

MINUTE SHEET
INDIAN AND NORTHERN HEALTH SERVICES
DEPARTMENT OF NATIONAL HEALTH AND WELFARE

SUBJECT

Arsenic Pollution at Yellowknife

PAGE

FILE NUMBER

850-5-X751

TO

M1

1. A meeting was held on 16th December 1965 to discuss the above problem.
The following Divisions were represented:

Environmental Health
Public Health Engineering
Northern Health

2. It was agreed that a definite problem exists and that it was advisable to have a clinical study on the local population carried out during the year 1966.

3. Environmental Health Division will go into the matter further and provide details of the type of study envisaged and a rough estimate of the costs of same. They will also investigate the necessity of carrying out further studies on stack excretions of arsenic and arsenic fall-out. They will also consult with the Wildlife Service to decide whether clinical studies of animals and birds in the area should be undertaken.

M17
20 Dec. 65

PLEASE USE THIS SIDE ONLY.

850-5-X751

PA - ①

Dec 21/65

SUMMARY OF GIANT YELLOWKNIFE ARSENIC COLLECTION EFFICIENCY DATA

Date of Determination	Determined by	Baghouse Collection Efficiency	Arsenic to Baghouse Collection	Arsenic Discharged to Atmosphere
1959	NH&W	99.63	lbs/day 30,620	lbs/day 115
1960	NH&W	99.44	29,540	165
9 June 64	Giant Mine	98.86	35,240	404
22 June 64	Giant Mine	98.76	37,662	467
23 July 64	Giant Mine	98.63	36,499	499
28 Oct 64	Giant Mine	98.66	41,200	552

SUMMARY OF ARSENIC SCRUBBER DATA
CON MINE, YELLOWKNIFE

1965

	Arsenic Scrubber Recovery	Arsenic Discharge To Atmosphere	Total Arsenic in Slurry Discharge to Storage Pond
Jan.	89.9 %	510 lbs/day	4561 lbs/day
Feb.	88.9	629	5007
Mar.	92.4	471	5710
Apr.	96.2	187	4760
May	96.4	168	4471
June	95.1	129 +	2477 +
July	93.4	426	6000
Aug.	94.6	376	6585
Sep.	95.1	267	6240
Oct.	92.8	323	4161

+ The roaster was shut down for 12.7 days, while the wooden stack was being replaced.

Occupational Health Division
Ottawa, Canada

455-10-13

24 November, 1960.

Mr. A.T. Jordan,
Chief Mining Engineer,
Resources Division,
Dept. of Northern Affairs
& National Resources,
Ottawa, Canada.

Dear Ted:

Following is a summary of arsenic collection efficiencies and losses at Con and Giant Yellowknife mines covering the period from 1954 to 1960:

DATE	G I A N T			C O N			Total Arsenic Discharged Over Yellow- knife. Lbs./Day
	Effcy %	Loss		Effcy %	Loss		
		%	Lbs./Day		%	Lbs./Day	
1954	41.8	58.2	11,980	97.84	2.16	147	12,127
1955	66.5	33.5	7,400	98.31	1.69	113	7,513
1956	54.6	45.5	9,600	97.86	2.14	172	9,772
1957	61.6	38.4	9,420	No	Sampling		≈ 9,600
1958	No	Sampling		No	Sampling		
1959	99.63	0.37	115	97.83	2.17	151	266
1960	99.44	0.56	165	97.33	2.67	255	420

