

GS-785-47

GS-785-47

FILE NO - N° DU DOSSIER

VOLUME NO - N° DU VOLUME

NAME - NOM

COSTS INCURRED BY FEDERAL DEPTS RE
COSMOS 954 INCIDENT

FROM - DE

TO - À

78-4-01

78-07-31
SECRET

CHARGED OUT - EN COMMUNICATION

CHARGED OUT - EN COMMUNICATION

DATE

TO - À

9.5.78 DSS 1/13
JUN 21 1978
DSS 1/13
DSS 1/11
2. 8.78 LEGAL 7.
SEP 11 1978 SGT MACDONALD
80.5.3 CFO 2/16 R DW
80-03-06 C FO 1/1
Microfilm Hold Staff
R-11-16 Muro R2

D. 1978

CLOSED VOLUME VOLUME COMPLET



DATED FROM
À COMPTER DU APRIL 1978

TO
JUSQU' AU JULY 1978

AFFIX TO TOP OF FILE — À METTRE SUR LE DOSSIER

DO NOT ADD ANY MORE PAPERS — NE PAS AJOUTER DE DOCUMENTS

FOR SUBSEQUENT CORRESPONDENCE SEE — POUR CORRESPONDANCE ULTÉRIEURE VOIR

FILE NO. — DOSSIER N°

GS-787-47

VOLUME

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Gouvernement
du Canada

ACTION
REQUEST

FICHE DE
SERVICE

Tom Thomas

FILE NO. — DOSSIER N°

DATE

Apr 13

FROM - DE

S/Sgt. Clark
Yellowknife

☐ **CALL**
PRÉCÉDER D'APPELER

TEL. NO. - N° DE TEL.

EXT. - POSTE

☐ **WANTS TO SEE YOU**
DÉSIRE VOUS VOIR

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TIME - HEURE

☐ **WILL CALL AGAIN**
DOIT RAPPELER

CALL RECEIVED BY
MESSAGE REÇU PAR

JR

☐ **ACTION**
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☐ **APPROVAL**
APPROBATION

☐ **NOTE & RETURN**
NOTER ET RETOURNER

☐ **COMMENTS**
COMMENTAIRES

☐ **DRAFT REPLY**
PROJET DE RÉPONSE

☐ **NOTE & FORWARD**
NOTER ET FAIRE SUIVRE

☐ **MAKE**
FAIRE COPIES

☐ **SIGNATURE**

☐ **NOTE & FILE**
NOTER ET CLASSER

Soviet satellite cost
involved \$14,484.66.
We advised Insp. Chairot
Contract policing our
telex GAP 37 16 Feb. 78.
Further breakdown
Insp. Chairot at that
telex.

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Glean SHEPPE

Transport 993-9598

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Government
du Canada

ACTION
REQUEST

FICHE DE
SERVICE

TO - À

FILE NO. - DOSSIER N°

RCMP / Mr Thomas

DATE

18 April 78

FROM - DE

DEA / FLA / Mr Sheppy

☐ PLEASE CALL
PR D'APPELER

TEL. NO. - N° DE TEL.

EXT. - POSTE

☐ WANTS TO SEE YOU
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☐ WILL CALL AGAIN
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CALL RECEIVED BY
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ANNEX C (Annex to DND
Memo to Cabinet of March 8
1978)

COSTS INCURRED IN SUPPORT OF OPERATION MORNING LIGHT

1. Major expenses incurred up to the end of February 1978 in support of Operation MORNING LIGHT are listed by Department or Agency below. Costs listed are very approximate. Total costs identified so far for the major Departments and Agencies concerned are \$4,164,173.97.

2. The Atomic Energy Control Board (AECB) has obtained Treasury Board approval for funding of one million dollars for 1977/78 to cover expenses of all departments except Department of National Defence (DND).

DND COSTS AT END FEBRUARY 1978

3. Arrangements have been made for all units contributing to or participating in Operation MORNING LIGHT to capture and regularly report the resources utilized in support of this operation. Air Command Headquarters has been tasked to consolidate and forward a report to National Defence Headquarters outlining total resource consumption; these monthly reports are costed by the Directorate of Costing Services through the application of standard cost factors.

4. The following is a summary of costs incurred by DND in support of this operation at end February 1978:

a. Regular Forces personnel directly involved in this operation	\$ 478,515
b. Rations provided to support personnel	41,159
c. Individual temporary duty and travel expenses	113,478
d. Civilian overtime	1,232
e. Charges/fees paid to external agencies	9,239
f. Flying - hours/crew costs	3,269,506

CC130 Hercules	875.4 hrs
CC138 Twin Otter	228
CH135 Huey	451.3
CH147 Chinook	274.7
CP107 Argus	90.4
CC137 Boeing	3.5
CC109 Cosmopolitan	13.2
CC115 Buffalo	70.8
CT133 T 33	4.2
CH136 Kiowa	95.5
CFS	13.6

Total Flying Hours 2,120.6

g. Canadian Forces vehicle costs	15,313
h. Materiel, consumed, lost or destroyed	54,482

DND Total Costs \$3,982,924

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ANNEX C

- 2 -

SOLICITOR GENERAL FINANCIAL REPORT AS OF 28
FEBRUARY 1978

5. The following is a summary of costs incurred by Solicitor General:

a. Man-hours including overtime	\$ 5,500.63
b. Travelling expenses	\$ 452.60 -
c. Police aircraft	8,342.28 -
d. Police car mileage	57.50 -
e. Skidoo hours	10.00 -
f. Radio batteries	121.65 -

TOTAL

\$14,484.66

*Total on incremental
20 APR 79
are we done on
more costs*

ENERGY, MINES AND RESOURCES REPORT

6. Personnel costs and miscellaneous expenses incurred by GSC in connection with Operation MORNING LIGHT amount to \$85,000.00 as of 28 February. CCRS costs were \$6,000.00.

AECB FINANCIAL REPORT

7. AECB expenditures and commitments to 28 February 1978 amounted to:

a. Material	\$ 340.00
b. Travel	14,111.10
	<u>\$ 14,451.10</u>
c. Unpaid Purchase Orders	153,214.87
	<u>\$167,665.97</u>

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SYSTEM OF COSTING USED
BY CANADIAN FORCES

Canadian Forces costings are based on standard or average costs usually applied on the basis of many years if they apply to personnel or on the basis of operating rates if they apply to aircraft, ships, vehicles or other types of equipment. These standard costs represent Forces wide averages and are calculated at National Defence Headquarters by our Directorate of Costing Services based on cost data produced by a centralized, computerized Financial Management Information System.

The standard costs used by the Canadian Forces are contained in a Cost Factors Manual which is used in three essentially different ways:

- general cost studies
- calculations of recoveries
- budgeting

The following example outlines how standard costs are applied:

Vehicle Operating Costs

- individual costs for the various types of vehicles are shown as a cost factor based on the average operating cost per mile, kilometer or hour. Each type of vehicle is identified by its equipment configuration code and its equipment maintenance code. The costs have been determined primarily by adapting data from the Land Ordnance Maintenance Management Information System. It was assumed that recent historical data on vehicle usage, maintenance manhours and parts costs, escalated where appropriate to allow for inflation, are reasonable estimates for current and future costs.

In cost recovery calculations the following four costs are relevant

- Petrol, Oil and Lubricants (POL)
- Spare Parts, Repair and Overhaul (SR&O)
- In-Service Maintenance (ISM)
- Depreciation (DEP)

a. POL

- calculated using a weighted national average per gal determined from study of contracts and a factor for oil and lubricants POL consumption rates based on a sampling of various types of vehicles and equip.

b. SR&O

- includes costs of spare parts and contract labour. Relevant information on parts consumption, contract labour manhours and equipment usage was extracted from computer maintenance reports and was used to calculate the average SR&O cost per mile, kilometer or hour.

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c. ISM

- this cost represents the value of DND military and civilian labour expended on the maintenance and repair of vehicles. An average hourly rate, including an element for supervisory salaries (indirect labour) was determined for military and civilian personnel employed at maintenance units. Application of this rate to total maintenance and repair manhours resulted in an estimated DND labour cost for each type of vehicle by individual configuration. Average ISM cost per usage unit was then calculated by dividing total labour costs by total ECC usage rates.

d. DEP

- depreciation rates are based on the approximate current replacement value of the vehicle. Depreciation per mile, kilometer or hour was determined by dividing the value by the life expectancy in miles, kilometers and hours.

These rates are escalated annually using the projected inflation rates for each resource code (pay/POL) taken from the latest update (quarterly) of the DND Economic Model.

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<u>Vehicle</u>	<u>POL</u> (miles per gal)	<u>POL</u>	<u>SR&O</u>	<u>ISM</u>	<u>DEP</u>	<u>Total Cost per Mile</u>
Truck, Utility, ½ ton (M-38A1 Cdn)	10.8	\$0.07	.10	.22	.18	<u>\$0.57</u>

SCHEDULE OF CHARGES FOR PROVISION OF SERVICES

Serial	Item	Applicable to	
		Factors to be included in incremental cost	Factors to be included in total cost
1	The salary, pay or wages and the allowances of Regular Force and civilian personnel involved in providing the service plus a pro-rated allocation of government contributions in respect of superannuation, pensions, unemployment insurance, and other employee benefits.	<u>No</u>	<u>Yes</u>
2	The pay and allowances of members of the Reserve Forces called out to provide the service.	Yes	Yes
3	The cost of rations and quarters provided to personnel involved in providing the service and where the charges are not recovered from said personnel separately.	Yes	Yes
4	Temporary duty and travelling expenses involved in providing the services.	Yes	Yes
5	The cost of normal civilian salaries and wages.	No	Yes
6	The overtime pay of civilian employees retained and the wages of other personnel hired to provide the service.	Yes	Yes
7	The charges or fees paid for services obtained from a non-DND agency in the course of, or for the purpose of, providing the service.	Yes	Yes
8	Communications expenses incurred in the course of the service being provided where other than existing military facilities are used.	Yes	Yes
9	The cost of packaging, repairing, or restoring (including cleaning and laundering), and re-warehousing materiel used in the course of the service being provided and returned thereafter.	Yes	Yes

Serial	Item	Applicable to	
10	The cost of replacing material consumed, lost, destroyed, or damaged beyond repair in the course of the service being provided, calculated at the current replacement cost.	Yes	Yes
11	A pro-rated allocation for the scheduled in-service repair and maintenance and for the depreciation and attrition of any vessel, ship, aircraft, helicopter, vehicle, and other equipment used in providing the service.	No	Yes
12	The cost of petrol, oil, lubricants, spares, unscheduled maintenance, and a pro-rated allocation of contract repair and overhaul required in, or resulting from, the operation (in the course of regular or scheduled operations or exercises, of any vessel, ship, aircraft, helicopters, vehicles, and other mobile equipment used in providing the service).	No	Yes
13	A pro-rated allocation for the schedule maintenance and for depreciation of buildings and facilities used in providing the service.	No	Yes
14	The cost of transportation of personnel and freight to the location required for the service to be provided and their return, where other than existing military facilities are used.	Yes	Yes
15	The cost of petrol, oil, lubricants, spares, unscheduled maintenance, and a pro-rated allocation of contract repair and overhaul required in, or resulting from, the operation outside of regular or scheduled operations or exercises, of any vessel, ship, aircraft, helicopter vehicle and other equipment used in providing the service.	Yes	Yes
16	The cost of the transportation of personnel and freight required for the provision of the service on regularly scheduled aircraft flights or other modes of transport operated by the department, calculated on the basis of currently approved pro-rated charges.	Yes	Yes
17	The cost of the operation (including utilities consumed) unscheduled repair and maintenance (including cleaning) and restoration of buildings and facilities used in providing the service.	Yes	Yes
18	The cost of DND administration calculated at 10 per cent of the total value of elements above.	Yes	Yes

COSMOS-954 ENVIRONMENTAL RISKS ASSESSED

Fisheries Minister Roméo LeBlanc and Environment Minister Len Marchand said today that the re-entry of the Soviet satellite cosmos-954 in the Northwest Territories does not appear to have created risks of contamination of fish and wildlife sufficient to cause important concern, according to an assessment carried out by technical experts of the Department of Fisheries and the Environment in consultation with colleagues in other interested agencies.

people ???

Drawing upon information gained from the search and recovery operations, these experts are now of the opinion that it is unlikely that the fish and wildlife in the region of re-entry have been contaminated by radioactivity and that there is a very small risk that they will be in the future as a result of this incident. Furthermore, (any existing risk) will be reduced even further by continued effort to locate and recover remaining pieces of satellite debris.

The Ministers said that the Department will be carrying out further investigations to determine whether there is any

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evidence of increased radioactivity in critical environmental components or biological systems in the area with specific emphasis on commercial and sport fisheries.

acceptable

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Further information:

Dr. Henri Rothschild (819) 997-2961

BACKGROUND STATEMENT TO ACCOMPANY PRESS RELEASE

ENVIRONMENTAL IMPLICATIONS OF THE FALL OF SOVIET SATELLITE COSMOS 954
OVER NORTHERN CANADA

The re-entry of the COSMOS 954 satellite into the earth's atmosphere over northern Canada on 24 January 1978, has raised many questions on the subject of environmental contamination resulting from falling radioactive debris. Most of these questions relate specifically to concern over the effects of the radioactivity on fish, terrestrial wildlife and other biota. Although the activities of the search, recovery and evaluation operation known as Operation Morninglight are still going on, and the analysis of recovered material has yet to be completed, many of the specific environmental concerns can be addressed at the present time.

The radioactive materials that were present aboard the COSMOS 954 satellite at the time of its re-entry can be divided into three categories:

- 1) the uranium fuel of the reactor itself - most of this was the isotope U-235,
- 2) products of neutron activation of various elements in satellite components around the reactor core, and
- 3) products from the fission of U-235, produced by the operation of the reactor during the satellite flight.

Of these, the most significant ones, from an environmental viewpoint, are the third category, i.e. fission products.

Fission product radionuclides have been monitored extensively in the environment since the early days of nuclear weapons testing. A good deal of information is known about which of these radionuclides are of particular concern, how these behave in the environment, what have been their deposition

rates and accumulated inventories over the last two decades and what environmental risks are associated with them. With this kind of information it is possible, with a fair degree of confidence, to put the environmental risks from the COSMOS re-entry into perspective and also to assess the potential for certain specific kinds of risks and rule out the possibility of others.

Before considering the environmental risks, it is necessary to distinguish the two major types of debris left by the satellite. The first type consists of "discrete" fragments of the satellite itself and pieces of the outer structure of the reactor. These consist mainly of twisted metal, pipe fragments, rods, etc. The radioactivity of these fragments is due for the most part to neutron activation products, which have rather short half lives, so that the present level of radioactivity, which varies from fragment to fragment, can be expected to diminish to a very low value in a few months. As it is extremely unlikely that any terrestrial or aquatic animal will eat a metallic piece of satellite the only risk is that the most highly active of these materials could conceivably and for a limited period present a danger to living organisms that come and remain close to them. This kind of risk has been minimized by the recovery of much of the discrete debris. The search and recovery program is as thorough as possible to decrease further the risk that living organisms will come into contact with radioactive satellite fragments. The potential for dispersal into the environment of radioactive pollution from unrecovered material, with subsequent contamination of wildlife, is very small and rapidly diminishing.

Search recovery necessary & at The second type of debris consists of the residue from the disintegration of the reactor core itself. Analysis of the nature and distribution of recovered material suggests that it is most likely that nearly all of the nuclear material aboard COSMOS 954 disintegrated completely upon re-entry into the earth's atmosphere. Such disintegration, resulting from very rapid heating to very high temperatures by friction with the air in the upper atmosphere, is popularly known as "burnup". 000017

Although the amount of "burnup" residue that has been recovered on the land or snow surface in northern Canada is undoubtedly only a fraction of the total residue from melting or vaporization and oxidation, most of this type of debris which has been found is in the form of small, dust-like particles deposited in the area around southern Great Slave Lake and to the south towards the 60th parallel, where it was carried by a northerly wind at the time of re-entry of the satellite. These materials contain uranium and radioactive fission products. The size of the particles and their level of radioactivity appears to decrease toward the south, in relation to the distance they have been carried by the wind.

The environmental significance of the radioactivity released to the environment from the dust-like particles is related to the strength of the initial source, the types of radionuclides involved and the mobility of the material once it has been deposited. If one first considers the type of radionuclides, it is apparent that the most significant risk is posed by the fission products strontium-90 and caesium-137. The reason for this is that both materials are relatively long-lived (half lives about 30 years) and that they can accumulate in key tissues of living organisms - (skeleton for strontium and muscle for caesium). Both of these radioisotopes have been extensively monitored and their annual rates of deposition from nuclear weapons testing are well known. (If one assumes that all of the strontium-90 and caesium-137 that was aboard the satellite during re-entry was deposited in the area where debris and particles have been found, then on the basis of examination of recovered debris the total deposition, calculated at about 15 curies for each radioisotope, would be roughly the same as the amount received from the weapons testing fallout for that area during 1976. During that year, levels of radioactivity were the lowest measured in over 20 years of radioisotopes fallout monitoring, and the associated risks were also very low indeed. If the satellite burnup products were spread over a larger area than that in which particles or debris have presently been detected, the concentration in any given area would likely be smaller.

maintain our concern for the second & recover operations

(There are two important reasons why the deposit from COSMOS will be even less significant in environmental terms than that from 1976 fallout) which itself was very small. Firstly, it is highly unlikely that all of the fission products came down with the small dust-like particles; most experts think that it is reasonable to assume that much of the volatile fission products (iodine, noble gases) as well as a significant fraction of other fission products such as strontium and caesium were dispersed into the upper stratosphere and, there, will contribute a trivial increment to the present inventory of radioactive products in the stratosphere. It is of interest to note that, based on preliminary analysis, strontium in the particles, if present at all, is in concentrations below normal detectable amounts. Secondly, because the particles identified as having come from burnup of COSMOS-954 are larger than average particles of fallout material from weapon-testing, it is unlikely that they will exhibit the same degree of mobility in the environment as the fallout particles once they have reached the surface of the earth. It will therefore be less likely that the COSMOS-related material will become incorporated and accumulated in the food chains of the ecosystem of the area -- even if it had been deposited in significant quantities.

Although it is the present opinion of experts on environmental radioactivity that the effects of COSMOS debris on any identified or observed part of the natural environment are insignificant, (the Department of Fisheries and Environment in collaboration with other appropriate agencies, (will undertake confirmatory monitoring) of levels of radioactivity in the environment in the region of re-entry and deposition to fulfill its obligations to provide full and accurate information to the public on any remaining threat to the environment. Particular emphasis will be placed on any possible effect on commercial and sport fisheries, in order to establish present levels of radioactivity in aquatic organisms and

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fishes and to detect any change in those levels. The details of the program are still being developed but it is anticipated that implementation would begin prior to spring breakup. The analysis of data from this program will be made public as soon as it is available and collated into a comprehensive report.

The concerns on which we have commented relate to the environmental implications of COSMOS-954. It should be noted that this preliminary evaluation is based on analysis of data collected from the search, recovery and analytical operations of the last several months, and that only after more information is obtained from continued search effort and study of the living systems in the area can a definitive statement be made on all aspects of the COSMOS impact.

OPERATION MORNINGLIGHT

GENERAL INFORMATION FACT SHEET

REISSUED 17 Apr 78

CONTRIBUTING DEPARTMENTS AND AGENCIES

Department of National Defence

Department of Energy, Mines and Resources

- Atomic Energy Control Board

- Geological Survey of Canada

Department of External Affairs

Ministry of the Solicitor General

- RCMP

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DND INPUT FOR GENERAL INFORMATION FACT SHEET

REVISED 17 Apr 78.

DEPARTMENT OF NATIONAL DEFENCE ACTIVITIES - OPERATION MORNINGLIGHT

Note: All timings, where included, are given in the time zone where they occurred with Ottawa local time in brackets. e.g. 1900 MST (2100).

Responsibilities

OPERATION MORNINGLIGHT is under Canadian control with the U.S. providing welcome and valuable assistance. The on-scene commander is Canadian Forces Colonel David Garland who is responsible for overall operations including activities of both the U.S. and Canadian personnel. Lieutenant Colonel Stu McGowan has been appointed commander at Wardens Grove.

24 Jan 78

Soviet Cosmos 954 entered the earth's atmosphere at 0353 PST (0653) north of the Queen Charlotte Islands on Canada's Pacific coast. Following approximately a three minute burn period during re-entry, pieces of the satellite impacted in the Northwest Territories between Great Slave Lake (62°30'N 114°W) and Baker Lake (64°30'N 96°W).

At 0910 EST (0910) the U.S. Department of Energy contacted the Canadian Department of National Defence to ask what assistance Canada might require from the U.S. Following discussions it was determined that USAF transport aircraft (C141s) would deliver U.S. gamma radiation detection equipment to Edmonton for installation in Canadian CC130 Hercules aircraft. During the morning U.S. aircraft, on request, also conducted high altitude air sampling flights for gamma radiation.

