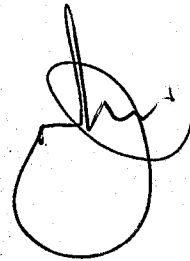


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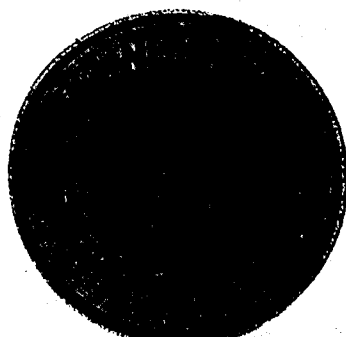


THE CPHA TASK FORCE

BY

N.W. T. STEELWORKERS

AREA COUNCIL



March 14, 1977  
YELLOWKNIFE

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## INTRODUCTION

THESE PAGES SUMMARIZE THE EFFORTS OF THE UNITED STEELWORKERS OF AMERICA TO WIN A SAFE WORKING ENVIRONMENT FOR THEIR MEMBERS. THIS BRIEF DRAWS UPON FILES, NEWS CLIPPINGS AND CONTRACTS, BUT A MAJOR SOURCE OF THIS UNION'S HISTORY AND ITS PREDECESSOR, THE YELLOWKNIFE DISTRICT MINERS UNION, CANNOT BE CITED IN FOOTNOTES OR PHOTO COPIES: THE UNWRITTEN STORY.

THE STRUGGLE FOR MINE SAFETY HAS BEEN WAGED ON THE JOB BY WORKERS WHOSE EFFORTS HAVE SELDOM BEEN ACKNOWLEDGED. THESE WORKERS HAVE ALWAYS BEEN CONCERNED ABOUT SAFETY, FIRST FROM A SENSE OF SELF-PRESERVATION: BUT THEY HAVE TO BALANCE THEIR INSTINCTS TO STAY ALIVE AGAINST THE COMPANY DEMANDS FOR PRODUCTION AND THEIR OWN NEED FOR WAGES.

THE CONCERNS OF MINERS AND THEIR UNION FOR HEALTH AND SAFETY HAVE USUALLY BEEN IGNORED BY MANAGEMENT AND GOVERNMENT. THE RESULT HAS BEEN A SENSE OF FRUSTRATION AND FOR MANY A SENSE OF FATALISM. THIS FRUSTRATION HAS SOMETIMES INSPIRED DIRECT ACTION, AS IN THE MASS WALKOUT AT THE INTERNATIONAL NICKEL COMPANY SINTERING PLANT IN SUDBURY IN 1956, THE CLOSURE OF THE ASBESTOS MINE IN MATACHEWAN IN 1976 AND THE WORK STOPPAGE AT THE GIANT YELLOWKNIFE MILL IN 1974. (APPENDICES # 1 AND 2)

IN SUCH CASES, WORKERS WEREN'T SIMPLY ACTING FOR THEIR OWN SAFETY, THEY WERE TAKING ON THE COMPANIES OVER ESTABLISHED MANAGEMENT RIGHTS. COMPANIES HAVE FOUGHT HARD TO MAINTAIN TOTAL CONTROL OF THEIR EMPLOYEES (THEY ARE ACTING ON THE COMMON-LAW TRADITION THAT CAN BE TRACED TO THE HISTORIC MASTER SLAVE RELATIONSHIP).<sup>1</sup>

WORKERS HAVE MADE SACRIFICES AND TAKEN RISKS TO CHALLENGE THIS MANAGEMENT RIGHT. INDEED THE FORMATION OF UNIONS WAS AND STILL IS TODAY AN ATTEMPT TO DEMOCRATIZE THE WORK PLACE. THE CONTRIBUTION IS DIFFICULT TO MEASURE IN HOURS OR DAYS. A WORK STOPPAGE OVER SAFETY AND HEALTH MIGHT REQUIRE EVERY WORKER'S COMMITMENT FOR A WEEK. TESTIMONY AT AN INQUEST MAY MEAN ONLY 15 MINUTES FROM ONE WORKER WITH THE COURAGE TO SPEAK OUT. WORKERS WHO ARE KNOWN AS SAFETY AND HEALTH ACTIVISTS MAY PAY FOR THEIR EFFORT BY BEING ASSIGNED THE DIRTIEST JOBS OR DENIED PROMOTIONS. IT IS IMPOSSIBLE TO CALCULATE OR QUANTIFY THE UNION'S CONTRIBUTIONS IN OCCUPATIONAL HEALTH IN MERE TIME AND MONEY.

## UNITED STEELWORKERS OF AMERICA

THE UNITED STEELWORKERS OF AMERICA BEGAN IN 1937 TO ORGANIZE WORKERS INTO AN INDUSTRIAL UNION. SINCE THOSE EARLY DAYS WE HAVE GROWN TO ALMOST 1.4 MILLION MEMBERS.

OUR UNION THOUGH SPANNING TWO COUNTRIES HAS A VERY EFFECTIVE SYSTEM OF OPERATION. OUR ORGANIZATION CONSISTS OF SEVERAL DISTRICTS AND AREAS EACH OF WHICH WORKS IN CO-ORDINATION WITH THE OTHERS.

WE HAVE AN INTERNATIONAL OFFICE IN PITTSBURGH, AND A NATIONAL OFFICE LOCATED IN TORONTO FOR CANADIAN STEELWORKERS AND DISTRICT OFFICES LOCATED IN MONTREAL (DISTRICT 5), TORONTO (DISTRICT 6), AND WINNIPEG, (PRESENTLY IN THE PROCESS OF MOVING TO VANCOUVER FOR DISTRICT 3).

OUR MEMBERSHIP IN CANADA TOTALS ALMOST 200,000 OF WHICH OVER 60,000 ARE ENGAGED IN THE MINING OR SMELTING PROCESSES. THESE 60,000 MEMBERS REPRESENT OVER 80% OF ALL THE HOURLY RATED EMPLOYEES ENGAGED IN THE MINING INDUSTRY THROUGHOUT CANADA.

OUR MEMBERSHIP IN CANADA HAVE THEIR OWN LOCALS, OF WHICH THERE ARE IN EXCESS OF 800 LOCAL UNIONS AND THOSE LOCALS HAVE OVER 1300 CONTRACTS WITH DIFFERENT COMPANIES. BECAUSE WE HAVE SO MANY LOCALS, WE ALSO HAVE AREA OFFICES THROUGHOUT EACH DISTRICT AND MAINTAIN STAFF IN EACH OF THE AREAS FOR SERVICING OF THE LOCAL UNIONS.

IN ADDITION, WE ALSO HOLD CONFERENCES AND CONVENTIONS BOTH AT THE LOCAL, DISTRICT, NATIONAL AND INTERNATIONAL LEVELS IN ORDER TO MAKE DECISIONS AND DISCUSS THE PROBLEMS FACING OUR MEMBERS THROUGHOUT THE ENTIRE UNION.

ONE OF THE MAJOR TOPICS OF DISCUSSION OVER THE LAST 20 YEARS HAS BEEN THE WHOLE ISSUE OF OCCUPATIONAL SAFETY AND HEALTH AND ITS RAMIFICATIONS.

## THE INTERNATIONAL OFFICE

THE STEELWORKERS' INTERNATIONAL HEADQUARTERS IN PITTSBURGH, PA., MAINTAINS A HEALTH AND SAFETY DEPARTMENT WITH A SIX-MEMBER STAFF, INCLUDING AN INDUSTRIAL HYGIENIST. THE DEPARTMENT WAS ESTABLISHED IN THE EARLY 1950'S. WHEN THE CONSTITUTIONAL CONVENTION OF 1956 DECLARED THAT ALL LOCALS OF THE UNION MUST FORM SAFETY COMMITTEES, THE WORK OF THE DEPARTMENT EXPANDED.

MANY OF THE HEALTH AND SAFETY OBJECTIVES THAT LED TO THE CREATION OF A SPECIAL SAFETY DEPARTMENT ARE STILL OF CONCERN TODAY. DISTRICT 36 STAFF REPRESENTATIVE, BRUCE THRASHER TOLD THE NATIONAL SAFETY CONGRESS IN CHICAGO IN 1958:

IN AN EFFORT TO SEEK THE OBJECTIVE OF PREVENTING ACCIDENTS THAT RESULT IN DEATH, PARTIAL OR TOTAL DISABILITY, AND TO INSTILL IN OUR MEMBERS A FEELING OF SAFETY RESPONSIBILITY, THE UNITED STEELWORKERS HAS WITHIN THE FRAMEWORK OF OUR ORGANIZATION AN INTERNATIONAL SAFETY AND HEALTH DEPARTMENT. THE PRIMARY FUNCTION OF THIS DEPARTMENT, UNDER DIRECTOR FRANK BURKE, IS TO ASSIST LOCAL UNIONS TO SET UP JOINT LABOUR-MANAGEMENT SAFETY COMMITTEES IN EVERY COMPANY UNDER OUR JURISDICTION.

CANADIAN STEELWORKERS USE THE INTERNATIONAL OFFICE SAFETY AND HEALTH DEPARTMENT CHIEFLY AS A SOURCE OF INFORMATION AND ADVICE. MOST ISSUES OF GENERAL POLICY IN THE SAFETY FIELD ARE VOTED ON AT THE STEELWORKERS CANADIAN POLICY CONFERENCE, HELD EVERY OTHER YEAR.

BECAUSE WE ARE PART OF A LARGE UNION SPANNING POLITICAL BOUNDARIES, MINE WORKERS AND OTHER MEMBERS OF OUR UNION HAVE DIRECT ACCESS IN BOTH COUNTRIES TO INFORMATION CONSIDERED USEFUL IN THE CAMPAIGN FOR SAFER WORKING CONDITIONS. THE STAFF AND LOCALS OF THE CANADIAN DISTRICTS EXCHANGE INFORMATION REGULARLY THAT BENEFITS MEMBERS OF THE UNION IN EACH COUNTRY ON OCCUPATIONAL HEALTH AND OTHER MATTERS OF COMMON INTEREST.

RECENTLY THE INTERNATIONAL SAFETY AND HEALTH DEPARTMENT ARRANGED THE PARTICIPATION OF DR. IRVING SELIKOFF AT OUR 1975 POLICY CONFERENCE.

## NATIONAL POLICY CONFERENCE

THE NATIONAL POLICY CONFERENCE FOR CANADA IS THE WAY STEELWORKERS THROUGHOUT CANADA SET THE GENERAL COURSE OF THEIR UNION IN THIS COUNTRY. QUESTIONS OF SAFETY AND HEALTH HAVE ALWAYS BEEN IMPORTANT ON THE AGENDAS AT THESE CONFERENCES SINCE THEY BEGAN IN 1947.

THE FOLLOWING ARE SOME OF THE SAFETY AND HEALTH MATTERS VOTED ON AT THE CONFERENCES OF THE EARLY 1960's, WHEN OUR UNION'S STRENGTH IN CANADIAN MINING INDUSTRY WAS GROWING.

1960 - AMONG THE RESOLUTIONS PASSED ON HEALTH:

- COMPANIES SHOULD PROVIDE ALL NECESSARY SAFETY EQUIPMENT.
- EVERY EFFORT SHOULD BE MADE TO GET LOCAL SAFETY COMMITTEES RECOGNIZED BY MANAGEMENT IN THE COLLECTIVE AGREEMENT.

1961 - (UNTIL 1975 POLICY CONFERENCES WERE HELD EVERY YEAR).

### OCCUPATIONAL HEALTH

WE MUST PLACE GREATER EMPHASIS ON THE HEALTH OF WORKERS ON THE JOB. YOUR UNION HAS BEEN STRESSING THE NECESSITY OF A FULL STUDY OF SUCH HEALTH PROBLEMS. WE ARE ALREADY FACED WITH SOME 5000 CHEMICALS USED IN INDUSTRY AND NEW ONES ARE BEING INTRODUCED AT THE RATE OF 500 A YEAR.

SINCE A VERY LIMITED NUMBER OF DOCTORS HAVE THE NECESSARY EXPERIENCE IN THIS FIELD, IT IS IMPORTANT THAT WE TAKE GREATER INTEREST IN IT. WE CAN DO THIS BY INFORMING ALL OUR MEMBERS HOW TO IMPROVE HEALTH CONDITIONS BY INDUSTRIAL HYGIENE AND BY STUDYING THEIR WORKING ENVIRONMENT AND REPORTING ALL SUSPECTED CAUSES OF ILLNESSES. YOUR FAMILY DOCTOR WILL BE GREATLY ASSISTED IF HE IS TOLD WHAT YOUR WORKING CONDITIONS ARE. HE WILL THEN BE ABLE TO DIAGNOSE ILLNESS WHICH RESULT FROM GAS, FUMES, DUST, ETC., ALTHOUGH THE SYMPTOMS ARE SIMILIAR TO THOSE OF FLU, PNEUMONIA AND COLDS.

FOR TOO MANY YEARS THERE HAS BEEN LACK OF CONCERN ABOUT INDUSTRIAL DISEASES. THE PART THEY PLAY IN CAUSING DISABILITIES COMMON TO MANKIND HAS BEEN UNDERESTIMATED. SOME OLD INDUSTRIAL DISEASES, SUCH AS LEAD POISONING, HAVE LONG BEEN RECOGNIZED, BUT WE ARE CONTINUALLY FACED WITH NEW ONES - PNEUMOCOSIS FOR EXAMPLE. STATISTICS REVEAL THAT, FOR EVERY DAY LOST THROUGH INDUSTRIAL DISPUTES, SEVEN ARE LOST THROUGH ACCIDENTS AND NO FEWER THAN 100 THROUGH ILLNESSES. WE MUST THEREFORE STRIVE FOR FULL PROMOTION OF HEALTH, SAFETY AND WELFARE IN FACTORIES, MINES AND OTHER INDUSTRIAL PREMISES. WE MUST DISSEMINATE INFORMATION AND WE MUST WRITE APPROPRIATE CLAUSES IN OUR COLLECTIVE AGREEMENTS.

PNEU-MO-KO-MI-O-15

SEE APPENDIX # 4 FOR UNITED STEELWORKERS OF AMERICA NATIONAL POLICY CONFERENCE REPORT OF THE COMMITTEE ON SAFETY AND HEALTH. - APRIL 27 - 29, 1961.

## DISTRICT OFFICE

THE EMPHASIS THE STEELWORKERS PUT ON HEALTH AND SAFETY IS DETERMINED AT THE NATIONAL POLICY CONFERENCE. THE EXTENT TO WHICH THESE POLICIES ARE CARRIED OUT DEPENDS, IN THE END, ON THE LOCAL UNIONS AND THEIR ELECTED LEADERSHIP. ACTION ON OCCUPATIONAL HEALTH IS THE ROLE OF THE LOCALS, THE DISTRICT OFFICE AND ITS STAFF, WHO ARE ASSIGNED WHEREVER THE STEELWORKERS HAVE MEMBERS.

DISTRICT 3 (MEMBERS IN THE NORTHWEST TERRITORIES WERE IN DISTRICT 6 UNTIL AUGUST OF 1976 WHEN WE FORMED OUR OWN NEW DISTRICT IN THE WEST) PROVIDES ORGANIZING, BARGAINING AND COMMUNICATION FOR MINERS FROM THE MANITOBA - ONTARIO BORDER BOTH WEST AND NORTH, AND THE DISTRICT PROVIDES LEADERSHIP AND CO-ORDINATION. OVER HALF OF OUR 30,000 MEMBERS IN DISTRICT 3, WORK IN MINES, MILLS, SMELTERS AND OTHER PLACES IN THE MINING INDUSTRY.

THE NEED FOR MINERS TO KEEP IN TOUCH EXPLAINS THE EMERGENCE OF OUR MINING NEWSPAPER, THE MINERS VOICE IN 1959.

THE DISTRICT HAS ALSO CALLED ITS MEMBERS TOGETHER ON PARTICULAR SAFETY ISSUES. IN 1958, DURING THE URANIUM BOOM PERIOD, A SPECIAL TWO DAY CONFERENCE WAS CONVENED IN ELLIOT LAKE. IN 1967, THE THEN DIRECTOR OF DISTRICT 6, LARRY SEFTON, CALLED A SAFETY CONFERENCE FOR LATER THAT YEAR. THE MINERS VOICE LISTED SOME OF THE TOPICS DISCUSSED AT THE CONFERENCE.