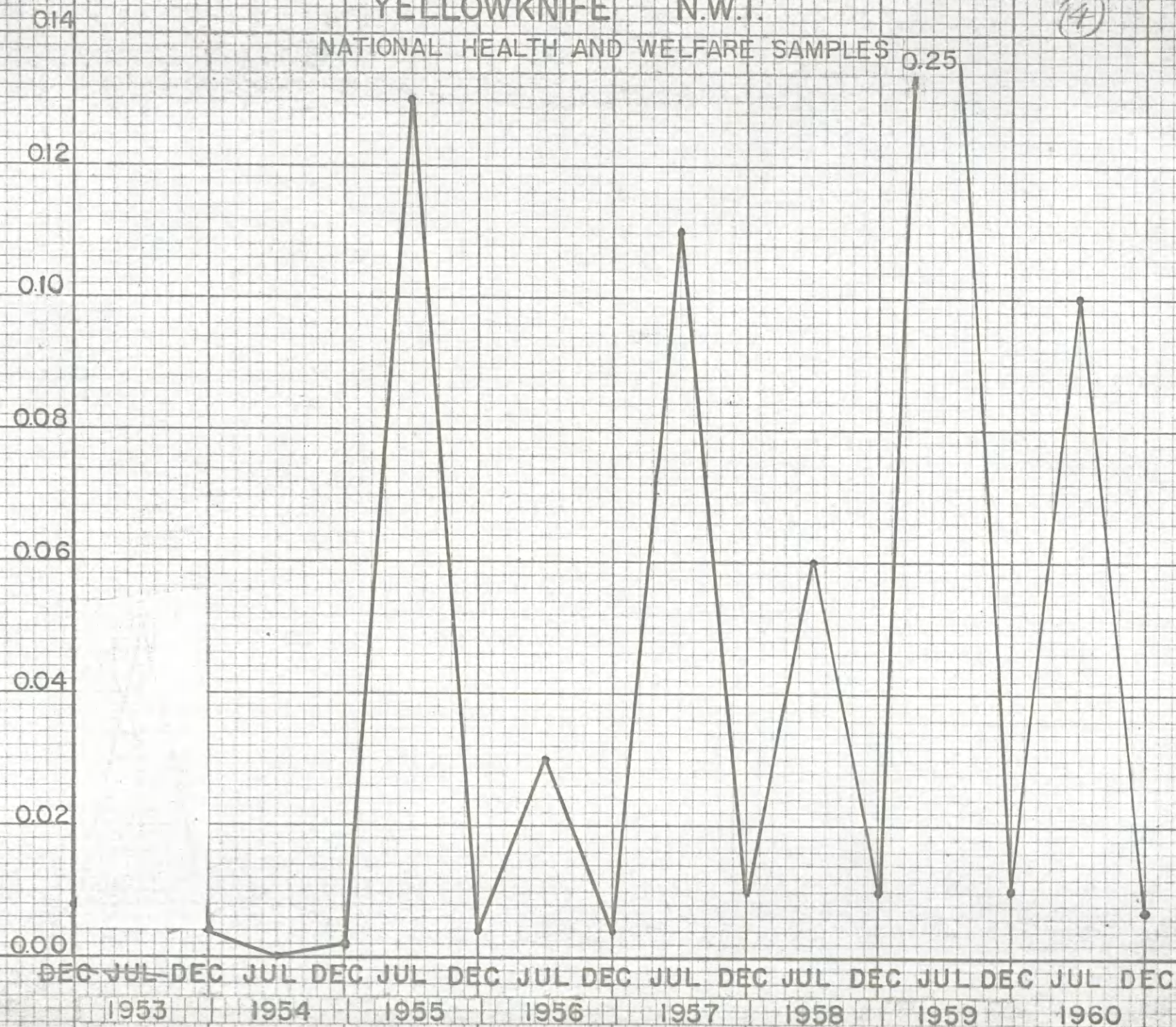
Yours sincerely,

J.
J.P. Windish,
Industrial Hygienist.

JPW/jr
c.c. Dr. M. Katz
Mr. J.L. Monkman

