letter, copy of which is attached as Appendix A.

2. Notwithstanding this re-affirmation by the JIC, the Acting Chairman considered it desirable to ascertain the value which the US attaches to the Canadian project by writing to the Chief, APTAC, USAF. A copy of this letter is attached as Appendix B. The reply from General Rodenhauer, Chief APTAC, which is copied as Appendix C, makes it quite clear that he does not consider it essential that Canada continue its programme in this field, at least as far as a contribution by Canada to the US program is concerned.

3. Consequently, DSI has been instructed to discontinue support of this project and will so advise the RCAF.

4. The JIC is invited to note the decision by DSI to discontinue this programme.

Original Signed by  
**L. GUY EON**

**L. Guy Eon,**  
Director of Scientific Intelligence.

Attache.



0021

APPENDIX "A"

in reply please quote

No. CSO 1485-1 (JIC)

DEPARTMENT OF NATIONAL DEFENCE

JOINT INTELLIGENCE BUREAU

SECRET

OTTAWA, 26 July, 1962.

Chairman,  
Defence Research Board.

Attention: DSI

CANADIAN NUCLEAR DEBRIS  
COLLECTION PROGRAM

At its 900th meeting of the 25th July 1962, the JIC considered your request to review the need for the Canadian program for the collection of nuclear debris by aircraft filter system.

2. Since the JIC last reviewed this project in 1960, we have had the experience of collected samples from the 1961 series of Soviet nuclear tests. This series showed that its geographical position gives Canada an opportunity to make unique contributions from time to time in this program. The JIC further considers that the cost of completing the equipment made available by the U.S. should be assumed by Canada and not referred back to the United States Air Force since the equipment required is no longer manufactured and would require special procurement action by the USAF.

3. The JIC estimates that another series of Soviet nuclear tests is imminent and that action should be taken urgently to complete the modernization of our collection arrangements.

4. The JIC accordingly reaffirms the importance it attaches to the continuation of this program and of the need to modernize the collection equipment involved.

Original Signed by

G.K. Grande,  
Acting Chairman,  
Joint Intelligence Committee.

**Pages 239 to / à 241  
are withheld pursuant to section  
sont retenues en vertu de l'article**

**13(1)(a)**

**of the Access to Information Act  
de la Loi sur l'accès à l'information**

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RFEMBM/CEPE UPLANDS

RFEWKW/CEPE DET AAED COLD LAKE

BT

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CANAIRLON Q384 OCT 9 AND Q407 OCT 29 PD REQUEST LOAN FOR EA2 RAF  
5W/2314 ROTARY ACTUATOR BE EXTENDED FOR 6 MONTHS PD EXPECT PROJECT  
TO TERMINATE WITHIN THIS PERIOD PD FOR AFHQ AEM349 6 NOV REFERS

BT

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AFHQ  
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INFO RFWEKW/CEPE DET COLD LAKE

RAEPTC/DEFENCE RESARCH BOARD OTTAWA

BT

UNCLAS A0390 24 SEP

FOR AFHQ ATTN AAEM CMM FOR DRB ATTN DSI PD T AND DI 62/6 28 AUG PD

AMEND T AND DI AS FOLLOWS CLN PARA 16 SUB PARA A DELETE LAST

SENTENCE PD INSERT FOLLOWING CLN THE CEPE SAMPLING OFFICER IS

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53235 CMM HOME TEL RE31759

BT

24/1835Z

AFHQ  
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ROUTINE

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1905-102-62-6

RESTRICTED  
1905-62-6 (CAE)  
004-74/34

DATE: 28 Aug 62

ROYAL CANADIAN AIR FORCE

AIR FORCE HEADQUARTERS

TEST AND DEVELOPMENT INSTRUCTION 62/6

ROUTINE AND SPECIAL NUCLEAR DEBRIS

SAMPLING FLIGHTS FOR DRB

ISSUE 2

INFORMATION

- 1 The RCAF has accepted the responsibility for providing support to DRB, which will include aircraft flights, for the collection of nuclear debris over Canadian territory.
- 2 CEPE will be responsible for providing suitably modified aircraft and the crews to collect these samples and will exercise control of aircraft flights. The project is an annual requirement for which a new T&DI will be issued each year.
- 3 Sampling flights will be on a routine and special basis; the special flights will normally be flown in Western Canada in the Cold Lake area.
- 4 This Issue 2 of T&DI 62/6 replaces T&DI 62/6 dated 19 Jul 62.

INTENTION

- 5 CEPE, in co-operation with the DRB co-ordinator, is to provide support for high level, routine and special, nuclear debris sampling flights.

METHOD

General

- 6 Nuclear debris sampling flights will be carried out using T33 aircraft fitted with F57 filter assemblies provided by DRB.