The gamma radiation detection equipment arrived by USAF C141s at 1738 MST (1938). Four Canadian CC130 Hercules aircraft were standing by for installation of the equipment. Meanwhile, the radiation monitoring section of the Edmonton nuclear accident support team arrived in Yellowknife, NWT.

25 Jan 78

By early morning the radiation monitoring equipment was installed in the Hercules and three aircraft started searching along the satellite track between Fort Reliance, near the northeast end of Great Slave Lake, and Baker Lake, some 500 miles to the northeast. At 1000 EST (1000), U.S. aircraft commenced a second air sampling mission over Michigan and Northern Ontario. Results of these tests also showed no abnormal radiation levels.

During the day the radiation monitoring section conducted ground radiation monitoring in both Yellowknife and Fort Reliance. Results of monitoring also showed no abnormal radiation levels.

26 and 27 Jan 78

The search continued during both days with no conclusive detection of satellite debris. On 26 Jan the radiation monitoring section was flown to Baker Lake where ground monitoring showed no increase in normal radiation levels. Also on 26 Jan, the Canadian radiation monitoring kit from the Department of Energy, Mines and Resources arrived in Edmonton and was installed in a Hercules aircraft. Up to 12 aircraft (11 Canadian) were involved in the search during the two days: three CC130 Hercules, three CC138 Twin Otters, three CC135 Twin Huey helicopters, one CH147 Chinook heavy lift helicopter and one U.S. Department of Energy Convair with infra red equipment. On 27 Jan the first radiation hot spot was detected using the Canadian radiation monitoring kit in the McLeod Bay area north of Fort Reliance in the northeast end of Great Slave Lake.

28 Jan 78

During the morning three radiation hot spots were detected by search aircraft on McLeod Bay. Two of the spots were later confirmed as satellite debris. By late afternoon, it was reported that two men of six in the Wardens Grove area, some 200 miles northeast of Fort Reliance, had discovered and touched an object on the nearby Thelon River ice. All six men from the Wardens Grove area were evacuated for radiation testing at Yellowknife and Edmonton. Tests indicated that none had picked up any radiation.

29 and 30 Jan 78

Two CP 107 Argus aircraft, one equipped for aerial photography, were added to the search. RCMP personnel were guarding the debris on McLeod Bay and Canadian Forces personnel were guarding the debris near Wardens Grove.

31 Jan 78

The search was now concentrated in the McLeod Bay and Fort Reliance areas with a total of 15 aircraft (14 Canadian) involved. The radiation monitoring kits, three from the U.S. and one from the Canadian Department of Energy, Mines and Resources, were all in use in the Argus and Hercules aircraft. The debris from McLeod Bay was taken to Yellowknife for analysis while scrapings from the debris on the Thelon River were taken to Edmonton in special containers for analysis by the Atomic Energy Control Board. Two RCMP constables joined the four Canadian Forces personnel at Wardens Grove.

1 Feb 78

By 1 Feb a number of radiation hot spots had been detected by air and then isolated by ground parties in the McLeod Bay area. Operations continued in removing the debris to Yellowknife and cleaning up each impact area to a radiation level of less than 100 micro rads/hour.

2 and 3 Feb 78

By 2 Feb it seemed apparent that most of the satellite debris had impacted in the McLeod Bay and Wardens Grove areas with a few impacts between the two and between Wardens Grove and Baker Lake. Only one piece of debris contained enough radioactivity to require very special handling techniques. For this piece a lead container was constructed by the University of Alberta and flown to the site.

Air searching continued along the debris track, with impact areas being marked by ground parties.

4 and 5 Feb 78

Over the weekend preparations were made to establish a base camp at Wardens Grove and air search activity increased. New impact areas were isolated in both the McLeod Bay and Wardens Grove areas. The highly radioactive piece of debris on the McLeod Bay ice was removed to Edmonton in the special lead container. Clean up activity of other impact areas continued.

By the end of the weekend, some 250 Canadian Forces personnel and about 115 U.S. personnel were directly involved in the operation. Aircraft had flown over 700 hours in the search to this point.

6 Feb 78

No searching or localizing activity was carried out but preparations continued with establishing a base camp near Wardens Grove so that recovery and clean-up activity could commence in that area. A Hercules positioned a bulldozer and other supplies in the area using the low altitude parachute extraction system. The bulldozer is being used to construct a landing strip.

7 Feb 78

By 7 Feb 78, 24 personnel were at the base camp (now referred to as Cosmos Lake) near Wardens Grove preparing the camp and airstrip. The U.S. Convair aircraft had returned to the U.S.A. and the Argus aircraft were also released from the search operation.

- 4 -

Activity will be concentrated in the Fort Reliance-McLeod Bay area to search for and recover any remaining debris with aircraft and personnel working out of Yellowknife. Following this stage, activity will be concentrated in the Wardens Grove area using the new Cosmos Lake camp as a base of operations.

8 and 9 Feb 78

Activity continued on both days in preparing the Cosmos Lake landing strip and establishing a main campsite, Camp Garland, a few hundred meters to the south of Cosmos Lake. Hercules aircraft positioned more fuel, supplies, and another bulldozer, again using the low altitude parachute extraction system.

A Hercules aircraft also located six new radiation hot spots in the area northeast of Fort Reliance.

10, 11, 12 Feb 78

On 10 Feb and during the weekend slightly less than 100 hours were flown, bringing the total aircraft flying hours to over 1100. Twelve aircraft, all Canadian, are still involved in the operation. At Cosmos Lake the landing strip is 3000 feet long and will soon be suitable for landings by Hercules aircraft. All accumulated radioactive material recovered to date is to be moved from Edmonton for further analysis at the Whiteshell Nuclear Research Establishment operated by Atomic Energy of Canada Limited (AECL) at Pinawa, Manitoba.

13, 14, 15, 16 Feb 78

During the week of 13 Feb search, location and recovery of satellite debris continued in the area around the northeast end of Great Slave Lake. On 14 Feb in Snowdrift, a small community on Great Slave Lake west of Fort Reliance, an AECB team, accompanied by the Snowdrift tribal band secretary, conducted a radiological survey which indicated no contamination of any people or buildings.

On 14 Feb the first fixed wing aircraft, a Twin Otter, landed on the 4900 foot ice strip at Cosmos Lake. A Buffalo aircraft made the second landing on 15 Feb. During the day (15 Feb) the 21 person joint Canadian - U.S. search and survey team was moved into Cosmos Lake by Chinook and Twin Huey helicopters and by Buffalo. A Hercules aircraft positioned an inflatable aircraft shelter, tents and snowmobiles onto Cosmos Lake again using the low altitude parachute extraction system.

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The first Hercules aircraft, carrying 20,000 pounds of supplies, landed successfully on the Cosmos Lake landing strip on 16 Feb.

17, 18, 19, and 20 Feb 78

Twin Huey helicopter operations continued in the Snowdrift and Fort Reliance areas in an effort to clean up the dozens of minute particles.

By 20 Feb the personnel at Cosmos Lake totalled 54 (38 Canadian Forces, 1 Canadian civilian and 15 U.S. civilians). Fourteen aircraft are presently committed to the operation and the Canadian military flying time totalled approximately 1560 hours.

21, 22 Feb 78

On 21 Feb activity was concentrated in three areas: Snowdrift, Fort Reliance, and Cosmos Lake. Twin Huey helicopters, equipped with radiation detectors, flew missions south and east of Snowdrift to determine the extent of the small radioactive particles dispersed south of the satellite trajectory. These particles range from buckshot to pepper grain in size. Similar missions were flown on 22 Feb to the north and east of Fort Smith.

The debris found on the Thelon River ice by the men from Wardens Grove on 28 Jan was recovered and removed on 22 Feb by the team at Cosmos Lake.

23, 24 Feb 78

On 23 Feb the two Twin Huey helicopters were able to further define the area of low level contamination caused by the small particle dispersion at the western end of the search area. Approximate boundaries were established on the north, east, and south sides. The northern boundary follows the track of the satellite trajectory; the eastern boundary runs from Fort Reliance to a point approximately 30 miles north of Fort Smith; the southern boundary is an east-west line to an as yet undefined western boundary. The helicopters were attempting to establish the western boundary on 24 Feb.

No radioactive contamination has been found in Fort Smith. On 24 Feb the radiation monitoring section was conducting a survey in the area of Fort Resolution and nearby hunting camps. As of early 24 Feb Canadian military flying time totalled approximately 1830 hours.

28 Feb - 3 Mar 78

Atomic Energy Control Board (AECB), Health and Welfare Canada and Environment Canada authorities have reported their opinion that people living in the area where the satellite debris fell should not be concerned about changing their lifestyle or recreation activities.

- 6 -

Canadian Forces and AECB personnel were actively involved in the recovery of small, detectable particles in the townsites of Snowdrift, Pine Point and Fort Resolution. Because of their small size, these particles lost momentum quickly and under the influence of a northerly wind drifted over a wide area in a random fashion. They have been found as far west as near Hay River and as far south as Buffalo Lake. Measurements have shown the particles will not have added significantly to the natural background radiation. Nevertheless, to avoid possible health risks from close contamination and ingestion of particles in water melted from snow, it was agreed that clean-up activities would be conducted in the townsites.

Uranium and thorium-bearing rocks are found in this part of Canada, and the natural background radiation may locally be much higher than the figures given. However, in general, the natural radiation background on land in the area may be about 7 to 10 microR/hour, and the search instruments are sensitive enough to detect an increase of about 2 microR/hour at this level. The background over lakes is about half that on land.

Particles have not been distributed in a dense pattern but are scattered randomly and quite far apart. For example, in Snowdrift six particles were found roughly 200 feet apart. Thus clean-up in towns or wherever crowds of people are expected to congregate is perfectly feasible.

7 Mar 78

The search for particles continued in the areas of Lac La Prise and Artillery Lake, while the survey of Hay River was commenced. A new communications link between Edmonton and Cosmos Lake was established.

8 Mar 78

Clean-up in the area of Lac La Prise and Artillery Lake has been completed, and most of Hay River has been surveyed with all detected particles removed. A Hercules aircraft and two Twin Huey helicopters continued the search in the area between Yellowknife and Lac La Prise, while an Argus aircraft from Summerside completed coverage of approximately 750 miles around Cosmos Lake to provide pictures on a scale of 1:20,000 for the production of mosaics.

9, 10, 11, 12, and 13 Mar 78

Twin Huey helicopter search operations continued in the Hanbury Lake area and were commenced in the area east of Yellowknife. Coverage of the area east of Cosmos Lake is now complete.

- 7 -

On 10 Mar 1600 MST (1800) the RCMP at Cape Dorset notified Edmonton that a 25 year old Inuit had discovered a hole in the ice of an unnamed lake 25 miles north west of Cape Dorset. The RCMP have also advised local residents to avoid the area.

On 11 Mar a combined team of Canadian Forces, AECB and U.S. personnel were flown by Hercules to Frobisher Bay. An RCMP Twin Otter flew them to Cape Dorset and they then were taken out to the lake by skidoo. On arrival they discovered a crater approximately 18 feet in diameter. Chunks of ice had been thrown as far as 75 feet from the hole, with the largest chunk being 18' X 10' X 2'. The ice thickness is approximately 5 feet and the lake is estimated to be 15 feet deep. No radiation was detected.

On 13 Mar a Twin Huey was disassembled for shipment to Frobisher Bay by Hercules. The Twin Huey is to be placed on standby at Cape Dorset for use by the scientific staff.

Maritime Command has been tasked to provide an underwater camera and operators for use at Cape Dorset. They will be despatched as soon as they can be employed.

14 Mar 78

Aerial survey of the Hanbury Lake area has been completed, and both aerial survey and recovery operations are continuing in the area south of Yellowknife. In an attempt to determine particle distribution in cleared areas around Great Slave Lake, ten sites have been selected in which 20 samples will be taken from each site. The samples will then be analysed to determine the particle distribution.

A check of the water reservoirs and intake filters has been completed at Pine Point and no contamination was found.

15 Mar 78

The Twin Huey helicopter arrived in Cape Dorset and a short reconnaissance flight was conducted over the crater site.

16 Mar 78

The underwater TV camera and a three man crew arrived in Cape Dorset. They plan to establish a tented camp at the crater site and after determining the physical characteristics of the ice they will prepare the surface for the introduction of underwater detection equipment. As of early 16 Mar the Canadian military flying time totalled approximately 3,402 hours.

- 8 -

17 Mar 78

Four holes were augered through the 6'-6'4" ice at the Cape Dorset site with each hole taking almost one hour to dig. Water depths under the ice varies from 11 to 17 feet.

20 Mar 78

Two small particles have been detected and removed from the Lac La Prise-Fort Reliance Area, while three detections near Hamburg Lake were found to be caused by geological phenomena. Several minute particles have been recovered from Buffalo Lake area and a new particle survey area has been established on Radcliffe Island.

Metal Detection equipment at Cape Dorset site have found no evidence of metal under the ice. Dr. Frederking of the National Research Council, an ice formation specialist arrived to check into the site.

22 Mar 78

Investigations and analysis of lake ice scatter area is complete, Dr. Frederking concludes that the area is not an impact hole but result of a natural phenomena caused by water seepage through rock from another lake above the lake in question. This seepage forms an ice boil which fractures under conditions of extreme water and thermal stress, scattering ice pieces. Accordingly Morninglight operations at Cape Dorset have been discontinued. A follow-up visit to the site is recommended when ice is out.

Members of the U.S. Department of Energy who have been assisting in the search for Cosmos 954 since January are now phasing out the operation and all except one Scientist and an energy advisor, who will remain in Edmonton for an indefinite period, have departed.

28 Mar 78

MRS coverage by C130 Hercules aircraft is on going in the areas between Lac La Prise and Wardens Grove, as well as in the area south of Yellowknife. Helicopter flights are being used to:

- a. localize radioactive debris detected by the C130,

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AECB INPUT FOR GENERAL INFORMATION FACT SHEET

ATOMIC ENERGY CONTROL BOARD ACTIVITIES - OPERATION MORNINGLIGHT

Background Information

The Atomic Energy Control Board (AECB) is the federal regulatory authority responsible for protecting the health, safety and security of Canadians with regard to all aspects of nuclear energy. As such, in the Cosmos 954 nuclear-powered satellite incident, the AECB is the prime technical consultant concerned with the safe recovery of any radioactive debris, and its custody, transportation and laboratory analysis. The Board is also technical consultant to the External Affairs Department with respect to its negotiations on this matter with the Soviet Union at the United Nations.

Working in close cooperation with the Department of National Defence, the Geological Survey of Canada, and technical experts volunteered by the United States government, small teams of AECB scientists are involved in the identification and physical recovery of pieces of the satellite discovered on the ground through aerial surveys.

All samples recovered are being sent to the Whiteshell Nuclear Research Establishment (WNRE) at Pinawa, Man., a laboratory operated by Atomic Energy of Canada Limited. WNRE is particularly well suited to conduct the types of tests needed on the samples, and also operates waste management and storage facilities in which material from the satellite can be held pending a decision on its ultimate disposition.

Where packaging is available which meets air transport regulations concerning hazardous cargoes, certain shipments of small samples have been made by commercial air carrier. The remainder are shipped on regularly-scheduled Canadian Armed Forces flights.

At Whiteshell, the samples undergo metallurgical, chemical, radiological and other tests, with the results forwarded to the AECB in Ottawa for further interpretation and transmittal to other agencies as required.

Feedback from the laboratory tests will assist field operations in further detection work. In this regard, one of the purposes of the testing program is to attempt to identify the likely origin of each piece in the original satellite. Of particular importance would be the discovery of anything which might have been near or formed part of the satellite's highly

AECB INPUT FOR GENERAL INFORMATION FACT SHEET

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- 2 -

radioactive power plant. The recovery location of such a sample would be a valuable clue to the possible whereabouts of the most hazardous portion of the spacecraft - its reactor core containing fuel elements and fission products - if indeed the core survived the burn-up of re-entry through the earth's atmosphere.

Based on assumptions as to the probable type of nuclear fuel used in the Cosmos 954 satellite, there is a strong likelihood that all or most of the fuel would have burned up, while high melting point alloys used in other components would not.

Following receipt of reports from WNRE, the AECB will be in a position to determine the need for and extent of any further remedial or clean-up action required to protect public health and minimize environmental impact.

FOR FURTHER INFORMATION:

Hugh J. M. Spence
Chief, Office of Public Information
(613) 992-9206

ENERGY, MINES AND RESOURCES ACTIVITIES - OPERATION MORNINGLIGHT

Geological Survey of Canada's Contribution

The Geological Survey of Canada (GSC), an agency of the Department of Energy, Mines and Resources, was informed about the re-entry of the Soviet satellite Cosmos 954 by the Atomic Energy Control Board at 10 a.m. on 24 January 1978. The GSC is the main centre in Canada for research and development into airborne radioactivity measuring equipment and, as such, it both operates its own aircraft with equipment, and maintains an on-going contract with Canadian service companies. A scientist was despatched to Edmonton immediately and arrived at the same time as the American team. Arrangements were set in motion for the movement of the Geological Survey's airborne gamma-ray spectrometer to Edmonton where it was installed in a Canadian Forces Hercules C-130 aircraft and became operational 24 hours after the U.S. systems. This Canadian spectrometer was only completed in September 1977, possesses greater sensitivity than the U.S. systems being employed in the search, and is self-contained with respect to the ability to analyse the radiation spectrum. The U.S. systems are dependent on post-flight computer processing of the data. On its second flight in the early hours of January 27, the Canadian equipment provided the first certain evidence of radioactive debris. The system has been in continuous operation since that time, and in terms of sensitivity, versatility, and reliability, has demonstrated its superiority over the U.S. equipment. It is now in the process of being interfaced with the Microwave Ranging system (MRS) airborne navigational equipment obtained by DND. Three research scientists and six technicians from the Geological Survey have participated in the operation of this equipment. One scientist and three technicians must be retained on a continuing basis for as long as it is used in the search. This excludes extra scientific and technical assistance required to interface with navigation systems on the military aircraft.

GSC is now making arrangements to obtain through Canadian contractors the use of additional airborne gamma-ray spectrometer systems for use in Canadian Forces helicopters, to replace the U.S. equipment presently being used for the detailed search and recovery of radioactive debris.

GSC provided a scientist and a technician with neutron borehole logging equipment to go in with the advance party to inspect the Wardens Grove Site. This was in the event that part of the reactor core was present under the ice in the Thelon River. In fact, the specialized equipment was not required, but general assistance was given by the GSC personnel who have considerable experience in scientific work under Arctic conditions.

On March 1, 1978, the Geological Survey of Canada gamma-ray spectrometer system, interfaced with DND MRS navigational equipment commenced surveying west of Snowdrift. On the first flight, one area of increased radioactivity was recorded and recovery teams located and picked up 2 beryllium rods. The GSC system has continued in operation since March 1, with 2 days down time (1 day for unserviceable aircraft, 1 day due to loss of MRS antenna). On March 14 surveys of the area south and west of Snowdrift and Christie Bay were completed and several additional areas of high radioactivity were located. After spectrometer maintenance on March 15, work will begin on March 16 in the area between McLeod Bay and Artillery Lake, where the MRS coverage is to be extended approximately 5 kilometres to the north and south of existing coverage. The U.S. MRS system completed surveying in the area east of Artillery Lake on March 14, and the MRS search operation is now a totally Canadian operation.

A GSC computer system has been set up at CFB Edmonton for postflight processing of spectrometer data tapes for detection of radiation anomalies and flight path recovery.

GSC staffing for the MRS search operation includes 1 supervising scientist, 3 airborne spectrometer operators, and 2 data analysis technicians.

Two of the three spectrometer equipped helicopters are now carrying Canadian instrumentation and operators. Present staffing for the helicopter operation includes 1 GSC scientist and 3 contractor technicians.

The first McPhar spectrometer system was picked up by DND at Toronto on March 3, for transport to Edmonton and installation in CH135. The system was test flown in Edmonton on March 6 and departed for Cosmos Lake on March 7. The second McPhar system was transported to Yellowknife on March 12 to begin operation in a CH135 out of Yellowknife on March 15. The third helicopter spectrometer system is scheduled for delivery from Scintrex on March 19. Data processing capability for the helicopter spectrometer tapes has been set up at the University of Alberta.

DEA INPUT FOR GENERAL INFORMATION FACT SHEET

DEPARTMENT OF EXTERNAL AFFAIRS ACTIVITIES - OPERATION MORNINGLIGHT

Canada/USSR Contacts - Soviet Cosmos 954

The Canadian Government has been in close contact with the Soviet authorities on this matter since January 24. The Soviets have provided some information on the technical characteristics of the satellite which could assist us in the ongoing search for radioactive debris. We have requested further information. The USSR has also offered the assistance of specialists in the recovery of remnants of the satellite, but this has not yet been required.