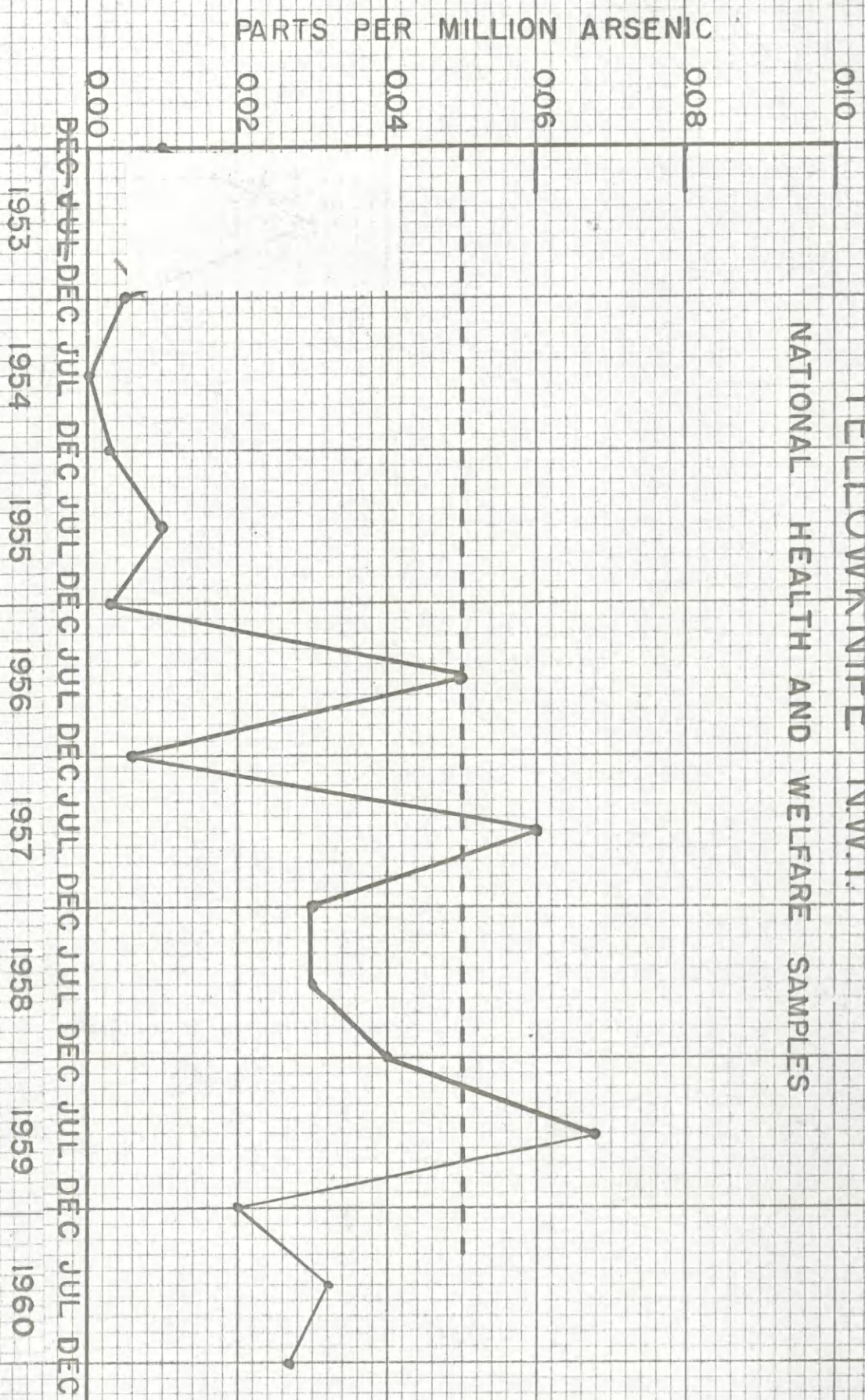
ARSENIC IN GIANT TAP WATER
YELLOWKNIFE N.W.T.

NATIONAL HEALTH AND WELFARE SAMPLES



ARSENIC IN TOWNSITE TAP WATER YELLOWKNIFE N.W.T.