Routine Flights

- 7
  - (a) The Cold Lake UE T33 fitted with the F57 filter assembly will carry out routine sampling flights from Cold Lake every two weeks, 3000 feet below the tropopause.
  - (b) The two UE T33 aircraft from CEPE Uplands equipped with the F57 filter assembly will carry out routine sampling flights from Uplands every two weeks above the tropopause.
  - (c) On routine flights sampling will be done along the meridian. Since the predominating path of radioactive clouds is from west to east a more representative sample is obtained if flights are carried out along the meridian.

...2



RESTRICTED

- 2 -

Special Flights

8 Special flights will be carried out with the objective of obtaining one good sample from each nuclear cloud to be intercepted during a series of nuclear tests. DRB will be responsible for ensuring that all relevant information on which operations can be planned and conducted is provided to CEPE. On demand for special flights, the CEPE sampling operations officer (SOO) and 1 T33 and supporting ground crew will deploy from CEPE Uplands to Cold Lake. The Cold Lake UE T33 aircraft and the CEPE Uplands T33 will operate from Cold Lake under the operational control of the SOO. If necessary, the second T33 from CEPE Uplands will also deploy to Cold Lake. Meteorological and ground tracking data will be relayed directly to the SOO at CEPE Detachment Cold Lake. AFHQ/AAEM is to be advised of all special requests requiring flights from a base other than Cold Lake (reference para 10).

9 CEPE is to take the necessary steps for radiation protection of personnel and decontamination of equipment and aircraft.

10 Deployment of aircraft and support facilities for sampling operations from locations other than Cold Lake is to be taken only on the approval of AFHQ/AAEM.

11 All samples from routine flights and those active samples from special flights requiring no further measurement, as directed by the DRB co-ordinator, are to be shipped to Chief Superintendent, Defence Research Chemical Laboratories, Shirley Bay, Ottawa. Each sample is to be suitably labeled so that it can be identified in respect to particular explosion or sampling flight. The best sample from each special flight, provided it is sufficiently active, will be shipped according to instructions from DSI. A total count instrument will be provided to CEPE for the purpose of measuring the radiation count of filters after each flight.

SUPPLY

12 Additional aircraft other than those detailed in paragraph 7 will be arranged by AFHQ as required.

13 DRB shall be responsible for:

- (a) Supplying all scientific equipment required by the RCAF for the efficient conduct of this project. This includes sampler assemblies to be installed in the aircraft, airborne direct reading detection equipment, and laboratory radiation measuring equipment.
- (b) Ensuring that an ample supply of unexposed filters and screens are available for use.

PRIORITY

14 This project is allotted "C" priority and routine flights are to take precedence over all other "C" priority projects. Special flights are allotted "B" priority. Specially requested flights are to take precedence over other "B" priority projects.

SECURITY

15 The existence of this project and this directive are classified RESTRICTED. Some aspects of the project are classified higher than

...3

RESTRICTED

- 3 -

RESTRICTED; these will be the subject of separate correspondence. Generally, information concerning sample counts and their relation to specific nuclear explosions is classified SECRET.

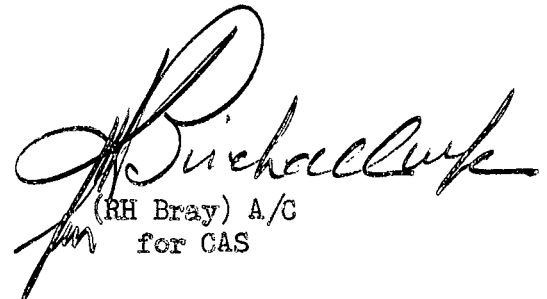
CO-ORDINATION

16 Individual responsibilities are assigned to:

- (a) DRB/DSI which is the DRB co-ordinator for this project and which will fulfill the DRB responsibilities under this T&DI. Direct communication between DSI and CEPE on scientific matters is authorized. Copies of all correspondence in this respect are to be sent to AFHQ/AAEM and CO CEPE Uplands. The DRB Project Officer is Dr. R.S. Eaton, Room 4609, "B" Building, Ottawa, telephone 2-5635; Home Telephone, TA8-2193. The CEPE Sampling Officer is 32144 F/L Wright, W.A., Hangar #10, RCAF Stn Uplands, Telephone 5-3235, Home Telephone TA2-0524.
- (b) CEPE. Direct liaison on scientific matters is authorized between CEPE and the DRB co-ordinator.
- (c) AFHQ/CAE/AAEM. AFHQ co-ordination will be provided by AAEM who will deal with DRB/DSI on the details of policy matters pertaining to this program.

REPORTS

17 CEPE is to maintain flight statistics including route and timing, hours flown, aircraft used, and frequency of flights on all routine and special air sampling flights, and is to submit a report in two copies to AFHQ/CAE/AAEM annually, by the 1st of March following the project period. Teletype reports will be sent to AFHQ/AAEM and copies to DRB/DSI on each day on which routine or special flights take place, stating flight particulars, sample count and sample disposal.

  
(RH Bray) A/C  
for CAS

References: T&DI 61/6 and CEPE Report 1619.