THERE WAS NO JOINT SAFETY COMMITTEES IN THE TIMMINS MINES ----  
DELEGATES FROM ELLIOT LAKE COMPLAINED ABOUT RADIATION AND NEW BACTERIOLOGICAL LEACHING PROBLEMS IN THE URANIUM INDUSTRY.  
DELEGATES FROM THE OPEN PIT MINES CITED SAFETY AND HEALTH PROBLEMS ARISING OUT OF DUST AND OF NEEDED SAFETY PRACTICES IN THE USE OF ELECTRICAL EQUIPMENT AND EXPLOSIVE MATERIALS.

BEGINNING IN 1974, SPECIAL CONFERENCES FOR GOLD MINING WERE HELD WITH THE FIRST OF THESE CONFERENCES HELD ON MARCH 4TH AND 5TH IN WINNIPEG, MANITOBA. DELEGATES FROM ONTARIO, QUEBEC AND NORTHWEST TERRITORIES GOLD MINES WERE IN ATTENDANCE TO DISCUSS PROBLEMS OF MUTUAL INTEREST.

LOCALS IN THE DISTRICT ALSO EXCHANGE INFORMATION DIRECTLY AND BY WAY OF THEIR STAFF REPRESENTATIVES. AS WITH MANY OTHER PHASES OF UNION ACTIVITY, MUCH OF THIS COMMUNICATION IS BY TELEPHONE.

THE LEADERS OF OUR DISTRICTS HAVE ALWAYS BEEN OUTSPOKEN ON HEALTH AND SAFETY MATTERS, FROM FORMER DIRECTOR SEFTON'S ADDRESS TO THE FIRST CANADIAN CONFERENCE ON URANIUM AND ATOMIC ENERGY BACK IN 1960 TO DIRECTOR LYNN WILLIAM'S ARTICLE ON THE MINING INDUSTRY IN MAY 1973, EDITION OF THE NORTHERN MINER TO DISTRICT 3 DIRECTOR, H. L. STEVENS' ARTICLE IN THE JANUARY 1977 EDITION OF THE VOICE OF LABOUR.

WILLIAMS TOLD THE NORTHERN MINER'S MANAGEMENT READERSHIP:

IF YOU THINK YOU'RE SEEING AN INCREASE IN WILDCAT STRIKES OVER SAFETY RECENTLY, YOU'RE PROBABLY RIGHT. HEATH STEELE MINES, BRUNSWICK MINING AND ENDAKO ARE SITES OF SOME RECENT WALKOUTS OVER SAFETY. THIS MILITANCY IS THE MINERS' FEELING THAT DEATH IN THE SHAFTS IS UNNECESSARY. (APPENDIX # 5)

DISTRICT 3 DIRECTOR, LEN STEVENS, SAID TO THE READERS OF VOICE OF LABOUR:

THE BREAKTHROUGHS THAT HAVE BEEN MADE IN ONTARIO WITH THE HAM COMMISSION AND ITS REPORT ON MINE SAFETY MUST BE FOLLOWED WITH SOLID LEGISLATION IN EVERY PROVINCE AND THE TERRITORIES, THAT WILL PROTECT OUR MEMBERS AND ALL OTHER WORKING PEOPLE FROM PAYING WITH THEIR LIVES FOR THE RIGHT TO EARN A LIVING.

WE IN THE WEST HAVE A PARTICULAR PROBLEM WITH MINE SAFETY AND OUR LIST OF DEAD AND INJURED CONTINUES TO GROW LIKE SOME CASUALTY REPORT FROM A WAR. WE SHOULD NOT BE SATISFIED UNTIL ALL WORKERS IN EVERY JURISDICTION HAVE THE RIGHT UNDER LAW TO REFUSE TO WORK WITHOUT PENALTY, SHOULD THEY JUDGE IT HAZARDOUS TO THEIR HEALTH AND SAFETY. IT IS A PRIORITY ITEM THAT WILL RECEIVE A GREAT DEAL OF ATTENTION IN DISTRICT 3, AS I AM SURE IT WILL IN EVERY OTHER JURISDICTION OF OUR UNION. (APPENDIX # 6)



# NORTHWEST TERRITORIES STEELWORKERS AREA COUNCIL

THE NORTHWEST TERRITORIES AREA COUNCIL OF THE UNITED STEELWORKERS OF AMERICA WAS FORMED IN 1967, SHORTLY AFTER THE MERGER OF THE UNITED STEELWORKERS AND THE MINE MILL AND SMELTER WORKERS TO AID AND ASSIST THE MEMBER LOCALS THROUGH THE DISTRIBUTION OF INFORMATION AND TO ACT AS THE CO-ORDINATING BODY FOR OUR NORTHWEST TERRITORIES LOCALS.

OUR AREA COUNCIL HAS PRESENTED MANY BRIEFS AND SUBMISSIONS ON BEHALF OF, NOT ONLY OUR MEMBERS, BUT INDEED ALL THE RESIDENTS OF THE NORTHWEST TERRITORIES. SOME OF THE MAJOR PRESENTATIONS WERE THE STEELWORKERS SUBMISSION TO THE LEGGE COMMISSION ON WORKERS' COMPENSATION IN OCTOBER OF 1972, TO THE COMMISSIONER AND EXECUTIVE IN JANUARY OF 1977 AND OUR SUBMISSION TO THE COMMISSIONER IN DECEMBER OF 1975 REGARDING THE MINE SAFETY ORDINANCE.

IN OUR SUBMISSION TO THE LEGGE COMMISSION WE STATED:

## INDUSTRIAL HYGIENE:

WE BELIEVE THERE IS MUCH TO BE DONE IN THE FIELD OF PREVENTATIVE ACTION TO FORESTALL AND MITIGATE EFFECTS OF CERTAIN INDUSTRIAL PROCESSES WHICH GIVE RISE TO VARIOUS INDUSTRIAL DISEASES. AN EFFECTIVE PROGRAM REQUIRES THE CO-OPERATION OF THE HEALTH AUTHORITIES, PEOPLE ADMINISTERING THE COMPENSATION ORDINANCE, MANAGEMENT AND EMPLOYEE ORGANIZATIONS. (APPENDIX # 7)

IN OUR PROPOSED MINING SAFETY ORDINANCE WE STATED THAT WE WANTED:

1. THE RIGHT TO REFUSE TO WORK IN UNSAFE CONDITIONS WITHOUT FEAR OF REPRISALS;
2. THE RIGHT TO KNOW THAT HAZARDOUS CHEMICALS ARE PROPERLY STORED AND LABELLED;
3. THAT MAXIMUM THRESHOLD LIMIT VALUES BE SET AND ENFORCED.

COPIES OF THESE PROPOSED CHANGES WERE SENT TO THE MINES MANAGEMENT, MINES INSPECTION SERVICES AND JUDD BUCHANNAN, THEN THE MINISTER OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT. AS USUAL, NOTHING WAS DONE TO IMPLEMENT ANY OF THESE CHANGES.

IN JUNE OF 1975, THE AREA COUNCIL SENT A SHARPLY WORDED TELEGRAM TO MR. LALONDE ASKING WHAT, IF ANYTHING, THE FEDERAL GOVERNMENT WAS GOING TO DO TO CORRECT THE ARSENIC SITUATION IN YELLOWKNIFE. IN ANSWER TO THE TELEGRAM, MR. LALONDE'S DEPARTMENT STATED THAT THEY WERE GOING TO DO FURTHER TESTING. (APPENDICES # 8 AND 9).

ALSO IN JUNE OF 1975 ANOTHER LETTER WAS SENT TO MR. LALONDE REQUESTING A GRANT OF \$20,000. IN ORDER THAT WE COULD CONDUCT OUR OWN TESTING. THIS REQUEST

WAS ALSO DENIED. (APPENDICES # 10 AND 11).

AT THE ANNUAL MEETING OF THE AREA COUNCIL HELD ON JUNE 14TH AND 15TH, 1975, THERE WAS A LENGTHY DISCUSSION ON THE ARSENIC SITUATION AND A RESOLUTION WAS PASSED REQUESTING THAT THE AREA COUNCIL DEMAND THAT THE GOVERNMENT BE REQUIRED TO INSTITUTE A COMPLETE MEDICAL EXAMINATION FOR OUR MEMBERS, THEIR FAMILIES AND ALL OTHER RESIDENTS OF YELLOWKNIFE, (APPENDIX # 12).

FOLLOWING THE ANNUAL MEETING A NEWSLETTER WAS SENT TO ALL THE EXECUTIVE, SAFETY COMMITTEEMEN AND UNION STEWARDS OF LOCALS 802, 803 AND 7288 REQUESTING THAT THEY MAKE SUGGESTIONS ON OTHER AVENUES THAT SHOULD BE FOLLOWED. (APPENDIX #13).

## COMINCO LTD. - CON - RYCON PROPERTY

THE PRESENCE OF GOLD IN THE YELLOWKNIFE AREA WAS ESTABLISHED IN 1935, WHEN THE GEOLOGICAL SURVEY OF CANADA ANNOUNCED A SMALL SHOWING OF FREE GOLD ABOUT TWO MILES FROM WHAT IS NOW THE CON LOCATION. COMINCO FLEW IN MEN TO STAKE CLAIMS AND IN 1937 CONSTRUCTION AND SHAFT SINKING BEGAN. THE FIRST GOLD BRICK WAS POURED ON SEPTEMBER 5, 1938. BY 1941 THERE WAS ENOUGH ORE TO EXPAND THE MILL FROM 200 TO 350 TONS PER DAY.

IN 1943 PRODUCTION WAS STOPPED BECAUSE OF THE WAR. IT WAS DURING THIS TIME THAT THE COMPANY DEVELOPED THE THEORY THAT AS A RESULT OF AN ANCIENT SLIPPAGE IN THE EARTH'S CRUST, A CONTINUATION OF GIANTS' MINERALIZATION COULD BE FOUND DEEP IN THE CON CLAIMS. DRILLING IN 1946 INTERSECTED THIS ORE AT 2300 FEET IN WHAT IS NOW KNOWN AS THE CAMPBELL SHEAR ZONE. TO DATE CON HAS PROCESSED OVER 5,000,000 TONS OF ORE AND RECOVERED MORE THAN 3,000,000 OUNCES OF GOLD.

THE GOLD ORE OCCURS IN LENSES OR POCKETS OF QUARTZ AND IS CHARACTERIZED BY 75% QUARTZ, 9% CHLORITE, 2% CARBONATES, 2% PYRITE AND 1.4% ARSENO-PYRITE. THE LENSES ARE LOCATED BY DIAMOND DRILLING AND THE GOLD BEARING POCKETS ARE REACHED BY TUNNELS. THE PRINCIPAL METHOD OF MINING IS BY CUT AND FILL.

ORE HOISTED FROM UNDERGROUND IS CRUSHED TO MINUS 3/4 INCH SIZE AND THEN GROUND IN A BALL MILL WITH CYANIDE SOLUTION TO LIBERATE OR EXPOSE THE SURFACE OF THE GOLD. THE SLURRY IS AGITATED IN LARGE TANKS TO DISSOLVE THE GOLD, WHICH PERMITS THE SOLIDS TO BE FILTERED OUT AND SENT TO WASTE AS TAILINGS. THE "PREGNANT" SOLUTION IS THEN PUT THROUGH A PRECIPITATION UNIT UNDER VACUUM TO REMOVE ALL OXYGEN AND AT THIS STAGE FINE ZINC DUST IS ADDED TO PRECIPITATE THE GOLD. THE PRECIPITATE IS THEN FILTERED FROM SOLUTION WHICH GIVES A "BARREN SOLUTION" WHICH IS REUSED IN DISSOLVING GOLD FROM THE ORE. THE GOLD ZINC PRECIPITATE IS FLUXED AND REFINED IN TWO OIL FIRED GOLD BULLION FURNACES AND THE GOLD BRICKS ARE POURED. THE GOLD BRICKS CONTAIN APPROXIMATELY 20% SILVER.

IT IS ESTIMATED THAT DURING THE EARLY YEARS OF OPERATION, TWO TO THREE TONS OF ARSENIC TRI-OXIDE PER DAY WAS RELEASED DIRECTLY INTO THE ATMOSPHERE FROM THE CON STACK AND IN THE PERIOD FROM 1954 TO 1969 AN AVERAGE OF SLIGHTLY MORE THAN 400 POUNDS PER DAY. (2)

IN 1970 THE ROASTER AT CON WAS SHUT DOWN AND THE CYANIZATION SYSTEM WAS USED TO EXTRACT THE GOLD FROM THE ORE.

## GIANT YELLOWKNIFE MINES LIMITED

GIANT YELLOWKNIFE MINES LIMITED IS LOCATED ON THE NORTH SHORE OF GREAT SLAVE LAKE NEAR THE CITY OF YELLOWKNIFE. IN SEPTEMBER OF 1935, A GEOLOGICAL SURVEY REPORTED VISIBLE GOLD IMMEDIATELY SOUTH OF THE 21 CLAIMS THAT GIANT HAD STAKED IN JULY OF 1935. IN JUNE OF 1943, A DRILLING PROGRAM WAS COMMENCED AND THERE WERE EARLY ESTIMATES OF 3,000,000 TONS, AVERAGING .41 OUNCES OF GOLD PER TON. GIANT HAS DEVELOPED INTO ONE OF CANADA'S RICHEST GOLD MINES. INITIAL PRODUCTION STARTED IN 1948, AND SINCE THEN MORE THAN 8,400,000 TONS OF ORE HAS BEEN PROCESSED AND MORE THAN 210,000,000 DOLLARS IN GOLD HAS BEEN RECOVERED.

THE GOLD ORE OCCURS AT IRREGULAR INTERVALS AND IS CHARACTERIZED BY 40% TO 80% QUARTZ - CARBONATE AND ABOUT 10% PYRITE, ARSENOPYRITE AND MISCELLANEOUS SULPHANTIMONIDES. MORE THAN 20 METALIC MINERALS HAVE BEEN IDENTIFIED IN THE ORE.

THE PRINCIPAL MINING METHOD AT GIANT IS CUT AND FILL STOPING WHICH ACCOUNTS FOR 50% OF PRODUCTION. SHRINKAGE STOPING IS ALSO USED WHERE POSSIBLE. OPEN STOPING HAS BEEN EMPLOYED FOR SMALLER ORE BODIES, TIMBERED CUT AND FILL STOPING FOR PILLAR RECOVERY AND LONG-HOLE STOPING FOR LOW GRADE ZONES. SINCE 1974 GIANT MINE HAS ALSO BEEN RECOVERING ORE THROUGH OPEN PIT MINING.

ORE HOISTED FROM UNDERGROUND IS REDUCED TO 3/8 INCH SIZE BY JAW AND CONE CRUSHERS. AFTER CRUSHING, THE ORE IS GROUND TO A FINE SIZE AND PUMPED TO THE FLOATATION CIRCUITS. THE WASTE ROCK IS REMOVED AND THE FLOATATION CONCENTRATE IS PUMPED TO THE ROASTING SECTION OF THE PLANT. THE PRODUCT OF THE ROASTING PROCESS IS A POROUS CALCINE. THE CALCINE IS WASHED IN WATER AND PUMPED BACK TO THE MAIN MILL BUILDING WHERE SODIUM CYANIDE AND LIME ARE ADDED. THESE AGENTS, IN THE PRESENCE OF OXYGEN, DISSOLVE THE GOLD FROM CALCINE. THE RESULTING "PREGNANT" SOLUTION IS DEOXYGENATED AND GOLD IS PRECIPITATED OUT BY ADDING ZINC DUST. THE PRECIPITATE IS REFINED INTO GOLD IN A TILTING BULLION FURNACE.

DUST FROM THE ROASTING PROCESS IS COLLECTED IN HOT COTTRELL PRECIPITATORS. IT IS THEN QUENCHED AND GOLD IS EXTRACTED BY A SIMILIAR CYANIDE PROCESS BUT USING ACTIVATED CARBON AS THE COLLECTING AGENT. ABOUT 4% OF THE TOTAL GOLD OUTPUT IS COLLECTED THIS WAY.

ARSENIC AND ANTIMONY OXIDES GIVEN OFF IN THE ROASTING PROCESS ARE COLLECTED BY COOLING THE GASES AND FILTERING THEM THROUGH ORLON BAGS. THE COLLECTED DUST IS PUMPED UNDERGROUND AND STORED IN ARSENIC STOPES. THE FILTERED GASES ARE DISCHARGED INTO THE ATMOSPHERE THROUGH A 150 FOOT STACK.