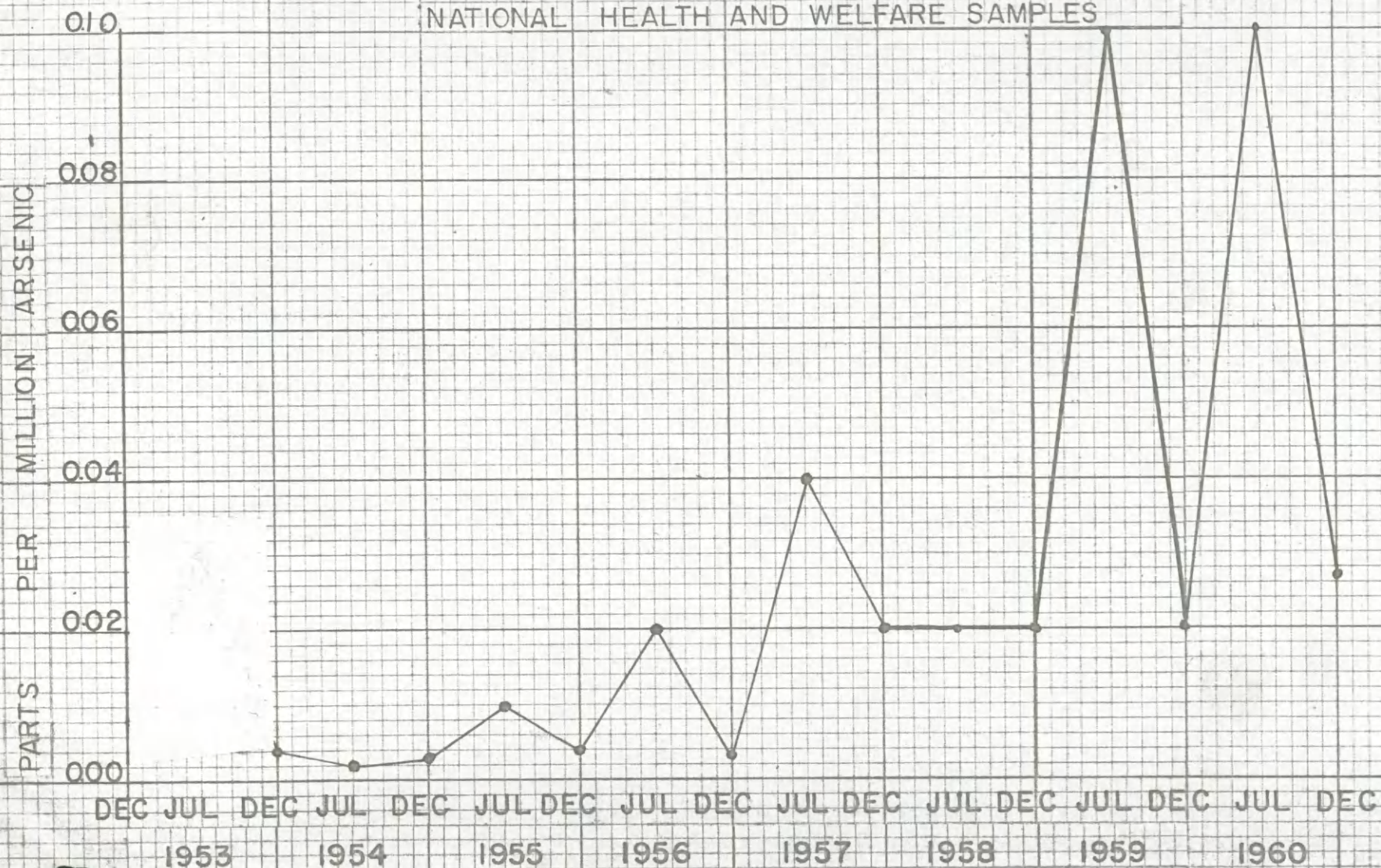
NATIONAL HEALTH AND WELFARE SAMPLES