DISTRIBUTION

CEPE Uplands	21
AMTS Circ	1
CAE	1
DRB/DSI	4
AEM4	1
ADCHQ	2
AMC/DCLD/LC/P	2
COR/Co-ord	1
DNDO	1
AHFE	1
File	2

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TO RFWEKW/CEPE DET COLD LAKE

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BT

UNCLAS A0355 27 AUG

FOR AAED ATTN FL BELL CMM FOR AFHQ ATTN AAEM PD

T AND DI 62/6 PD EXPECT AMENDMENT ACTION SHORTLY

REFLECTING CHANGES REQUESTED IN AAED R419 15 AUG

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② CR  
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**ROUTINE**

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INFO ZEN/DEFENCE RESEARCH BOARD OTTAWA

BT

S E C R E T A0340 14 AUG

FOR AFHQ ATTN AAEM CMM FOR DEFENCE RESEARCH BOARD ATTN DSI PD  
T AND DI 62/6 PD ROUTINE FLIGHT 13 AUG CLN OTTAWA - 300 NM NORTH  
- OTTAWA CMM ABOVE TROPOPAUSE AT 41000 CMM 1 PLUS 45 PD FILTER  
COUNT NEGLIGIBLE CMM CDRCL CONTACTED FOR FILTER DISPOSAL

BT

14/2300Z

**SECRET**

PARAPHRASE NOT REQUIRED  
NO UNCLASSIFIED REPLY OR REFERENCE PERMITTED

② ~~CB~~ ~~Noted~~ - 9A  
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INFO ZEN/DEFENCE RESEARCH BOARD OTTAWA

BT

S E C R E T A0335 13 AUO

FOR AFHQ ATTN AAEM CMM FOR DRB ATTN DSI PD

T AND DI 62/6 PD ROUTINE FLIGHT 10 AUG CLN OTTAWA DASH 300 NORTH

DASH OTTAWA CMM 3000 FT BELOW TROPOPAUSE AT 31000 CMM 1 PLUS 40

PD FILTER COUNT NIL CMM FILTER FORWARDED DRCL

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ROUTINE

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RESTRICTED

1905-62-6 (CAE)

~~001-11/31~~

DATE: 19 Jul 62

ROYAL CANADIAN AIR FORCE

AIR FORCE HEADQUARTERS

TEST AND DEVELOPMENT INSTRUCTION 62/6

ROUTINE AND SPECIAL NUCLEAR DEBRIS SAMPLING FLIGHTS

FOR DRB

INFORMATION

1 The RCAF has accepted the responsibility for providing support to DRB, which will include aircraft flights, for the collection of nuclear debris over Canadian territory.

2 CEPE will be responsible for providing suitably modified aircraft and the crews to collect these samples and will exercise control of aircraft flights. The project is an annual requirement for which a new T&DI will be issued each year.

3 Sampling flights will be on a routine and special basis; the special flights will normally be flown in Western Canada in the Cold Lake area.

INTENTION

4 CEPE, in co-operation with the DRB co-ordinator, is to provide support for high level, routine and special, nuclear debris sampling flights from Cold Lake.

METHOD

5 Nuclear debris sampling flights will be carried out using T33 aircraft fitted with F57 filter assemblies provided by DRB. Sampling flights will normally be undertaken within the operational limits of the aircraft and will be conducted alternately from CEPE Uplands and CEPE Detachment Cold Lake fortnightly.

6 Routine flights will be carried out twice a month, alternatively above the tropopause and 3,000 feet below it. On routine flights, sampling will be done along a meridian.

7 Special flights will be carried out with the objective of obtaining one good sample from each nuclear cloud to be intercepted during a series of nuclear tests. DRB will be responsible for ensuring that all relevant information on which operations can be planned and conducted is provided to CEPE. Information on each nuclear explosion for which debris collection is required will be passed to the CEPE Sampling Operations Officer (SOO) by DRB/DSI. In addition, meteorological and cloud tracking data will be relayed directly to the CEPE Detachment Cold Lake as arranged by DRB. The decision to attempt a requested intercept will rest with CEPE. On occasion, DSI may request a special sampling flight to be undertaken at a high priority. Such flights would probably be carried out from Cold Lake although another base could be specified. AFHQ/AAEM is to be advised of all special requests requiring flights from a base other than Cold Lake (ref para 9).

RESTRICTED

- 2 -

8 CEPE is to take the necessary steps for radiation protection of personnel and decontamination of equipment and aircraft.

9 Deployment of aircraft and support facilities for sampling operations from locations other than Cold Lake is to be taken only on the approval of AFHQ/AAEM.

10 All samples from routine flights and surplus samples from special flights are to be shipped to Chief Superintendent, Defence Research Chemical Laboratories, Shirley Bay, Ottawa. Each sample is to be suitably labeled so that it can be identified in respect to particular explosion or sampling flight. The best sample from each special flight, provided it is sufficiently active, will be shipped according to instructions from DSI. A total count instrument will be provided to CEPE for the purpose of measuring the radiation count of filters after each flight.