In accordance with our obligations under Article 5 of the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Canada officially notified the Secretary-General of the UN and the Government of the Soviet Union on February 8, 1978, of the discovery on Canadian territory of component parts of a space object, believed to be Cosmos 954. In a statement at the UN on February 14, a Soviet representative acknowledged that the Canadian description of the facts surrounding the re-entry of the satellite was correct, and that the USSR would fulfil its obligations under international law to reimburse Canada for any damage. Since the search and recovery operations are still under way, no claim has yet been submitted by Canada.

Follow-up Action in the United Nations

On February 13, Canada raised the question of the international implications of the Cosmos incident in the Science and Technology Subcommittee of the UN Committee on the Peaceful Uses of Outer Space. In his statement, the Canadian Ambassador to the UN described as the overall objective the development of a régime for the use of nuclear energy sources in outer space which would ensure the highest standards of safety for mankind and protection for the environment. In this aim, Canada is supported by a large number of member nations of the UN.

SOLICITOR GENERAL INPUT FOR GENERAL INFORMATION FACT SHEET

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ACTIVITIES OF THE MINISTRY OF THE SOLICITOR GENERAL - OPERATION MORNINGLIGHT

Responsibilities

The search for radioactive debris from the Soviet Cosmos 954 satellite which impacted between Great Slave and Baker lakes, Northwest Territories, is under the overall control of the Department of National Defence. The responsibilities of the Ministry of the Solicitor General to date have been:

- a) to safeguard the press and public from radioactive contamination by providing an RCMP presence at each accessible impact site, and
- b) area patrols to inform isolated personnel to stay clear of affected areas.

Constant liaison is maintained with Canadian Forces personnel so that RCMP may attend when new finds are made.

General Comment

On-scene RCMP report there has been very little public reaction over the satellite incident in the general area affected except for some initial concern at Snowdrift, a settlement near the Fort Reliance debris site. These concerns were allayed by a special visit by military officials and radiation experts who advised there was no danger. RCMP present at debris sites have not as yet encountered unauthorized persons during their tours of duty.

Future Involvements

It is anticipated that an RCMP presence will continue to be required at each site discovered until cleanup operations are completed. Projections of resources expenditures are not possible at this time as resources required will depend on such factors as number of sites discovered and accessibility to the public.

It is also expected that native peoples and other residents in the area affected will turn to the RCMP for reassurance whenever they discover isolated bits of metal or other debris or even suspect fish or animals. The Atomic Energy Control Board has offered to provide the necessary detection equipment for RCMP Detachments at Baker's Lake and Snowdrift.

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Department of External Affairs



Canada

Ministère des Affaires extérieures

CONFIDENTIAL

April 21st, 1978

Interdepartmental Legal Group on Cosmos 954

Dear Mr. Thomas,

This letter is to confirm that a meeting of the interdepartmental legal group on Cosmos 954 supplemented by financial advisers, will take place at 10:00 a.m. on April 28, 1978 in the Legal Bureau conference room located on the 4th floor of Tower A, L.B. Pearson Building, 125 Sussex Drive, Ottawa. The purpose of the meeting will be to gather information and substantiate costs incurred by federal departments and agencies attributable to search and recovery operations arising out of the Cosmos 954 incident and to review these costs from the viewpoint of their eligibility under international law to be included in the claim against the USSR.

As agreed at the meeting of the group held on April 17, 1978, departments and agencies present at that meeting would endeavour to circulate to members of the group before the meeting on April 28 if possible or otherwise at the meeting a statement of costs incurred broken down into total costs and incremental costs, preceded by a brief narrative explaining the purpose of the expenditures. It was also agreed that departments and agencies not present

Mr. B.T. Lynch,
Officer in Charge, R.C.M.P.,
Financial Management Branch,
Room 620,
250 Tremblay Road,
Ottawa.

Attention: Mr. T. Thomas,
Room 628

.../2

23/5/78
11/13

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CONFIDENTIAL

at the meeting held on April 17 would be contacted with a view to determining their interest in participating at the meeting to be held on April 28 so that their costs might also be reviewed for possible inclusion in the claim. This letter is notification to the departments and agencies concerned.

I hope that your Department/Agency will be represented at the meeting on April 28, 1978.

Yours sincerely,



W.H. Montgomery,
Director,
Legal Advisory Division.

OPERATION MORNING LIGHT
SUMMARY OF ACTIVITY
24 JAN 78-21 APR 78

Soviet Cosmos 954 entered the earth's atmosphere in the early morning hours of 24 January 1978 north of the Queen Charlotte Islands on Canada's Pacific Coast. Following approximately a three minute burn period during re-entry, pieces of the satellite impacted in the Northwest Territories between Great Slave Lake (62° 30'N 114°W) and Baker Lake (64° 30'N 96° W).

Immediately after re-entry occurred, several departments of the Federal Government of Canada became involved in the search for and recovery of satellite debris. The code name for this activity was Operation MORNING LIGHT.

SEARCH AREA

Operation MORNING LIGHT was divided into two phases; the search for any debris from COSMOS 954 and the recovery of any debris found. All activity by Canadian authorities involved was in support of these two phases of Operation MORNING LIGHT.

The initial search area was established on 24 Jan 78 to be a 30-mile corridor approximately 500 miles long stretching from the vicinity of the east end of Great Slave Lake to the vicinity of Baker Lake (See Map 1). This area was sub-divided into eight sectors numbered west to east. By 31 Jan 78 data analysis of search data led to the establishment of two more sub-areas, 9 and 10. By 24 Feb 78 search activity led to the addition of four more sub-areas, 11 through 14.

SEARCH ACTIVITY

The search activity was conducted in three phases; initial search, detailed search and detailed survey.

The initial search was conducted from CCl30 Hercules aircraft. Special detection equipment was used for this phase. It was integrated with a precise navigation system, enabling detected radioactivity to be accurately fixed,

thereby facilitating re-location.

The detailed search phase involved using CH135 Twin Huey helicopters, equipped with special detection equipment, to relocate and mark the position of radioactivity.

The final search phase was conducted by teams specially equipped and trained in radiation monitoring techniques. They were landed by helicopter, either CH135's or CH136 KIOWA's. Working from refined positional data ascertained during the detailed search phase the teams confirmed the presence of debris by visual means, and marked it for subsequent recovery.

RECOVERY ACTIVITY

Once the debris had been located and marked, recovery teams were flown in to pick up the debris. Aircraft used for this phase were either helicopters (CH135, CH136 or CH147 CHINOOK) or ski equipped CC138 Twin Otters. Once again specially equipped and trained monitoring teams were employed. Once the debris was placed in suitable containers it was flown to a major airhead where fixed wing transport aircraft were used to transport the debris to CFB Edmonton.

In some cases the final search teams conducted recovery on the spot. In areas containing debris of low radioactivity the initial and detailed search phases were combined and conducted by helicopter.

SUPPORT ACTIVITY

The search and recovery phases of the operation were controlled from Canadian Forces Base Edmonton. Major logistic support was also provided from this base. In addition three on-scene control sites were established at Yellowknife, Baker Lake and Camp Garland. The detailed survey phase and recovery activity were conducted from these three sites. Camp Garland was established during the operation to provide an operating base in the vicinity of a major deposit of debris (see map - Camp Garland was at Cosmos Lake).

.../3

The site was established close to a small lake on which a runway was cleared to permit the operation of fixed-wing aircraft.

Logistic support consisted of the re-supply of material and fuel. Transport of personnel was an operation of considerable magnitude, requiring people of diverse skills to be moved from various parts of Canada to Edmonton and into the field.

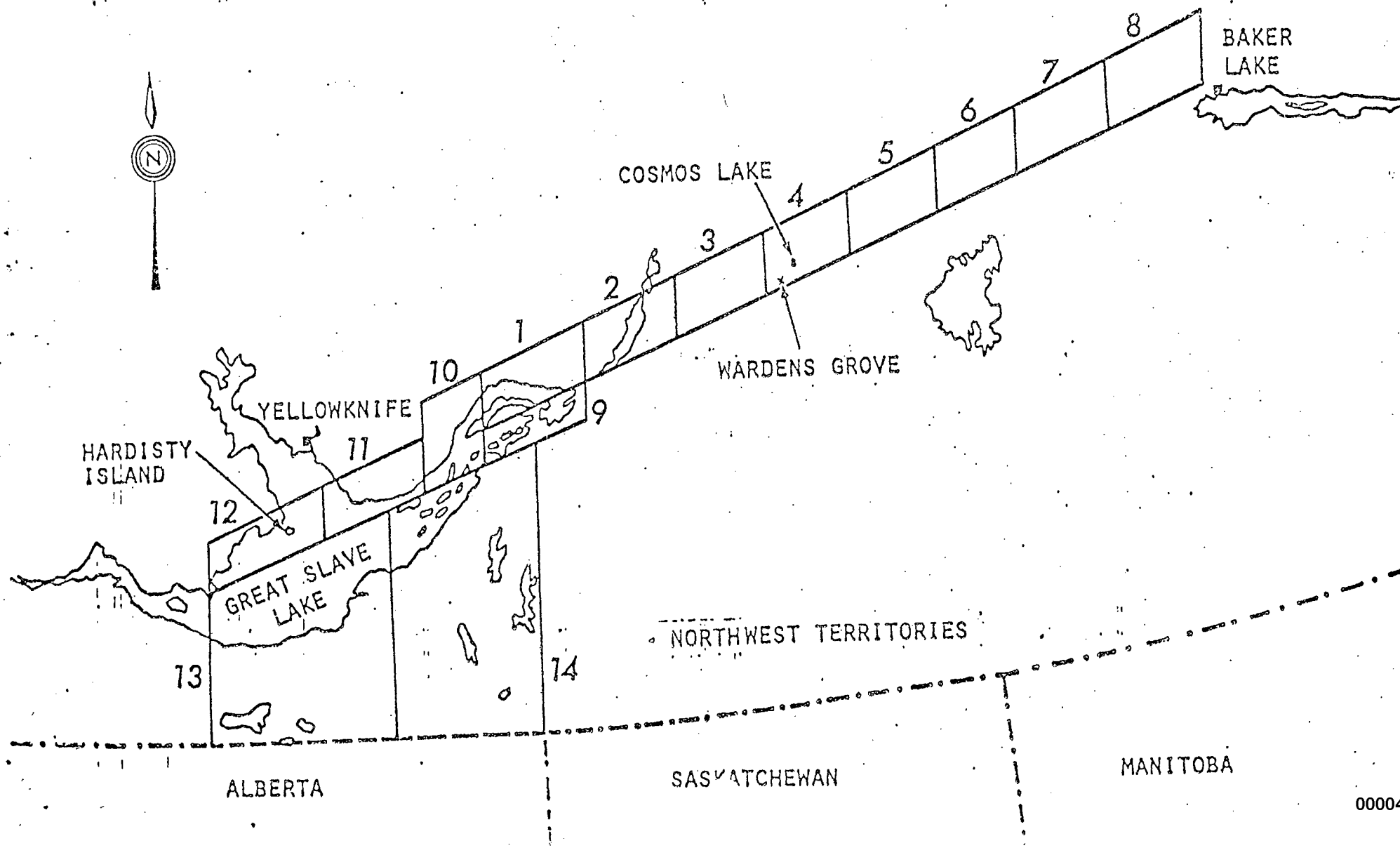
CAPE DORSET OPERATION

Following a report from RCMP detachment at Cape Dorset on 10 March that a large hole had been discovered on the ice of an unnamed lake 25 km northeast of Cape Dorset, a team of scientists and servicemen were despatched to investigate. This action was justified by the fact that Cape Dorset lies directly on the extension of the trajectory of Cosmos 954. Further investigation by Canadian Ice Expert, Dr. R. Frederking of the National Research Council revealed that the hole was most likely a natural phenomenon. The investigation of the hole lasted ten days.

COMPLETION OF SEARCH

The initial search phase for debris concluded on 9 Apr 78. Final activity concentrated on detailed surveys and recovery of the remaining debris. In parallel with the reduction of search activity, the scale of involvement for personnel and equipment was gradually reduced. Camp Garland was closed out. Personnel and equipment were returned to home bases. DND direct involvement with Operation MORNING LIGHT ended on 21 Apr 78.

MAP 1 COSMOS 954 SEARCH AREA



UTILIZATION AIRCRAFT FLYING HOURS BY TYPE

OPERATION MORNING LIGHT

<u>AIRCRAFT TYPE</u>	<u>HOURS</u>	<u>COST</u>		<u>TYPE OF AIRCRAFT ACTIVITY</u>
		<u>Total</u>	<u>Incremental</u>	
CC 130 HERCULES	1840.2	3,518,898	1,136,084	a, b, c, d
CC 109 COSMO	13.2	21,538	4,709	b
CC 115 BUFFALO	135.9	284,166	112,585	b, c
CC 117 FALCON	18.2	31,335	12,648	b
CC 129 DAKOTA	22.6	13,600	4,819	b
CC 137 BOEING	3.7	10,821	4,582	f
CC 138 TWIN OTTER	294.6	203,695	35,473	b d h
CF 116 CF5	13.6	33,002	11,283	e
CT 133 T-33	4.2	3,755	1,363	j
CP 107 ARGUS	157.8	626,439	226,344	e
CH 135 TWIN HUEY	1678.5	1,568,826	422,948	b d g h
CH 136 KIOWA	474.4	196,890	50,936	b d g h
CH 147 CHINOOK	420.7	741,551	138,802	b d(limited)g, h

TYPES OF AIRCRAFT ACTIVITY

- a. Airborne resupply
- b. transport of personnel and material
- c. transport of recovered debris (movement between major air heads)
- d. search (by electronic and/or visual means)
- e. photo mapping
- f. in flight refueling
- g. placing of navigation aids
- h. recovery of debris (moving from place found to nearest air head)
- j. weather recce.

ANNEX A
TO 7035-050/58 TD 8032 (D FIN S 3)
DATED 12 May 1978

OPERATION MORNINGLIGHT
FINAL REPORT - 20 APR 78

<u>SERIAL</u>	<u>ITEM</u>	<u>TOTAL COST</u>	<u>INCREMENTAL COST</u>
1	Military Personnel Costs	\$ 1,516,588	
2	Reserve Force Personnel	1,228	1,228
3	Rations & Quarters	49,650	49,650
4	Temporary Duty	485,367	485,367
5	Civilian Personnel Costs	30,313	
6	Casual Labour	5,740	5,740
7	Civilian Overtime	17,249	17,249
8	Fees Paid To Non DND Agencies	201,901	201,901
9	Repairing, Restoring, Rewarehousing	57	57
10	Aircraft Costs	7,254,517	2,162,575
11	Materials Consumed, Lost, Destroyed	751,100	751,100
12	Vehicles	78,494	19,848
13	Nil		
14	Nil		
15	Nil		
16	Miscellaneous Costs	9,909	9,909
	SUB TOTALS	\$10,402,113	\$3,704,260
	COST OF DND ADMINISTRATION	1,040,211	370,426
	TOTALS	\$11,442,324	\$4,074,686

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OPERATION MORNINGLIGHT
FINAL REPORT 20 APR 78
FY 1977/78 & 1978/79 DOLLARS

(1) REGULAR FORCE PERSONNEL COSTS:

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)				
<u>RANK</u>	<u>NO OF MANDAYS</u> <u>77/78 & 78/79</u>		<u>TOTAL</u> <u>MANDAYS X</u>	<u>FY 77/78</u> <u>ANN SALARY</u>	-	<u>ANN</u> <u>MANDAYS</u>	-	<u>FY 78/79</u> <u>COST</u>	-	<u>FY 77/78</u> <u>COSTS</u>	-	<u>TOTAL REG.</u> <u>FORCE COST</u>
Col	64 +	23.0 =	87.0	\$41,347	÷	189	=	\$ 5,031.65 +	13,514.84 =	\$ 18,546.49		
LCol	289 +	30.17 =	319.17	37,360	÷	189	=	5,963.76 +	55,348.85 =	61,312.61		
Major	323 +	66.17 =	389.17	33,067	÷	189	=	11,576.95 +	55,079.19 =	66,656.14		
Capt	851 +	141.0 =	992.0	26,639	÷	189	=	19,873.54 +	118,883.35 =	138,756.89		
Lt	395 +	115.17 =	510.17	17,268	÷	189	=	10,522.52 +	33,859.23 =	44,381.75		
2 Lt	0 +	19.0 =	19.0	14,535	÷	189	=	1,461.19 +	0 =	1,461.19		
CWO	12 +	15.0 =	27.0	23,621	÷	189	=	1,874.68 +	1,620.32 =	3,495.00		
MWO	80 +	23.0 =	103.0	21,342	÷	189	=	2,597.17 +	9,775.24 =	12,372.41		
WO	169 +	135.08 =	304.08	19,144	÷	189	=	13,682.39 +	18,571.22 =	32,253.61		
Sgt	881 +	210.21 =	1091.21	17,118	÷	189	=	19,039.02 +	86,734.22 =	105,773.24		
MCpl	1459 +	442.08 =	1901.08	15,884	÷	189	=	37,153.43 +	133,448.32 =	170,601.75		
Cpl	201 +	329.17 =	530.17	15,055	÷	189	=	26,220.39 +	17,472.11 =	43,692.50		
Cpl Pte	2265 +	787.0 =	3052.0	12,558	÷	189	=	52,291.78 +	154,822.94 =	207,114.72		
Pte	146 +	87.17 =	233.17	10,851	÷	189	=	5,004.66 +	7,198.80 =	12,203.46		

TOTALS: 7,135 + 2,423.22 9,558.22

\$706,328.63 + \$212,293.13 = \$918,621.76

ADD: BASE SUPPORT

FY 1977/78 - \$11,582.17 per yr x 7,135 Mandays ÷ 189 Ann Mandays = \$437,242.24

FY 1978/79 - \$12,517.01 per yr x 2,423.22 Mandays ÷ 189 Ann Mandays = 160,483.96

TOTAL BASE SUPPORT COSTS

597,726.20

ADD FIELD OPS ALLOWANCE

240.00

TOTAL REG. FORCE PERS COSTS & BASE SUPPORT COSTS

\$1,516,587.96

TOTALS COSTS: FY 77/78 (\$706,328.63 - \$437,242.24) = \$1,143,570.87

FY 78/79 (\$212,293.13 - \$160,483.96) = \$ 372,777.09

TOTAL COSTS

\$1,516,347.96

METHODOLOGY: Col (3) x Col (5) ÷ Col (6) + Col (8) = Col (9)

NOTE: FY 1977/78 PERS COSTS ARE THE SAME AS THOSE CONTAINED IN 7TH UPDATE
ASSUMING MANDAYS ARE AS AT 31 MAR 78. SUBSEQUENT REPORTS HAVE BEEN
CHARGED AS FY 78/79 MANDAYS.