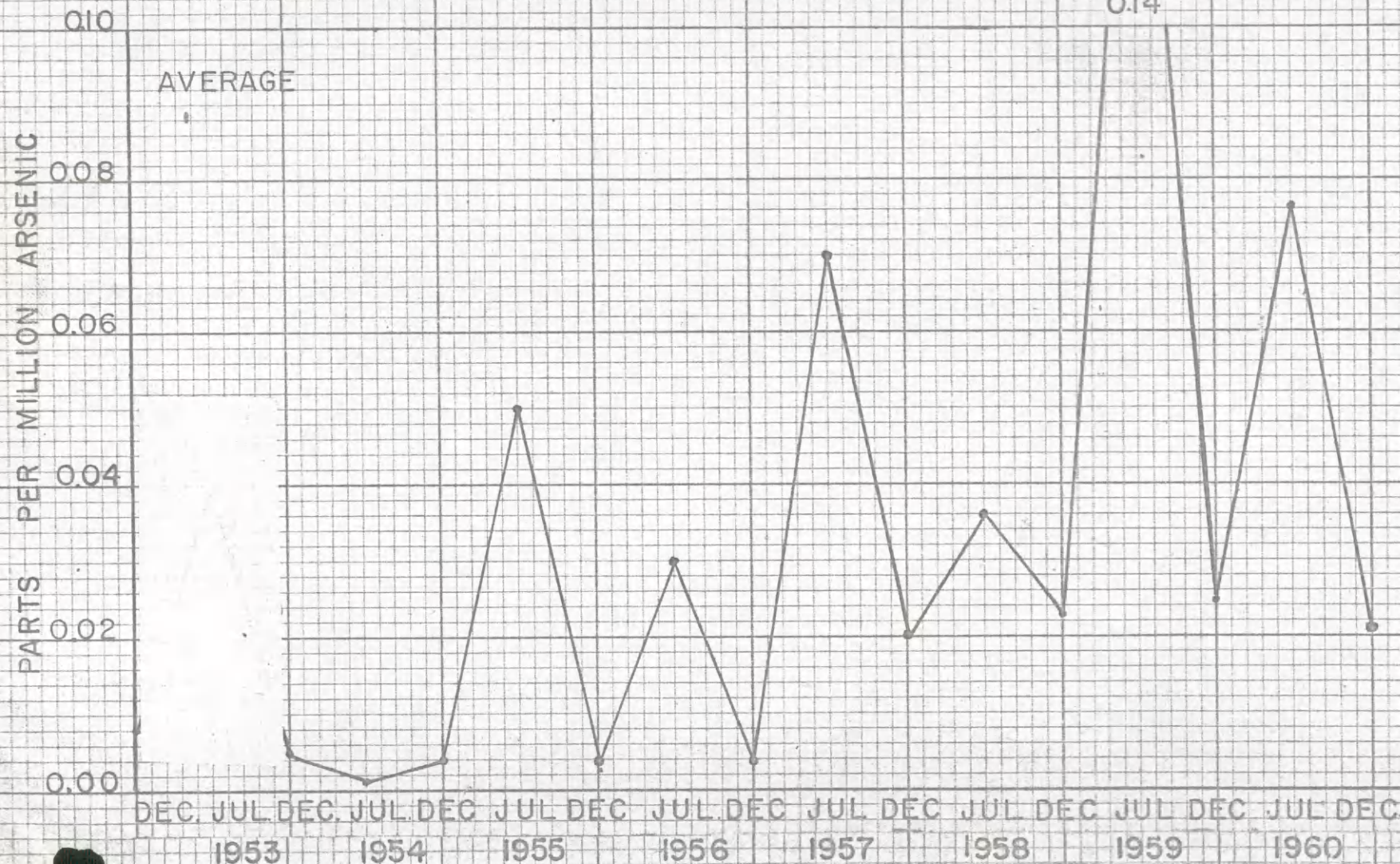
BRITISH MADE "MINI-MAX"

ARSENIC IN CON TAP WATER
YELLOWKNIFE N.W.T.