SUPPLY

11 CEPE Detachment Cold Lake UE T33 aircraft will be used for this project. CEPE Uplands will provide back-up as required and will modify two UE T33 aircraft for this purpose. Additional aircraft and other requirements needed for special flights will be arranged by AFHQ as required.

12 DRB shall be responsible for:

- (a) Supplying all scientific equipment required by the RCAF for the efficient conduct of this project. This includes sampler assemblies to be installed in the aircraft, air-borne direct reading detection equipment, and laboratory radiation measuring equipment.
- (b) Ensuring that an ample supply of unexposed filters and screens are available for use.

PRIORITY

13 This project is allotted "C" priority and routine flights are to take precedence over all other "C" priority projects. Special flights are allotted "B" priority. Specially requested flights are to take precedence over other "B" priority projects.

SECURITY

14 The existence of this project and this directive are classified "RESTRICTED". Some aspects of the project are classified higher than RESTRICTED; these will be the subject of separate correspondence. Generally, information concerning sample counts and their relation to specific nuclear explosions is classified SECRET.

CO-ORDINATION

15 Individual responsibilities are assigned to:

- (a) DRB/DSI which is the DRB Co-ordinator for this project and which will fulfill the DRB responsibilities under this T&DI. Direct communication between DSI and CEPE on scientific matters is authorized. Copies of all correspondence in this respect are to be sent to AFHQ/CAE/AAEM and CO CEPE Uplands. The DRB Project Officer is Dr. R.S. Eaton, Room 4609, "B" Building, Ottawa, telephone 2-5635; Home Telephone, TA8-2193. The CEPE Sampling Officer is 32144 F/L Wright, W.A., Hangar #10, RCAF Stn Uplands, Telephone 5-3235, home telephone TA2-0524.

...3

- 3 -

- ## REPORTS

*E. W. Whiteland* s/c  
(Mr. Bray) A/C  
for CAS

## DISTRIBUTION

000252



DEPARTMENT OF NATIONAL DEFENCE

MINUTE SHEET CEPE 1905-62/60 (CO) 15 Jul 62

Referred to

REMARKS

To be signed in full showing Appointment, Telephone Number & Date

Minute (3)

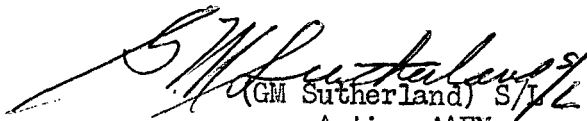
CAE

- 1 Attached memos are respectively:
- (a) A proposal to COps to substitute a T33 aircraft for presently established CF100 at Cold Lake.
- (b) A direction to DOE to delete above CF100 from CEPE UE.


2 This action was requested by Min (1) para 4 and is concurred in both from a workload point of view and from the consequent reduction in maintenance requirements.

3 For your signature please.

20 Jul 62

  
(GM Sutherland) S/1  
Acting AAEM  
2-6947

4

Corrections made see min (2)  


CR-PA

**RESTRICTED**

Our file ref. 1905-62/6(CO).....



DEPARTMENT OF NATIONAL DEFENCE

ROYAL CANADIAN AIR FORCE

Ottawa Ont

13 Jul 62

Ref Your S1905-162-6(AAEM) 7 Jun 62

Chief of the Air Staff  
Air Force Headquarters  
Department of National Defence  
Ottawa 4 Ontario

Attn: CAE/AAEM

Referred to AAEM  
File No S1905-100 -62-6  
Chg'd to

Routine and Special Nuclear Debris Sampling Flights  
for DRB - T and DI 62/6 Draft

1 Draft T & DI 62/6, together with your covering letter S1905-162-6(AAEM) dated 7 Jun 62, has been reviewed and the following comments are submitted.

2 For purposes of planning, control and security, sampling flights of a special nature will be under the direct control of a CEPE Sampling Operations Officer. This officer has been designated from the CEPE Uplands staff and during those periods when special flights are required to be flown from Cold Lake, or such other base as AFHQ/AAEM may designate, he will proceed from Uplands to exercise direct operational control over such special flights. These flights will be supported by a CEPE Uplands T-33 and such air or ground crew as may be required.

3 In addition, to ensure continuity in the retention within CEPE Uplands of essential technical knowledge and control relative to nuclear debris sampling activities, this establishment prefers that the routine flights be conducted alternately from CEPE Uplands and CEPE Det Cold Lake fortnightly as is presently done. Therefore, the draft T & DI should be amended as follows:

- (a) Para 3 - to read: "Sampling flights will be on a routine and special basis; the special flights will normally be flown in Western Canada in the Cold Lake area."
- (b) Para 5 - second sentence to read: "Sampling flights will normally be undertaken within the operational limits of the aircraft and will be conducted alternately from CEPE Uplands and CEPE Det Cold Lake fortnightly."
- (c) Para 7 - third sentence to read: "Information on each nuclear explosion for which debris collection is required will be passed to the CEPE Sampling Operations Officer (SOO) by DRB/DSI."