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OPERATION MORNINGLIGHT
FINAL REPORT 20 APR 78

(2) RESERVE PERSONNEL -

1 Capt (P)	X (\$42.00 + \$9.00)	X 4 Days =	\$204.00
1 Lt (P)	X (34.00 + 9.00)	X 4 Days =	172.00
1 M/Cpl (TO)	X (27.50 + 6.00)	X 4 Days =	134.00
1 Cpl (LM)	X (25.00 + 6.00)	X 4 Days =	<u>124.00</u>
			\$1,010.00

BASE SUPPORT

\$817.00 X 4 Pers X 4 Days ÷ 60 Ann Mandays =	<u>217.87</u>	INCREMENT
TOTAL RESERVE FORCE PERS COSTS	1,227.87	\$1,227.87

(3) RATIONS & QUARTERS -

A) QUARTERS:

120 Pers.	X 3 Days	X \$22.00 P/M ÷ 30 Days =	264.00
4 "	X 3 "	X 22.00 " ÷ 30 " =	8.80
2 "	X 3 "	X 53.00 " ÷ 30 " =	10.60
2 "	X 42 "	X 90.00 " ÷ 30 " =	252.00
6 "	X 67 "	X 55.00 " ÷ 30 " =	737.00
7 "	X 21 "	X 55.00 " ÷ 30 " =	269.50
16 "	X 67 "	X 25.00 " ÷ 30 " =	893.33
32 "	X 1 "	X 22.00 " ÷ 30 " =	<u>26.67</u>

TOTAL QUARTERS COST	\$2,461.90
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B) RATIONS

I.	205 Rations @ 1.25 ea =	\$ 256.25	(individual meals)
	261 " @ 2.50 ea =	652.50	
	210 " @ 2.75 ea =	<u>577.50</u>	\$1,486.25
II.	3,052 Rations @ 2.87 ea =	\$ 8,759.24	(full day rations)
	4,962 " @ 3.25 ea =	16,126.50	
	2,058 " @ 2.35 ea =	<u>4,836.30</u>	29,722.40
III.	Flight Feeding		14,184.22
IV.	Camp Garland Local Purchase		<u>1,795.00</u>

TOTAL RATION COSTS	<u>47,187.87</u>
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TOTAL RATION & QUARTERS COSTS	\$49,649.77	49,649.77
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OPERATION MORNINGLIGHT
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TOTAL INCREMENT
COSTS COSTS

(6) CASUAL CIVILIAN LABOUR

A) Casual Labour

CE Pers	\$3,583.84
Guides	1,640.00
Day Labour	47.60
Flip Personnel	<u>468.34</u>

TOTAL CASUAL LABOUR COSTS	\$5,739.78	\$5,739.78
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(7) CIVILIAN OVERTIME COSTS

<u>CLASS</u>	<u>ANNUAL</u> <u>PAY</u>	<u>PREM</u> <u>PAY</u>	<u>GOVT</u> <u>CONT.</u>	<u>OTHER</u> <u>BENE.</u>	<u>TOTAL ANN.</u> <u>PAY & ALLOW</u>	<u>NO OF</u> <u>HRS O/T</u>	<u>ANNUAL</u> <u>MAN HRS</u>	<u>TOTAL</u> <u>COST</u>
DS3	\$28,748	0	\$3,737.24	138	\$32,623.24	450.0	1624	\$ 9,059.69
DS4	37,058	0	4,817.54	138	42,013.54	143.25	1624	3,705.94
P	44,551	0	5,791.63	138	50,480.63	41.0	1624	1,274.45
C	12,319	0	1,601.47	138	14,058.47	224.0	1624	1,939.10
MDO4	11,433	180	1,509.69	138	13,260.69	9.0	1852	64.44
MDO5	11,823	180	1,560.39	138	13,701.39	6.5	1852	48.09
MEN6	14,212	180	1,870.96	138	16,400.96	7.0	1852	61.99
WOW8	13,885	180	1,828.45	138	16,031.45	9.0	1852	77.91
WOW9	14,147	180	1,862.51	138	16,327.51	14.25	1852	125.63
STS3	11,638	180	1,536.34	138	13,492.34	9.25	1852	67.39
STS4	12,503	180	1,648.79	138	14,469.79	4.5	1852	35.16
FOS2	7,350	180	978.90	138	8,646.90	139.75	1852	652.49
FOS5	10,053	180	1,330.29	138	11,701.29	24.75	1852	<u>156.38</u>

TOTAL CIVILIAN OVERTIME COSTS	\$17,248.66	\$17,248.66
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(8) FEES PAID TO NON DND AGENCIES (SEE MSG FIN 9141 PARA 8)	\$201,900.78
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(9) REPACKAGING, RESTORING, REWAREHOUSING	\$ 57.00
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(10) AIRCRAFT COSTS (SEE PAGE 6)	<u>INCREMENT</u> <u>COST</u>	<u>TOTAL</u> <u>COST</u>
	\$2,162,575.47	\$7,254,517.25

(11) MATERIALS CONSUMED, LOST, DESTROYED

These are the known costs only and
should be examined to determine
validity. (SEE PAGE 7)

751,100.06	751,100.06
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<u>FY</u>	<u>DOLLARS</u>	<u>AIRCRAFT COSTS</u>						
<u>TYPE OF AIRCRAFT</u>	<u>TOTAL HRS FLOWN</u>	<u>TOTAL COST PER FLY HR</u>	<u>INCREMENTAL COST PER FLY HOUR</u>	<u>CREW COST PER FLYING HOUR</u>	<u>AIRCRAFT COST</u>	<u>CREW COST</u>	<u>TOTAL COST</u>	<u>INCREMENTAL COST</u>
CC 130 HERC (MRS)	644.1	\$1,539.62	\$ 617.37	\$421.06	\$ 991,669.24	\$ 271,204.75	\$1,262,873.99	\$ 397,648.02
CC 130 HERC (OTHER)	1196.1	1,539.62	617.37	346.53	1,841,539.48	414,484.53	2,256,024.01	738,436.26
CC 137 BOEING	3.7	2,623.30	1,238.29	301.38	9,706.21	1,115.11	10,821.32	4,581.67
CH 138 OTTER TWIN	294.6	555.82	120.41	135.61	163,744.57	39,950.71	203,695.28	35,472.79
CH 135 HUEY TWIN	1678.5	706.98	251.98	227.68	1,186,665.93	382,160.88	1,568,826.81	422,948.43
CH 147 CHINOOK	420.7	1,449.22	329.93	313.44	609,686.85	131,864.21	741,551.06	138,801.55
CP 107 ARGUS	157.8	3,199.85	1,434.37	769.98	504,936.33	121,502.84	626,439.17	226,343.59
CC 115 BUFFALO	135.9	1,851.78	828.44	239.21	251,656.90	32,508.64	284,165.54	112,585.00
CH 136 KIOWA	474.4	331.30	107.37	83.73	157,168.72	39,721.51	196,890.23	50,936.33
CC 109 COSMO	13.2	1,301.16	356.74	330.50	17,175.31	4,362.60	21,537.91	4,708.97

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CC 117 FALCON	18.2	1,336.88	694.94	384.80	24,331.22	7,003.36	31,334.58	12,647.91
CT 134 T33	4.2	634.80	324.51	259.28	2,666.16	1,088.98	3,755.14	1,362.94
CC 129 DAKOTA	22.6	601.79	213.25	SEE SER.#2	13,600.45	SEE #2	13,600.45	4,819.45
CF 5/CF 116	13.6	2,306.12	829.60	120.48	31,363.23	1,638.53	33,001.76	11,282.56
TOTAL COSTS:					\$5,805.910.60	\$1,448.606.65	\$7,254,517.25	\$2,162,575.47

ASSUME THE FOLLOWING:

MRS FLIGHTS ARE 35% OF THE TOTAL C 130 FLYING HRS
LAPES & OTHER FLIGHTS ARE 65% OF THE TOTAL C 130 FLYING HRS

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MATERIALS LOST, DESTROYED, CONSUMED

MSG. AIRCOMD FIN 4174 05 1900Z May 78

a. Consumed	\$254,644.22	
b. Write Off Fire #1	200,000.00	
c. Write Off Fire #2	24,415.86	
d. Clothing	11,848.62	
e. Other-Air Command Write Off	146,930.13	
f. 1 CEU Write Off	37,327.67	
g. Destroyed in fire Vehicle	30,000.00	
h. Ration packs	158.40	
i. Arctic Supplement	30.60	
j. Iosol gas - 20 gals	10.60	
k. Parachute T-10C	85.00	
l. Pilot Parachutes	1,634.50	
m. Smoke Pots	2,090.00	
n. AN/PRC 25 x 4 ea Destroyed	21,361.96	
o. Local Purchase Baker Lake	1,355.00	
p. Maps	19,207.50	
SUB TOTAL		\$751,100.06

OPERATION MORNINGLIGHT
FINAL REPORT - 20 APR 78

(12) VEHICLES -

ECC	TYPE	COST PER MILE/KM/HR		NO OF MILES/KM/HRS	TOTAL COST	INCREM. COST
		TOTAL	INCREM			
103501	FORKLIFT 6000 LBS	7.69	1.07	12.5 HRS	\$ 96.13	\$ 13.38
103950	FORKLIFT 10,000 LBS	13.54	1.68	22.0 "	297.88	36.96
123101 *	5/4 TON	.32	.07	740.3 KM) 12,646.4 KM)	4,283.74	937.07
123104 *	5/4 TON	.35	.07	11,758.8 KM	4,115.58	823.12
123306	5/4 TON	.52	.07	77.2 KM	40.14	5.40
132213 **	GENERATOR SKW-T/MOUNT	.70	.70	539.0 HRS	377.30	377.30
140101	S/C	.22	.09	271.0 MI	59.62	24.39
140105	S/C AMBULANCE	.29	.07	3,617.0 "	1,048.93	253.19
140110	LT DUTY	.64	.18	4.0 "	2.56	.72
140113	S/C	.30	.08	9,799.0 "	2,939.70	783.92
140124	S/C	.18	.07	1,862.0 "	335.16	130.34
140126	S/W	.24	.09	13,756.0 "	3,301.44	1,238.04
140131	½ TON PERS CARRIER	.62	.20	3,534.0 "	2,191.08	706.80
140205	TRACKED SLED	20.96	4.84	893.0 HRS	18,717.28	4,322.12
0316	SELF PROP.	14.15	4.00	84.0 "	1,188.60	336.00
140530	BUS 16 PAX	.51	.17	2,033.0 MI	1,036.83	345.61
140535	BUS 28 PAX	.60	.24	566.0 "	339.60	135.84
140540	BUS 40 PAX	.65	.26	640.0 "	416.00	166.40
140550	BUS 40 PAX	1.07	.26	205.0 "	219.35	53.30
142101	1 TON	.40	.08	161.0 "	64.40	12.88
142103	PANEL	.31	.10	3,218.0 "	997.58	321.80
142106	1 TON TRUCK 1 TON	.36	.09	305.0 "	109.80	27.45
142115	EXT CAB W/W	.55	.13	300.0 "	165.00	39.00
145115	3 TON STAKE	.36	.12	1,404.0 "	505.44	168.48
145116	3 TON "	.36	.12	1,802.0 "	648.72	216.24
145119	3 TON "	.38	.12	540.0 "	205.20	64.80
148106	TRACTOR	.70	.36	838.0 "	586.60	301.68
149102	TRACTOR	.82	.54	1,545.0 "	1,266.90	834.00
149104	TRACTOR	.82	.54	934.0 "	765.88	504.36
8103	TRAILOR INCLUDED WITH ECC 149102			1,545.0 "	Ø	Ø
159115	TRAILOR " " ECC 149104			934.0 "	Ø	Ø
161114	CRANE 15/19 TON LOADER	21.68	2.46	5.5 HRS	119.24	13.53
163123	SCOOP SNOW	21.39	5.48	852.0 "	18,224.28	4,668.96
167115	BLOWER	23.76	3.41	582.0 "	13,828.32	1,984.62
					\$78,494.28	\$19,848.00

* These vehicles operated 1176 Hrs in Stationary Position (Wireless Vans - engines running)

** Fuel consumption is 1.12 gal per hr @ .625 per gal.

OPERATION MORNINGLIGHT
FINAL REPORT - 20 APR 78

(13), (14), (15) - NIL

(16) MISCELLANEOUS

\$9,909.00

TRANSIT SLIP



FICHE DE SERVICE

Date 26 APR 78

TO
À M/Lynne

FROM
DE Insp K Michaluk
per W. Tarkenton.

Comments ☐ Commentaires

Make File(s) ☐ Dossier(s) à ouvrir

Perusal - No Action Required ☐ Pour information - aucune suite requise

Return with Current File ☐ Retourner avec le dossier courant

Examination and Action ☐ Pour examen et suite

Check Records ☐ Vérifier les archives

Prepare Reply ☐ Réponse à rédiger

Instructions ☐ Directives

Prepare Brief ☐ Exposé à préparer

See Sender ☐ Voir l'expéditeur

REMARKS
COMMENTAIRES

▷ Insp Michaluk advises he received corr from C. Tural re: a meeting on the Cosmos satellite costing. Apparently you attended a meeting on the 17th APR in this regard.

A further meeting has been scheduled for 10 AM 28 APR 78 4th Flr. Tower "A" X.B.P. Bldg.

REPLY
RÉPONSE

▷ Insp M. will forward the corresp.

B.T.H.

23/5/78

000054

EXTERNAL AFFAIRS



AFFAIRES EXTÉRIEURES

cc.

Conseil Legal/Financier
Group

PERMITS

TO
A FLA

FROM
De DFR

REFERENCE
Référence

SUBJECT
Sujet Operation "Morninglight": Phase II

SECURITY
Sécurité UNCLASSIFIED

DATE May 5, 1978. Motions

NUMBER
Numéro GEA
PSI + file

FILE	DOSSIER
OTTAWA	
MISSION	

ENCLOSURES
Annexes

1

DISTRIBUTION

FLO ✓

EBS

The attached copy of a draft Request for Proposal was circulated at yesterday's meeting of the Policy Co-ordinating Group on COSMOS 954, chaired for the first time by AECB. We saw no difficulty in this being circulated by DSS as a public document and so indicated at the meeting. You may wish to draw the document to the attention of members of the legal advisory group.

ORIGINAL SIGNED BY
ORIGINAL SIGNÉ PAR
D. G. Longmuir

Defence Relations Division.

Handwritten initials and date: 23/5/78

15-200-24-0

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DRAFT RFP

Phase II of the search for and recovery of radioactive fragments in certain areas of the North West Territories resulting from the re-entry of the Soviet satellite Cosmos 954

Scope of Work

You are invited to submit a technical, management and price proposal to undertake additional search and recovery actions in certain areas of the Northwest Territories following spring break-up to satisfy the requirements of the Atomic Energy Control Board. The primary objective is to assure that the seasonal change has not resulted in the uncovering of hitherto undetected components of the satellite. The area generally to be covered is indicated in the figure attached.

It is necessary to divide the project into two phases:

Part I: Aerial surveys using fixed wing and helicopter aircraft.

Part II: A concurrent ground survey on foot. This may involve aircraft or watercraft primarily for the logistic support of the survey teams.

Specifically the program will consist of the following main tasks:

Under Part I:

- a) to conduct aerial surveys of the environs of inhabited areas (communities) and land transportation routes to ensure a high level of assurance that no parts of the satellite, that are radioactive and are of significant hazard to the public, remain unrecovered;

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- b) to undertake the retrieval and safe transportation, to a designated site, of any components of the satellite located by the airborne surveys;

And under Part II:

- a) to undertake ground surveys of inhabited areas including communities, fishing and other recreational camps, mineral exploration camps, research stations and transportation routes to ensure a high level of assurance that parts or particles of the satellite that are radioactive and are of significant hazard to the public have been located;
- b) to undertake the removal and safe transportation to a designated site of the parts of particles located by the ground surveys;
- c) to prepare a report suitable for public dissemination when the above actions are completed.

A detailed scope of work is attached as Annex A.

Schedule and Reporting

Work is expected to commence immediately after acceptance of the contract on or about June 1, 1978 with the objective of completing the search and recovery program before freeze-up in the autumn of 1978.

To meet these goals, the contractor will be required to prepare a schedule for the search and recovery measures starting from the information obtained on the basis of actions already undertaken as a result of Operation Morning Light. The priority of

- 3 -

work will be determined after consultation and agreement with the Atomic Energy Control Board.

Progress reports will be required throughout the duration of the contract with written reporting at two week intervals.

As this is primarily a management contract, a large amount of sub-contracting is expected. Such subcontractors should be identified at least as to the function that you expect them to perform.

Equipment

Part I

Small fixed wing and helicopter civilian aircraft are required.

No high altitude surveys are to be undertaken. Aerial surveys with small fixed wing and helicopter aircraft will be at altitudes approved by the Ministry of Transport in consultation with the AECB.

Microwave Ranging System and computer support can be provided on loan if they are required for the airborne survey. It is expected that visual navigation means will suffice.

Special containers for the transportation of radioactive debris will be provided by the AECB on loan.

Some radioactive survey meters will also be provided on loan and an agreement will be negotiated for this purpose.

Highly sensitive detector arrays, Sodium Iodide crystals, will be required.

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Part II

Special containers and some radiation survey meters will be provided on loan as in Part I above.

AECB Assistance

The AECB will provide an on-site project co-ordinator to deal with day to day problems as they arise, to advise on search and recovery criteria and to ensure the timely availability of suitable containers for debris retrieval. AECB radiation surveyors will be provided to deal with high activity sources as required.

This support will be provided in Yellowknife if only Part II of the project is necessary and if aircraft from the public sector are used for Part I.

Maps, current aerial photographs, and other data that will assist with the search and detection will also be provided from the Operation Morning Light files.

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Bidders' Conference

A Bidders' Conference will be held on Monday, 15 May at 10:00 a.m. at 270 Albert Street, to discuss the requirements and answer any questions that the bidders may have. Written questions may be submitted to the Science Procurement Manager prior to the Bidders' Conference and these questions will be answered at the Bidders' Conference without revealing the source. An edited transcript of the Bidders' Conference will be sent to all companies on the Bidders' list.

Evaluation Criteria for Request for Proposal

Proposals will be evaluated in accordance with the following criteria. Bidders are advised to address these criteria in sufficient depth in their proposals.

1. Scientific and Technical Strategy: (275)
 - a. Understanding of scope and objectives (75)
 - b. Methodology Proposed (75)
 - c. Adequacy of work plan (50)
 - d. Understanding of radioactivity, health hazards and precautions (75)
2. Organizational Management and Expertise: (700)
 - a. Program manager, his relevant experience, qualifications particularly with respect to operations in a northern environment (150)
 - b. Key full time personnel, their qualifications and relevant experience (100)
 - c. Arrangements, qualifications and experience required for:
 - Health Physics (50)
 - Radiation surveys - airborne (50)
 - Radiation surveys - ground based (50)
 - Soil and water assay (50)
 - Legal matters (50)

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- d. Team organization planned (50)
- e. Competence proven by similar and/or related
work (100)
- f. Stability and composition of company (50)

ANNEX A

Statement of Work

It is anticipated that Phase I of Operation Morning Light, the Canadian, U.S. supported, Task Force established to locate and remove the radioactive debris from Cosmos 954, will be completed by the time of the spring break-up or about 1 June.

By then all of the areas at the western end of the satellite's re-entry trajectory and in the vicinity south of Yellowknife will have been surveyed. Those regions at the eastern end believed to contain any debris will also have been surveyed. These surveys will have included general area coverage using the Microwave Ranging System (MRS) as a navigational aid with the Hercules C130 aircraft and the large volume sensitive NaI array and computer support owned by the Geological Survey of Canada. The detailed surveys from helicopter platforms will also have been used to locate the larger radioactive fragments. It is anticipated that by spring break-up, all large located fragments will have been recovered.

Part I - Airborne Surveys

However, while Phase I of the survey will have been completed, there will be a requirement for some additional surveys around areas of high population density and along well travelled routes. It is expected that the equivalent of about 10 DC-3 missions may be necessary to complete this part.

Helicopter based platforms may be required to follow-up on the fixed wing surveys to investigate, locate and identify "hits". Recovery teams, possibly also helicopter borne, will be necessary to remove those hits which are confirmed as debris. About 100 flying hours may be required for this activity. Float equipped aircraft may be suitable.

The areas to be searched by both of these systems will be determined by consultations with the AECB.

Part II - Ground Based Survey

A ground mounted survey will be required to investigate, locate identify and remove those parts or particles of the satellite that are of an activity not easily detected by airborne sensors and are in areas not already covered on foot. As such any action will follow the spring run-off and surveillance will of necessity

ANNEX A

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be confined to those areas of the terrain over which man can walk. Such areas are portages, transient sites and nomadic villages, hunting and fishing camps, mining and prospecting camps or any similar area through which man may move or at which he may stay for a brief period.

Some additional compliance surveys of areas previously covered on foot will also be required.

For those areas not already surveyed, it is expected that the contractor will identify them from aerial photography or the use of local knowledge, organize and operate on-the-ground radiological survey teams, undertake to locate and recover radioactive debris, place any low level material in appropriate containers and ship these containers to an AECEB designated point. AECEB support will be provided for any high level activity located.

At the end of the summer season, the completed actions will be documented in a form suitable for public use. After evaluation by the AECEB this report will be released, together with any guidelines that would result, as a way of informing residents and visitors to the presently endangered areas of any continuing risk to which they may be subject.

Department of External Affairs



Canada

Ministère des Affaires extérieures

OTTAWA, K1A 0G2

May 5, 1978

CONFIDENTIAL

Dear Sergeant Cooper,

COSMOS 954

INTERDEPARTMENTAL GROUP OF LEGAL ADVISERS

Attached you will find a summary of the meeting held on April 28, 1978 of the interdepartmental group of legal advisers, supplemented by financial advisers, on the claim against the USSR in respect of Cosmos 954. My office will contact you by telephone in due course to inform you of the date of the group's next meeting.

Yours sincerely,

A handwritten signature in cursive script, appearing to read "W.H. Montgomery".

W.H. Montgomery,
Director,
Legal Advisory Division.

Sergeant B.F. Cooper,
R.C.M.P.,
250 Tremblay Road,
Room 601, Direction "S",
Ottawa.

PA 1/1
23/5/78
1/1/78

CONFIDENTIAL

SUMMARY OF DISCUSSION

INTERDEPARTMENTAL GROUP OF LEGAL ADVISERS,
SUPPLEMENTED BY FINANCIAL ADVISERS, ON COSMOS 954

FRIDAY, APRIL 28, 1978

The meeting of the group took place at 10:00 A.M. on Friday, April 28, 1978 in the Legal Bureau Conference Room located on the 4th floor, Tower A, of the Department of External Affairs headquarters at L.B. Pearson Building, 125 Sussex Drive, Ottawa. In attendance were:

Mr. W.H. Montgomery, Chairman, DEA
Mr. M. Kelen, Justice (Civil Litigation Branch)
Mr. R. Roger, Justice (AECB)
Mr. Saul Tunis, Justice (HWC)
Dr. F.A. Prantl, HWC
Lt. Col. B. Murphy, DND/JAG
Lt. Col. R. Jennings, DND/DFIN
Capt. Norman Everest, DND
Mr. Jim Priddle, DND
Mr. H. Flynn, EMR
Mr. G. Artichuk, EMR
Mr. Brahm Levin, DFE
Mr. Robert G. Morrison, DIAND
Sgt. B.F. Cooper, RCMP
Mr. R. Boomgaardt, DEA (present for agenda item 1 only)
Mr. G.R. Sheppy, DEA

Mr. Montgomery opened the meeting and proposed that three agenda items be considered:

1. Proposed DFE statement on the environmental impact of the Cosmos 954 incident;
2. Information concerning and substantiation of costs incurred by Federal Departments and Agencies, attributable to the Cosmos incident;
3. Question of the inclusion of USA costs in the claim against the USSR in respect of the Cosmos 954 incident.