THE FIRST PRECIPITATOR WAS INSTALLED IN 1951, THE SECOND IN 1955 AND THE BAG HOUSE WHERE THE ARSENIC IS COLLECTED IN 1958. A NEWS STORY IN THE JANUARY 1959 EDITION OF THE NORTHERN MINER STATED "THE EQUIPMENT INCLUDES A BAG HOUSE, DESIGNED TO COPE WITH THE ARSENIC PROBLEM, WHICH WILL ALSO PERMIT RECOVERY OF GOLD-BEARING DUSTS FORMERLY EXHAUSTED TO THE ATMOSPHERE.

(APPENDIX # 14)



## GIANT MINES BARGAINING HISTORY

DURING THE BARGAINING SESSION OF 1958 BETWEEN LOCAL 802 AND GIANT YELLOWKNIFE MINES, THE COMPANY REFUSED TO MAKE ANY OFFER ON A GENERAL WAGE INCREASE BUT MADE SOME CONCESSIONS IN THE WAY OF "DIRT PAY" IN THE MILL. BARGAINING BROKE DOWN AND A FEDERAL CONCILIATION OFFICER WAS BROUGHT IN TO HELP RESOLVE THE MATTER. EVENTUALLY A NEW CONTRACT WAS AGREED TO AND A PRESS RELEASE WAS ISSUED BY THE UNION. ONE OF THE HIGHLIGHTS OF THE NEW AGREEMENT WAS THAT A LIST OF JOBS AND PLACES IN THE TREATMENT PLANT WAS ESTABLISHED WHERE "DIRT PAY" WAS PAID. THE "DIRT PAY" WAS A PREMIUM OF 25¢ A HOUR OVER THE REGULAR PAY. (APPENDICES # 15 AND 16).

SOME OF THE DEMANDS FROM THE MILL EMPLOYEES FOR A NEW CONTRACT IN 1959 WERE THAT A WAGE RATE BE SET FOR PUMPING DUST IN THE BAG HOUSE AND THAT EMPLOYEES WORKING IN DUST CONTAMINATED AREAS SHOULD RECEIVE TIME AND ONE HALF PAY. (APPENDIX # 17).

FINALLY IN 1962 THE COMPANY ISSUED A MEMO TO COVER A VARIETY OF JOBS AND THEIR RESPECTIVE PREMIUM RATES FOR WORKING IN THE ROASTER AREAS.

THESE PREMIUM RATES HAVE CARRIED ON THROUGH THE YEARS AND HAVE BECOME COMMONLY REFERRED TO AS "ARSENIC TIME". THESE PREMIUMS ARE STILL IN EFFECT TODAY AND ARE ENSHRINED IN THE PRESENT CONTRACT BETWEEN GIANT MINES AND THE WORKERS. THE AFFECT OF THE PREMIUM RATES MEANS THAT AN EMPLOYEE WORKING IN CERTAIN AREAS OF THE MILL COULD EARN AS HIGH AS \$18.00 AN HOUR. (APPENDIX # 18).

BECAUSE OF THE HIGH HOURLY RATES OF PAY THAT CAN BE EARNED IN CERTAIN MILL JOBS, ONE CANNOT HELP BUT WONDER WHY THE COMPANY CONTINUES TO PAY THESE PUNITIVE RATES. IF THERE IS NO PROBLEM WITH ARSENIC AND EVERYTHING IS UNDER CONTROL, WHY PAY?

## ARSENIC EXPOSURE AND IT'S EFFECTS

ARSENIC CAUSES CANCER. A MULTITUDE OF MEDICAL STUDIES VERIFY THIS CLAIM. IT IS A STATEMENT OF FACT — NOT A HYPOTHESIS. SHORT OF CANCER CAUSING PROPERTIES, ARSENIC POISONING AT CHRONIC LOW LEVELS FROM INHALATION OR SKIN EXPOSURE CAUSES DERMATITIS, INTOXICATION, EXTREME NERVOUS SYMPTOMS, MUSCULAR ATROPHY AND PARALYSIS, LIVER DEGENERATION AND OTHER SERIOUS SYMPTOMS.

HT-RO-PHY

THESE MEDICAL TRUTHS HAVE BEEN KNOWN FOR A LONG TIME. THEY ARE NOT JUST RECENT FINDINGS.

AS EARLY AS 1820 A STUDY OF CORNWALL AND WALES IN THE BRITISH ISLES REVEALED THAT PEOPLE EXPOSED TO ARSENIC FUMES FROM COPPER SMELTERS WERE MORE LIKELY TO DEVELOP CANCER OF THE SCROTUM THAN PEOPLE WHO HAD NOT BEEN EXPOSED. (4).

IN 1900, THERE WAS AN OUTBREAK OF ARSENIC POISONING IN MANCHESTER, LANCASHIRE AND STAFFORDSHIRE IN ENGLAND. THE POISONINGS WERE TRACED TO ARSENIC CONTAMINATED BEER. (5).

SLOWLY EVIDENCE OUTLINING THE HAZARDS OF ARSENIC EXPOSURE BEGAN TO MOUNT. THE FOLLOWING ARE JUST A FEW OF THE MANY HORRIBLE EXAMPLES THAT CAN BE USED TO DEMONSTRATE HOW MENACING ARSENIC REALLY IS.

BY 1940 AN EXAMINATION OF VINE DRESSERS AND CELLARMAN HAD BEEN PUBLISHED IN GERMANY STATING THAT A LARGE NUMBER OF MEN TESTED SHOWED VASCULAR DISORDERS IN THE EXTREMITIES. ARSENIC BASED INSECTICIDES WERE USED IN THE VINEYARDS. VINEYARD WORKERS WERE EXPOSED NOT ONLY WHEN SPRAYING, BUT ALSO BY INHALING ARSENIC CONTAMINATED DUSTS AND PLANT DEBRIS. THE HOMEMADE WINE CONSUMED BY MOST OF THE WORKERS WAS ALSO BELIEVED TO BE CONTAMINATED WITH ARSENIC. (6) . A LATER STUDY OF VINEGROWERS FOUND MANY OF THEM HAD ABNORMAL ELECTROCARDIOGRAMS SUGGESTING CARDIAC DAMAGE. (7).

MORE RECENTLY, ELECTROCARDIOGRAPHIC CHANGES HAVE BEEN RECORDED IN PEOPLE VERY SHORTLY AFTER THEY'VE INGESTED ARSENIC. (8).

DERMATITIS, A SKIN DISEASE, HAS ALSO BEEN ASSOCIATED WITH ARSENIC EXPOSURE. IN FACT MAJOR OUTBREAKS OF ARSENICAL DERMATOSES HAVE BEEN REPORTED IN COMMUNITIES OUTSIDE GOLD SMELTERS. ONE MEDICAL SURVEY, FOR EXAMPLE, HAS BEEN REPORTED WHERE A REACTIVATED GOLD MINE BEGAN SMELTING ORE WHICH CONTAINED LARGE AMOUNTS OF SULFIDES OF ARSENIC. IT WAS ESTIMATED THAT 40 TONS OF ARSENIC WAS BURNED OFF EACH DAY. WITHIN A FEW MONTHS AFTER OPERATIONS BEGAN, 32 OF 40 CHILDREN ATTENDING ELEMENTARY SCHOOL IN THE NEARBY MINING CAMP COMMUNITY DEVELOPED SKIN LESIONS. SOME OF THE MILL WORKERS ALSO DEVELOPED SKIN LESIONS BUT ON A LESSER SCALE THAN THE SCHOOL CHILDREN. (9).

OTHER STUDIES REPORT THAT PEOPLE EXPOSED TO ARSENIC ARE BREEDING GROUNDS FOR MULTIPLE SKIN CANCERS AND VARIOUS CANCERS OF THE INTERNAL ORGANS.

EPR-THE-LIUM

ARSENIC INDUCED CANCERS HAVE BEEN SEEN IN UROGENITAL, ORAL, ESOPHAGEAL AND RESPIRATORY EPITHELIUM. SOME OF THE VICTIMS SITED IN THESE SURVEYS HAD BEEN EXPOSED TO ARSENIC WHEN ARSENIC WAS COMMONLY USED FOR MEDICAL TREATMENT. SOME HAD BEEN EXPOSED IN THE WORK PLACE. ONE MAN, A CHEMIST, DEVELOPED CANCER AFTER ANALYSING ARSENIC SPRAYED FRUIT FOR CONTAMINATION AND AFTER HE HAD USED ARSENIC IN HIS HOME GARDEN. (10).

IN 1948, AN ENGLISH FACTORY MANUFACTURING A SODIUM ARSENITE SHEEP-DIP REPORTED AN EXCESS OF CANCER DEATHS AMONGST ITS WORKERS. (11).

IN 1958, VINEYARD WORKERS EXPOSED TO ARSENIC INSECTICIDES WERE REPORTED TO BE DYING OF VARIOUS TYPES OF CANCER. THE RATE OF CANCER DEATHS IN THESE VINEGROWERS WAS AN ALARMING 64 PER CENT. (12).

A UNITED STATES STUDY OF OVER EIGHT THOUSAND MEN CONDUCTED IN THE PERIOD 1938 TO 1963 SHOWED A GREATER INCIDENCE OF DEATH DUE TO RESPIRATORY CANCER, TUBERCULOSIS, DISEASES OF THE HEART AND CIRRHOSIS OF THE LIVER. ALL THESE MEN HAD BEEN EXPOSED TO ARSENIC WHILE AT WORK. (13).

IN 1974, BEATJER AND OTHERS EXAMINED THE MORTALITY EXPERIENCE OF RETIREES WHO HAD BEEN EXPOSED TO ARSENIC AT A BALTIMORE CHEMICAL PLANT MANUFACTURING ARSENICAL PESTICIDES. SEVENTEEN OF 22 DEATHS AMONG MALE RETIREES WERE DUE TO CANCER, COMPARED WITH 4.43 EXPECTED CANCER DEATHS. (14).

IN 1974, OTT AND OTHERS COMPARED THE PROPORTIONATE MORTALITY EXPERIENCE OF 173 DECEDENTS WHO HAD BEEN PRIMARILY EXPOSED TO LEAD AND CALCIUM ARSENATE WITH THAT OF 1809 DECEDENTS WITHOUT ARSENIC EXPOSURE. AS A PERCENTAGE OF TOTAL DEATHS, CANCER OF THE RESPIRATORY SYSTEM WAS SIGNIFICANTLY HIGHER AS A CAUSE OF DEATH IN THE EXPOSED GROUP (16.2%) THAN IN THE NON EXPOSED (5.7%). CANCER OF THE LYMPHATIC AND HEMATOPOIETIC TISSUES WAS ALSO SIGNIFICANTLY HIGHER IN THE EXPOSED GROUP (3.5% COMPARED TO 1.4% EXPECTED). TO SUPPLEMENT THIS PROPORTIONATE ANALYSIS, THE AUTHORS ALSO EXAMINED THE MORTALITY IN A COHORT OF 603 CHEMICAL WORKERS WITH AT LEAST 1 MONTH OF WORK IN THE ARSENIC PRODUCTION AREAS. TOTAL DEATHS WERE LOWER THAN EXPECTED AND THIS WAS CONSISTENT WITH THE OVERALL MORTALITY AT THIS COMPANY LOCATION WHERE MORTALITY FROM ALL CAUSES VARIED FROM 60 - 85% OF UNITED STATES MORTALITY. HOWEVER, MORTALITY DUE TO RESPIRATORY CANCER AND CANCER OF THE LYMPHATIC AND HEMATOPOIETIC TISSUES WERE SIGNIFICANTLY HIGHER THAN EXPECTED. THE AUTHORS REPORTED THAT THEY COULD FIND "NO COMMON DENOMINATOR," OTHER THAN ARSENIC, TO EXPLAIN THE OBSERVED EXCESS OF CANCER MORTALITY. (15).

MORE RECENTLY, THE ONTARIO GOVERNMENT ANNOUNCED THAT IT WAS REVIEWING THE SAFETY STANDARDS FOR ARSENIC IN ONTARIO. THIS REVIEW WAS LAUNCHED WHEN THE ALLIED CHEMICAL COMPANY AND THE DOW CHEMICAL COMPANY RELEASED FIGURES CONCERNING THE HEALTH OF THE PESTICIDE WORKERS IN THE TWO COMPANIES OPERATIONS. THE WORKERS WERE DYING AT AN ACCELERATED RATE WITH LUNG AND LYMPHATIC CANCERS. (16).

ON THE SAME DAY AS THE ONTARIO GOVERNMENT'S ANNOUNCEMENT A MASSIVE



STUDY OF UNITED STATES COMMUNITIES EXPOSED TO ARSENIC WAS RELEASED IN WASHINGTON, D.C. DR. JOSEPH F. FRAUMENI, ASSOCIATE CHIEF OF THE EPIDEMIOLOGY BRANCH OF THE NATIONAL CANCER INSTITUTE, WAS QUOTED AS SAYING, "WE'RE SEEING PATTERNS AMONG VARIOUS CANCER TYPES, SOME OF WHICH ARE ALMOST CERTAINLY DUE TO ENVIRONMENTAL FACTORS". (17).

RECENT CORRESPONDENCE FROM DR. CHARLES STEWART, CHEST DISEASE CONSULTANT OF THE ONTARIO WORKMEN'S COMPENSATION BOARD STATES THAT "THE ONTARIO COMPENSATION BOARD HAS ACCEPTED AT LEAST 2 DOZEN CASES OF LUNG CANCER ARISING OUT OF ARSENIC EXPOSURE." HE ALSO STATES "FOR MANY YEARS, EXPOSURE TO ARSENIC IN THE TRI-OXIDE FORM WAS A PROBLEM IN THE REFINERY, PARTICULARLY IN THE SILVER PLANT (OR PRIMARY TREATMENT PLANT) AND IN THE BAG HOUSE WHERE ARSENIC TRI-OXIDE FUMES WAS COLLECTED AND PACKED. THERE WERE QUITE A FEW CASES OF ARSENICAL DERMATITIS IN THE EARLY YEARS AND LATERALLY SOME SKIN CANCERS." (APPENDIX # 19),

## THE COVER-UP

AS FAR BACK AS 1955, THE YELLOWKNIFE DISTRICT MINERS' UNION WAS TRYING TO COME TO GRIPS WITH THE HEALTH AND WELFARE OF THE WORKERS. IN A LETTER FROM THE DEPARTMENT OF NATIONAL HEALTH AND WELFARE, DATED NOVEMBER 2, 1955, CHARLES CRATE, CORRESPONDING SECRETARY OF LOCAL 802 WAS ADVISED THAT THE DEPARTMENT OF LABOUR WAS WRONG IN REFERRING HIM TO THEIR DEPARTMENT FOR INFORMATION ON INDUSTRIAL DISEASES. HE WAS TOLD THAT NATIONAL HEALTH AND WELFARE HAD NO INFORMATION ON INDUSTRIAL DISEASES. THE LETTER FURTHER STATED THAT THE INSPECTION AND REGULATION OF WORKING CONDITIONS IN MINES WAS NOT UNDER THEIR DEPARTMENTS' JURISDICTION. (APPENDIX # 20).

FINALLY IN 1966 AFTER INTENSE PRESSURE FROM THE UNION, THE MEDICAL SERVICES BRANCH OF THE DEPARTMENT OF NATIONAL HEALTH AND WELFARE DECIDED TO DO A MEDICAL SURVEY OF THE MALE RESIDENTS OF YELLOWKNIFE WHO HAD BEEN LIVING THERE FOR TEN OR MORE YEARS. IT SHOULD BE NOTED THAT IN A LETTER FROM G. BUTLER, THE CHIEF MEDICAL OFFICER, HE STATED THAT THE SURVEY WOULD PAY PARTICULAR ATTENTION TO THE QUANTITY OF ARSENIC IN THE ENVIRONMENT. THE LETTER FURTHER STATES, "FINALLY, I WOULD LIKE TO STRESS THAT THERE IS NO INDICATION THAT THE HEALTH OF THE POPULATION OF THE YELLOWKNIFE AREA DIFFERS IN ANY MANNER FROM THAT OF THE REST OF CANADA, BUT IT IS GOOD PUBLIC HEALTH PRACTICE TO ASSESS THE HEALTH OF SELECTED COMMUNITIES AT SUITABLE INTERVALS AND AS YELLOWKNIFE HAS A FEW ENVIRONMENTAL PROBLEMS, IT HAS BEEN CHOSEN FOR THIS SURVEY." (APPENDIX # 21).