② From T&DI  
issued this date  
are in  
195262  
2-0548

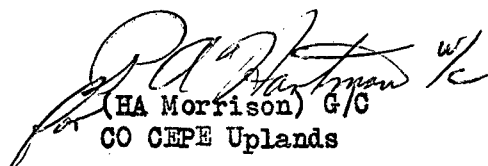
RESTRICTED

- 2 -

- (d) Para 15, sub-para (a) - third sentence: delete all after "Uplands."
- (e) Para 15, sub-para (b) - add sentence: "The CEPE Sampling Operations Officer is 32144 F/L Wright WA, Hangar #10, RCAF Stn Uplands, telephone 5-3235; home telephone TA 2-0524."
- (f) Para 16 - first sentence to read: "CEPE is to maintain flight statistics including route and timing, hours flown, aircraft used, frequency of flights on all routine and special air sampling flights and is to submit a report in two copies to AFHQ/CAE/AAEM annually, by the 1st March following the project period."

4 As noted in your referenced covering letter, CF100 aircraft #18508 will no longer be required at CEPE Det Cold Lake for the future conduct of routine and special sampling flights. Therefore, it is strongly recommended that the CF100 aircraft be deleted from the CEPE Det Col Lake UE and replaced by a T-33 aircraft as soon as possible.

5 All IRB sampling equipment used with the Dakota aircraft will be returned to IRB in the immediate future as per instructions. The remaining equipment previously used on CF100 and T-33 aircraft will be retained in use on the T-33s because it is not known at this time when the modified tip tanks, recently received by CEPE for use on the T-33 aircraft, will be suitably modified to accommodate the F57 filter assemblies.

  
(HA Morrison) G/C  
CO CEPE Uplands

# MESSAGE FORM

FOR COMMCEN/SIGNALS USE

NUMBER

1905-2  
2/1905-100-62-6

PRECEDENCE - ACTION <b>ROUTINE</b>	PRECEDENCE - INFO DEFERRED	DATE - TIME GROUP <b>28</b>	MESSAGE INSTRUCTIONS
FROM <b>CANADIAN</b>			PREFIX <b>GR</b>
TO <b>CAPE UPLANDS CANADIAN</b>			SECURITY CLASSIFICATION <b>RESTRICTED</b>
INFO <b>CAPE DET COLD LAKE STN KENNEDY COLD LAKE</b>			ORIGINATOR'S NUMBER <b>AASH 166 28 MAY 62</b>

CC: DUDO (BY HAND)

T AND DI 62 SIASH 6 PD FUTURE OPERATIONS TO BE COVERED BY REWRITE OF  
T AND DI 61 SIASH 6 WILL REPAIR USE OF TOTAL COUNT INSTRUMENT AT AARD  
PD USE OF THIS INSTRUMENT AND HANDLING OF FILTERS WILL REQUIRE  
INSTRUCTION ON OPERATION CEN MAINTENANCE AND SAFE HANDLING TECHNIQUES  
PD DRD SIASH DRCL OTTAWA WILL PROVIDE THIS INSTRUCTION FOR ONE DAY  
FOR TWO PEOPLE FROM AARD AND ONE FROM CAPE UPLANDS DURING WEEK OF 4  
JUN PD CONTACT AT DRCL IS DR HUBBIEY OR MR HYDE PHONE 24431 PD ADVISE  
NAMES OF PERSONNEL SELECTED AND ARRIVAL DATE IN OTTAWA PD PERSONNEL  
SHOULD BE THOSE DIRECTLY ASSIGNED TO 62 SIASH 6 PD AASH 156 18 MAY  
NOTAL ALSO REFERS PD FOR ADC CEN AFHQ DUDO RECOMMENDS STN COLD LAKE  
NUCLEAR DEFENCE OFFICER ACCOMPANY CAPE PERSONNEL FOR FAMILIARIZATION

PAGE <b>1</b> OF <b>2</b> PAGES		REFERS TO MESSAGE		DRAFTER'S NAME		OFFICE		TEL.			
		CLASSIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>									
FOR OPR'S USE	<b>R</b>	DATE	TIME	SYSTEM	OPERATOR	<b>D</b>	DATE	TIME	SYSTEM	OPERATOR	RELEASING OFFICER'S SIGNATURE

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# MESSAGE FORM

FOR COMMCEN/SIGNALS USE

FILE

NUMBER

PRECEDENCE - ACTION <b>ROUTINE</b>	PRECEDENCE - INFO DEFERRED	DATE - TIME GROUP <b>28</b>	MESSAGE INSTRUCTIONS
FROM <b>CANAIHND</b>			PREFIX <b>GR</b>
TO <b>CEPE UPLANDS CANAIHND</b>			SECURITY CLASSIFICATION <b>RESTRICTED</b>
INFO <b>CEPE DET COLD LAKE STN <del>UNHND</del> COLD LAKE</b>	<b>CC: INDO (BY HAND)</b>		ORIGINATOR'S NUMBER <b>ARM 166 28 MAY</b>