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CONFIDENTIAL

The meeting agreed and considered first agenda item 1.

Agenda Item I - Proposed DFE statement on the environmental
impact of the Cosmos 954 incident

Mr. Montgomery - outlined the background of consultations that had been held with a view to achieving consensus on the text of a statement (comprising summary statement and background paper) to be released by DFE which would meet both the concerns of DFE and of lawyers preparing the claim against the USSR. He indicated that as a result of progress made during consultations, DEA could accept the text of the summary statement as it stood and could accept the background statement accompanying the release once the second paragraph on page 3 and the following paragraph on page 4, as well as a phrase on the 4th and 5th lines of the second paragraph on page 4, had been revised.

Mr. Kelen - referred to the letter his Deputy Minister, Mr. Tassé, wrote to the Deputy Minister of the Environment on April 20, 1978 outlining the concerns of the Department of Justice on the proposed DFE statement. These concerns remained. With respect to the background paper, a meeting of technical experts from AECB, DFE and HWC should be held to determine whether a consensus existed that the reactor core had disintegrated on re-entry to earth's atmosphere and that sufficient evidence existed to support beyond a reasonable doubt the conclusions reached in the paper. With respect to the summary statement, Mr. Kelen said Justice would prefer that it not be released at present in its existing form.

Dr. F. Prantl - said that HWC was not prepared to make a similar statement at present with respect to public health aspects arising from the Cosmos 954 incident because it was still conducting tests on the solubility of certain kinds of debris and the effect of radiation from such debris on man.

Mr. Roger (AECB) and Lt. Col. Murphy (DND) - agreed with Mr. Kelen that the background paper should not be approved for release until technical experts from AECB, DFE and HWC had met and reached a consensus on the conclusions reached in the background paper concerning technical matters.

.../3

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CONFIDENTIAL

The meeting agreed with Mr. Montgomery's summary of the decisions taken on Agenda Item 1 as follows:

In view of the apparent lack of consensus that existed among technical experts on the scientific conclusions that could safely be reached concerning the possible effects of radiation from the debris of Cosmos 954, lawyers could not agree to the release of the background paper without first receiving advice from technical experts from the Departments and Agencies concerned. Release of the background paper in its present form would prejudice the claim. AECS as lead agency would be contacted to arrange for a meeting of technical experts on an urgent basis. Dr. Roots of DFE would be advised of this decision. With respect to the summary statement, Dr. Roots would be contacted with a view to arranging urgent consultations between DFE and DEA to reach agreement on a text. As a result of previous consultations differences had narrowed considerably and there were grounds for optimism that an agreed text could be drafted in the very near future. If such a text emerged, DEA would circulate it on a priority basis to other members of the legal group for consideration and approval.

Agenda Item 2 - Information concerning and substantiation of costs incurred by Federal Departments and Agencies, attributable to the Cosmos 954 incident

(a) legal basis for including costs in the claim

Mr. Montgomery - said the applicable principle in international law appeared to be restitutio in integrum, i.e., the objective was to restore Canada to its original position. Costs that could be included were those which would not have been incurred except for the Cosmos 954 incident. Although no decision would be taken at present, this appeared to permit incremental costs but not total costs to be included in the claim.

.../4

- 4 -

CONFIDENTIAL

Lt. Col. Murphy - DND wanted total costs included with incremental costs only retained as a fall-back position.

Lt. Col. Jennings - "differential costs" would be included in "incremental costs".

(b) reporting of costs by Departments and Agencies

It was agreed that the interim claim to be submitted would be for the period of January 24 to April 20, 1978 inclusive, which coincided with the period that DND was lead agency in the operations. Given that DND costs were by far the greatest incurred during that period, it was also agreed that the "System of Costing Used by Canadian Forces" paper distributed by DND at the meeting (along with a "General Information Fact Sheet" on Operation Morninglight reissued April 17/78) would serve as the basis for accounting procedures to be used by all Departments and Agencies in submitting their costs for inclusion in the claim. Expert assistance to any Department or Agency on questions about the DND system of costing would be provided by Capt. Everest (5-8829). Representatives of the various Department and Agencies present agreed that before, if possible, or at the next meeting of the legal group supplemented by financial advisers, likely to be held shortly after May 15, 1978, they would table their statements of costs in respect of the Cosmos 954 incident for the period of January 24 - April 20 inclusive, broken down into incremental costs and total costs following the DND system of accounting outlined in its paper.

Mr. Morrison - reported that as the costs incurred by the Department of Indian Affairs and Northern Development were very minor, it would not be seeking inclusion of any such costs in the claim.

It was recognized that problems may arise with respect to the inclusion in the claim of provincial and private costs. For the purpose of the interim claim, however, such costs would be considered for inclusion only if a Federal Department or Agency had the ultimate liability to cover them.

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- 5 -

CONFIDENTIAL

Agenda Item 3 - Question of the inclusion of USA costs in
the claim against the USSR

In view of the late hour, the group did not discuss this item.

Mr. Montgomery briefly outlined the question, however, and asked those present to provide DEA by Wednesday, May 3rd any views they wished to make known or any matters pertaining to this question they wanted raised by DEA during the forthcoming consultations on this subject with American officials.

The meeting was adjourned on the understanding that notice of the next meeting of the legal group supplemented by financial advisers would be given once more complete statistics on DND costs were available. The meeting would likely take place soon after May 15, 1978.

To assist the group in its task, or perhaps to justify the mysteries of accounting that lawyers in the group would be faced with in the future, the following verse of Robert Forst was read into the minutes:

Never ask of money spent
Where the spender thinks it went
Nobody was ever meant
To remember or invent
What he did with every cent.

Our File: 4240-8



Department of Justice
Ministère de la Justice

Legal Services (HWC)
343 Jeanne Mance Building
Tunney's Pasture
Ottawa, Ontario, K1A 0K9

Contentieux (SBSC)
343, édifice Jeanne Mance
Parc Tunney
Ottawa, Ontario, K1A 0K9
613-593-5433

To/A	FLA
From/De	JACRA
MAY 12 1978	

May 12, 1978

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S.
4 return
A.

Mr. W.H. Montgomery
Director
Legal Advisory Division
Department of External Affairs
4th floor, room 140
125 Sussex Drive Tower A
Ottawa, Ontario K1A 0G2

Dear Mr. Montgomery:

Re: Interdepartmental Legal Group on Cosmos 954

Following the meeting of April 28, 1978 of the above group, I enclose herewith cost estimate (incremental and total cost figures) of the Department of National Health and Welfare with respect to the Cosmos 954 incident.

I trust that this is satisfactory.

Yours very truly,

Saul Tunis

Saul Tunis
Legal Adviser
Legal Services
Department of National Health
and Welfare

ST/jg

enc.

RECEIVED

MAY 12 1978

In Legal Services
Department of National Health
and Welfare

COST ESTIMATE: OPERATION MORNING LIGHT

Table 1 : Incremental Cost Until April 20, 1978.

Item	Nature of Investigation	Man-days	Salary	Travel	Shipping Cost	Operating Cost and Supplies	Equipment Cost
A.	Environmental Monitoring	6	\$ 390	\$ 989	\$ 4480	\$ 2606	\$ 1130
B.	Solubility Studies					1000	
C.	Bioassay				102	1560	
D.	Film Monitoring				55	1190	
	Subtotal:	6	390	989	4637	6356	1130

Bureau Total : \$ 12372

Table 2 : Total Cost Until April 20, 1978.

Item	Nature of Investigation	Man-days	Salary	Travel	Shipping Cost	Operating Cost and Supplies	Equipment Cost
A.	Environmental Monitoring	48	\$ 3115	\$ 989	\$ 4480	\$ 2606	\$ 1130
B.	Solubility Studies	14	1010			1000	
C.	Bioassay	11	807		102	1560	
D.	Film Monitoring	22	1100		55	1190	
E.	Coordination & Management	35	3240				
	Subtotal:	130	9272	989	4637	6356	1130

Bureau Total : \$ 22384

Radiation Protection Bureau
May 4, 1978

CONFIDENTIAL

BC: jr

REVIEWER 78

MAY 23 1978

ADMIN FILES

G.S. 785-47

78-05-15

Department of External Affairs,
Lester B. Pearson Building,
125 Sussex Drive,
Ottawa, Ontario
K1A 0G2

Attention: W.H. Montgomery
Director
Legal Advisory Division

Dear Sir:

Re: Interdepartmental Legal Group
on Cosmos 954

In reply to your correspondence of 78-05-05
please find total and incremental costs of the R.C.M.P.
for this operation. These expenditures, incurred within
the period 24 JAN to 20 APR 78, are our final expenditures
for this operation.

	<u>Total Cost</u>	<u>Incremental Cost</u>
(a) Salaries	3,826.69	---
(b) Overtime	1,673.94	1,673.94
(c) Travelling expenses	452.60	452.60
(d) Police aircraft	8,342.28	8,342.28
(e) Police car mileage	100.00	100.00

....2

Benham 15/5/78
23/5/78
11/13

- 2 -

(f) Skidoo hours	6.60	6.60
(g) Radio batteries	<u>121.65</u>	<u>121.65</u>
TOTAL	14,523.76	10,697.07

Yours truly, $\frac{913.30}{11,610.37}$

B.T. Lynch, Officer I/C
Financial Management Branch

Info obtained from Insp. Latreumille

(a) Salaries:

8 MAY 78

Hrs.	x	Rate	
16	x	13.20	= 211.10
47	x	11.58	= 544.26
16.5	x	9.88	= 163.02
24	x	9.52	= 247.52
110	x	9.10	= 1001.00
109	x	8.34	= 909.06
8	x	8.09	= 64.72
45	x	7.62	= 342.90
53	x	6.47	= 342.91
			<u>\$ 3826.69</u>

\$ 3826.69

(b) Overtime:

Hrs.	x	Rate	
21	x	11.58	= 243.18
25	x	9.88	= 247.00
89	x	9.10	= 809.90
7	x	8.34	= 58.38
30	x	7.62	= 228.60
6	x	6.39	= 38.34
6	x	8.09	= 48.54
			<u>1673.94</u>

\$ 1673.94

(c) Travelling Expenses
(F-93's)

\$ 452.40

d) Police car mileage 100.00
500 miles x .20 = 100.00

(e) Police Aircraft 8,342.28
Twin Otter 1416 mi x 1.99 = 2815.84
Single 1342 mi x 3.85 = 5126.44

(f) Skidoo 6.40
6 hrs x \$1.10 = \$6.40

(g) Radio Batteries 121.45

\$14,523.76

"G" Div Vehicles

T.M.B.:

Road Vehicles 20¢ per mile
Snow Vehicles \$1.10 per hr.

11/5/78
23/13

Cosmos 954 - Phase I

1. Atomic Energy Control Board Organization

1.1 Conventional Requirements

The AECB was constituted in 1946 by the Atomic Energy Control Act, primarily for the control and supervision of the development, application and use of atomic energy, and to enable Canada to participate in measures of international control that might be agreed upon. At that time the emphasis was on the control of strategically important materials, but since then numerous applications of nuclear energy and of radioisotopes have been developed. The broad functions of the AECB over the years have evolved into a comprehensive licensing system covering all aspects of nuclear energy and prescribed substances, in the interests of health, safety and security. In January 1978, the full-time permanent staff of the AECB numbered 148, all involved in (or supporting) the licensing of facilities or radioisotope uses, in compliance activities to ensure that licence conditions are being followed, in identifying and arranging for research to support or justify licence requirements, and in developing health and safety standards. Thus staff consists of engineers, scientists, health physicists and appropriate support personnel.

1.2 Requirements Introduced by Cosmos 954

When remnants of Cosmos 954 reached the earth in northern Canada, the AECB as the only appropriate Canadian agency was requested to assume lead responsibility for aspects of search and recovery related in any way to radiation, health and safety of people and the environment. The AECB was also given the further authority to cover the costs incurred by all departments other than DND, in this program.

Since the AECB is a relatively small body the number of experts available for an emergency such as Cosmos 954 introduced is limited. To adequately staff the needs in the search areas, the AECB was obliged to call upon the help of other organizations for expertise. At peak, essentially all the AECB health physicist staff were deeply involved and most of the compliance (radiation

- 2 -

surveyor and radioisotope inspector) staff were likewise. Many of the AECB's regular functions, especially compliance inspection but also research projects, were seriously interfered with as staff covered the requirements of the search and recovery.

Furthermore, the major radioactivity clean-up programs in Port Hope and elsewhere were interrupted as staff and equipment were borrowed. In order to avoid complete abrogation of some aspects of its responsibilities, at a time when the public and the nuclear industry are calling for more intensive protective efforts, the AECB had no alternative but to borrow staff from others as mentioned.

It was necessary to send experts from Ottawa to the area because none exist there; the AECB has no regional offices in Western Canada. Experts from other departments also came from Ottawa. This entailed travelling expenses, with living costs at commercial hotels while on site. Since there are few roads in the search area and those only in the Southwest section, search, travel and recovery in most of the region was required to be air-borne. (DND supplied the aircraft services) To land in open tundra or lake areas required either helicopter or ski-plane. One winter air strip was prepared at the east end of the region to simplify supplying field ground forces living in tents. Between 24 January and 26 April AECB staff on a rotational base with support from other departments manned the Edmonton Headquarters, the Yellowknife office and search and recovery teams flying in the search area. Because of the urgency of locating fragments and of removing them to a safe holding site, hours were irregular and large amounts of overtime were worked. With no detailed knowledge of the type of satellite or reactor the only safe assumption to make, once radioactive debris had been located, was that it should be sought on the ground and removed as quickly as possible.

- 3 -

Although most of the main searches were based in Yellowknife, at various times men and equipment were also based in Baker Lake, at Warden's Grove ("Cosmos Lake") on the Thelon River, and at several of the communities on the south shore of Great Slave Lake. A location in Cape Dorset, Baffin Island, where it was suspected that a part of the satellite had fallen, was also investigated by a party on the ground over a ten-day period. These requirements naturally led to a division of equipment and expertise that made staffing and supply even more difficult.

Maximum AECB staff at Edmonton/Yellowknife at any one time was 13. The average over the period January 24 to 20 April was 8 men. This number was augmented by secondments from other departments or agencies possessing suitable staff, including Atomic Energy of Canada Limited and Defence Research Establishment Ottawa - both of these had from 1 to 3 men in the field most of the time. The Geological Survey of Canada maintained up to four scientists and air-borne search experts at Edmonton, and National Health and Welfare and Fisheries and Environment sent one or two men to the area for special purposes. Actions of all of these other departments were coordinated by AECB as the lead agency, and supported by DND as needed in respect to travel in the area, air search time and transportation.

2. Equipment

In early 1975 the AECB possessed one outmoded Geiger Counter. As the needs for radioactive contamination clean-up and control in Port Hope, Elliot Lake, Bancroft and Uranium City came to light, additional radiation detection equipment was obtained. However, when Cosmos 954 landed there was a sudden dearth of appropriate equipment for searches that proceeded by air at different elevations, and on the ground in frequented places.

- 4 -

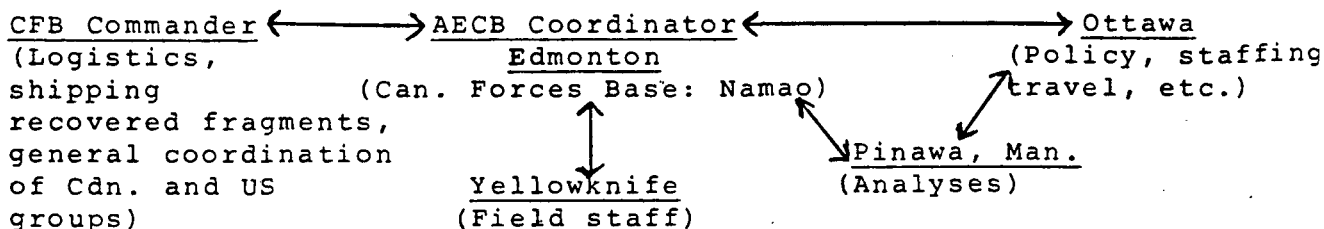
The US team was able to provide some equipment, but only temporarily; DND's nuclear clean-up forces had more, but not the most suitable and not enough. The Geological Survey provided top-calibre air-borne detection equipment and this was latterly supported by contracted commercial exploration equipment. Computer services were purchased from the University of Alberta to support the air-borne search. The AECB robbed ongoing clean-up programs of portable equipment, again only a temporary expedient. Thus to meet the demands of a search that covered thousands of square miles from the air, and a number of communities, roads, etc., on the ground by detailed foot-surveys, additional detection instrumentation was immediately sought. Without it the search would have been much less successful in the Phase I time period.

Once radioactive material was found, proper containers for handling, storage and shipping were required. The available supply of containers was very quickly exhausted as fragments were discovered in the trajectory zone and recovered, and rush fabrication of a suitable supply was necessary. The special safety features of the containers made them very expensive.

Occurrence and nature of debris finds were recorded by very complete photographic records for evidence purposes.

3. Organization of Operation

With headquarters provided by DND at Canadian Forces Base, Namao (near Edmonton), the search and recovery organization from the AECB viewpoint, developed as follows:



- 5 -

The AECB coordinator in Edmonton was the senior AECB man in the area. In Edmonton he was supported by scientific advisors (1-3), a transportation advisor, a health physics/radiation advisor, an instrument specialist (part of the time), a clerk-typist, and members of DND's Nuclear Accident Survey Team (NAST). Some of the above were on loan to AECB from AECL and DREO, and for part of the time DSTI personnel were also present.

In Yellowknife, a field coordinator was supported by three radiation protection specialists (for field recovery and community surveys), and members of NAST.

At the temporary camp on the Thelon River ("Cosmos Lake") a health physicist and a radiation specialist under AECB aegis were present, as well as US and DND personnel.

At Pinawa, the AECB maintained an analytical advisor during the peak recovery and analysis period; actually this position was filled by DREO scientists on rotation.

At Cape Dorset, 1 radiation protection expert was on hand for about ten days, supported by an NRC ice expert over a three day period.

In Ottawa a Steering Group, headed by DND and participated in by other involved federal agencies, met frequently to learn of the latest situation and to expedite policy decisions to meet changing conditions and requirements in the search area. The Steering Group communicated continuously with its representatives in the west.

Given the organization developed in a hurry for the NWT operations, the almost complete lack of information on what to expect in the way of residual fragments of satellite structures and reactor materials, the meteorological and climatic conditions of the area and the season, and the divided authority between DND and AECB, the decision-making process was one of expediency. For the most part the people actively involved in the search and recovery were those best able to see the need for policy and planning changes. The fact that a large contingent of high-level and experienced US scientific and search personnel was present,

- 6 -

unavoidably introduced a complicating factor into decisions, even recognizing the valuable assistance of the US team.

4. Modus Operandi

Given the trajectory of fall, the area was divided into segments for search. The search activities were operated by DND in military aircraft. The search teams, including those operating on foot in communities, included DND, AECEB, AECL, GSC and US personnel. Search patterns were agreed upon in joint discussions, before teams were sent out. Air-borne searches lasted as long as twelve hours out of Yellowknife.

Airborne detection of radioactivity required first, a means of identifying the location, next, discrimination between natural and artificial (satellite fragment) radiation, and third, ability to land and recover the material. The first two involved very sophisticated airborne equipment and capability of spectral analysis (such as provided by the GSC), to distinguish uranium ore radiation from fission production radiation and sensitive portable equipment for final location on the ground.

Ground surveys in communities and other frequented areas were carried out by teams armed with sensitive radiation detectors. Streets and often houses were checked on foot. When radioactive material was located, it was collected with rigorous care in an appropriate container, and at the end of the day containers were flown back to Namao for temporary storage in a bunker made available by DND, pending escorted shipment to Winnipeg and thence to AECEB at Pinawa. Material recovered from the broader airborne searches was handled similarly.

Search and recovery personnel wore photographic badges for periodic development by DNHQ to record degree of exposure to radiation, and urine samples from early recovery teams were monitored for tritium by DNHQ. Personnel regularly checked clothing, equipment and aircraft for contamination, and any signs of this were immediately tracked down and eliminated.