THE SURVEY REPORTED BY A.J. DE VILLIERS AND P.M. BAKER, FOUND AMONG OTHER THINGS THAT THERE WAS A HIGH PREVALENCE OF:

1. SKIN LESIONS
2. RESPIRATORY DISEASES
3. CODABLE ELECTROCARDIOGRAPHIC CHANGES
4. A HIGHER THAN EXPECTED DEATH RATE DUE TO DISEASES OF THE RESPIRATORY SYSTEM
5. DISEASES OF THE NERVOUS SYSTEMS
6. AN EXCESS NUMBER OF CANCER DEATHS.

ALTHOUGH THE 1969 REPORT WAS RELUCTANT TO BLAME ARSENIC EXPOSURE FOR ALL THE MALADIES, THE DISEASES IT FOUND ARE ALL SYMPTOMS CO-INCIDENTAL WITH ARSENIC EXPOSURE. (18).

NEEDLESS TO SAY AFTER THE STATEMENT OF THE CHIEF MEDICAL OFFICER, THE GOVERNMENT WASN'T GOING TO RELEASE THIS INFORMATION ABOUT THE HEALTH OF THE RESIDENTS. THE PRODUCER OF THE DOCUMENTARY THAT MADE THE HEALTH SURVEY'S FINDINGS PUBLIC HAD ASKED FOR THE 1969 REPORT ON THREE DIFFERENT OCCASIONS. RENE MERCIER, THE INFORMATION OFFICER FOR THE HEALTH PROTECTION BRANCH OF HEALTH AND WELFARE CANADA, STATED THAT THE REPORT WAS AN "INTERNAL DOCUMENT". NEVERTHELESS, THE DOCUMENT WAS MADE AVAILABLE TO:

COMMISSIONER AND DEPUTY COMMISSIONER OF NORTHWEST TERRITORIES -  
COPIES SENT 1971.

CHAIRMAN, TECHNICAL COMMITTEE, NORTHWEST TERRITORIES WATER BOARD, I.N.A., YELLOWKNIFE - COPIES SENT 1971.

REGIONAL DIRECTORY, NORTHWEST REGION, MEDICAL SERVICES BRANCH, DEPARTMENT OF NATIONAL HEALTH AND WELFARE - COPIES SENT 1971.

TOWN OF YELLOWKNIFE - COPY SENT 1972.

THE ABOVE MENTIONED PEOPLE AND THE CITY OF YELLOWKNIFE ARE GUILTY OF A CONSPIRACY OF SILENCE. (APPENDIX # 22).

THE REPORT REMAINED SQUIRRELED AWAY UNTIL THE DRAMATIC C.B.C. BROADCAST OF JANUARY 8, 1975. FEDERAL POLITICANS AND THEIR HEALTH ADVISORS WERE EMBARRASSED BY THE PUBLICITY SURROUNDING THE UNCOVERING OF THE 1969 "INTERNAL DOCUMENT" ON ARSENIC AND SUBSEQUENTLY TOOK STEPS TO REHABILITATE THEIR REPUTATIONS. APPARENTLY THE REHABILITATION PROCESS INVOLVED BELITTLING YELLOWKNIFE'S ARSENIC PROBLEMS.

IN SEPTEMBER OF 1976, FOR EXAMPLE, A FEDERAL ENVIRONMENTAL ENGINEER TOLD THE PRESS THAT THE FACTS GATHERED IN THE 1976 GOVERNMENT STUDY PROVED THAT THE "ARSENIC SCARE WAS NOT BASED ON FACT". HEALTH MINISTER, MARC LALONDE SAID THAT YELLOWKNIFE'S "MINE OPERATIONS DO NOT POSE A HAZARD TO THE HEALTH OF THE GENERAL POPULATION OF YELLOWKNIFE", AND DR. R.D.P. EATON, MEDICAL OFFICER FOR THE NORTHWEST TERRITORIES SAID, "THE ARSENIC SCARE HAS BEEN LAID TO REST".

THE REPORT ON THE HAIR SAMPLES RELEASED ON MAY 27, 1975, STATES THAT: "A HEALTH HAZARD MAY EXIST FOR WORKERS IN SPECIFIC JOBS IN THE MILL AND MINE" AND "THAT IT IS NOT LIKELY THAT ARSENIC POSES A HEALTH HAZARD FOR RESIDENTS OTHER THAN MILL AND MINE WORKERS". (19).

A FOLLOW UP MEDICAL SURVEY OF SOME 58 PERSONS SHOWED THAT:

1. SEVENTEEN PERSONS CLAIMED TO HAVE EXPERIENCED EPISODES OF IRRITATION AND RASHES AND ALL WORKED IN THE MILL.
2. ALL COTTRELL AND ROASTER OPERATORS IN THE GROUP HAD RASHES AT ONE TIME OR ANOTHER.
3. TWO MEN WITH LONG TERM ROASTING EXPERIENCE SHOWED SKIN LESIONS.
4. FOUR OF THOSE EXAMINED WERE FOUND TO HAVE PALPABLY LARGE LIVERS.
5. EIGHTEEN SHOWED ABNORMALITIES IN ONE OR MORE LIVER FUNCTION TESTS.
6. TWELVE SHOWED VARYING DEGREES OF OBSTRUCTIVE OR RESTRICTIVE LUNG DISEASE.
7. FIVE MEN WERE FOUND WITH BOTH HIGH ARSENIC LEVELS IN HAIR AND ARSENIC EXCRETION IN THE URINE DEFINITELY ABOVE THE LEVEL USUALLY REGARDED AS NORMAL.

CONSIDER THESE FACTS UNCOVERED IN THE 1976 STUDY. SNOW SAMPLES FROM 12 POINTS IN THE YELLOWKNIFE AREA WERE EXAMINED FOR ARSENIC CONTENT. ELEVEN OUT OF TWELVE SAMPLES EXCEED THE GOVERNMENTS' "EMERGENCY" LEVEL FOR ARSENIC. ONE SAMPLE IS 33 TIMES ABOVE THE "EMERGENCY" LEVEL. (20).

AT THE MOUTH OF BAKER CREEK, WHERE GIANT MINE'S TAILINGS ENTER YELLOWKNIFE BAY, THE STUDY FINDS THE ARSENIC CONTENT OF WATER 151 TIMES ABOVE THE GOVERNMENT'S "EMERGENCY" DRINKING STANDARD. (21).

THE STUDY STATES THAT GOVERNMENT INVESTIGATORS MONITORED THE EFFLUENT FROM GIANT MINES' STACK FOR A ONE WEEK PERIOD IN 1975. COMPARE THE GOVERNMENT'S ARSENIC EFFLUENT FIGURES WITH THE AMOUNT OF ARSENIC GIANT MINES ACKNOWLEDGES BELCHING INTO THE ENVIRONMENT. ONE WEEK BEFORE THE GOVERNMENT SURVEY BEGAN, COMPANY RECORDS SHOW GIANT MINES DUMPING 400 PER CENT MORE ARSENIC THAN THE GOVERNMENT INVESTIGATORS RECORDED IN THEIR WEEK OF MONITORING. ONE WEEK AFTER THE GOVERNMENT FINISHED ITS TESTING, COMPANY RECORDS AGAIN REVEAL 400 PER CENT MORE ARSENIC SHOOTING UP GIANT MINES STACK THAN WAS REPORTED BY THE GOVERNMENT. ON NOT ONE SINGLE DAY SINCE THE OPERATION BEGAN DO THE COMPANY'S EFFLUENT MEASUREMENTS APPROACH THE LOW FIGURES REPORTED IN THE GOVERNMENT SURVEY. (22).

THE FIGURES FOR 1976, SUPPLIED BY GIANT MINES DO NOT SHOW ANY SIGNIFICANT CHANGE EITHER. (APPENDIX # 23).

THE SURVEY DONE IN THE WORKPLACE AREAS OF YELLOWKNIFE MINES AND MILLS DURING JULY OF 1975 STATES "THE SAMPLING TECHNIQUE USED SHOULD PREFERABLY DISTINGUISH BETWEEN THE ACTUAL CHEMICAL COMPOSITIONS OF ARSENIC IN THE AIR AS WELL AS QUANTITATE THE AMOUNTS OF EACH THAT MAY BE BREATHED INTO THE RESPIRATORY SYSTEM. NO CLEAR CUT METHODS WERE AVAILABLE FOR DOING THIS AT THE TIME OF THE SURVEY. TO FURTHER COMPLICATE THE SITUATION, GUIDELINES FOR ACCEPTABLE ARSENIC - IN - AIR CONCENTRATIONS ARE UNSETTLED AND NOT WELL DEFINED AT THE MOMENT". (23).

NEVERTHELESS, THE GOVERNMENT COMES TO THE CONCLUSION THAT THERE IS NO PROBLEM EVEN THOUGH THE SAMPLE METHODS ARE SUSPECT AND THERE IS NO DEFINED SAFE LEVEL.

ON FEBRUARY 6, 1975, THE HEAD OF THE AIR POLLUTION CONTROL SECTION OF CANADA'S NORTHWEST REGION WROTE A MEMORANDUM TO HIS YELLOWKNIFE DISTRICT MANAGER. IT DEALT WITH THE "INDUSTRIAL HYGIENE STANDARD FOR ARSENIC". THE MEMORANDUM STATED,"

"I WAS ADVISED YESTERDAY AFTERNOON THAT OSHA - NIOSH, THE ORGANIZATION THAT SETS INDUSTRIAL HYGIENE STANDARDS FOR IN-PLANT ENVIRONMENT CONDITIONS, HAS RECOMMENDED THAT THE PREVIOUS ARSENIC 8 HOUR EXPOSURE LIMIT, BE REDUCED FROM 500 MICROGRAMS PER CUBIC METER TO 4 MICROGRAMS PER CUBIC METER. --- THE KNOWN CARCINOGENIC CHARACTERISTICS OF ARSENIC, CONFIRMED IN TWO RECENT STUDIES, HAD PROMPTED THE REVIEW."

THE ENVIRONMENTAL PROTECTION SERVICE CHIEF CONCLUDES HIS MEMORANDUM THIS WAY: "IT WOULD BE ADVISABLE NOT TO RELEASE THIS INFORMATION TO THE PUBLIC AS IT MAY CAUSE UNDUE CONCERN AT THIS TIME". (APPENDIX # 24).

IN THE UNITED STATES, THE RECOMMENDATION WAS MADE PUBLIC IN ORDER TO WARN EVERYONE OF THE POTENTIAL DANGER OF ARSENIC EXPOSURE. THE U.S. NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH WAS RECOMMENDING A DRASTIC REDUCTION IN THE ARSENIC EXPOSURE STANDARD. THE POSITION THE CANADIAN GOVERNMENT TOOK WAS NOT TO TELL ANYONE. A WISE PUBLIC RELATIONS APPROACH, BUT QUESTIONABLE FROM THE STANDPOINT OF PUBLIC HEALTH.

THE U.S. AGENCY EVENTUALLY WON ITS CASE BY PRODUCING STUDIES PROVING THAT ARSENIC IS A MORE POTENT CANCER CAUSING AGENT THAN ANYONE PREVIOUSLY IMAGINED. IN A STUDY DONE BY BLEJER AND WAGNER OF NIOSH IT WAS CONCLUDED THAT:

"IN EVERY CASE, EACH OF THE EPIDEMIOLOGICAL AND OTHER FINDINGS REVIEWED OR PRESENTED HEREIN HAS VALID LIMITATIONS PER SE. TAKEN TOGETHER, HOWEVER, THEY DEMONSTRATE FIRMLY THAT OCCUPATIONAL EXPOSURE TO INORGANIC ARSENICALS IS CANCERIGENIC IN THREE DIFFERENT TISSUES. MOREOVER, IN MANY AREAS OF THE U.S.A. AND OTHER COUNTRIES, CONCENTRATIONS OF ARSENIC IN THE URINE AND HAIR OR TISSUES OF CHILDREN AND ADULTS HAVE BEEN FOUND TO BE ELEVATED DUE TO AMBIENT CONTAMINATION FROM URBAN AND NATURAL SOURCES, BUT MOSTLY AS A DIRECT RESULT OF INDUSTRIAL CONTAMINATION. IN SOME OF THESE AREAS, INCREASES IN LUNG CANCER MORTALITY RISK HAVE BEEN FOUND OR SUSPECTED AMONG THE GENERAL COMMUNITY AS A RESULT OF ENVIRONMENT CONTAMINATION FROM INDUSTRIAL OR AGRICULTURAL SOURCES OF INORGANIC ARSENICALS.

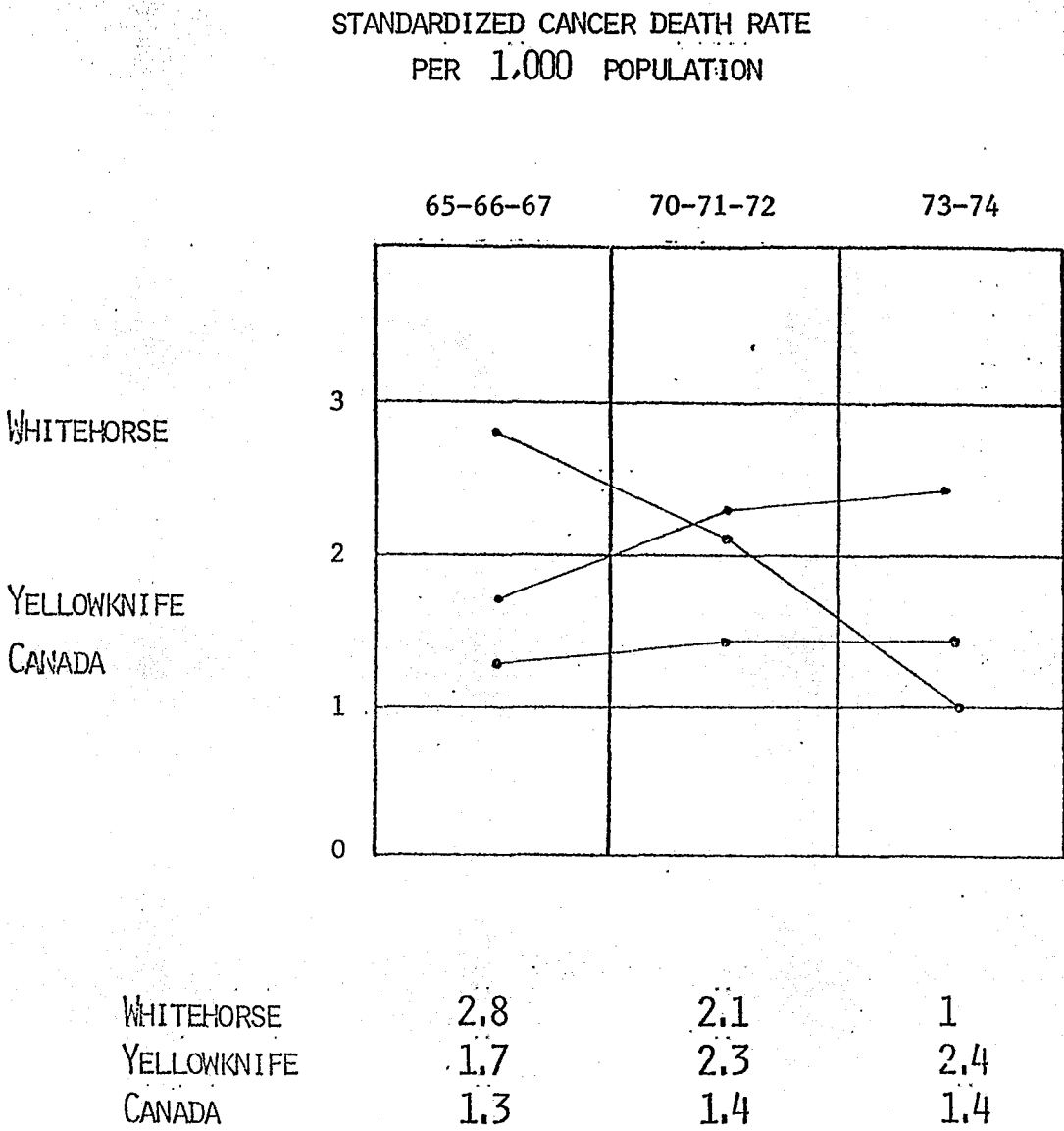
OCCUPATIONALLY, THERE IS NO DATA TO DOCUMENT A NONCANCERIGENIC EXPOSURE LEVEL FOR INORGANIC ARSENIC. MOREOVER, OUR EVALUATION OF THE OCCUPATIONAL DOSE - RESPONSE RELATIONSHIP APPEARS TO INDICATE THAT A NONRESPONSE LEVEL OF EXPOSURE MAY NOT EXIST. THEREFORE, BECAUSE OF THE UBIQUITY OF ARSENIC IN THE ENVIRONMENT AND BECAUSE OF THE NECESSITY OF PREVENTING OCCUPATIONAL EXPOSURES FROM INCREASING THE ARSENIC BODY BURDEN, THE MOST PRUDENT AND LOGICAL APPROACH WOULD BE TO LIMIT THESE OCCUPATIONAL EXPOSURES TO THOSE APPROXIMATELY THE NATURAL AMBIENT LEVEL. --- IT WOULD SEEM APPROPRIATE THAT THE STANDARD FOR OCCUPATIONAL EXPOSURE TO INORGANIC ARSENIC IN THIS COUNTRY BE SET AT 2 MICROGRAMS PER CUBIC METER ---- SOME CASES OF OCCUPATIONAL INDUCED RESPIRATORY OR OTHER CANCER MIGHT OCCUR AT THIS LEVEL OF EXPOSURE TO INORGANIC ARSENIC". (24).