PURPOSES DIRECTED TO FUTURE ADVICE AND ASSISTANCE TO CEPE IN THIS  
PROJECT PD REQUEST YOU ARRANGE PD FOR CEPE CHARGE TO FE 205002 PD  
FOR ADC CHARGE TO FE 205001

PAGE <b>2.2</b> OF <b>2</b> PAGES		REFERS TO MESSAGE		DRAFTER'S NAME <i>(JH SPATLEY)</i> S/L		OFFICE <b>ARM 4</b>		TEL. <b>2-0548</b>	
		CLASSIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>							
FOR OPR'S USE <b>R</b>	DATE	TIME	SYSTEM	OPERATOR <b>D</b>	DATE	TIME	SYSTEM	OPERATOR	RELEASING OFFICER'S SIGNATURE <i>(K BIRCHALL)</i> W/C

24-5-62

## INSTRUCTIONS



DEPARTMENT OF NATIONAL DEFENCE  
CANADA

DEFENCE RESEARCH BOARD

IN REPLY PLEASE QUOTE

DRBTS 1680-09

DSI Ref: F-214

2149

Ottawa, Ontario,  
24 May, 1962.

AAEM

SI905-162-6

CAS,  
Air Force Headquarters,  
Ottawa, Ontario.

ATTENTION: AAEM

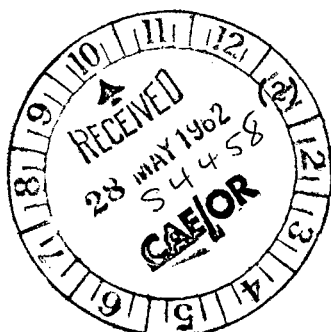
NUCLEAR DEBRIS COLLECTION PROGRAM  
CEPE REPORT 1619 AND T&DI 62/6

Reference your memorandum SI905-161-6 (AAEM) of  
13 March, 1962.

2. We regret the delay in replying to your memorandum of above reference. This was due to the fact that in conjunction with DAI we have investigated ways and means of improving the Canadian nuclear debris collection program. On the understanding that T-33 aircraft are available for this purpose, we have arranged with the USAF for the loan of 6 T-57 collecting ducts to be fitted to T-33 aircraft. We have further discussed our intelligence requirements with DAI and are now in a position to restate them, taking into account the results of the collection program during the last series of Soviet tests and the new collection equipment that is to be used in the future.

3. It is essential to the intelligence community that Canada maintain a capability to collect by aircraft radioactive debris from nuclear explosions occurring in the USSR and possibly China, and to monitor the degree of radioactivity in the atmosphere between periods of nuclear testing. The attached draft T&DI, which is submitted for your consideration, specifies the flight requirements:

- (1) Fortnightly monitoring flights from Cold Lake alternating between altitudes above and below the tropopause.



Special flights from Cold Lake to attempt to obtain one good sample from each nuclear explosion in series of intelligence interest. These attempts will be limited by the location, nature and yield of the explosions, the course and altitude of the debris clouds, and the limitations of the sampling aircraft. The decision to attempt to intercept and sample each cloud will rest with the CEPE officer responsible for these operations. Arrangements will be made whereby DSI will provide information on each nuclear explosion for which debris collection is desired directly to CEPE Detachment Cold Lake. Arrangements are also being made whereby the USAF meteorological and cloud tracking data center will pass relevant information directly to CEPE Detachment Cold Lake probably from Alaska.

File with  
See letter SI905-162-6  
(AAEM) & forward to  
CEPE comming  
draft T&DI.  
J. Spratley  
AAEM  
b/6

.../2

S E C R E T

.../2

- (3) Request flights which may infrequently be requested by the USAF, through DSI, whenever they have need for our sampling facilities to complement or supplement theirs. These flights would probably be based on Cold Lake although they might require operating from another location. They would need to have top priority since they may provide the only good samples of the debris from a particular explosion.

4. There are few points of detail which remain to be determined or completed:

- (1) Arrangements for the safe handling of radioactive equipment and the safe expedition of samples to the USAF analysis laboratory or to Defence Research Chemical Laboratories, Ottawa. This includes the provision by DRB of a total count instrument, including a scaling device and a lead castle to be installed at Cold Lake and operated by the RCAF.
- (2) Training of RCAF technicians at DRCL who in turn could train other RCAF personnel involved. These technicians will be indoctrinated by DRCL on the reading, handling and disposal of active filters and the determination of the minimum level of sample activity which will justify shipment to the USAF.
- (3) Channels for direct communications between DSI and CEPE Detachment Cold Lake and between USAF special meteorology office, probably in Alaska, and CEPE Detachment Cold Lake.
- (4) The possible installation on T-33 aircraft of the I2B continuous monitoring system which would greatly improve the chances of obtaining high count filters.