NATIONAL HEALTH AND WELFARE SAMPLES



ARSENIC IN TAP WATER
YELLOWKNIFE N.W.T.
NATIONAL HEALTH AND WELFARE SAMPLES



ARSENIC ON GRASSES AT YELLOWKNIFE

1954 - 1961

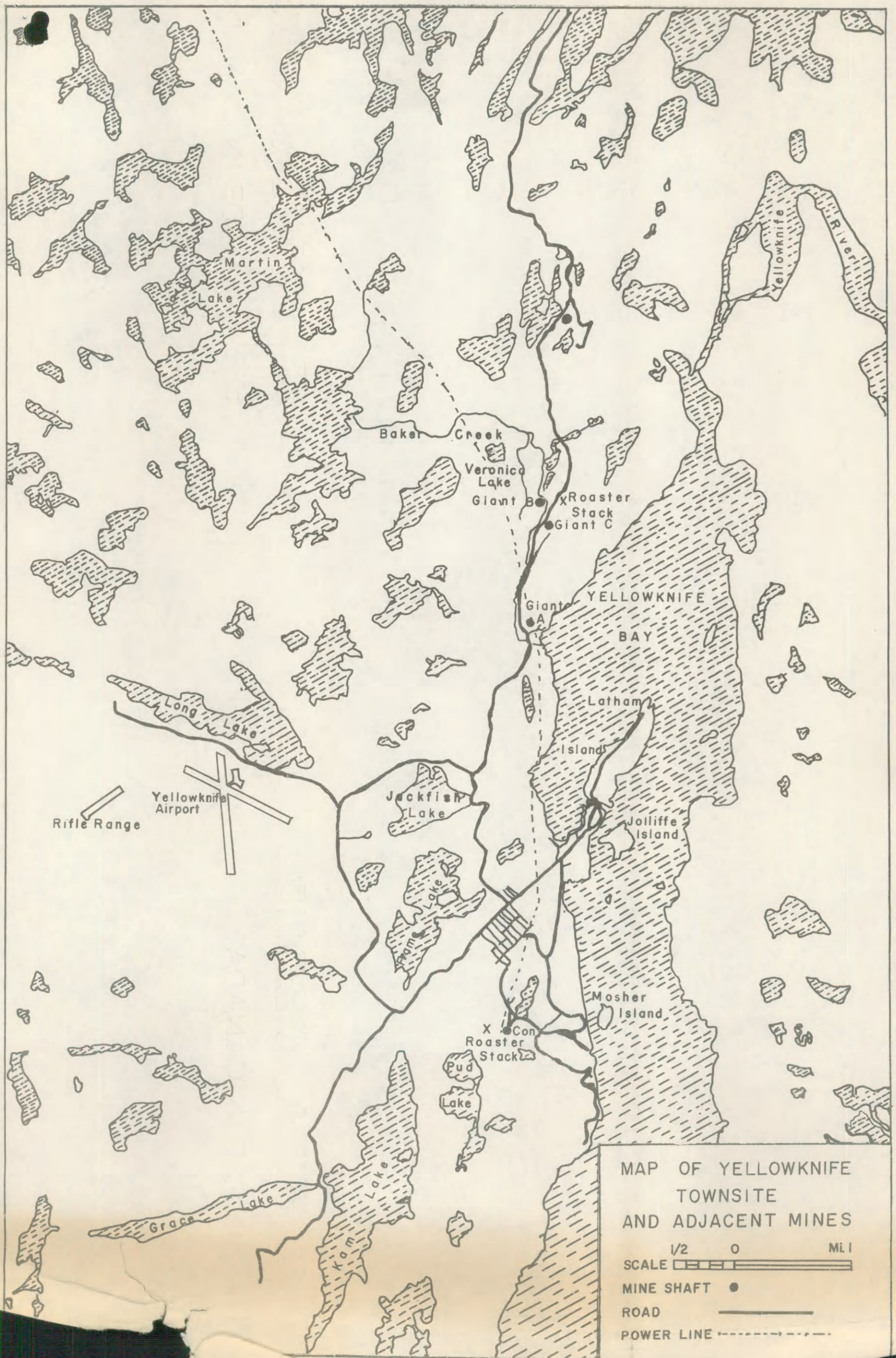
Each value is the average of results obtained from analysis of 27 grass samples, taken at 27 different locations in Yellowknife.

Year	ppm of As	
	Summer	Winter
1954	186	1226
1955	96	898
1956	135	768
1957	103	1413
1958	169	891
1959	19.6	154
1960	16.9	100
1961	14.7	105