FEDERAL HEALTH MINISTER, MARC LALONDE HAS STATED THAT YELLOWKNIFE HAS A CANCER DEATH RATE "CONSIDERABLY LESS THAN THE NATIONAL AVERAGE". HIS MEDICAL ADVISOR FOR THE NORTHWEST TERRITORIES, DR. R.D.P. EATON, CLAIMS "YELLOWKNIFE'S CANCER DEATH RATE IS ONE QUARTER THE NATIONAL CANCER DEATH RATE".

CONSIDER THE CANCER DEATH STATISTICS TABULATED BY THE VITAL STATISTICS SECTION OF STATISTICS CANADA. FEDERAL DEMOGRAPHERS WERE ASKED TO COLLECT CANCER DEATH STATISTICS FOR WHITEHORSE AND YELLOWKNIFE, FOR THE YEARS 1965, 1966, AND 1967, AND THE YEARS 1970, 1971 AND 1972. THE REASON FOR ASKING FOR THREE YEAR PERIODS WAS BECAUSE WE WANTED TO MINIMIZE THE DISTORTING AFFECT ONE OR TWO DEATHS IN A GIVEN YEAR MIGHT HAVE ON THE TOWNS' MORTALITY RATES. WHITEHORSE WAS CHOSEN FOR COMPARISON BECAUSE IT SHARES YELLOWKNIFE'S NORTHERN CLIMATE, BUT NOT ITS GROTESQUE ARSENIC LEVELS.

CANCERS USUALLY TAKE TWENTY OR MORE YEARS TO DEVELOP AND ACCORDING TO DR. C. STEWART OF THE ONTARIO WORKMENS' COMPENSATION BOARD, COULD TAKE AS LONG AS FORTY YEARS TO DEVELOP. IN THE MID SIXTIES, YELLOWKNIFE'S GOLD MINING OPERATIONS HAD BEEN DUMPING ARSENIC FOR LESS THAN TWENTY YEARS. THE TOWN'S CANCER DEATH RATE SHOULD BE RELATIVELY LOW IN THE SIXTIES, BUT INCREASE AS TIME PASSES. IN THE 1970'S, YELLOWKNIFE'S CANCER DEATH RATE SHOULD BE CLIMBING. WHITEHORSE, ON THE OTHER HAND SHOULD NOT SHOW A CORRESPONDING INCREASE IN CANCER DEATH RATES FOR THE TIME PERIODS IN QUESTION.

STATISTICS CANADA CONFIRMS THIS HYPOTHESIS. THE GRAPH WHICH APPEARS BELOW INDICATES THAT ARSENIC APPEARS TO NOW BE TAKING ITS TOLL IN YELLOWKNIFE LIVES. STATISTICS CANADA FURTHER REPORTS THAT ACCORDING TO ITS LATEST FIGURES - FOR THE YEARS 1973 AND 1974 - YELLOWKNIFE CANCER DEATHS ARE AGAIN SLIGHTLY UP.



WE CAN ONLY CONCLUDE THAT MARC LALONDE AND HIS MEDICAL ADVISOR, DR. EATON WERE EITHER LYING ABOUT THE CANCER DEATH RATES OR THAT NEITHER OF THEM CHECKED WITH STATISTICS CANADA.

WHILE IT MAY BE IMPOSSIBLE TO PROVE BEYOND A SHADOW OF A DOUBT THAT ARSENIC IS THE CAUSE OF YELLOWKNIFE'S CLIMBING CANCER DEATH RATE, YELLOWKNIFE'S POPULATION IS SMALL AND THE NUMBER OF CANCER DEATHS OBSERVED ARE CORRESPONDINGLY SMALL. IT IS DIFFICULT TO REACH IRON CLAD CONCLUSIONS WHEN WORKING WITH SMALL NUMBERS. BUT IT IS ALSO IMPOSSIBLE TO STATE THAT YELLOWKNIFE'S EXCELLERATING CANCER DEATH RATE - ESPECIALLY WHEN COMPARED TO THE NATIONAL RATE - IS NOT DUE TO ARSENIC EXPOSURE. IN FACT, MEDICAL EVIDENCE FROM THE UNITED STATES AND ELSEWHERE SUGGESTS THAT ARSENIC IS INDEED A MAJOR CAUSE OF CANCER IN EXPOSED COMMUNITIES.

IT WOULD BE RELATIVELY EASY TO DEVELOP A CONSPIRACY THEORY INVOLVING GOVERNMENTS AND INDUSTRY COVERING UP HEALTH INFORMATION. WE COULD CITE EXAMPLES SUCH AS THE CONCEALED INFORMATION ON RADIATION LEVELS IN CANADIAN URANIUM MINES. POLITICANS AND THEIR ADVISORS ARE CONSTANTLY BOMBARDED WITH CRISES. WHEN CONFRONTED WITH A CONTROVERSY, DECISIONS ARE MADE THAT ARE POLITICALLY EXPEDIENT AND IF THAT MEANS A COVER UP IT WILL BE DONE. WE BELIEVE THE YELLOWKNIFE ARSENIC SITUATION TO BE SUCH A CASE.

WHAT OTHER REASON COULD THERE BE FOR THE WITHHOLDING OF DOCUMENTS AND INFORMATION?

## ARSINE POISONING AND CYANIDE EXTRACTION OF GOLD

ALTHOUGH ARSINE WAS DISCOVERED IN 1775, ITS POISONOUS NATURE WAS NOT FULLY APPRECIATED UNTIL SOME 40 YEARS LATER. IN 1815, PROFESSOR GEHLEN OF MUNICH, WHILE WORKING IN HIS LABORATORY, INSPIRED A SMALL QUANTITY OF ARSINE. IN LESS THAN AN HOUR HE BECAME ACUTELY ILL AND DIED NINE HOURS LATER.

CASES OF ARSINE POISONING HAVE OCCURED DURING THE EXTRACTION OF GOLD BY THE CYANIDE PROCESS. SINCE THIS PROCESS WAS INTRODUCED IN 1890 BY MACARTHUR AND FORREST, ITS' USE HAS RAPIDLY SPREAD AND IS NOW STANDARD PRACTICE THROUGHOUT THE WORLD. THE EXTRACTION DEPENDS UPON THE SOLUBILITY OF GOLD IN A DILUTE SOLUTION OF POTASSIUM OR SODIUM CYANIDE IN THE PRESENCE OF AIR OR SOME OTHER OXIDIZING AGENT AND THE SUBSEQUENT PRECIPITATION OF THE GOLD BY METALLIC ZINC.

THE PROCESS EMBRACES THREE OPERATIONS:

1. SOLUTION OF GOLD
2. PRECIPITATION OF GOLD
3. TREATMENT OF THE PRECIPITATE

THE ORES BEING TREATED ARE GROUND INTO A POWDER WHICH IS BROUGHT INTO CONTACT WITH A DILUTE CYANIDE SOLUTION, AGITATED AND AERATED IN LARGE VATS. AFTER SOLUTION OF GOLD HAS TAKEN PLACE THE LIQUID IS CLARIFIED BY FILTRATION AND THE OXYGEN IS REMOVED. IN ORDER TO PRECIPITATE THE GOLD THE GOLD SOLUTION IS THEN BROUGHT INTO CONTACT WITH POWDERED ZINC. THE SLIMES SO COLLECTED CONTAIN GOLD AS WELL AS ZINC AND OTHER MATERIALS SUCH AS COPPER AND ANTIMONY THAT MAY BE PRESENT IN THE ORE. AFTER WASHING AND DRYING, THE SLIMES ARE HEATED WITH DILUTE ACID. THIS DISSOLVES THE ZINC, LIME IS ADDED TO BRING DOWN THE GOLD AS A SEDIMENT. THE SEDIMENT IS THEN REFINED IN GOLD BULLION FURNACES AND POURED INTO BRICKS.

BECAUSE GOLD-BEARING ROCK FREQUENTLY CONTAINS ARSENIC IT MIGHT BE EXPECTED THAT A HAZARD WOULD EXIST FROM THIS ELEMENT AS IN THE CYANIDE PROCESS THE NECESSARY CHEMICALS TO PRODUCE ARSINE ARE PRESENT.

IN A PARTICULAR CYANIDE MILL IN ONTARIO, THE MANAGER OF THE MINE NOTICED THAT TWO MILL WORKERS DID NOT LOOK GOOD. A FEW DAYS LATER, A PHYSICAN VISITED THE MINE FOR AN EXAMINATION OF THE WORKERS. ON EXAMINING THOSE FROM THE CYANIDE MILL HE WAS SURPRISED TO FIND ALL SHOWED A MARKED REDUCTION IN HEMOGLOBIN OUT OF ALL PROPORTION TO OTHER SIGNS AND SYMPTOMS PRESENT. IN ADDITION, SHORTNESS OF BREATH, NAUSEA, POOR APPETITE AND HEADACHES WERE FREQUENT COMPLAINTS. THE MOST PREVALENT SYMPTOM, SHORTNESS OF BREATH ON EXERTION, WAS NOTED BY ALL THE MEN IN THE MILL ALTHOUGH SOME HAD WORKED THERE LESS THAN A WEEK.

IN INDUSTRIAL PROCESSES WHERE ARSENIC IS PRESENT EVEN IN SMALL AMOUNTS, MINOR CHANGES MAY CREATE A CONDITION IN WHICH ARSINE WILL BE LIBERATED. (25).



## HAIR STUDIES

SINCE A PORTION OF ARSENIC INSIDE A PERSON'S BODY EVENTUALLY GROWS OUT IN THEIR HAIR, THE SIMPLEST WAY TO DETECT ARSENIC EXPOSURE IS TO CLIP HAIR FROM SOMEONE'S SCALP AND EXAMINE IT FOR ARSENIC CONTENT.

IN THE GOVERNMENT SURVEY OF 1975, SEVEN HUNDRED YELLOWKNIFE CITIZENS VOLUNTEERED CLUMPS OF HAIR FOR SCIENTIFIC EVALUATION. BECAUSE THE GOVERNMENT STUDY WAS BASED ON A VOLUNTEER SAMPLE, IT IS SCIENTIFICALLY INVALID. IN ORDER TO BE SCIENTIFICALLY VALID, A POPULATION SURVEY MUST BE BASED ON A RANDOMLY CHOSEN GROUP OF PEOPLE OR ON A SAMPLE OF THE ENTIRE COMMUNITY.

UNLIKE THE GOVERNMENT SURVEY, THE NATIONAL INDIAN BROTHERHOOD - UNITED STEELWORKERS - UNIVERSITY OF TORONTO STUDY COLLECTED SAMPLES FROM ALL GIANT MILL EMPLOYEES (HAVING ONE YEAR OF EMPLOYMENT OR MORE) AND ALL OF THE NATIVE CHILDREN BETWEEN THE AGES OF SIX AND THIRTEEN, LIVING IN THE COMMUNITY ACROSS THE BAY FROM GIANT MINES OPERATION. WE ALSO COLLECTED SAMPLES FROM STEELWORKERS AND NATIVE CHILDREN IN WHITEHORSE, SO THAT THEY COULD ACT AS A CONTROL GROUP. ALL THESE SAMPLES WERE ANALYSED IN THE UNIVERSITY OF TORONTO'S NUCLEAR REACTOR.

NONE OF THE INDIAN CHILDREN AND NONE OF THE STEELWORKERS IN WHITEHORSE HAD AN ARSENIC HAIR LEVEL ABOVE ONE PART PER MILLION. IN YELLOWKNIFE, ALL BUT TWO OF THE THIRTY-NINE INDIAN CHILDREN SAMPLES HAD AN ARSENIC LEVEL ABOVE ONE PART PER MILLION AND SIXTEEN HAD ARSENIC LEVELS IN EXCESS OF 5 PARTS PER MILLION. ONE ELEVEN YEAR OLD BOY HAD A LEVEL OF 28 PARTS PER MILLION OF ARSENIC IN HIS HAIR. THE GOVERNMENT HAIR SURVEY FOUND NO INDIAN CHILDREN WITH ELEVATED ARSENIC HAIR LEVELS.

AS WE EXPECTED, ALL THE MILL WORKERS, EXCEPT ONE HAD LEVELS OF ARSENIC GREATER THAN 5 PARTS PER MILLION, AND THE AVERAGE FOR THE 16 MILL EMPLOYEES WAS MORE THAN 78 PARTS PER MILLION. THREE OF THE 16 HAD LEVELS OF 200 PARTS PER MILLION OR GREATER WITH THE HIGHEST BEING 278 PARTS PER MILLION.

IN THE GOVERNMENT SURVEY 74 OUT OF 135 MINE AND MILL WORKERS TESTED HAD MORE THAN 5 PARTS PER MILLION OF ARSENIC IN THEIR HAIR. ANOTHER 49 RESIDENTS OF YELLOWKNIFE (WHO DID NOT WORK AT THE MINES) WERE FOUND TO HAVE MORE THAN 5 PARTS PER MILLION IN THEIR HAIR.

THE MOST EXTENSIVE SERIES OF ARSENIC ACTIVATION ANALYSES IN HUMAN HAIR USING 1000 SPECIMENS INDICATED CONTENTS OF .5 TO 1.5 PARTS PER MILLION IN MEN AND .1 TO 1 PART PER MILLION IN WOMEN WERE COMMON WHILE CONTENTS GREATER THAN 2.5 PARTS PER MILLION OCCURED RARELY. THESE CONCLUSIONS WERE SUPPORTED BY ARSENIC ANALYSES OF HEAD HAIR AND BEARD CLIPPINGS FROM INDIVIDUALS WHO HAD INHALED TOXIC QUANTITIES OF INDIVIDUAL ARSENICAL FUMES IN WHICH ARSENIC CONTENTS GREATER THAN 10 PARTS PER MILLION WERE FOUND. (26).

WHAT DOES ALL THIS MEAN? OUR STUDY SHOWED THAT NON-EXPOSED PERSONS HAVE LEVELS OF ARSENIC IN THEIR HAIR OF LESS THAN 1 PART PER MILLION. THE

GOVERNMENT SURVEY SHOWS THAT NEARLY 9% OF THE 565 PERSONS WHO VOLUNTEERED AND DID NOT WORK IN THE MINES HAD LEVELS OF 5 PARTS PER MILLION OR GREATER. OBVIOUSLY THIS MEANS THAT PERSONS NOT WORKING IN THE MINES ARE BEING EXPOSED TO ARSENIC FROM THE ENVIRONMENT.

THE GOVERNMENT SURVEY SHOWS THAT ALMOST 55% OF THE 135 MILL WORKERS WHO VOLUNTEERED FOR THE GOVERNMENT SURVEY HAD LEVELS OVER 5 PARTS PER MILLION. BECAUSE OF THE RELATIVELY HIGHER PERCENTAGE OF MINE AND MILL WORKERS HAVING ELEVATED LEVELS IT IS SAFE TO ASSUME THAT THEY ARE BEING EXPOSED NOT ONLY FROM THE ENVIRONMENT, BUT AT WORK ALSO.