5. Meanwhile, we can now state that we have no further requirement for CF-100 or Dakota flights with the equipment used to date. The sampling equipment belonging to DRB can now be returned for disposal. There is a possibility that the rotary actuators used with the previous filters might be of use with the new equipment: if not, we would appreciate being advised as soon as possible so that we may terminate our maintenance and replacement contracts. Nor is there a requirement for flights from Uplands. However, fortnightly flights for background level count may be carried out from Uplands if more convenient to CEPE. We have

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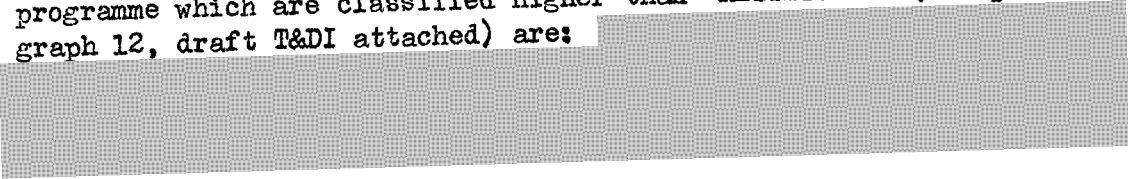


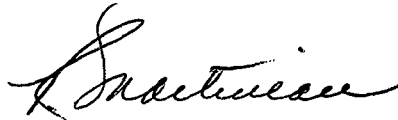
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S E C R E T

.../3

terminated the arrangement for a Western area DRB coordinator to advise locally. Scientific assistance will be provided by DSI who will coordinate with DRCL and other establishments as required. ||

6. The security aspects of nuclear debris collection programme which are classified higher than "RESTRICTED" (cf. paragraph 12, draft T&DI attached) are: 



R. Martineau,  
for  
Chairman, Defence Research Board. .

Attach. 

1905-62-6 (CAE)  
S505-100-74/34

R E S T R I C T E D

ROYAL CANADIAN AIR FORCE

AIR FORCE HEADQUARTERS

DRAFT TEST AND DEVELOPMENT INSTRUCTION 62/6

INFORMATION

1. The RCAF has accepted the responsibility for providing air support to DRB for the collection of nuclear debris over Canadian territory.
2. CEPE will be responsible for providing aircraft and aircrew to collect these samples. The project is an annual requirement for which a new T&DI will be issued each year.
3. Sampling flights will normally be flown in Western Canada by CEPE Det Cold Lake.

INTENTION

4. CEPE, in cooperation with the DRB coordinator, is to provide air support for high level special and routine met flights from CEPE Detachment Cold Lake.

METHOD

5. High level routine and special met flights will be carried out by jet aircraft. The routine met flights will be carried out twice a month, alternatively above the tropopause and 3000 feet below it. On routine flights sampling will be done along a meridian.
6. Special met flights will be carried out with the object of obtaining one good sample from each nuclear cloud to be intercepted. DRB will be responsible for ensuring that all relevant information on which operations can be planned and conducted is provided to CEPE Det Cold Lake. The decision to attempt an intercept will rest with CEPE Det Cold Lake. On occasion, DSI may request a special sampling flight to be undertaken at a high priority. Such flights would probably be carried out from Cold Lake although another base could also be specified.
7. CEPE is to take the necessary steps for radiation protection of personnel and decontamination of equipment and aircraft.

R E S T R I C T E D

.../2

8. Deployment of aircraft and support facilities for sampling operations from locations other than Cold Lake is to be taken only on the approval of AFHQ/AAEM. All samples from routine flights and surplus samples from special flights are to be shipped to Chief Superintendent, Defence Research Chemical Laboratories, Shirley Bay, Ottawa. The best sample from each special flight, provided it is sufficiently active, will be shipped according to instructions from DSI.

SUPPLY

9. CEPE UE aircraft will be used for this project. Additional aircraft and other requirements needed for special flights will be arranged by AFHQ as required.

10. DRB shall be responsible for:

- (a) Supplying all scientific equipment required by the RCAF for the efficient conduct of this project. This includes sampler assemblies installed in the aircraft, airborne detection equipment, and laboratory radiation measuring equipment.
- (b) Ensuring that an ample supply of unexposed filters and screens are available for use.

PRIORITY

11. This project is allotted "C" priority and routine flights are to take precedence over all other "C" priority projects. Special flights are allotted "B" priority and specially requested flights are to take precedence over other "B" priority projects.

SECURITY

12. The existence of this project and this directive are classified "RESTRICTED". However, some aspects of the operations are further classified and queries on those aspects should be referred to RCAFHQ or DRBHQ for reply.

COORDINATION

13. Individual responsibilities are assigned to:

- (a) DRB/DSI which provides overall project control of the nuclear debris collection program -  
Coordinator - Dr. R.S. Eaton, Room 4609 "A"  
Building, Telephone 2-5635. Home Tel: TA8-2193.