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7. Costs

Costs as requested are presented here in two parts: those incurred prior to 21 April, and those coming on or after 21 April. This division is an arbitrary one and it should be realized that many expenditures that were cleared after 21 April represent costs incurred prior to that date. Thus, all costs post-21 April do not neatly refer to "Phase II" of the Cosmos 954 Search and Recovery Program.

7.1 Prior to 21 April, 1978

7.1.1 Travel

Costs of travelling from Ottawa to Edmonton, Yellowknife and Pinawa, and for accomodation on site, are summarized in ANNEX I, based on expense accounts paid by AECSB in the period.

Additional travel charges, billed directly to AECSB, are given in ANNEX II.

7.1.2 Transportation of equipment & samples

Costs of shipping equipment to the field are given in ANNEX III. DND covered costs of almost all sample shipments from Edmonton to Winnipeg, where they were taken to Pinawa by AECL truck, for which costs are included in the AECL bill (ANNEX IV).

7.1.3 Professional and Temporary Services

Costs for such services are summarized in ANNEX IV. The computer services were required to support Geological Survey airborne detection surveys. The AECL bill includes costs of analysis, salaries, sample transport (Winnipeg Airport to Pinawa), handling and storage.

7.1.4 Rentals

ANNEX V shows costs of personal paging service devices, which were needed to ensure that key personnel could be contacted quickly, & a telecopier so that data could be received without delay from Pinawa and from Edmonton.

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7.1.5 Materials & Supplies

ANNEX VI lists materials and supplies purchased to operate field offices, and particularly items required to ensure proper identification and recording of samples for evidence record purposes. The photographic bill is an extreme example of this aspect of records.

7.1.6 Equipment

Radiation measuring equipment and approved containers for handling and shipping radioactive materials required to be purchased to meet the needs of expanding search and recovery operations. Costs of these (as billed prior to 20 April 1978) are given in ANNEX VII.

7.1.7 Other Expenditures

Other expenditures are given in ANNEX VIII. Radiation warning signs were prepared in Inuit and one of the Indian written languages. "Nu-con Smears" represent standard swipes for checking for contamination on containers, etc.

7.2 Post 21 April, 1978

7.2.1 Expenditures since 21 April and up to 24 May, 1978, are presented in the same order:

Travel - ANNEX IX. The National Research Council bill is for travel and living expenses of an ice expert at Cape Dorset, Baffin Island.

Transportation-ANNEX X.

Professional and Special Services-ANNEX XI

Rentals-ANNEX XII.

Materials and Supplies-ANNEX XIII.

Equipment-ANNEX XIV. Many of the charges represent equipment ordered prior to 21 April, but also some of this equipment was purchased in order to be able to equip properly the new search teams of Phase II.

Other Expenditures-ANNEX XV.

- 9 -

8. Salaries

Salaries for those involved in Operation Morning Light from 24 January to 20 April, are given in ANNEX XVI. This tabulation also shows the cost of recorded overtime, and the dollar equivalent of this.

ANNEX XVII gives salaries for personnel involved between 21 April and 23 May. In this period there was no overtime work recorded.

W.K.G. 1-VI-78

ANNEX I

TRAVEL (Ottawa to Edmonton, Yellowknife,
Pinawa, and Return as Needed)

The total travel cost incurred by A.E.C.B. in connection with Operation Morning Light for the period January 24 - April 20, 1978 is \$44,213.56, a figure that represents the total of related expense accounts in the period.

The total travel cost incurred by A.E.C.B. for the period April 21 to the present is \$1,548.11.

The total average cost to maintain an A.E.C.B. employee in Edmonton for a 2 week period for Operation Morning Light:

Pre-20 April

Post-20 April

Airfare Edmonton Return	\$354.00		\$354.00
Meals (14 day period) and Incidental (rates to Mar. 31, 1978)	265.00	Meals (14 day period) and Incidental (new rates effective April 1, 1978)	272.00
Accommodation (14 nights at an average of \$24.00 per night)	<u>336.00</u>		<u>336.00</u>
	<u>\$955.00</u>		<u>\$992.00</u>

ADDITIONAL TRAVEL CHARGES (EDMONTON AND YELLOWKNIFE-DIRECT BILLINGS)

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Pine Point Hotel	Accommodation in Pine Point for AECB staff member(s)	20/3/78	\$ 245.20
Avis	Car rental for AECB staff. (W. Courneya)	23/3/78	346.43
Avis	Car rental for AECB staff. (W. Courneya)	23/3/78	211.52
Tilden	Car rental for AECB staff. (Dr. R. Eaton)	10/4/78	1,020.00
Ptarmigan Inn	Accommodation in Yellowknife for AECB staff.	18/4/78	117.01
	SUB-TOTAL		1,940.16

ANNEX II

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Cosmos 954 - Expenses from January 24 - April 20, 1978

TRANSPORTATION

Name of Supplier	Product or Service Supplied	Date Paid	Amount
CP Air	Charges for shipment of equipment	31/3/78	\$ 36.65
CP Express	Charges for shipment of equipment	10/4/78	27.25
CN	Charges for shipment of equipment	10/4/78	71.15
Air Canada Cargo	Charges for shipment of equipment	14/4/78	330.00
CN	Charges for shipment of equipment	14/4/78	84.50
	SUB-TOTAL		\$ 549.55

cosmos 954 - Expenses from January 24 - April 20, 1978

PROFESSIONAL & SPECIAL SERVICES (including Temporary Service)

Name of Supplier	Product or Service Supplied	Date Paid	Amount
University of Alberta	Computing Services to support Morning Lite Operation	13/4/78	\$ 2,440.11
Atomic Energy of Can. Ltd.	Analytical work done at WNRE & cost of personnel from CRNL.	20/3/78- 18/4/78	260,437.16*
D. Kemp Edwards	Asbonite Sheet	7/3/78	6.24
D. Kemp Edwards	Asbonite Sheet	16/3/78	6.24
Office Overload	Temporary assistance in office in Edmonton	7/3/78	218.50
"	"	16/3/78	413.25
"	"	20/3/78	413.25
"	"	29/3/78	394.25
"	"	5/4/78	308.75
"	"	10/4/78	232.75
Health & Welfare Canada	Film Service Photo Detection	31/3/78	1,122.00
SUB-TOTAL			\$265,992.50
*This sum comprises the following:			
Salaries			\$164,621.76
Analytical Services			69,760.00
Travel			13,190.53
Materials & Supplies			7,811.13
Contracts			3,068.73
Vehicle mileage			840.00
Vehicle rental			32.58
Express charges			27.00
Overhead			1,085.43
TOTAL			\$260,437.16

Cosmos 954 - Expenses from January 24 - April 20, 1978

RENTALS

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Beeper Co. Ltd.	Monthly Rental of Radio Pager NEC. - insurance	17/2/78	\$ 110.00
Xerox Ltd.	Rental of Xerox 410 - Telecopier	7/3/78	
		20/3/78	236.90
		16/4/78	
A.E.C.L. Comm. Products	Container rentals	7/3/78	100.00
SUB-TOTAL			\$ 446.90

COSMOS 954 - Expenses from January 24 - April 20, 1978

MATERIALS AND SUPPLIES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Camera House	Film for photographic equipment	17/2/78	\$ 34.68
Cal Cop	Acetate Transparency	07/3/78	8.00
Safety Supply	WIT300 Tru Touch Gloves - Disposal gloves	29/3/78	44.40
Wallacks	Clear Acetate Water Soluble Pens	17/3/78	37.45
Wallacks	Transparent Ruler (24")	03/4/78	2.40
Robert E. Cole Co.	Kim-Pack Embossed No. 6361	17/2/78	38.08
Ken Anderson Office Supp.	Packing Pockets	17/3/78	77.45
Xerox	Paper for Telecopier	20/3/78	33.75
Cal Cop	Labels	07/3/78	175.00
Lomor Printers	Tags ("Radioactive Material", Contaminated)	17/3/78	200.20
Northwest Color Labs Ltd.	Contract developing film	07/3/78 10/4/78	11,491.77
McBain Camera Ltd.	Camera Filters	11/4/78	20.95
Uncle Bens' Sporting Goods	Kerosene Model	11/4/78	48.00
Lomor Printers	Labels ("Radioactive")	17/3/78 03/4/78	469.97
		SUB TOTAL:	\$12,682.10

Cosmos 954 - Expenses from January 24 - April 20, 1978

EQUIPMENT

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Superior Electronics	Beta Gamma radiation Survey Meter	20/3/78	\$ 9,811.20
Datamex	Contamination Dector equipped with mounted speaker and 5 foot cables	10/4/78	5,969.00
Roctest Ltd.	Saphymo-Stel Scintillometre Type S.P.P. 2NF	7/3/78	4,351.20
Datamex	Eberline Sample Holder Model SH-4	17/3/78	900.00
Datamex	Hand Probe (EBERLINE) with cable - Model HP-210	17/3/78	1,980.00
Datamex	Personal Air Sampler & Filter Paper	17/3/78	6,120.00
A.E.C.L. Comm. Products	F-112, F-113, F-239 containers	7/3/78	13,078.80
A.E.C.L. Comm. Products	Containers Type F-113	7/3/78	11,592.00
	SUB-TOTAL		\$ 53,802.20

Cosmos 954 - Expenses from January 24 - April 20, 1978

ALL OTHER EXPENDITURES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Mr. Joe Toby	Translation services for A.E.C.B. signs	23/2/78	\$ 45.00
Datamex	Nu-con Smears	7/3/78	575.00
	SUB-TOTAL		\$ 620.00
	TOTAL		\$380,246.97

Cosmos 954 - Expense from April 21 - present

TRAVEL

Name of Supplier	Product or Service Supplied	Date Paid	Amount
N.R.C.	Charges for travel expenses of N.R.C. personnel	24/4/78	\$ 836.71
A.E.C.L. (Pinawa, Manitoba)	Charges for travel expenses of A.E.C.L. and A.E.C.B. staff	11/5/78	211.40
	SUB-TOTAL		\$ 1048.11

Cosmos 954 - Expense from April 21 - present

TRANSPORTATION

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Superior Electronics	Freight charges for shipment of equipment	2/5/78	\$ 579.00
Air Canada Expedair	"	2/5/78	44.00
"	"	15/5/78	55.00
Purolator Courier	Charges related to shipment of supplies to Edmonton	25/4/78	12.00
SUB-TOTAL			\$ 690.00

Cosmos 954 - Expense from April 21 - present

PROFESSIONAL & SPECIAL SERVICES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Dr. M.J. Apps	Gamma Spectroscopic Analysis of five samples	25/4/78	\$ 50.00
University of Alberta	Analysis of Samples from Cosmos Lake and Cape Dorset	15/5/78	300.00
Dr. L. Wiebe (University of Alberta)	Tritium analysis consulting services	25/4/78	250.00
Office Overload	Temporary staff for Edmonton A.E.C.B. office	2/5/78	394.25
"	"	"	394.25
SUB-TOTAL			\$ 1388.50

ANNEX XI

Cosmos 954 - Expenses from April 21 - present

RENTALS

Name of Supplier	Product or Service Supplied	Date Paid	Amount
A.E.C.L. Comm. Products	Rental of F-233 #3 Containers	26/4/78	\$ 86.00
SUB-TOTAL			\$ 86.00

Cosmos 954 - Expenses from April 21 - present

MATERIALS & SUPPLIES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Lomor Printers	Radioactive Labels	26/4/78	\$ 63.00
A.E.C.L. Comm. Products	Gaskets for container F-112 and F-113 and shipping charges	26/4/78	243.40
Shippers' Supply	Kim-Pack	2/5/78	77.20
Safety Supply Company	Radiation Hazard Signs	11/5/78	31.00
A.E.C.L. Comm. Products	5 gallon pails with lids and ring clamps	3/5/78	217.00
Northwest Color Labs	Contract for developing film	28/4/78 16/5/78	2,579.20
Southam Printing	Printing films	24/4/78	7.00
SUB-TOTAL			\$ 32,17.40

Cosmos 954 - Expenses from April 21 - present

EQUIPMENT

Name of Supplier	Product or Service Supplied	Date Paid	Amount
A.E.C.L. Comm. Products	4 foot long tongs	24/4/78	\$ 36.00
Canadian Tire Corp.	Transistor Battery	15/5/78	15.00
Datamex	Personal Digital Dosimeters - Model Prime-V	3/5/78 15/5/78	10,300.00
Datamex	Eberline Beta Gamma Geiger Counter Eberline Beta Gamma Portable Ion Chamber Survey Meter	26/4/78	11,594.00
Ludlum Measurements	Micro-R-Meters	15/5/78	7,088.00
Datamex	Eberline Portable Gamma Dose Rate Meter Eberline Portable Scaler	3/5/78	9,368.00
Datamex	Eberline Portable Beta Gamma Geiger Counters Eberline Beta Window Pancake Probes with cables	3/5/78	2,790.00
Datamex	Vacuum Cleaner with filters	3/5/78	2,030.00
A.E.C.L. Comm. Products	Steel drums (16 gallon)	25/4/78	1,200.00
Radionics Ltd.	Victoreen Personal Dosimeters	24/4/78	4,700.00
Bond Brass Ltd.	Fabrication of 20 Shipping Containers	25/4/78	10,487.02
Superior Electronics	Berthold end window counter tube with cable and adapter jack	25/4/78	5,402.88
A.E.C.L. Comm. Products	Special 5 gallon pails, steel cables with snaps, caulking and 1 gallon pails	25/4/78	239.50
A.E.C.L. Comm. Products	Special 5 gallon pails, lead bricks, lead sheets	25/4/78	546.70
Provincial Cancer Hospitals Board	Construction of 3 containers for Operation Morning Light	25/4/78	649.82
SUB-TOTAL			\$ 66,446.02 000098

Cosmos 954 - Expenses from April 21 - present

ALL OTHER EXPENDITURES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
A.E.C.L. (Whiteshell Nuclear Labs)	Storage facilities for samples and debris from Cosmos 954	25/4/78	\$ 3,635.94
W.K. Gummer	Telephone call to P. Kennedy in Cape Dorset	3/5/78	3.73
Border Brokers	Shipment of equipment	26/4/78	1,553.41
	SUB-TOTAL		\$ 5193.08
	TOTAL (includes \$1548.11 Travel from Annex I)		\$ 79,618.12

ANNEX XVI

Salary Expenditures 24 Jan. to 20 April, 1978

<u>Name</u>	<u>Days Worked</u>		<u>Salaries</u>	
	<u>A*</u>	<u>B</u>	<u>Regular Days**</u>	<u>Total</u>
Beaudry	10	18.2	562.00	1584.84
Blackburn	9	11.4	1260.72	2857.63
Boyd	9	11.9	1190.16	2763.81
Brown	11	4.5	1054.02	1485.21
Cahill	21	35	1609.86	4292.96
Cameron	42.8	11.6	4183.27	5317.05
Campbell	36.6	26.7	3693.67	6388.23
Charlebois	34.5	0	1860.24	1860.24
Chatterjee	18	33.3	1776.60	5063.31
Courneya, O.	9	22.4	843.40	2942.80
Courneya, W.	19	38.9	1948.07	5936.48
Davediuk	10	6.7	1181.80	1973.60
Eaton	22	16	2462.24	4252.96
Elagupillai	33	35.5	3255.78	8731.41
Elks	33.9		3118.46	3118.46
Goyette	26	35.8	1913.34	4547.86
Gummer	39.8	0	5405.63	5405.63
Henry	10	0	1069.40	1069.40
Horvath	13	22.7	924.30	2538.27
James	6	15.8	625.56	2272.86
Jennekens	11	9.6	1763.08	3301.76
Kealy	22.1	4.7	1490.86	1807.92
Kennedy	6	3.5	524.34	830.20
Knight	18	9.9	2337.84	3623.65
Marleau	21	23	1674.33	3508.12
McLellan	26	14.9	2591.16	4076.09
Meloche	2.3	0	146.35	146.35
Molloy	17	22.1	629.00	1446.00
Prince	3	0	557.70	557.70
Ricard	15	22.6	1465.20	3672.76
Robertson	18	25.8	1780.02	4331.38
Shultz	23	32.5	2503.78	6041.73
Smythe	6	0	837.00	837.00
Spence	8	0	803.36	803.36
Tallim	9	0	464.04	464.04
Utting	20	25.4	1839.80	4176.34
White	11	6	1280.95	1979.65
			<u>62,626.63</u>	<u>116,007.06</u>

*A - regular working days
B - overtime credits in days

** Salary for regular working days. The total includes equivalent compensation for overtime credits.

ANNEX XVII

Salary Expenditures 21 April to 23 May, 1978

<u>Name</u>	<u>Days Worked</u>	<u>Salaries</u>
Cameron	4.5	439.83
Campbell	10.3	1039.48
Charlebois	4.5	242.64
Courneya, W.	2.0	205.06
Davediuk	3.0	354.54
Eaton	14.0	1566.88
Elks	7.0	643.93
Elagupillai	2.0	197.32
Gummer	9.7	1317.45
Kealey	5.0	337.30
Knight	8.0	1039.04
Prince	1.0	185.90
Ricard	14.8	1445.66
Wawrychuk	<u>2.0</u>	<u>214.00</u>
	87.8	9229.03

99

Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

Science and Technology

Science et Technologie

Your file Votre référence

Our file Notre référence

June 9, 1978

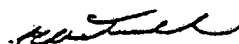
Mr. G. Sheppy,
Legal Advisor,
External Affairs,
Lester B. Pearson Building,
Ottawa, Ontario.

Dear Sir:

OPERATION MORNING LIGHT

Attached is a recap of expenditures for the Geological Survey
of Canada on Operation Morninglight for the period up to and
including April 20, 1978.

Yours truly,



G. Artichuk,
Admin Officer,
Resource Geophysics & Geochemistry Division
GA/jm
attach

DEPARTMENT OF ENERGY, MINES AND RESOURCES

GEOLOGICAL SURVEY OF CANADA

OPERATION MORNINGLIGHT

RECAP - EXPENDITURES TO APRIL 20, 1978

ITEM	TOTAL COST	INCREMENTAL COST
Personnel - Salaries	41,307.66	
- Overtime	28,766.23	28,766.23
Travel	28,025.72	28,025.72
Material Rental	72,000.00	72,000.00
Material Consumed	8,181.49	8,181.49
Material Replacement	44,530.80	44,530.80
Contracts	<u>74,574.78</u>	<u>74,574.78</u>
	297,386.68	256,079.02

21 April 1978

Summary of EXPENSES WITH DOCUMENTS TO Support

TOTAL

INCREMENTAL

SALARIES 3 899.94

~~0~~

OVERTIME 1 707.66

1 707.66

TRAVELLING 373.30

373.30

AIRCRAFT 8,342.28

8 342.28 ✓

POLICE CAR 100.00

100.00 ✓

SKI-DOO 15.00

15.00

PURCHASES 94.67

94.67

TOTALS 14,532.85

10,632.91

182

1785-42(201)

Department of External Affairs



Canada

Ministère des Affaires extérieures

Ottawa, K1A 0G2,

Le 16 juin 1978.

Cher Monsieur,

Re: Bilan des dépenses encourues par les agences gouvernementales et reliées à l'opération de recherche et de récupération des débris du Satellite soviétique Cosmos 954

Au cours de la réunion du 28 avril dernier regroupant les conseillers juridiques et financiers chargés d'étudier les suites de l'écrasement du satellite soviétique Cosmos 954, il avait été convenu que chacune des agences gouvernementales impliquées enverrait un bilan des dépenses encourues dans les opérations de recherche et de récupération. Nous avons reçu depuis les bilans qui ont été préparés de façon à faire une distinction entre les coûts supplémentaires (incremental costs) et les coûts totaux (total costs) encourus à cette occasion.

...

Vous trouverez donc ci-joint une copie de chacun des bilans préparés par les agences gouvernementales autres que la vôtre ayant encourues des dépenses significatives. Nous espérons que ceci fera l'objet d'une réunion qui sera convoquée ultérieurement.

future meeting will be called

Veillez agréer, Cher Monsieur, l'expression de mes sentiments distingués.

Le directeur des consultations juridiques,

W.H. Montgomery

M. Sgt. B.F. Cooper,
G.R.C.

W.H. Montgomery

250, Chemin Tremblay,
Pièce: 601, Direction "S",
Ottawa.

AX 2/17/28 1/13

DND - Lt. Col. B. Murphy
- Lt. Col. R. Jennings

EMR - M. G. Artichuk

AECB - M. J. MacIsaac

RCMP - Sgt B.F. Cooper

HWC - M. Saul Tunis

Justice - M. Jordan, attention: Dr. G. FitzGerald,
- M. M. Kelen

DFE - Mr. Brahm Levin



Government
of Canada

Gouvernement
du Canada

MEMORANDUM

NOTE DE SERVICE

TO
A

C.O. "G" Division - Yellowknife

FROM
DE

OIC, Financial Management Branch

SUBJECT
OBJET

EXPENDITURES ATTRIBUTABLE TO THE COSMOS 954 INCIDENT

Enclosed for your information and attention is a copy of correspondence dated 7 July 1978 received from the Department of Justice. In order to complete the affidavit, the following information is required:

- A) A detailed summary of our involvement including dates, places, etc.
- B) A detailed breakdown of expenditures. (\$14,523.76)
 - 1. Salaries (\$3,826.69) and Overtime (\$1,673.94) - dates, names, rank, regimental number, hours, rate etc.
 - 2. Travelling Expenses (\$452.60). Copies of F-93's with sufficient explanation of claims.
 - 3. Police aircraft (\$8,342.28); Police car (\$100.00); skidoo hrs. (\$6.60) - Sufficient detail should include types of vehicles and patrols; rates, etc.
 - 4. Radio batteries (\$121.65) - types, prices and invoices if possible.