THE AMERICAN PUBLIC HEALTH ASSOCIATION PRESENTED SOME INFORMATION TO AN OPEN MEETING OF THE E.P.A. CONTRACTORS ON AUGUST 20, 1976 REGARDING ARSENIC AND NERVE DAMAGE. ALTHOUGH THE INFORMATION WAS ONLY PRELIMINARY, THEY FOUND THAT THERE IS EVIDENCE OF SLOWED CONDUCTION IN THE PERONEAL NERVE AMONG WORKERS EXPOSED TO ARSENIC AND THAT THERE IS AN INCREASED PROPORTION OF CLINICALLY ASSESSED NEUROPATHY, PRINCIPALLY SENSORY, WITH INCREASED EXPOSURE TO ARSENIC. THE PERCENTAGE OF THOSE WITH CLINICALLY NOTED SENSORY NEUROPATHY WAS 9%, RISING TO 37% FOR THOSE LIGHTLY EXPOSED TO ARSENIC AND TO 47% FOR THOSE HEAVILY EXPOSED. THE AMERICAN PUBLIC HEALTH ASSOCIATION CAME TO THE CONCLUSION THAT "THERE MAY BE ADVERSE EFFECTS ON THE NERVOUS SYSTEM ASSOCIATED WITH CHRONIC OCCUPATIONAL EXPOSURE TO INORGANIC ARSENIC EVEN IN PRODUCTION ACTIVITIES INVOLVING LIGHT EXPOSURE". (APPENDIX # 25).

FEDERAL HEALTH AUTHORITIES HAVE SAID THAT "THERE ARE DIFFERENCES OF OPINION AMONG SCIENTISTS AS TO WHAT CONSTITUTES AN ELEVATED LEVEL IN HAIR. LEVELS UP TO 10 PARTS PER MILLION HAVE BEEN FOUND IN POPULATIONS WITH NO KNOWN EXPOSURE TO ARSENIC AND THIS LEVEL IS CONSIDERED TO BE ACCEPTABLE BY SOME AUTHORITIES". (27).

RECENTLY, DR. J. T. HINDMARSH OF DALHOUSIE UNIVERSITY MADE A REPORT TO THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA AND DISCLOSED THAT NERVE DAMAGE BEGINS TO OCCUR IN PEOPLE WITH ARSENIC CONCENTRATIONS IN HAIR SAMPLES THAT ARE SLIGHTLY ABOVE ONE PART PER MILLION. "ONE PART PER MILLION APPEARS TO BE A SATISFACTORY UPPER LIMIT OF ACCEPTABILITY FOR HAIR ARSENIC", SAID DR. J. T. HINDMARSH. "WHEN HAIR LEVEL CLIMBS ABOVE THIS VALUE, TOXICITY SOON DEVELOPS." (APPENDIX # 26).

EVERYONE OF THE MILL WORKERS TESTED IN OUR SURVEY, HAD MORE THAN 1 PART PER MILLION AND ALL BUT TWO OF THE NATIVE CHILDREN HAD MORE THAN 1 PART PER MILLION. NOT ONE OF THE CONTROL GROUP HAD MORE THAN ONE PART PER MILLION.

WHAT IT MEANS IS THAT THE GENERAL POPULATION OF YELLOWKNIFE AND CERTAINLY THE MILL WORKERS AT GIANT MINES ARE BEING EXPOSED TO ARSENIC. IT PROBABLY ALSO MEANS ALL THE PERSONS WE TESTED WITH THE EXCEPTION OF TWO NATIVE CHILDREN WHO HAD LESS THAN 1 PART PER MILLION HAVE ALREADY BEGUN TO SUFFER NERVE DAMAGE.

## WATER STUDIES

IN THE SPRING OF 1949 A HERD OF FIFTEEN CATTLE DIED AND SEVERAL CHICKEN WERE SICK, APPARENTLY AS A RESULT OF DRINKING WATER WHICH WAS ARSENIC CONTAMINATED. THE WATER WAS RUNOFF FROM SNOW IN THE SURROUNDING AREA WHICH HAD BEEN CONTAMINATED BY ARSENICAL DUST SETTLING OUT OF THE AIR. IN APRIL, 1951, AN INDIAN CHILD DIED AND SEVERAL OTHER INDIANS WERE SICK AS A RESULT OF DRINKING WATER OBTAINED FROM SNOW. THEY LIVED ON THE NORTH TIP OF LATHAM ISLAND, TWO MILES SOUTHWEST OF THE SMOKESTACK OF CON MINES. (28).

FOR OVER ONE HUNDRED YEARS, PEOPLE OF RICHENSTEIN, SILESIA, POLAND, DRANK WATER FROM A BROOK CONTAINING 12 MG/L OF ARSENIC. MANY HAD "RICHENSTEIN'S DISEASE", WITH SYMPTOMS REFERABLE TO THE GASTROINTESTINAL TRACT, ULCERS IN THE MOUTH, PERFORATION OF THE NASAL SEPTUM, PARATHESIAS, MELANOISIS AND KEROTIC WARTS ON FINGERS AND HANDS.

IN ARGENTINA, 6% OF THE WELLS PRODUCE WATER CONTAINING BETWEEN 0.1 AND 0.3 MG/L OF ARSENIC. MANY PEOPLE IN A WIDE AREA IN THE SOUTHEAST PART OF THE PROVINCE OF CORDOBA DRINK WELL WATER CONTAINING UP TO 4.5 MG/L OF ARSENIC. AFTER LIVING FIVE TO SIX YEARS THERE, MANY PEOPLE DEVELOP AYERZA'S DISEASE, (SEVERE KERATOSIS OF THE HANDS AND FEET), LIVER AND KIDNEY AILMENTS WHICH ARE OFTEN FATAL. IT HAS BEEN STATED THAT CHRONIC ARSENOSIS MAY RESULT AFTER PROLONGED USE OF WATER CONTAINING 0.3 MG/L OF ARSENIC.

THERE IS A HIGH INCIDENCE OF SKIN CANCER AMONG THE PEOPLE WITH "RICHENSTEIN'S DISEASE", IN SILESIA AND "AYERZA'S DISEASE" IN ARGENTINA. (29).

IN MANY COUNTRIES WHERE THERE IS LIKELY TO BE ARSENIC IN WATER SUPPLIES, LIMITS OF ARSENIC HAVE BEEN SET AS A GUIDE TO COMMUNITIES IN ORDER THAT THEY MAY DECIDE WHAT WATER IS SUITABLE FOR CONSUMPTION. THE U.S.A. PUBLIC HEALTH SERVICE HAS SET THE RECOMMENDED LEVEL OF ARSENIC CONTAMINATION AT .01 PARTS PER MILLION, WHICH IS EQUAL TO .01 MG/L. THE MAXIMUM HAS BEEN SET AT .05 PARTS PER MILLION. THE STANDARDS SET BY CANADA ARE THE SAME AS THOSE OF THE U.S. IE. .01 PARTS PER MILLION RECOMMENDED AND .05 PARTS PER MILLION AS THE MAXIMUM.

IN THE SPRING OF 1976 A SERIES OF TESTS WERE RUN BETWEEN APRIL 13TH AND JUNE 11TH TO DETERMINE THE ARSENIC CONCENTRATIONS IN THE MELT WATER. SOME OF THE FINDINGS SHOW THAT THE EFFLUENT FROM THE GIANT TAILINGS POND ENTERING BAKER CREEK, WHICH FLOWS INTO BACK BAY HAD A LEVEL OF ARSENIC AS HIGH AS 3100 TIMES THE RECOMMENDED LEVEL AND 620 TIMES THE MAXIMUM LEVEL ALLOWABLE FOR ARSENIC IN WATER. BY MAY THE LEVEL HAD DROPPED TO 1440 TIMES THE RECOMMENDED LEVEL AND BY JUNE HAD DROPPED TO 950 TIMES THE RECOMMENDED LEVEL. IN JUNE OF 1976, SURFACE MELTWATER NEAR NORTHLAND TRAILER COURT WAS SAMPLED AND FOUND TO BE 145 TIMES MORE THAN THE RECOMMENDED LEVEL AND WATER SAMPLED FROM YELLOWKNIFE BAY AT THE CON MINE PUMPHOUSE WAS FOUND TO BE 22 TIMES THE RECOMMENDED LEVEL. (30).

IN 1967, A COMPREHENSIVE TEST OF THE WATER IN YELLOWKNIFE BAY SHOWED THAT THE ARSENIC CONCENTRATION TO BE BETWEEN 2 TO 29 TIMES THE RECOMMENDED LEVEL FOR CONSUMPTION. THE ARSENIC CONCENTRATION OF A FEW WATER SAMPLES FROM

YELLOWKNIFE BAY, IN THE VICINITY OF THE INDIAN VILLAGE, WERE ON A FEW OCCASIONS, BELOW THE RECOMMENDED LEVEL. THE VARIATION IN ARSENIC CONCENTRATION OF THE WATER IN THE BAY WAS ATTRIBUTED TO THE INCOMPLETE MIXING OF GIANT TAILINGS POND EFFLUENT WITH INCOMING RIVER WATER, FLOW CHANNELS AND LACK OF VERTICAL MIXING. THE REPORT FURTHER STATED THAT THE WATER IN YELLOWKNIFE BAY WAS "UNSUITABLE FOR HUMAN CONSUMPTION". (31).

BECAUSE OF THESE FINDINGS AN UNDERWATER PIPELINE TO THE YELLOWKNIFE RIVER WAS PROPOSED BECAUSE "THE ARSENIC CONCENTRATION IN THE YELLOWKNIFE RIVER IS 0.011 MG/L OR LESS" AND "DIVERTING THE GIANT YELLOWKNIFE MINES LTD. TAILINGS POND EFFLUENT TO BAKER CREEK WILL REDUCE THE ARSENIC CONCENTRATION IN THE WATER AT THE MOUTH OF THE YELLOWKNIFE RIVER TO THAT OF THE RIVER WHICH IS GENERALLY LESS THAN 0.01 PART PER MILLION." (32).

THE PIPELING PROPOSED WAS LARGE ENOUGH TO ACCOMMODATE THE HIGHEST INSTANTANEOUS DOMESTIC DEMAND ANTICIPATED AND FIRE DEMANDS WOULD BE MET BY INJECTING YELLOWKNIFE BAY WATER INTO THE SYSTEM. NO ONE WAS TOLD WHY A NEW PIPELINE WAS NEEDED BUT SUBSEQUENT INFORMATION INDICATED THAT THE TOWN'S WATER SUPPLY WAS WITHIN ACCEPTABLE LIMITS LESS THAN 16% OF THE TIME. IN THE MONTHS OF JUNE AND JULY, THE WATER WAS OF AN ACCEPTABLE QUALITY ONLY ABOUT 1% OF THE TIME AND IN NO ONE MONTH COULD ONE ESTIMATE THAT THE WATER WAS OF AN ACCEPTABLE STANDARD MORE THAN 30% OF THE TIME. (33).

THE PIPELINE WAS BUILT IN 1970 AND WHENEVER THERE ARE MAJOR MAIN BREAKS OR FIRES, WATER IS TAKEN DIRECTLY FROM THE BAY. IN ADDITION TO THIS, DIRECT PUMPING FROM YELLOWKNIFE BAY ALSO OCCURS FOR AT LEAST 20 MINUTES EACH WEEK. THEREFORE THE ENTIRE DOMESTIC WATER SUPPLY IS CONTAMINATED ON A REGULAR BASIS. AS STATED EARLIER THE WATER IN YELLOWKNIFE BAY WAS ANYWHERE FROM 2 - 29 TIMES THE RECOMMENDED LEVEL IN 1967 AND IS QUITE PROBABLY MORE POLLUTED NOW THAN IT WAS 10 YEARS AGO.

A BRANCH LINE WAS BUILT FROM THE MAIN LINE TO SUPPLY "ACCEPTABLE WATER" TO THE GIANT MINES CAFETERIA, BUNKHOUSES AND HOMES ON THE GIANT PROPERTY. ALL THE WATER THAT GIANT YELLOWKNIFE MINES USES IN THE OPERATIONS, INCLUDING THE DRINKING WATER AND SHOWERS IN THE MILL AND MINE DRYS IS PUMPED FROM BACK BAY APPROXIMATELY 100 YARDS FROM THE MOUTH OF BAKER CREEK. SAMPLES TAKEN FROM WHERE BAKER CREEK DISCHARGES INTO YELLOWKNIFE BAY ON JUNE 11, 1976 SHOWED THAT THE ARSENIC CONTENT OF THE WATER WAS 132 TIMES THE RECOMMENDED LEVEL. (34).

FINALLY, IN 1974, SOME SEVEN YEARS AFTER THE WATER OF YELLOWKNIFE BAY WAS "UNSUITABLE FOR HUMAN CONSUMPTION", SIGNS WERE ERECTED WHICH STATED:

WARNING  
DRINKING OR BATHING  
IN THIS WATER  
MAY BE DANGEROUS  
TO YOUR HEALTH  
CITY OF YELLOWKNIFE

TO THIS DATE WATER FROM BACK BAY IS USED FOR HUMAN CONSUMPTION AT GIANT

MINES AND WATER FROM YELLOWKNIFE BAY IS ROUTINELY INJECTED INTO THE DOMESTIC WATER SYSTEM WHICH SUPPLIES WATER TO THE CITY OF YELLOWKNIFE.

ARSENIC CONCENTRATIONS OF VARIOUS LAKES IN THE YELLOWKNIFE AREA HAVE ALSO BEEN EXAMINED BY VARIOUS PEOPLE AND ORGANIZATIONS. SOME OF THESE STUDIES SHOWED THAT A LAKE .3 MILES SOUTHWEST HAD A LEVEL OF ARSENIC 1240 TIMES THE RECOMMENDED LEVEL IN 1970. A COMINCO STUDY OF KAM LAKE IN 1970 SHOWED AN ARSENIC LEVEL 300 TIMES THE RECOMMENDED LEVEL. A 1975 STUDY BY G. BRUNSKILL, SHOWED LONG LAKE TO BE BETWEEN 300 AND 800 TIMES THE RECOMMENDED LEVEL. DATA COLLECTED IN 1975 SHOWS THAT LONG LAKE, STOCK LAKE, RANGE LAKE, FAULT LAKE, RAT LAKE, KAM LAKE AND FRAME LAKE EXCEED THE RECOMMENDED LEVEL FOR ARSENIC CONTENT FROM 10 TO 285 TIMES. (35).

FROM

## AIR POLLUTION

IT IS ESTIMATED THAT DURING THE EARLY DAYS OF OPERATION, TWO TO THREE TONS OF ARSENIC TRIOXIDE PER DAY WERE RELEASED DIRECTLY INTO THE ATMOSPHERE FROM CON STACK AND APPROXIMATELY EIGHT TONS PER DAY FROM THE GIANT STACK. ESTIMATES BASED ON THE LIMITED DATA AVAILABLE WERE PREPARED FOR THE YEARS 1954 - 1969. IN TOTAL IT COULD BE ESTIMATED THAT 6,617 TONS OF ARSENIC WERE EMITTED INTO THE ATMOSPHERE FROM 1954 - 1958 INCLUSIVE AND 1,396 TONS FROM 1959 - 69 INCLUSIVE, FOR A TOTAL OF 8,012 TONS FROM 1954 - 1969. (36).

BEGINNING IN 1970, ONLY GIANT MINES USED A ROASTER AND THE AMOUNTS OF ARSENIC THAT GIANT ADMITED GOING UP THE STACK BETWEEN 1970 - 1976 IS ANOTHER 136 TONS A YEAR OR 952 TONS FOR THIS SEVEN YEAR PERIOD. (37).

THERE HAS BEEN ALMOST 9,000 TONS OF ARSENIC DUMPED INTO THE ATMOSPHERE BY THE MINES SINCE 1954. THE ARSENIC THAT IS EMITTED COMES DOWN AND THAT IS WHY SNOW SAMPLING IS SO IMPORTANT. BY DOING SNOW SAMPLING, THE RATE OF FALLOUT CAN BE DETERMINED FOR VARIOUS AREAS.

SNOW SAMPLING DONE BY VARIOUS INDIVIDUALS OR ORGANIZATIONS HAVE SHOWN THAT AS MUCH AS 469 POUNDS PER SQUARE MILE, PER MONTH WERE BEING DEPOSITED IN THE CITY OF YELLOWKNIFE. A SURVEY DONE BY GIANT MINES IN 1955-1956 SHOWED A HIGH OF 613 POUNDS PER SQUARE MILE PER MONTH BEING DUMPED. (38).