.../3 000263

R E S T R I C T E D

.../3

- (b) CEPE. Direct liaison on scientific matters is authorized between CEPE and the DRB coordinator.
- (c) AFHQ/CAE/AAEM. AFHQ Coordination will be provided by AAEM who will deal with DRB/DSI on the details of policy matters pertaining to this program.

REPORTS

14. CEPE is to maintain flight statistics including course, time and hours flown, aircraft used, frequency of flights, on all routine and special air sampling flights and is to submit a report in two copies to AFHQ/AAEM annually, by the 1st March following the project period. Teletype reports will be sent to AFHQ/AAEM and copies to DRB/DSI on each day on which routine or special flights take place, stating flight particulars, sample count and sample disposal.

(RH Bray) A/C

for CAS

References: T&DI 61/5  
CEPE Report 1619

DISTRIBUTION

CEPE Uplands	15
AMTS Circ	1
DRB	4
CAE	1
AAEM	1
ADCHQ	2
AMC/DCLD/LC/P	2
COR/Coord	1

# MESSAGE FORM

FOR COMMEN/SIGNALS USE

NUMBER

1905-2

1905-100-62-6

PRECEDENCE - ACTION		PRECEDENCE - INFO		DATE - TIME GROUP		MESSAGE INSTRUCTIONS	
PRIORITY		DEFERRED		18			
FROM: CANADIAN						PREFIX GR	
TO: CEPE UPLANDS						SECURITY CLASSIFICATION RESTRICTED	
INFO: CEPE DET COLD LAKE						ORIGINATOR'S NUMBER AEM 156 18 MAY 62	

T AND DI 62 SLASH 6 ATMOSPHERIC SAMPLING PD DRB HAS ARRANGED LOAN OF SIX MODIFIED T33 TIP TANKS TO PERMIT MORE EFFICIENT SAMPLING UNDER THIS PROJECT PD THESE TANKS ARE AVAILABLE FOR PICK UP AT MCCLELLAN AFB CALIF AND ARRANGEMENTS HAVE BEEN MADE FOR ATC AIRLIFT ON 22 MAY PD CEPE PROJECT OFFICER FL WA WRIGHT TO ACCOMPANY THIS FLIGHT AS ARRANGED CIM TO OBTAIN DETAILS OF TECHNICAL INSTALLATION AND OPERATION OF TANKS ON T33 PD TD APPLICATION FOR FL WRIGHT ORIGINATED BY THIS HQ AND TD APPROVAL WILL BE FORTHCOMING PD ON RECEIPT OF TANKS CEPE IS TO UNDERTAKE TRIAL INSTALLATION ON ONE UE T33 AIRCRAFT PD DRAWINGS APPLICABLE THERETO ARE AVAILABLE FROM DR HUBLEY OF DRCL AND WILL BE PROVIDED ON REQUEST PD CONCEPT OF OPERATIONS FOR THIS PROJECT WILL BE COVERED IN NEW DIRECTIVE TO BE ISSUED SHORTLY PD DISCUSSIONS FL WYMAN FL WRIGHT SL SPRATLEY REFER

PAGE OF PAGES		REFERS TO MESSAGE		DRAFTER'S NAME		OFFICE		TEL.	
		CLASSIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>		(JH SPRATLEY) S/L AEM 4		2-0548			
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CAFB 1719 (JSF) (REV 3/59)  
CNS 1320 B (REV 3/59)  
RCAF S42 (REV 3/59)  
7530-21-562-1557

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DEPARTMENT OF NATIONAL DEFENCE

RCAF RESEARCH & DEVELOPMENT PROJECTS  
NUCLEAR DEBRIS COLLECTION PROGRAM

FOR CROSS REFERENCES SEE INSIDE COVER

RCAF

ROUTING				P.A. & B.F. ENTRIES				REGISTRY ONLY	
REFERRED	REMARKS	DATE OF PASS	INITIALS	DATE OF P.A.	INITIALS	DATE OF B.F.	CANCEL B.F.	DATE RECEIVED	DATE INDEXED
AAEM	WITH PAPERS ON JUL 16 1962		AB						
CAE	Mem (3)	24/7/62	AB						
Cps	Mem (2)	25/7/62							
CAE		26 Jul 62	AB	20 Jul 62				JUL 30 1962	
AAEM/4	PER REQUEST CR. OCT 17 1962		AB	18 Oct 62				OCT 18 1962	
Cps	WITH PAPERS ON NOV 26 1962		AB						
CPhand		27 Nov 62	AB						
DAI	✓	27/11/62	AB						
AMTS	✓	29/11/62	AB						
CAE	(3)	3/12/62	AB						
AAEM/4		3 Dec 62	AB						
CNE		4 Dec 62	AB						
AMTS	memo sig	4 Dec 62	AB						
CAE		5/12/62	AB						
DMS/ms 3-4	(2)	6 Dec 62	AB	10 DEC 62	je			DEC 10 1962	
AAEM/4	WITH PAPERS ON DEC 19 1962		AB						
CR	Min	20 Dec 62	AB	24/12/62	WX			DEC 26 1962	