Please provide this information by 21 July 1978.

cc: OIC, Legal Branch

B.T. Lynch, Officer i/c
Financial Management Branch

AK
24/7/78
1/13

SECURITY - CLASSIFICATION - DE SÉCURITÉ
CONFIDENTIAL
OUR FILE - N/RÉFÉRENCE
G.S. 785-47 ✓
YOUR FILE - V/RÉFÉRENCE
DATE
1978-07-12



Department of Justice Ministère
of Justice de la Justice

Ottawa, Canada
K1A 0H8

July 7, 1978

The Commissioner
Royal Canadian Mounted Police
Ottawa, Ontario
K1A OR2

Attention: Mr. B.T. Lynch, Officer I/C
Financial Management Branch

209528
Re: Cosmos 954 - Claim against the
Soviet Union for Costs incurred
in Operation Morning Light
(Your File: GS785-47)

Dear Mr. Lynch:

I have your letter dated May 15, 1978
addressed to Mr. W.H. Montgomery setting out your
final expenditures in this matter.

I have been asked to coordinate the marshaling
of the evidence with respect to the expenditures of all
departments involved in Operation Morning Light. The
1972 Convention on International Liability for Damage
caused by Space Objects provides that the party claiming
against the launching state shall submit documentation of
its claim. It has been decided that the itemization of
expenses and the explanation for these expenses from the
various departments shall be submitted to the Soviet
Union in the form of affidavits.

The first affidavit to be prepared by your
department should be from the responsible and knowledgeable
financial officer with respect to this operation. It
should be noted that this financial officer may be required
to submit to cross-examination by counsel from the Soviet
Union. I am enclosing herewith a sample affidavit which
can be used as a guide by your department.

. . . / 2

- 2 -

It will be necessary to detail the breakdown of expenditures as has been done by the Atomic Energy Control Board in the enclosed annexures. Therefore would you please detail the expenditures under each of the headings which you have labeled (a) to (g) in your letter dated May 15, 1978. This breakdown would be part of paragraph 4 in the enclosed sample affidavit. The breakdown of expenses under the headings should include an explanation of the reasons for these expenses under each heading.

As well in paragraph 3 of the sample affidavit it is suggested that the financial officer provide an explanation of the involvement of your department in the search and recovery operation so that these expenses can be seen in perspective. If the deponent of the affidavit does not have personal knowledge with respect to the nature of the department's involvement in the operation or with respect to the specific reasons for the particular expenses under the different headings, then he should inform himself and state these facts with this preface:

*"I am informed by Mr. ABC, Manager of XYZ
of the department, and I verily
believe that:"*

Please note that international tribunals require vouchers, receipts and other records substantiating the expenses. Accordingly please ensure that the financial officers keep all records in some order in some central location. It may be necessary to forward a copy of all of these records to the Soviet Union.

Since it has not been decided whether the claim will be submitted for the total costs of your department or simply the incremental costs, it will be necessary to include all costs. However it should be evident from the breakdown of the costs which costs are incremental. But please do not label the costs under the headings "total" and "incremental". Rather this should be evident from an examination of the breakdown. Then if it is necessary to claim only for the incremental costs this information will be evident from this affidavit.

. . . / 3

- 3 -

If you have any questions please do not
hesitate to contact me at 995-9650.

A copy of this letter with enclosures has
been sent to the Officer in Charge of the Legal Branch
of the RCMP. I am asking the Officer in Charge by
copy of this letter to provide any assistance you or
the financial officer may require in the preparation
of this material.

Yours truly,



Michael A. Kelen
Civil Litigation Section

Encl.

Dr. Fitzgerald
992-3260
Fred JORDAN
992-3206

Mr. Sheppy External
Affairs
992-2486

- 4 -

cc: Royal Canadian Mounted Police
Headquarters
1200 Alta Vista Drive
Ottawa, Ontario
K1A OR2

Attention: Supt. J.V. Cain, Officer I/C
Legal Branch

Mr. W.H. Montgomery
Director
Legal Advisory Division
Department of External Affairs
4th floor, Room 140
125 Sussex Drive, Tower "A"
Ottawa, Ontario
K1A OG2

Mr. F.J.E. Jordan
Director
Constitutional, Administrative and
International Law Section
Department of Justice
Ottawa, Ontario
K1A OH8

Dr. Gerald F. FitzGerald
Constitutional, Administrative and
International Law Section
Department of Justice
Ottawa, Ontario
K1A OH8

IN THE MATTER OF A CLAIM FOR COMPENSATION PRESENTED
BY CANADA TO THE SOVIET UNION FOR DAMAGES INCURRED
AS A RESULT OF THE INTRUSION ON CANADIAN TERRITORY
ON JANUARY 24, 1978 OF THE COSMOS 954 SATELLITE
LAUNCHED BY THE SOVIET UNION

AFFIDAVIT OF JOHN HENRY DOE

I, JOHN HENRY DOE, of the City of Ottawa,
of the Province of Ontario, public servant, MAKE OATH
AND SAY AS FOLLOWS:

1. I am employed in the position of Chief
Accounting Officer of the Department of (*insert name
of Department*) (hereinafter referred to as the "Department")
of the Government of Canada and as such I have knowledge of
the matters hereinafter deposed.

2. In that position my regular duties include: being
aware of expenditures incurred by the Department; being
shown the invoices and other business records which document
the amounts owed for services and materials rendered to the
Department; being responsible for the necessary steps to
determine if these invoices and business records accurately
reflect the amounts owed for services and materials rendered
to the Department; being certain that payments are made to

. . . / 2

- 2 -

the persons and the companies who have submitted the invoices and other business records for these services and materials rendered to the department; and, being responsible for the administration of the salary expenditures to the employees of the Department.

3. Between January 24, 1978 and April 20, 1978 the Department was actively involved in the search and recovery operation for the debris from the Cosmos 954 Satellite. (Here set out the nature of the department's involvement, the actual services the department performed, the place where these services were rendered, and the manpower devoted to the operation. If the financial officer does not know this information then he should inform himself from the knowledgeable and responsible officer of the department and he should so state as follows:

"I am informed by Mr. ABC (give his title),
and I verily believe that: (and then give the
information) ")

4. The total amount spent by the Department to April 20, 1978 inclusive in the search and recovery operation was _____ dollars. These

. . . / 3

- 3 -

expenditures were incurred for the following goods
and services:

*(Please specify these expenses under headings
as was done by the Atomic Energy Control Board.
Also include an explanation of the reasons for
these expenses under each heading. Do not
include any expenses incurred after April 20,
1978. No reference should be made to total
and incremental costs, however it should be
evident from the breakdown of the expenses
which costs are incremental. Note: this
paragraph will be several pages.)*

5. The accounts, vouchers, receipts and other
records relating to these expenses are in my control at
the City of Ottawa.

SWORN BEFORE ME IN THE CITY OF)
OTTAWA, IN THE REGIONAL)
MUNICIPALITY OF OTTAWA-)
CARLETON THIS DAY OF)
JULY, A.D. 1978.)
)

A Commissioner etc.

John Henry Doe

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7. Costs

Costs as requested are presented here in two parts: those incurred prior to 21 April, and those coming on or after 21 April. This division is an arbitrary one and it should be realized that many expenditures that were cleared after 21 April represent costs incurred prior to that date. Thus, all costs post-21 April do not neatly refer to "Phase II" of the Cosmos 954 Search and Recovery Program.

7.1 Prior to 21 April, 1978

7.1.1 Travel

Costs of travelling from Ottawa to Edmonton, Yellowknife and Pinawa, and for accomodation on site, are summarized in ANNEX I, based on expense accounts paid by AECB in the period.

Additional travel charges, billed directly to AECB, are given in ANNEX II.

7.1.2 Transportation of equipment & samples

Costs of shipping equipment to the field are given in ANNEX III. DND covered costs of almost all sample shipments from Edmonton to Winnipeg, where they were taken to Pinawa by AECL truck, for which costs are included in the AECL bill (ANNEX IV).

7.1.3 Professional and Temporary Services

Costs for such services are summarized in ANNEX IV. The computer services were required to support Geological Survey airborne detection surveys. The AECL bill includes costs of analysis, salaries, sample transport (Winnipeg Airport to Pinawa), handling and storage.

7.1.4 Rentals

ANNEX V shows costs of personal paging service devices, which were needed to ensure that key personnel could be contacted quickly, & a telecopier so that data could be received without delay from Pinawa and from Edmonton.

7.1.5 Materials & Supplies

ANNEX VI lists materials and supplies purchased to operate field offices, and particularly items required to ensure proper identification and recording of samples for evidence record purposes. The photographic bill is an extreme example of this aspect of records.

7.1.6 Equipment

Radiation measuring equipment and approved containers for handling and shipping radioactive materials required to be purchased to meet the needs of expanding search and recovery operations. Costs of these (as billed prior to 20 April 1978) are given in ANNEX VII.

7.1.7 Other Expenditures

Other expenditures are given in ANNEX VIII. Radiation warning signs were prepared in Inuit and one of the Indian written languages. "Nu-con Smears" represent standard swipes for checking for contamination on containers, etc.

7.2 Post 21 April, 1978

7.2.1 Expenditures since 21 April and up to 24 May, 1978, are presented in the same order:

Travel - ANNEX IX. The National Research Council bill is for travel and living expenses of an ice expert at Cape Dorset, Baffin Island.

Transportation-ANNEX X.

Professional and Special Services-ANNEX XI

Rentals-ANNEX XII.

Materials and Supplies-ANNEX XIII.

Equipment-ANNEX XIV. Many of the charges represent equipment ordered prior to 21 April, but also some of this equipment was purchased in order to be able to equip properly the new search teams of Phase II.

Other Expenditures-ANNEX XV.

- 9 -

8. Salaries

Salaries for those involved in Operation Morning Light from 24 January to 20 April, are given in ANNEX XVI. This tabulation also shows the cost of recorded overtime, and the dollar equivalent of this.

ANNEX XVII gives salaries for personnel involved between 21 April and 23 May. In this period there was no overtime work recorded.

W.K.G. 1-VI-78

ANNEX I

TRAVEL (Ottawa to Edmonton, Yellowknife,
Pinawa, and Return as Needed)

The total travel cost incurred by A.E.C.B. in connection with Operation Morning Light for the period January 24 - April 20, 1978 is \$44,213.56, a figure that represents the total of related expense accounts in the period.

The total travel cost incurred by A.E.C.B. for the period April 21 to the present is \$1,548.11.

The total average cost to maintain an A.E.C.B. employee in Edmonton for a 2 week period for Operation Morning Light:

Pre-20 April

Post-20 April

Airfare Edmonton Return	\$354.00		\$354.00
Meals (14 day period) and Incidental (rates to Mar. 31, 1978)	265.00	Meals (14 day period) and Incidental (new rates effective April 1, 1978)	272.00
Accommodation (14 nights at an average of \$24.00 per night)	<u>336.00</u>		<u>336.00</u>
	<u>\$955.00</u>		<u>\$992.00</u>

Cosmos 954 - Expenses from January 24 - April 20, 1978

TRANSPORTATION

Name of Supplier	Product or Service Supplied	Date Paid	Amount
CP Air	Charges for shipment of equipment	31/3/78	\$ 36.65
CP Express	Charges for shipment of equipment	10/4/78	27.25
CN	Charges for shipment of equipment	10/4/78	71.15
Air Canada Cargo	Charges for shipment of equipment	14/4/78	330.00
CN	Charges for shipment of equipment	14/4/78	84.50
	SUB-TOTAL		\$ 549.55

Cosmos 954 - Expenses from January 24 - April 20, 1978

PROFESSIONAL & SPECIAL SERVICES (including Temporary Service)

Name of Supplier	Product or Service Supplied	Date Paid	Amount
University of Alberta	Computing Services to support Morning Lite Operation	13/4/78	\$ 2,440.11
Atomic Energy of Can. Ltd.	Analytical work done at WNRE & cost of personnel from CRNL.	20/3/78- 18/4/78	260,437.16*
D. Kemp Edwards	Asbonite Sheet	7/3/78	6.24
D. Kemp Edwards	Asbonite Sheet	16/3/78	6.24
Office Overload	Temporary assistance in office in Edmonton	7/3/78	218.50
"	"	16/3/78	413.25
"	"	20/3/78	413.25
"	"	29/3/78	394.25
"	"	5/4/78	308.75
"	"	10/4/78	232.75
Health & Welfare Canada	Film Service Photo Detection	31/3/78	1,122.00
SUB-TOTAL			\$265,992.50
*This sum comprises the following:			
	Salaries	\$164,621.76	
	Analytical Services	69,760.00	
	Travel	13,190.53	
	Materials & Supplies	7,811.13	
	Contracts	3,068.73	
	Vehicle mileage	840.00	
	Vehicle rental	32.58	
	Express charges	27.00	
	Overhead	1,085.43	
	TOTAL	\$260,437.16	

Cosmos 954 - Expenses from January 24 - April 20, 1978

RENTALS

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Beeper Co. Ltd.	Monthly Rental of Radio Pager NEC. - insurance	17/2/78 7/3/78	\$ 110.00
Xerox Ltd.	Rental of Xerox 410 - Telecopier	20/3/78 16/4/78	236.90
A.E.C.L. Comm. Products	Container rentals	7/3/78	100.00
SUB-TOTAL			\$ 446.90

COSMOS 954 - Expenses from January 24 - April 20, 1978

MATERIALS AND SUPPLIES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Camera House	Film for photographic equipment	17/2/78	\$ 34.68
Cal Cop	Acetate Transparency	07/3/78	8.00
Safety Supply	WTT300 Tru Touch Gloves - Disposal gloves	29/3/78	44.40
Wallacks	Clear Acetate Water Soluble Pens	17/3/78	37.45
Wallacks	Transparent Ruler (24")	03/4/78	2.40
Robert E. Cole Co.	Kim-Pack Embossed No. 6361	17/2/78	38.08
Ken Anderson Office Supp.	Packing Pockets	17/3/78	77.45
Xerox	Paper for Telecopier	20/3/78	33.75
Cal Cop	Labels	07/3/78	175.00
Lomor Printers	Tags ("Radioactive Material", Contaminated)	17/3/78	200.20
Northwest Color Labs Ltd.	Contract developing film	07/3/78	11,491.77
		10/4/78	
McBain Camera Ltd.	Camera Filters	11/4/78	20.95
Uncle Bens' Sporting Goods	Kerosene Model	11/4/78	48.00
Lomor Printers	Labels ("Radioactive")	17/3/78	469.97
		03/4/78	
		SUB TOTAL:	\$12,682.10

Cosmos 954 - Expenses from January 24 - April 20, 1978

EQUIPMENT

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Superior Electronics	Beta Gamma radiation Survey Meter	20/3/78	\$ 9,811.20
Datamex	Contamination Dector equipped with mounted speaker and 5 foot cables	10/4/78	5,969.00
Roctest Ltd.	Saphymo-Stel Scintillometre Type S.P.P. 2NF	7/3/78	4,351.20
Datamex	Eberline Sample Holder Model SH-4	17/3/78	900.00
Datamex	Hand Probe (EBERLINE) with cable - Model HP-210	17/3/78	1,980.00
Datamex	Personal Air Sampler & Filter Paper	17/3/78	6,120.00
A.E.C.L. Comm. Products	F-112, F-113, F-239 containers	7/3/78	13,078.80
A.E.C.L. Comm. Products	Containers Type F-113	7/3/78	11,592.00
	SUB-TOTAL		\$ 53,802.20

Cosmos 954 - Expenses from January 24 - April 20, 1978

ALL OTHER EXPENDITURES

ame of Supplier	Product or Service Supplied	Date Paid	Amount
Mr. Joe Toby	Translation services for A.E.C.B. signs	23/2/78	\$ 45.00
Datamex	Nu-con Smears	7/3/78	575.00
	SUB-TOTAL		\$ 620.00
	TOTAL		\$380,246.97

123

Cosmos 4 - Expens. from April 21 present

TRAVEL

Name of Supplier	Product or Service Supplied	Date Paid	Amount
N.R.C.	Charges for travel expenses of N.R.C. personnel	24/4/78	\$ 836.71
A.E.C.L. (Pinawa, Manitoba)	Charges for travel expenses of A.E.C.L. and A.E.C.B. staff	11/5/78	211.40
	SUB-TOTAL		\$ 1048.11

ANNEX A

Cosmos 4 - Expenses from April 2 present

TRANSPORTATION

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Superior Electronics	Freight charges for shipment of equipment	2/5/78	\$ 579.00
Air Canada Expedair	"	2/5/78	44.00
"	"	15/5/78	55.00
Purolator Courier	Charges related to shipment of supplies to Edmonton	25/4/78	12.00
	SUB-TOTAL		\$ 690.00

Cosmos 4 - Expenses from April 21 present

PROFESSIONAL & SPECIAL SERVICES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Dr. M.J. Apps	Gamma Spectroscopic Analysis of five samples	25/4/78	\$ 50.00
University of Alberta	Analysis of Samples from Cosmos Lake and Cape Dorset	15/5/78	300.00
Dr. L. Wiebe (University of Alberta)	Tritium analysis consulting services	25/4/78	250.00
Office Overload	Temporary staff for Edmonton A.E.C.B. office	2/5/78	394.25
"	"	"	394.25
SUB-TOTAL			\$ 1388.50

Cosmos 980 - Expenses from April 21 present

RENTALS

Name of Supplier	Product or Service Supplied	Date Paid	Amount
A.E.C.L. Comm. Products	Rental of F-233 #3 Containers	26/4/78	\$ 86.00
	SUB-TOTAL		\$ 86.00

Cosmos 4 - Expenses from April 21 present

MATERIALS & SUPPLIES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
Lomor Printers	Radioactive Labels	26/4/78	\$ 63.00
A.E.C.L. Comm. Products	Gaskets for container F-112 and F-113 and shipping charges	26/4/78	243.40
Shippers' Supply	Kim-Pack	2/5/78	77.20
Safety Supply Company	Radiation Hazard Signs	11/5/78	31.00
A.E.C.L. Comm. Products	5 gallon pails with lids and ring clamps	3/5/78	217.00
Northwest Color Labs	Contract for developing film	28/4/78 16/5/78	2,579.20
Southam Printing	Printing films	24/4/78	7.00
	SUB-TOTAL		\$ 32,17.40

Cosmos 24 - Expenses from April 2, 1978 present

EQUIPMENT

Name of Supplier	Product or Service Supplied	Date Paid	Amount
A.E.C.L. Comm. Products	4 foot long tongs	24/4/78	\$ 36.00
Canadian Tire Corp.	Transistor Battery	15/5/78	15.00
Datamex	Personal Digital Dosimeters - Model Prime-V	3/5/78 15/5/78	10,300.00
Datamex	Eberline Beta Gamma Geiger Counter Eberline Beta Gamma Portable Ion Chamber Survey Meter	26/4/78	11,594.00
Ludlum Measurements	Micro-R-Meters	15/5/78	7,088.00
Datamex	Eberline Portable Gamma Dose Rate Meter Eberline Portable Scaler	3/5/78	9,368.00
Datamex	Eberline Portable Beta Gamma Geiger Counters Eberline Beta Window Pancake Probes with cables	3/5/78	2,790.00
Datamex	Vacuum Cleaner with filters	3/5/78	2,030.00
A.E.C.L. Comm. Products	Steel drums (16 gallon)	25/4/78	1,200.00
Radionics Ltd.	Victoreen Personal Dosimeters	24/4/78	4,700.00
Bond Brass Ltd.	Fabrication of 20 Shipping Containers	25/4/78	10,487.02
Superior Electronics	Berthold end window counter tube with cable and adapter jack	25/4/78	5,402.88
A.E.C.L. Comm. Products	Special 5 gallon pails, steel cables with snaps, caulking and 1 gallon pails	25/4/78	239.50
A.E.C.L. Comm. Products	Special 5 gallon pails, lead bricks, lead sheets	25/4/78	546.70
Provincial Cancer Hospitals Board	Construction of 3 containers for Operation Morning Light	25/4/78	649.82
SUB-TOTAL			\$ 66,440.00131