THE GENERALLY RECOGNIZED "EMERGENCY LEVEL" BY MOST AUTHORITIES IN REGARDS TO ARSENIC CONTAMINATION IS 0.3 MG/L OR 0.3 PARTS PER MILLION. IN SNOW SAMPLING CARRIED OUT AT 12 DIFFERENT SITES THROUGHOUT THE YELLOWKNIFE AREA ON FEBRUARY 17, 1975, THE ENVIRONMENTAL PROTECTION SERVICES FOUND THAT THE FALLOUT OF ARSENIC FROM THE GIANT STACK IS A LOT MORE WIDESPREAD THAN ANYONE THOUGHT. ONLY ONE SAMPLE FELL BELOW THE "EMERGENCY LEVEL" AND ONE WAS 38 TIMES THE 'EMERGENCY LEVEL'.

## SOIL STUDIES

SOIL FOUND IN AN URBAN AREA, REMOTE FROM SMELTERS HAS BEEN ANALYSED AND FOUND TO HAVE UP TO 10 PARTS PER MILLION OF ARSENIC. SIMILARLY SOIL ANALYSED NEAR A SMELTER WAS FOUND TO CONTAIN AN AVERAGE OF 35 PARTS PER MILLION OF ARSENIC. SOIL USED FOR AGRICULTURAL PURPOSES HAS BEEN FOUND ANYWHERE FROM BETWEEN 0.1 TO 40 PARTS PER MILLION. (39).

A 1970 STUDY OF THE ARSENIC CONCENTRATIONS IN THE YELLOWKNIFE AREA SHOWED THAT THE LOWEST WAS 34 PARTS PER MILLION AND THE HIGHEST WAS 7598 PARTS PER MILLION OR AN AVERAGE OF ALMOST 1300 PARTS PER MILLION FOR ALL THE SAMPLES TAKEN DURING THE TEST. (40).

IN 1975, A SERIES OF DISTURBED SOIL TESTS WAS COMPLETED. ELEVEN SAMPLES WERE TAKEN FROM THE CON MINE AREA IN AND AROUND THE RESIDENTIAL AREA, TWENTY SAMPLES WERE TAKEN THROUGHOUT THE CITY OF YELLOWKNIFE FROM LATHAM ISLAND TO NORTHLAND TRAILER COURT AND FIVE SAMPLES WERE TAKEN IN AND AROUND THE GIANT YELLOWKNIFE MINES RESIDENTIAL AREA. THE RESULTS OF THE CON MINE AREA TESTS SHOWED A RANGE OF 10 PARTS PER MILLION TO A HIGH OF 755 PARTS PER MILLION. THE RESULTS OF THE TESTS THROUGH THE CITY OF YELLOWKNIFE SHOWED A RANGE OF 1 PART PER MILLION TO 605 PARTS PER MILLION AND THE RESULTS FROM GIANT YELLOWKNIFE MINES AREA RANGED FROM 33 PARTS PER MILLION TO 261 PARTS PER MILLION. (41).

IN ADDITION TO THESE DISTURBED SOIL TESTS, DUST WAS COLLECTED FROM THE PAVEMENT THROUGHOUT THE CITY OF YELLOWKNIFE AND ANALYSED FOR ARSENIC CONTENT. IT IS IMPORTANT TO KNOW THE ARSENIC CONTENT OF PAVEMENT DUST AS IT IS CONTINUALLY BEING BLOWN ABOUT THE AIR THAT WE BREATHE, DUE TO WIND AND VEHICULAR TRAFFIC. TESTS OF THE DUST COLLECTED SHOWED THAT THE ARSENIC CONTENT RANGED FROM A LOW OF 33 PARTS PER MILLION TO A HIGH OF 206 PARTS PER MILLION, WITH THE AVERAGE BEING 86.7 PARTS PER MILLION. (42).

## ARSENIC STORAGE

IN A MEMORANDUM WITH THE SECURITY CLASSIFICATION OF CONFIDENTIAL TO MR. M.L. BROWN, CHIEF MINING INSPECTOR AND ENGINEER, FROM MR. E. BENGT, SOME VERY SERIOUS DOUBTS HAVE BEEN RAISED REGARDING THE STORAGE OF ARSENIC. RECENT TESTING AND ANALYSIS OF THE ROASTER PRODUCT SHOWED THAT 29.65% OF THE ARSENOLITE PRODUCT WAS WATER SOLUBLE. (APPENDIX # 27).

IT WOULD SEEM THAT IF THE "PERMAFROST" HORIZON IS PERFECT THERE MAY BE NO DANGER FROM THIS STORED ARSENIC. THE PERMAFROST IN THE YELLOWKNIFE AREA IS NOT AS COMPLETE AND AS DEEP AS MANY MAY THINK. YELLOWKNIFE IS SITUATED ON THE NORTH SHORE OF GREAT SLAVE LAKE AND THE PERMAFROST ZONE IS PATCHY. EVEN GIANT YELLOWKNIFE MINES SAYS IN A BOOKLET ENTITLED "GIANT YELLOWKNIFE MINES LIMITED" THAT "THE AREA IS IN A REGION OF PERMANENTLY FROZEN GROUND, BUT THE "PERMAFROST" HAS BEEN FOUND TO BE PATCHY AND ERRATIC IN ITS DISTRIBUTION".

MR. BENGT IN HIS MEMORANDUM HAS STATED, "DURING THE PAST TWO YEARS I HAVE HAD THE OPPORTUNITY TO INVESTIGATE TWELVE ABANDONED SHAFTS FROM GREAT SLAVE LAKE IN THE SOUTH TO GREAT BEAR LAKE ON THE NORTH. DURING JULY, AUGUST AND SEPTEMBER, I FOUND ALL THESE SHAFTS, EXCEPT ONE, THAWED OUT TO A DEPTH OF IN EXCESS OF 50 FEET."

IN THE THURSDAY, FEBRUARY 17, 1977 EDITION OF THE YELLOWKNIFER, A STORY APPEARS WHICH STATES THAT THE BULKHEADS ARE AIRTIGHT AND WATERTIGHT. THE MINE SUPERINTENDENT SAYS THAT ALL STORAGE STOPEs ARE CHECKED FOR DRILL HOLES, CRACKS AND FISSURES.

IN JULY OF 1974, TWO DIAMOND DRILL HOLES FROM ONE OF THE ARSENIC STOPEs WERE INTERSECTED. A CONSIDERABLE AMOUNT OF WATER FLOWED FROM THIS HOLE AND SOME SLUDGE WAS ENCOUNTERED IN THE SECOND HOLE. THE ARSENIC CONTENT OF THE RESPECTIVE HOLES WERE 4529.6 PARTS PER MILLION AND 5816.6 PARTS PER MILLION. (APPENDIX # 28).

IT IS INTERESTING TO NOTE THAT THESE ARSENIC STOPEs ARE SUPPOSE TO BE AIRTIGHT AND WATERTIGHT. IF THIS IS SO, HOW DID THE WATER GET INTO THE ARSENIC STOPE?

IF GIANT MINES IS CORRECT THAT ALL THE STOPEs ARE IN PERMANENT FROZEN GROUND, WHY WAS THERE WATER RUNNING OUT OF THE HOLE?

STATEMENTS HAVE BEEN MADE THAT NO WATER COULD GET INTO THE PERMAFROST ZONE AND EVEN IF IT DID IT WOULD BE TURNED INTO ICE. OBVIOUSLY IT DID NOT HAPPEN IN THIS CASE.

THERE HAVE BEEN REQUESTS FOR TESTS ON THE PERMAFROST BEFORE. IN THE BENGT MEMORANDUM, HE SUGGESTS TESTS SHOULD BE DONE. AFTER THE LEAKAGE PROBLEM OF JULY, 1974 A MEMORANDUM FROM MR. RON WALLACE, DEPARTMENT OF THE ENVIRONMENT, EXPRESSED CONCERN THAT THE TESTS HAD NOT BEEN DONE. HE STATES, "THIS COULD WELL REPRESENT ONE OF THE MOST SERIOUS POLLUTION THREATS IN THE N.W.T., I AM



SURPRISED AND DISAPPOINTED, THAT NO GOVERNMENT AGENCIES HAVE ADDRESSED THEMSELVES TO STUDIES OF THIS PROBLEM, NOTWITHSTANDING THE PREVIOUS RECOMMENDATIONS FROM VARIOUS EXPERTS WITH THE GOVERNMENT. (APPENDIX # 29).

TO THIS DATE, THE INFORMATION WE HAVE INDICATES THAT NO STUDIES HAVE BEEN DONE ON THE PERMAFROST, NOTWITHSTANDING THE FACT THAT THERE WERE TWO PREVIOUS LEAKAGES IN THE GIANT MINE IN 1974 RIGHT THROUGH THE "PERMAFROST ZONE".

## CONCLUSIONS AND RECOMMENDATIONS

HAVING FINISHED OUR PRESENTATION WE HAVE FORMED CERTAIN CONCLUSIONS THAT WE BELIEVE TO BE SELF EVIDENT.

1. THERE HAS BEEN A SYSTEMATIC ATTEMPT OVER THE YEARS TO COVER UP AND BELITTLE THE ARSENIC PROBLEMS OF YELLOWKNIFE.
2. ARSENIC CAUSES DERMATITIS, INTOXICATION, EXTREME NERVOUS DISORDERS, MUSCULAR ATROPHY AND PARALYSIS, LIVER DEGENERATION AND CANCER.
3. THE YELLOWKNIFE AREA HAS BEEN POLLUTED BY BOTH THE GOLD MINES OVER THE YEARS AND TO THIS DAY THEY CONTINUE TO POLLUTE THE AIR AND WATERWAYS TO VARYING DEGREES.
4. THERE IS A DEMONSTRATED RISK TO THE HEALTH AND WELFARE OF ALL YELLOWKNIFE RESIDENTS AND ESPECIALLY TO THOSE PERSONS WORKING IN THE MINES AND MILLS.

THEREFORE, WE ARE SUBMITTING THE FOLLOWING RECOMMENDATIONS WHICH SHOULD BE IMPLEMENTED:

1. A WARNING SIGN SHOULD BE AFFIXED IN A READILY VISIBLE LOCATION AT OR NEAR THE ENTRANCES TO AREAS IN WHICH THERE IS OCCUPATIONAL EXPOSURE TO ARSENIC. THE SIGN SHOULD BE PRINTED IN ENGLISH AND OTHER NON-ENGLISH PREDOMINANT LANGUAGES OF THE WORKERS AND SHOULD READ AS FOLLOWS:

ARSENIC

DANGER

HIGH CONCENTRATIONS OF DUST OR GAS

MAY BE HAZARDOUS TO HEALTH

CANCER CAUSING AGENT

2. AT THE BEGINNING OF EMPLOYMENT IN A ARSENIC AREA, EMPLOYEES SHOULD BE INFORMED OF ALL HAZARDS, RELEVANT SYMPTOMS OF OVER-EXPOSURE, APPROPRIATE EMERGENCY PROCEDURES AND PROPER CONDITIONS AND PROPER PRECAUTIONS FOR SAFE USE AND EXPOSURE. THIS INFORMATION SHOULD BE POSTED IN THE WORK AREA AND KEPT ON FILE AND READILY ACCESSIBLE TO THE WORKER AT ALL PLACES OF EMPLOYMENT WHERE ARSENIC IS INVOLVED IN UNIT PROCESSES AND OPERATIONS.
3. A CONTINUING EDUCATIONAL PROGRAM SHOULD BE INSTITUTED TO ENSURE THAT ALL WORKERS HAVE CURRENT KNOWLEDGE OF JOB HAZARDS, PROPER MAINTENANCE PROCEDURES AND CLEANUP METHODS AND THAT THEY KNOW HOW TO CORRECTLY USE RESPIRATORY PROTECTIVE EQUIPMENT AND PROTECTIVE CLOTHING.
4. WHERE THERE IS OCCUPATIONAL EXPOSURE TO ARSENIC, PROTECTIVE

CLOTHING SHOULD BE PROVIDED BY THE EMPLOYER. SUCH CLOTHING TO INCLUDE, UNDERWEAR, GLOVES, COVERALLS, DUST PROOF GOGGLES AND A HOOD TO COVER THE NECK AND HEAD. PROTECTIVE CLOTHING SHOULD BE CHANGED AT LEAST ONCE DAILY. THE EMPLOYER SHOULD PROVIDE FOR THE MAINTENANCE AND LAUNDERING OF PROTECTIVE CLOTHING AND ENSURE THAT NECESSARY PRECAUTIONS ARE TAKEN TO PROTECT LAUNDRY PERSONNEL WHEN SOILED CLOTHING IS LAUNDERED. UNDER NO CIRCUMSTANCES SHOULD WORK CLOTHING BE TAKEN HOME.

5. RESPIRATORS SHOULD BE PROVIDED AND USED WHENEVER THERE IS EXPOSURE TO INORGANIC ARSENIC. THE EMPLOYER SHOULD ENSURE THAT THE RESPIRATORS ARE ADEQUATELY CLEANED AND THAT THE EMPLOYEES ARE INSTRUCTED ON THE USE OF THE RESPIRATORS. BECAUSE OF THE POTENTIAL SKIN IRRITATION ASSOCIATED WITH RESPIRATOR USE AND ARSENIC DUST EXPOSURE, WORKMEN SHOULD BE PERMITTED TO LEAVE THE WORK AREA EVERY HOUR TO WASH THEIR FACE AND OBTAIN A CLEAN RESPIRATOR.
6. ARSENIC SHOULD BE REMOVED FROM THE WORKPALCE BY VACUUM CLEANING. UNDER NO CIRCUMSTANCES SHOULD SWEEPING OR OTHER METHODS, WHICH CAN STIR THE AIR BE USED.
7. READILY ACCESSIBLE STANDBY ROOMS UNDER POSITIVE AIR PRESSURE WITH A FILTERED AIR SUPPLY, SHOULD BE PROVIDED WHERE THERE IS OCCUPATIONAL EXPOSURE TO ARSENIC.
8. WASTE MATERIAL SHOULD BE DISPOSED OF IN A MANNER WHICH WILL PREVENT EXPOSURE OF HUMANS OR ANIMALS AS WELL AS AIR AND WATER POLLUTION.
9. PROCEDURES FOR EMERGENCIES, INCLUDING FIRE FIGHTING, SHALL BE ESTABLISHED TO MEET FORESEEABLE EVENTS. NECESSARY EMERGENCY EQUIPMENT, INCLUDING APPROPRIATE RESPIRATORY PROTECTIVE DEVICES, SHALL BE KEPT IN READILY ACCESSIBLE LOCATIONS. ONLY SELF-CONTAINED BREATHING APPARATUS WITH POSITIVE PRESSURE IN THE FACEPIECE SHALL BE USED FOR FIRE FIGHTING. APPROPRIATE RESPIRATORS SHOULD ALSO BE AVAILABLE FOR USE DURING EVACUATION.
10. EXHAUST VENTILATION AND ENCLOSURE OF PROCESSES SHOULD BE USED WHEREVER PRACTICABLE TO CONTROL WORKPALCE CONCENTRATIONS.
11. AIR FROM THE EXHAUST VENTILATION SYSTEM SHOULD NOT BE RECIRCULATED INTO WORK AREAS, AND NECESSARY MEASURES SHALL BE TAKEN TO ENSURE THAT DISCHARGE OUTDOORS WILL NOT PRODUCE A HEALTH HAZARD TO HUMANS OR ANIMALS.
12. EMPLOYEES EXPOSED TO ARSENIC SHOULD BE PROVIDED WITH SEPARATE LOCKERS OR STORAGE FACILITIES FOR STREET CLOTHES AND WORK CLOTHES. WORKERS SHOULD BE REQUIRED TO SHOWER BEFORE CHANGING INTO STREET CLOTHES.

