



Government
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Gouvernement
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MEMORANDUM

NOTE DE SERVICE

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ACTION		PA date	BF date
M 69			
INFORMATION			
M 14	M	M	
M 67	M	M	
M	M	M	

TO
À
Director General
Program Management
Medical Services Branch

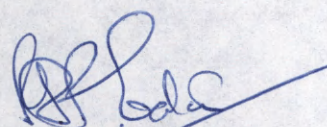
FROM
DE
A/Programs Medical Officer
Northwest Territories Region

SUBJECT
OBJET
ENVIRONMENTAL ARSENIC

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE - N/RÉFÉRENCE 151-1-6 (N3)
YOUR FILE - V/RÉFÉRENCE
DATE April 11 1975

The attached outlines the soils and vegetation survey planned by the Department of Environment and previously indicated to you as being a part of the overall study on Arsenic in the environment in the Yellowknife area.

We may expect a final report approximately by year end.


R. D. P. Eaton, M.B., Ch.B., D.P.H.
A/Program Medical Officer

Enc.

April 17/75

J.P. copy also held on C.H. files Catherine St.

QUARTIERS GENERAUX
SERVICES MEDICAUX

Environment
Canada

Environnement
Canada

201482

Environmental
Protection

Protection de
l'Environnement

P.O. Box 2310
Yellowknife, N.W.T.
X0E 1H0

RECEIVED
NORTHERN REGION
MEDICAL SERVICES

APR 9 '75

April 7, 1975

Your file Votre référence

Our file Notre référence

4045-1/Ye/ES

Mr. D. Billing
Chief Environmental Protection Officer
Government of the N.W.T.
Yellowknife, N.W.T.

Dear Mr. Billing:

RE: TERRESTRIAL SURVEY - HEAVY METALS - YELLOWKNIFE

The Environmental Protection Service recently awarded a contract to the University of Alberta to survey the extent of heavy metal contamination of soils and vegetation in the Yellowknife area. A copy of the contract is attached for your information.

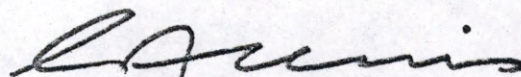
The work will be carried out over this summer and will be co-ordinated with other work along the same line we are carrying out.

I'm having trouble obtaining interim accommodation for the survey team (for a four-month period) through the Federal Department of Public Works.

Would it be possible for you to assist me by arranging for a two-bedroom furnished apartment through the N.W.T. government from May 1 to September 1 that could be billed against this office?

Any enquiries regarding the execution of the study should be directed to myself or Mr. Bob Martin of my office.

Sincerely,



C. A. Lewis
District Manager

cc: B. Olszamowsky
C. Wynne
E. Ristan
A. Redshaw
Ecology North
Indian Brotherhood
B. Martin, M. Hardin
Dr. R. Eaton ✓

YELLOWKNIFE ENVIRONMENTAL SURVEY
SOILS & VEGETATION STUDY

TITLE:

Survey of nature and extent of heavy metal contamination of soils and vegetation in the Yellowknife area.

OBJECTIVES:

Determine the cumulative long-term effects of airborne emissions from mining, milling and smelting on soils and vegetation over an area extending to background (normal or near-normal) levels of heavy metals; including possible movements of contaminants through soils and taking into account pre-operational conditions.

WORK TO BE PERFORMED:

1. Preliminary soil, vegetation, and sediment samples will be analyzed exhaustively (using acceptable methods) to ascertain what heavy metals may be of concern; in particular, As, Pb, Cd, Sb, Co, Cu, Zn and perhaps others.
2. A sampling pattern will be planned in consultation with the Scientific Authority and cooperating agencies. As far as possible, sample sites will include those at which atmospheric contamination monitoring is also being carried out. Transportation to the atmospheric contamination monitoring sites will be provided. It is expected that an adequate number of sampling sites will total about 50 (fifty).

The sampling pattern will take into account such site factors as altitude, slope, aspect, soil type, drainage, dominant vegetative cover, distance from pollution source and from surface disturbances such as roads or seismic lines, dominant wind speeds and directions, and surficial geology; to minimize most variables among sites. Principle study variables will be soil type and distance and direction from source.

3. At each sampling point, records will be made of site factors such as in 2 above and of the general condition of vegetation. Samples will be collected of vegetation showing symptoms of injury such as discoloration, stunting, or distortion. Color photographs will be taken of each site, including close-ups of items of special interest.
4. Samples collected at all sites will include surface organic matter, soils from 3 depths to be determined by soil profile of the site, and surface vegetation including foliage of at least two dominant tree species (one deciduous and one coniferous) and at least two species of cryptogams to be determined in consultation following preliminary site examination. Sample records and labelling must be complete and detailed. Sufficient samples will be taken to provide the Scientific Authority with reasonable material for further investigations, to be agreed by consultation.

5. Spot samples will be collected of soils from sheltered sites (such as under boulders on high ground) and of vegetation for human consumption (such as garden vegetables and wild plants and fruits commonly consumed).
6. All samples will be analyzed for total content of heavy metals determined to be of concern and including in particular As, Pb, Cd, Sb, Co, Cu, and Zn.
7. All soil samples will be analyzed for pH and notes will be made on texture, colour and organic content. Spot samples selected in consultation with the Scientific Authority will be analyzed for extractable and total sulfur.
8. Maps, separate or with overlays, will be compiled to delineate levels of contamination by each heavy metal in each soil and vegetation parameter examined.

RESULTS EXPECTED:

1. Regular interim reporting and consultation with the Scientific Authority.
2. 25 copies of the final report including all data will be provided to the Scientific Authority on or before 8 months from the official commencement of the study.
3. All data and material so presented will be considered as public information and the property of the Government of Canada.
4. In due course and following approval for release by the Minister, data of scientific interest may be published in scientific journals jointly by the Contractor and the Scientific Authority.

PERIOD OF CONTRACT:

April 15, 1975 to December 31, 1975.

SCIENTIFIC AUTHORITY/INSPECTION/CONSIGNEE:

Mr. J. J. Eatock, Regional Director
Northwest Region, Environmental Protection Service
Environment Canada
Room 901, 10025 Jasper Avenue
Edmonton, Alberta T5J 2X9

or his authorized representative.

BASIS OF PAYMENT:

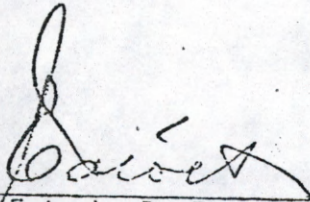
Monthly payments on receipt of an invoice duly approved by the Scientific Authority.

TRAVEL AND LIVING EXPENSES:

All travel and living expenses to be borne by contractor. Accommodations are available through the Environmental Protection Service District Office at Yellowknife (Tel: 403-873-3456) on a cost basis.

LIMITATION OF EXPENDITURE:

Her Majesty's liability to you under this contract shall not exceed \$21,000.00, unless otherwise authorized in writing by the Department of Supply & Services.



U. J. Eatock, P. Eng.
Regional Director
Northwest Region
Environmental Protection Service

1/4/75

Date