ARSENIC, YELLOWKNIFE VEGETATION

JULY

Sample No.	1960	1952	1953	1957	1954	1955	1954
55.	25.6	36.3	640.0	110.0	352.0	190.0	230.0
56.	25.3	14.4	360.0	250.0	225.0	127.0	381.0
57.	17.1	10.6	80.0	63.0	42.0	12.0	121.0
58.	8.6	11.5	40.0	100.0	103.0	420.0	174.0
59.	34.2	77.5	130.0	933.0	200.0	163.0	663.0
60.	15.0	10.6	120.0	13.0	12.0	16.0	50.0
61.	17.1	15.0	130.0	20.0	72.0	28.0	95.0
62.	17.1	14.7	360.0	150.0	352.0	183.0	568.0
63.	3.20	10.7	700.0	123.0	251.0	224.0	680.0
64.	12.80	6.6	26.0	40.0	36.0	20.0	27.0
65.	17.1	22.1	180.0	163.0	95.0	76.0	23.0
66.	6.1	10.6	15.0	50.0	16.0	29.0	63.0
67.	2.20	7.0	28.0	0.0	5.0	2.0	33.0
68.	19.2	14.6	35.0	63.0	30.0	46.0	55.0
69.	8.6	6.7	100.0	206.0	391.0	236.0	232.0
70.	19.2	24.8	15.0	15.0	14.0	9.0	32.0
71.	19.2	22.4	92.0	21.0	18.0	43.0	82.0
72.	17.1	24.3	70.0	12.0	19.0	31.0	52.0
73.	36.2	6.0	45.0	67.0	36.0	33.0	27.0
74.	10.7	9.9	66.0	23.0	44.0	24.0	110.0
75.	33.4	46.2	120.0	28.0	28.0	23.0	485.0
76.	19.2	6.6	110.0	26.0	32.0	40.0	52.0
77.	15.0	16.9	45.0	23.0	6.0	23.0	52.0
80.	4.3	9.3	53.0	26.0	20.0	145.0	13.0
81.	10.7	13.6	160.0	62.0	39.0	23.0	61.0
82.	4.3	11.8	100.0	47.0	53.0	43.0	32.0
94.	32.1	69.6	760.0	123.0	422.0	328.0	604.0
96.							
AVGES.	16.9	19.6	169	103	135	96	176



8505-X751

Dec 21/65

P 4

Mean Values Arsenic Yellowknife Vegetation ppm

<u>Sample No.</u>	<u>July 7 years</u>	<u>Winter 8 years</u>
55	226	978
56	212	2228
57	49	749
58	122	909
59	315	1915
60	34	305
61	145	607
62	235	919
63	285	425
64	24	1037
65	106	770
66	27	858
67	39	440
68	38	215
70	76	516
71	18	265
72	43	354
73	32	395
74	36	219
75	41	322
76	110	394
77	41	273
80	27	566
81	39	274
82	53	372
94	42	979
96	334	1465

850-5-X751
V.H.
15-12-65

Mean Values Arsenic Yellowknife Waters ppm

<u>Sample No.</u>	<u>July 7 years</u>	<u>Winter 9 years</u>
1	1.07	1.44
2	2.29	2.75
3	3.10	3.37
4	0.05	0.02
5	8.56	14.62
6	0.10	0.003
7	0.39	0.02
8	0.52	0.07
9	0.38	0.01
10	0.74	1.17
11	0.54	0.50
12	0.04	0.02
15	0.37	0.64
17	1.95	3.02
18	8.27	11.02
19	2.70	3.37
20	0.74	1.00
22	0.04	0.01
23	2.60	2.67
79	0.02	0.02
92	0.05	0.02

79 Winter values mean of 5 years

79 July values mean of 5 years

#4.

MINUTE SHEET
INDIAN AND NORTHERN HEALTH SERVICES
DEPARTMENT OF NATIONAL HEALTH AND WELFARE

SUBJECT

Arsenic Pollution at Yellowknife.

PAGE

FILE NUMBER

850-5-X751

TO



M1

Dr. Procter

1. I have recently discovered that the problem of arsenic pollution at Yellowknife is far from solved.

2. Recent sampling of stack effluent shows that about 300 to 400 pounds of arsenic is being distributed into the local atmosphere every day in spite of the fact that the scrubbers and precipitators are working at 80-90% efficiency. Recent samplings of vegetables grown in the area show that cabbage and lettuce leaves contain from 40-50 ppm of arsenic although the recommended maximum is 1 ppm. Water samplings also show that it is way above the recommended U.S.P.H.S. recommended level of 0.01 ppm.

3. I feel that a full investigation of the problem should be carried out by Environmental Health. They were carrying out regular tests up to a few years ago but for no apparent reason stopped the survey. Mr. Monkman of Environmental Health feels that something should be done. With your permission, I intend to convene a meeting of

Environment Health
Public Health Engineering
D.N.A. Resources Division (Chief ^{mine} Survey Inspector)
Northern Health Service

to discuss what investigation or action should be taken.

M17

10 Dec. 65

1417
I would consider that we are obliged to take the initiative in this matter

no. 62. - me by an - real.

PLEASE USE THIS SIDE ONLY.