Cosmos 94 - Expenses from April 2nd present

ALL OTHER EXPENDITURES

Name of Supplier	Product or Service Supplied	Date Paid	Amount
A.E.C.L. (Whiteshell Nuclear Labs)	Storage facilities for samples and debris from Cosmos 954	25/4/78	\$ 3,635.94
W.K. Gummer	Telephone call to P. Kennedy in Cape Dorset	3/5/78	3.73
Border Brokers	Shipment of equipment	26/4/78	1,553.41
	SUB-TOTAL		\$ 5193.08
	TOTAL (includes \$1548.11 Travel from Annex I)		\$ 79,618.12

ANNEX XVI

Salary Expenditures 24 Jan. to 20 April, 1978

Name	Days Worked		Salaries	
	A*	B	Regular Days**	Total
Beaudry	10	18.2	562.00	1584.84
Blackburn	9	11.4	1260.72	2857.63
Boyd	9	11.9	1190.16	2763.81
Brown	11	4.5	1054.02	1485.21
Cahill	21	35	1609.86	4292.96
Cameron	42.8	11.6	4183.27	5317.05
Campbell	36.6	26.7	3693.67	6388.23
Charlebois	34.5	0	1860.24	1860.24
Chatterjee	18	33.3	1776.60	5063.31
Courneya, O.	9	22.4	843.40	2942.80
Courneya, W.	19	38.9	1948.07	5936.48
Davediuk	10	6.7	1181.80	1973.60
Eaton	22	16	2462.24	4252.96
Elagupillai	33	35.5	3255.78	8731.41
Elks	33.9		3118.46	3118.46
Goyette	26	35.8	1913.34	4547.86
Gummer	39.8	0	5405.63	5405.63
Henry	10	0	1069.40	1069.40
Horvath	13	22.7	924.30	2538.27
James	6	15.8	625.56	2272.86
Jennekens	11	9.6	1763.08	3301.76
Kealy	22.1	4.7	1490.86	1807.92
Kennedy	6	3.5	524.34	830.20
Knight	18	9.9	2337.84	3623.65
Marleau	21	23	1674.33	3508.12
McLellan	26	14.9	2591.16	4076.09
Meloche	2.3	0	146.35	146.35
Molloy	17	22.1	629.00	1446.00
Prince	3	0	557.70	557.70
Ricard	15	22.6	1465.20	3672.76
Robertson	18	25.8	1780.02	4331.38
Shultz	23	32.5	2503.78	6041.73
Smythe	6	0	837.00	837.00
Spence	8	0	803.36	803.36
Tallim	9	0	464.04	464.04
Utting	20	25.4	1839.80	4176.34
White	11	6	1280.95	1979.65
			62,626.63	116,007.06

*A - regular working days
B - overtime credits in days

** Salary for regular working days. The total includes equivalent compensation for overtime credits.

131

ANNEX XVII

Salary Expenditures 21 April to 23 May, 1978

<u>Name</u>	<u>Days Worked</u>	<u>Salaries</u>
Cameron	4.5	439.83
Campbell	10.3	1039.48
Charlebois	4.5	242.64
Courneya, W.	2.0	205.06
Davediuk	3.0	354.54
Eaton	14.0	1566.88
Elks	7.0	643.93
Elagupillai	2.0	197.32
Gummer	9.7	1317.45
Kealey	5.0	337.30
Knight	8.0	1039.04
Prince	1.0	185.90
Ricard	14.8	1445.66
Wawrychuk	2.0	214.00
	<u>87.8</u>	<u>9229.03</u>

ELON/16/G.S.



Department
of Justice

Ministère
de la Justice

Legal Services (HWC)
343 Jeanne Mance Building
Tunney's Pasture
Ottawa, Ontario, K1A 0K9

Contentieux (SBSC)
343 édifice Jeanne Mance
Parc Tunney
Ottawa, Ontario, K1A 0K9

613-593-5433

Our File: 4240-8

July 14, 1978.

RECEIVED

REVIEWER 78

JUL 17 1978

AUG 31 1978
ADMIN FILES

In Legal Advisory Division
Department of External Affairs

Mr. W. H. Montgomery,
Director,
Legal Advisory Division,
Department of External Affairs,
Ottawa, Ontario.
K1A 0G2

DATE	July 17/78		
ACC	1013	REF	
FILE	66-7-Legal		
BY HAND	✓	PAR PORTEUR	
ATTN	FLA/Montgomery		

Dear Mr. Montgomery:

Re: Soviet Cosmos Satellite
Claim against U.S.S.R.

Thank you for your memorandum of July 11, 1978.

Following receipt of that memorandum on July 12, I met with Dr. Prantl of my client department. Dr. Prantl has advised me that investigations have been carried out and continue to be carried out by the Radiation Protection Bureau, which consist of two parts:

1. Radioactivity in air and drinking water has been monitored since the outset of the event. In addition, radioactivity in caribou meat will be monitored later in the season. The purpose is to safeguard against possible traces of radioactive contamination of important pathways to man.
2. Physical, chemical and biological properties of small, widely dispersed radioactive particles are being studied to predict their environmental and metabolic behaviour: their likelihood of becoming resuspended in air, entering water systems or food products and their degree of potential health hazard upon inhalation or ingestion.

- 2 -

The investigations have shown to date that the contamination from re-entry of Cosmos 954 over the Northwest Territories may have a potential environmental and health impact. However, the efficient removal of hazardous debris during extensive search and recovery operations and monitoring programs to protect the public (which are continuing into the summer) have reduced potential serious health effects from the event. There is no actual evidence of damage to property or persons that has come to the attention of investigators of the Radiation Protection Bureau. It is to be emphasized, however, that scientifically any contamination could have a health impact and the door should be left open for evidence of damage to persons which may only materialize in the future.

Yours very truly,



Saul Tunis,
Legal Services,
Department of National
Health and Welfare.

ST:ed

CONFIDENTIAL

TELECOMM

JUL 19 1 26 PM '78

PICKERING BUILDING

WARNING

**THIS IS A
CLASSIFIED
CYPHER MESSAGE**

All replies or references to it **MUST** bear
the security classification stamped hereon,
unless downgraded by proper authority.

YOUR TELEPHONE IS NOT SECURE

The content or any portion of this message
irrespective of classification is **NOT** to be
discussed over the telephone.

32 RELAY OTT1 JUL19/78

6 ROUTINE YK JUL 19 C O N F I D E N T I A L

COMMR OTT

GS735-47
GFSS1441/1 RE MEMO 1973-07-12, FILE & 735-47 FRM JIC FIN MAN BR
RECD LATE 1973-07-13. WILL PROVIDE INFO ASAP
G DIV

PSL ACK THANKS

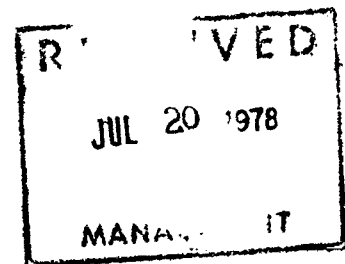
WHAT WORD AFTER FILE

SHUD READ FILE GS735-47 ETC

PLSE ACK

OTT2 ACK TKS KKK

CONFIDENTIAL



 Department of Justice Ministère de la Justice

Ottawa, Canada
K1A 0H8

July 21, 1978

209528

Re: Soviet Cosmos Satellite
Claim against U.S.S.R.

Gentlemen:

As you are aware we anticipate an argument that the only costs eligible to be included in our claim are those which would not have been incurred except for the Cosmos 954 Satellite incident, and such costs have been called "incremental costs". Therefore many of the total costs, such as salary expenditures, will not be eligible for inclusion in the claim.

However there is an argument that some of the non-incremental costs may be properly included as incremental costs when it can be demonstrated that Canada has incurred a loss as a result of the diversion of her resources or personnel from their normal assignments to Operation Morning Light.

You are requested to provide any information of any tangible losses which have resulted as a result of the diversion of your department's personnel or resources from normal activity to Operation Morning Light. Examples of such tangible losses would be the diversion of flying hours from a map-making project to Operation Morning Light or the contracting of another person from outside the department to do the normal function carried out by the person diverted to Operation Morning Light.

It is hoped that this information can be available for submission to the ministers during the week of August 14, 1978.

Yours truly,

M. A. Kelen

per: Michael A. Kelen
Civil Litigation Section

- 2 -

Mr. Raymond Roger
Legal Adviser
Atomic Energy
Control Board
7th Floor
270 Albert Street
Ottawa, Ontario
K1P 5S9

Mr. Ron E. Williams
Director
Legal Services
Department of Energy Mines
and Resources
Room 2015 "B", 580 Booth St.
Ottawa, Ontario
K1A OE4

Office of the Judge
Advocate General
National Defence
Headquarters, Rm 201
Ottawa, Ontario
K1A OK2

Attention: LCOL Brian Murphy,
D Law/Claims

(Your File 1136-USSR D Law/C)

The Commissioner
Royal Canadian Mounted Police
Room 620, Pickering Bldg.
250 Tremblay Road
Ottawa, Ontario

Attention: Mr. B.T. Lynch
Officer I/C
Financial
Management Br.

(Your File GS785-47)

Mr. Brahm Levin
Director
Budget Preparation and
Control Branch
Department of Fisheries and
Environment
7th Floor, Fontaine Bldg.
Hull, Quebec

Royal Canadian Mounted Police
Headquarters
1200 Alta Vista Drive, Rm G-207
Ottawa, Ontario
K1A OR2

Attention: Supt. F. Boivin
Officer I/C
Legal Branch

Mr. G. Artichuk
Administrative Officer
Resource Geophysics &
Geochemistry Division
Energy, Mines and Resources
Canada
Science and Technology
Geological Survey of Canada
601 Booth Street, Room 568
Ottawa, Ontario
K1A OE8

Mr. Saul Tunis
Legal Adviser
Legal Services
Department of National
Health and Welfare, Rm 346
343 Jeanne Mance Bldg.
Tunney's Pasture
Ottawa, Ontario
K1A OK9

(Your file 4240-8)

- 3 -

cc: Mr. F.J.E. Jordan
Director
Constitutional, Administrative and
International Law Section (Rm 625)
Department of Justice

Dr. Gerald F. FitzGerald
Constitutional, Administrative and
International Law Section
Department of Justice (Rm 624)

Mr. W.H. Montgomery
Director
Legal Advisory Division
Department of External Affairs
4th floor, Room 140
125 Sussex Drive, Tower "A"
Ottawa, Ontario
K1A 0G2

Mr. Dan Dailey
Department of Justice
(Rm 616)

ECN 1/1/G.S/A.F. 158



Indian and
Northern Affairs

Affaires indiennes
et du Nord

CONFIDENTIAL

Ottawa, Ontario K1A 0H4
July 21, 1978.

W.H. Montgomery,
Director,
Legal Advisory Division,
Department of External
Affairs,
Ottawa, Ontario.
K1A 0G2

Your file Votre référence

Our file Notre référence

Dear Mr. Montgomery:

With reference to your letter of July 11, the Department of Indian Affairs and Northern Development has no evidence of actual physical damage resulting from the re-entry of the Cosmos 954 satellite.

In the matter of damage arising from the inability of persons to engage in activities such as farming, hunting, trapping, etc., I have referred your letter and attachments to the Northwest Territories Government. Mr. D. Billings was asked to contact Mr. Demers of your office to discuss these aspects of damage, and I believe has done so.

Yours truly,

Robert G. Morrison

Robert G. Morrison,
Chief,
Environmental Assessment
Division.

c.c. J. Fowler

RECEIVED

JUL 28 1978

In Legal Advisory Division
Department of External Affairs

OUTGOING MESSAGES



MESSAGES SORTANTS

● INSTRUCTIONS ON REVERSE

● DIRECTIVES AU VERSO

Time of Receipt — <i>Heure de réception</i>	File No. — <i>N° de dossier</i> G.S.785-47 (Sec)	Drafter's Name — <i>Nom du rédacteur</i> SGT. B. COOPER	Time of Dispatch — <i>Heure d'envoi</i>
	Br. or Section — <i>Sous-direction ou section</i> FIN. MGMT. BR.	Phone No. — <i>N° de téléphone</i> 3-1542	
Precedence for Action Addresses <i>Priorité pour suite à donner</i> PRIORITY	Precedence for Infor. Addresses <i>Priorité pour renseignements</i>	Date 1978-07-25	Security, CLASSIFICATION <i>sécuritaire</i> CONFIDENTIAL
FROM <i>DE</i> COMMR RCMP OTTAWA			
TO <i>À</i> C.O. "G", YELLOWKNIFE			
INFO. <i>POUR RENSEIGNEMENTS</i>			

ORIGINATORS MESSAGE NO. **FMB/72** *N° DU MESSAGE ORIGINAL*

RE: COSMOS 954 - CLAIM AGAINST THE USSR. FURTHER TO OUR CORRESPONDENCE OF 1978-07-12, THE DEPT. OF JUSTICE HAS REQUESTED THAT WE SUPPLY ANY INFORMATION OF ANY TANGIBLE LOSSES WHICH HAVE RESULTED AS A RESULT OF THE DIVERSION OF OUR PERSONNEL OR RESOURCES FROM NORMAL ACTIVITY TO OPERATION MORNING LIGHT. THESE LOSSES WOULD BE SEPARATE FROM OUR TOTAL COSTS ALREADY SUBMITTED. PLEASE REPLY BY TELEX.

Handwritten signature and date: 26/7/78

Signature of person releasing message <i>de l'expéditeur</i> B.T. Lynch, Officer i/c, Financial Management Br.	Time Released (time of signature) <i>Heure d'expédition (heure de la signature)</i>
---------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------

INSTRUCTIONS

FILE NUMBER, BRANCH OR SECTION, DRAFTER'S NAME, ETC.:—
Originator **MUST** complete all boxes to facilitate prompt handling
of a reply or query.

PRECEDENCE:—Enter for

- A) All action addresses, i.e. **DEFERRED, ROUTINE, PRIORITY, OPERATIONAL IMMEDIATE OR EMERGENCY.**
- B) All information addresses usually deferred.

SECURITY CLASSIFICATION:—Enter in all cases including unclassified.

TO: Enter all action addresses.

INFO: Enter all information addresses.

ORIGINATOR'S MESSAGE NUMBER:—

- A) Enter originator's message number (it will be transmitted as first word of text of message.)
- B) When replying to a message quote original message number, e.g. KCIB 62 your NPSIC 1284/13.
- C) When sending follow-up message, quote original message number, Date and Subject Caption, e.g. KCIB 62 further to KCIB 59 of 12-2-72 re FPS 100001 John Smith fraud.

DIRECTIVES

N^o DU DOSSIER, SOUS-DIRECTION OU SECTION, NOM DU RÉDACTEUR, ETC.:—L'auteur **DOIT** remplir toutes ces cases afin de faciliter l'acheminement rapide d'une réponse ou d'une demande.

PRIORITÉ: À indiquer dans tous les cas

- A) où il faut donner suite à une affaire: **DIFFÉRÉ, ORDINAIRE, PRIORITAIRE, OPÉRATION IMMÉDIATE OU EXTRÊME URGENCE.**
- B) à titre de renseignements: ordinaire habituellement

CLASSIFICATION SÉCURITAIRE: À indiquer dans tous les cas, y compris non classifié.

À: Inscire l'adresse de toutes les personnes qui doivent donner suite à l'affaire.

POUR RENSEIGNEMENTS: Inscire l'adresse de tous ceux qui doivent recevoir le message à titre de renseignements.

N^o DU MESSAGE ORIGINAL:

- A) inscrire le n^o du message original (il sera transmis comme premier mot du texte)
- B) lorsque vous répondez à un message, citez le numéro de ce message, p.ex. KCIB 62 votre n^o NPSIC 1284/13.
- C) lorsque vous donnez suite à un message, citez le numéro de ce message, la date et le sujet en rubrique, p.ex. KCIB 59 du 12-2-72, objet: FPS 100001, John Smith, escroquerie. . .

PRIORITY

CONFIDENTIAL

TELECOMMUNICATIONS

JUL 26 3 55 PM '78

PICKERING BUILDING

REVIEWER 24

AUG 01 1978

FIN. MGMT. BRANCH
COSTAL MGMT. BRANCH

JUL 27 1978

"S" DIRECTORATE
DIRECTION "S"

MIS PRIORITY YK JUL26 C O N F I D E N T I A L ADMIN FILES

COMMOR OTT

GAPI52 ATTN FIN. BRANCH COSMOS 954 YOUR TELEX FEB72 ONLY LOSS
WE CAN IDENTIFY AS A RESULT OF DIVERSION OF PERSONNEL FROM NORMAL
ACTIVITY INVOLVES A MEMBER CALLED TO DUTY GUARDING A RADIOACTIVE
SITE ON GREAT SLAVE LAKE NEAR SNOWDRIFT PUG NO 29706 CST REINHARDT
R P (SINGLE MEMBER) STATIONED AT YELLOWKNIFE HAD SHOT A CARIBOU
AND HAD CARCASS HUNG IN CRAWLSPACE OF HOUSING UNIT TO CURE BEFORE
PROCESSING CALLED AWAY ON SHORT NOTICE 73-01-29 TO DO GUARD DUTIES
AS AFOREMENTIONED FOR SHORT PERIOD WHICH EVENTUALLY STRETCHED INTO
6 DAYS OF ABSENCE ON HIS RETURN FOUND MEAT SPOILED AND THREW SAME
INTO GARBAGE DUMP SUBSEQUENTLY CHARGED BY GAME BRANCH WITH ALLOWING
MEAT TO SPOIL CASE DISMISSED BUT CST REINHARDT CHARGED 913.30 DLRS
FOR LEGAL SERVICES IN HIS DEFENCE WE ARE NOT SURE IF INTENT OF YOUR
TELEX WAS TO COVER ITEMS OF THIS NATURE HOWEVER EVENTS OF COSMOS
954 WERE DIRECT CAUSE OF MEMBER'S LOSS OF 913.30 DLRS IN LEGAL FEES
ANYTHING YOU COULD DO TO RECOVER THIS LOSS ON BEHALF OF CST REINHARDT
WOULD BE APPRECIATED PLSE ADVISE

G DIV

PLS ACK MSG THANKS

OTT2 ACKS TKSXXX

WARNING

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CLASSIFIED
CYPHER MESSAGE

All replies or references to it MUST bear
the security classification stamped hereon,
unless downgraded by proper authority.

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The content or any portion of this message
Irrespective of classification is NOT to be
discussed over the telephone.

000144

ELON 1/16/82



OFFICE OF THE COMMISSIONER
NORTHWEST TERRITORIES
CANADA

10 017 109

To / A	FLA
From / De:	8 C - A-4
JUL 31 1978	
Att'n: <i>Montgomery</i>	

Yellowknife, N.W.T.
X1A 2L9

July 26, 1978.

PRIVATE AND CONFIDENTIAL

Mr. W.H. Montgomery,
Director,
Legal Advisory Division,
Department of External
Affairs,
Ottawa, Ontario.
K1A 0G2

Dear Mr. Montgomery,

66-7-LEGAL	
28.	

We have before us a copy of Mr. Morrison's message to Mr. Hornal regarding Canada's claim against the U.S.S.R. arising out of the re-entry of Cosmos 954.

A careful, but discrete, review has been made of any and all sources of possible claims and none has been found, or is thought to exist.

As we suggested in our telephone conversation with your Mr. Demers, we much prefer to avoid anything which smacks of a public invitation to claim at this time. We feel the furor which might result would, or could, do more damage than the amount of good accomplished by the satisfaction of any claim or claims.

However, the people of the North are a small and tight community and we believe we will quickly come to know of any intention to lodge a claim.

In all this we will take for granted our right, or the right of any citizen, to raise the issue on a subsequent date.

Yours sincerely,

Dan Billing,
Chief Environmental
Protection Officer.



Fisheries and Environment
Canada

Pêches et Environnement
Canada

To / A	FLA
From / De:	BICO A-4
Aug 2 1978	
Mr. Glenn Sheppey	
Claims Section	

Legal Advisory Division
Bureau of Legal Affairs
Department of External Affairs
Lester B. Pearson Building
125 Sussex Drive
Ottawa, Ontario
K1A 0G2

Ottawa, Ontario
K1A 0H3

July 31, 1978

Your file Votre référence

Our file Notre référence

66-7-LEGAL	
28	

Dear Mr. Sheppey:

I am replying to the request from your Department that the Department of Fisheries and Environment report any knowledge of damage to persons or property in Canada resulting from the search, recovery or investigation of the effects of the re-entry of the USSR COSMOS 954 satellite. I have contacted the Services and Regions of the Department and have received a "nil" report from all. We understand that the "nil" report at this time does not preclude a claim for damage at a later date should new evidence come to light.

Yours sincerely,

E. F. Roots

E.F. Roots
Science Advisor

FILE
DOSSIER
SUBJECT
Sujet
GS-785-47
COSTS INCURRED BY FEDERAL DEPTS
RE COSMOS 954 INCIDENT
CGSB 40 - 3
7850-21-823-8886
VOLUME
1
L. ON 2 40-3

DECLASSIFIED
1978

82-03-71
~~81.03.01~~