13. No food should be permitted in areas where arsenic is handled, processed or stored and employees should be required to wash before eating.
14. A complete medical survey should be instituted immediately for every employee working at Con Mine and Giant Mine, which would include a comprehensive work history, a comprehensive medical history, a chest x-ray, a careful examination of the skin, complete blood tests and a sputum cytology examination.
15. Medical records should be maintained by the employer or successors thereto for persons employed for one or more years. Preplacement x-rays, annual x-rays and all other medical records with pertinent supporting documents, shall be maintained at least 30 years after the individual's employment is terminated. In the event that an employer ceases business without a successor, the records should be forwarded to a reliable government agency. Physicians designated and authorized by any employee or former employee shall have access to that worker's medical records at any time.
16. A on-going medical surveillance scheme for all those workers exposed to arsenic should be adopted, which would include annual x-rays, bi-monthly skin examinations, and periodic sputum cytology examinations.
17. A program to locate and test former employees of the mines should be initiated as soon as possible.
18. A complete medical surveillance program should be initiated for all residents of Yellowknife, having at least one year's residency and that the program be similar to that suggested for the employees of the mines. This program should be initiated as soon as possible.
19. Inorganic arsenic should be controlled in the workplaces so that the atmospheric concentration is not detectable.
20. Pollution of the environment in the form of stack emissions should be stopped as soon as possible.
21. Adequate testing programs should be initiated to ensure that the mines are controlling the arsenic in such a manner that it will not cause a health hazard to the residents or further pollute the environment.
22. Should it become necessary to shut down any part of the mines operations to accomplish any of the foregoing suggestions, then the employees affected should be adequately compensated.

23. THERE BE A COMPLETE AND HONEST APPROACH TO THE ARSENIC PROBLEM OF YELLOWKNIFE FROM THESE HEARINGS FORWARDS AND THAT THE FEDERAL GOVERNMENT AGENCIES RECOGNIZE THAT THE ONLY WAY TO REGAIN THEIR CREDIBILITY IS BY BEING HONEST AND STRAIGHT-FORWARD IN DEALING WITH THIS PROBLEM.
24. THE WORKERS COMPENSATION BOARD OF THE NORTHWEST TERRITORIES, SHOULD ACCEPT, AS A MATTER OF FACT, A CLAIM FOR COMPENSATION, FROM ANY WIDOW OR DEPENDENTS, WHOSE HUSBAND OR FATHER HAS DIED FROM CANCER, EITHER WHILE WORKING AT THE YELLOWKNIFE GOLD MINES OR HAS DIED OF CANCER SINCE LEAVING THESE MINES, PROVIDED THAT THE DECEASED HAD ARSENIC EXPOSURE.

## B I B L I O G R A P H Y

- (1). G.R.C. ATHERLY ET AL "WORKERS' INVOLVEMENT IN OCCUPATIONAL HEALTH AND SAFETY IN BRITAIN", INTERNATIONAL LABOUR REVIEW, VOLUME, No. 6, JUNE 1975, PAGE 475.
- (2). A.J. DE VILLIERS AND P.M. BAKER: "AN INVESTIGATION OF THE HEALTH STATUS OF INHABITANTS OF YELLOWKNIFE, NORTHWEST TERRITORIES", DEPARTMENT OF NATIONAL HEALTH AND WELFARE, ENVIRONMENTAL HEALTH DIRECTORATE, OCCUPATIONAL HEALTH DIVISION.
- (3). IBID.
- (4). VALLEE, B.L., ULMER, D.D., WACKER, W.E.C.: "ARSENIC TOXICOLOGY AND BIOCHEMISTRY", ARCHIVES OF INDUSTRIAL HEALTH, 21: 132-51, 1960.
- (5). KELYNAC, T.N., KIRKBY, W., DELEPHINE, S., TATTERSALL, C.H.: "ARSENICAL POISONING FROM BEER DRINKING", LANCET, 2: 1600-2, 1960.
- (6). BUTZENGEIGER, K.H.: ("ON PERIPHERAL CIRCULATORY DISORDERS DURING ARSENIC INTOXICATION"), KLIN. WOCHENSCHR. 19: 523-27, 1940. (GERMAN).
- (7). BUTZENGEIGER, K.H., ("CHRONIC ARSENIC POISONING - I, EKG ALTERATIONS AND OTHER CARDIOVASCULAR MANIFESTATIONS"), DEUTSCH ARCH. KLIN. MED. 194: 1-16, 1949. (GERMAN).
- (8). BARRY, K.G., HERNDON, E.G.: "ELECTROCARDIOGRAPHIC CHANGES ASSOCIATED WITH ACUTE ARSENIC POISONING", MEDICAL ANNUAL D.C. 31: 25-27, 65-66, 1962.
- (9). BIRMINGHAM, D.J., KEY, M.M., HOLADAY, D.A., PERONE, V.B.: "AN OUTBREAK OF ARSENICAL DERMATOSES IN A MINING COMMUNITY", ARCHIVES OF DERMATOLOGY, 91: 457-64, 1965.
- (10). SOMERS, S.C., McMANUS, R.G.: "MULTIPLE ARSENICAL CANCERS OF SKIN AND INTERNAL ORGANS", CANCER, 6: 347-59, 1953.
- (11). HILL, A.B., FANNING, E.L.: "STUDIES IN THE INCIDENCE OF CANCER IN A FACTORY HANDLING INORGANIC COMPOUNDS OF ARSENIC - I. MORTALITY EXPERIENCE IN THE FACTORY", BRITISH JOURNAL OF INDUSTRIAL MEDICINES, 5: 1-6, 1948.
- (12). ROTH, F.: ("CONCERNING BIOCHEMICAL CANCERS IN VINEGROWERS INJURED BY ARSENIC"), VIRCHOWS ARCH. 331: 119-37, 1958. (GERMAN).
- (13). LEE, A.M., FRAUMENI, J.F., JR.: "ARSENIC AND RESPIRATORY CANCER IN MAN - AN OCCUPATIONAL STUDY", JOURNAL OF NATIONAL CANCER INSTITUTE, 42: 1045-52, 1969.
- (14). BLEJER, H.P., LEVIN, M.L., LILIENFELD, A.: ANALYSIS OF MORTALITY EXPERIENCE OF ALLIED CHEMICAL PLANT -- 2000 RACE ST., BALTIMORE, MD. REPORT SUBMITTED TO THE ALLIED CHEMICAL CORPORATION, MORRISTOWN, NJ. JULY 16, 1974.

- (15). OTT, M.G., HOLDER, B.B., GORDON, H.L.: RESPIRATORY CANCER AND OCCUPATIONAL EXPOSURE TO ARSENICALS. ARCH. ENVIRON. HEALTH, 29: 250-55, 1974.
- (16). WHELAN, P.: "LUNG CANCER STUDIES ARE LIKELY TO PROMPT TOUGHER ARSENIC LIMIT", GLOBE AND MAIL, APRIL 24, 1975.
- (17). WASHINGTON POST, APRIL 24, 1975.
- (18). A.J. DE VILLIERS AND P.M. BAKER: AN INVESTIGATION OF THE HEALTH STATUS OF INHABITANTS OF YELLOWKNIFE, NORTHWEST TERRITORIES, DEPARTMENT OF NATIONAL HEALTH AND WELFARE, ENVIRONMENTAL HEALTH DIRECTORATE, OCCUPATIONAL HEALTH DIVISION.
- (19). MARC LALONDE: NEWS RELEASE, MAY 27, 1975 ENTITLED "YELLOWKNIFE ARSENIC STUDY RESULTS PUBLISHED", HEALTH AND WELFARE CANADA.
- (20). GOVERNMENT OF THE NORTHWEST TERRITORIES: TECHNICAL DATA SUMMARY, ARSENIC IN THE YELLOWKNIFE ENVIRONMENT, YELLOWKNIFE, NORTHWEST TERRITORIES, JANUARY 1977.
- (21). IBID.
- (22). IBID.
- (23). OCCUPATIONAL HEALTH UNIT, MEDICAL SERVICES BRANCH: ARSENIC EXPOSURE IN WORKPLACE AREAS OF YELLOWKNIFE GOLD MINES AND MILLS, NORTHWEST TERRITORIES, HEALTH AND WELFARE CANADA, JULY 1975.
- (24). HECTOR P. BLEJER AND WILLIAM WAGNER: CASE STUDY 4: INORGANIC ARSENIC - AMBIENT LEVEL APPROACH TO THE CONTROL OF OCCUPATIONAL CANCERIGENIC EXPOSURES, NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE.
- (25). "CHRONIC ARSINE POISONING AMONG WORKERS EMPLOYED IN THE CYANIDE EXTRACTION OF GOLD - A REPORT OF FOURTEEN CASES", REPRINTED FROM THE JOURNAL OF INDUSTRIAL HYGIENE AND TOXICOLOGY, VOL. 22, No. 4, APRIL 1940.
- (26). R.E. JERVIS, DEPARTMENT OF CHEMICAL ENGINEERING AND APPLIED CHEMISTRY, UNIVERSITY OF TORONTO, "APPLICATIONS OF ACTIVATION ANALYSIS IN FORENSIC SCIENCE", 1967.
- (27). MARC LALONDE: NEWS RELEASE, MAY 27, 1975 ENTITLED "YELLOWKNIFE ARSENIC STUDY RESULTS PUBLISHED", HEALTH AND WELFARE CANADA.
- (28). J.W. GRANGE: "WATER POLLUTION - YELLOWKNIFE BAY" - DEPARTMENT OF NATIONAL HEALTH AND WELFARE, 1973.
- (29). IBID.
- (30). J.W. GRANGE AND J.W. SLUPSKY: "ARSENIC STUDY OF YELLOWKNIFE BAY",

- (31). IBID.
- (32). IBID.
- (33). IBID.
- (34). GOVERNMENT OF THE NORTHWEST TERRITORIES - "TECHNICAL DATA SUMMARY - ARSENIC IN THE YELLOWKNIFE ENVIRONMENT". YELLOWKNIFE, NORTHWEST TERRITORIES. JANUARY 1977.
- (35). IBID.
- (36). A.J. DE VILLIERS AND P.M. BAKER: "AN INVESTIGATION OF THE HEALTH STATUS OF INHABITANTS OF YELLOWKNIFE, NORTHWEST TERRITORIES, DEPARTMENT OF NATIONAL HEALTH AND WELFARE, ENVIRONMENTAL HEALTH DIRECTORATE, OCCUPATIONAL HEALTH DIVISION.
- (37). GOVERNMENT OF THE NORTHWEST TERRITORIES - "TECHNICAL DATA SUMMARY - ARSENIC IN THE YELLOWKNIFE ENVIRONMENT". YELLOWKNIFE, NORTHWEST TERRITORIES. JANUARY 1977.
- (38). IBID.
- (39). IBID.
- (40). IBID.
- (41). IBID.
- (42). IBID.



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JANUARY 1977

## THE MINERS' VOICE

9

## Work-place air improving at mine shut by Steelworkers' walkout

MATACHEWAN, Ont.

Conditions are improving at the United Asbestos mine near here that the Steelworkers shut in a health work stoppage last year.

After the walkout began the Ontario government announced it was closing the mine for a clean-up. Dust levels had been 20 times the guidelines for so-called safe air used by the health department.

Local 8308 members felt the province's shutdown order last April was vindication.

"The guys feel the operation is 100% better," staff representative Dick Hunter said recently.

Exposure to asbestos has been linked by scientists to cancer and lung ailments. Canada is the world's leading producer of the fibre, which is used in insulation, road-building materials and other uses.

Ontario's asbestos standard is 2 fibres of the material per every cubic centimetre of air, or about 2 million fibres per cubic metre.

Before the mine opened in 1975 management spokesmen told reporters they weren't sure they could meet the 2-fibre standard. But the government permitted

the mine to operate anyway with dust levels that would mean certain health problems for the workers in the years to come.

The mine and mill were closed for a month for the special clean-up.

When the first test readings were revealed by New Democratic Party leader Stephen Lewis company spokesmen claimed workers had tampered with monitoring equipment.

Natural Resources minister Leo Bernier called the mine "one of the better" operations in the province. But the health department's investigator, Gian Rajhans, said in his report to his superiors. "I have not seen any asbestos mining industry having such poor working conditions from a health point of view."

Rajhans first reported the bad dust levels in October, 1975, soon after United opened. In the report that the NDP leader obtained in April Rajhans stated "nothing of consequence" had been done to clean up. Faces of some workers were totally covered with fibres.

Nearly 200 work in the production unit represented by the Steelworkers. While pressure by the union and the NDP in the provincial legislature was critical in the clean-up, management recently has returned to economic blackmail tactics, say the workers.

United Asbestos president Robert Merrill warned recently that the NDP's interest could force the permanent closing of the mine.

Local 8308 president Gordon Young said if it weren't for the NDP's pressure "conditions might have gotten worse."

Asbestos is one of Canada's key resources, and there are 15 mines in the country. The clean-up has held down production, but at full operation, mill capacity of 4,000 tons of ore a day makes United ninth-ranked.

Members of Local 8308 block the entrance to the United Asbestos mine in northern Ontario, forcing the province to shut the operation for a clean-up.

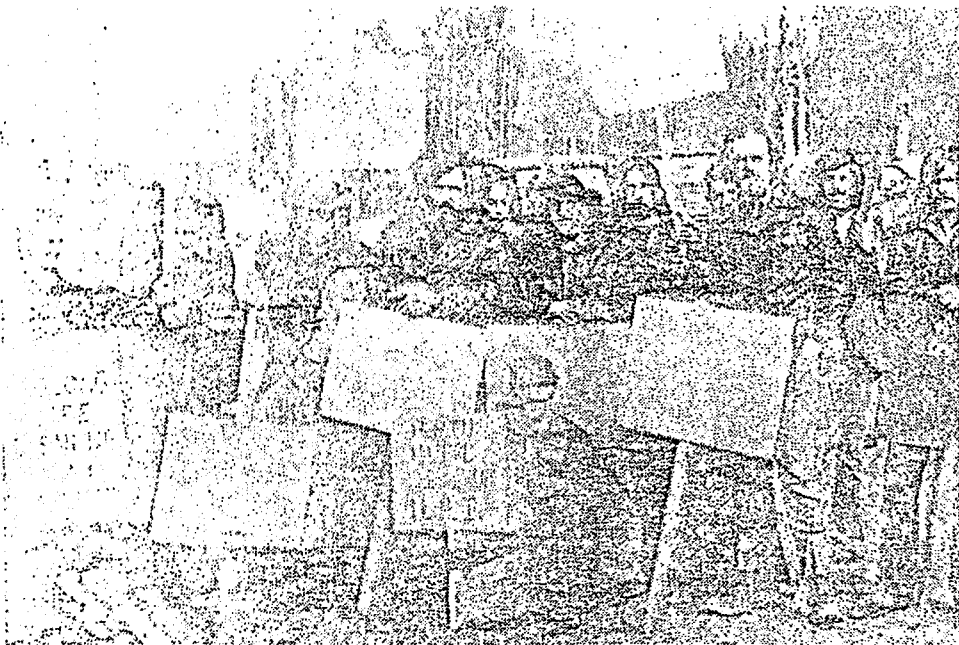
Bay Mines for violating safety regulations that led to the death of Thomas Hare, 28, in September, 1975.

Hare was smothered in tailings after entering a storage bin. A coroner's inquest showed he had no lifeline, as required by the ordinance.

The law also requires a second employee be stationed nearby when workers enter storage bins, but there was no one assigned to help Hare.



DICK HUNTER



Northern Daily News

**Company fined \$200  
for breaking law  
that led to  
miner's death**

YELLOWKNIFE, N.W.T.

For the first time a Northwest Territories mine has been fined for breaking the mining laws.

The fine, \$200, is hardly a deterrent to other companies that cut corners on safety, says staff representative Ed McRae. The maximum fine would be \$1,000.

The NWT Supreme Court fined Echo

TELEX 034-4-5514

GIANT YELLOWKNIFE MINES LIMITED  
YELLOWKNIFE P.O.  
NORTHWEST TERRITORIES  
CANADA

May 16, 1974.

Mr. M. Kolenko, President,  
United Steelworkers of America,  
Local 803,  
P. O. Box 787,  
YELLOWKNIFE, N. W. T.

Dear Mr. Kolenko:

Further to the suspension of Mr. J. Hawes, Shop Steward,  
with regard to his involvement in the illegal walkout in the Mill on  
May 16, 1974 from approximately 7:45 A. M. to 10:20 A. M. other partici-  
pants in this walkout were as follows:

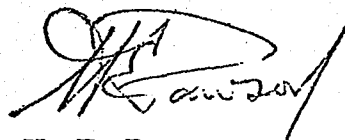
George Ewasiuk  
Norman Plante  
Nick Luzny  
Archie Loutitt  
Don McNemly  
Rick Osetsky

Dennis Thorne  
John France  
Randy Parkin  
Brian Christy  
Rick Edgar  
Bill Gowing

We do not plan any disciplinary action at this time pending  
completion of our investigation.

Yours very truly,

GIANT YELLOWKNIFE MINES LIMITED.



H. E. Pawson,  
Mill Superintendent.

HEP\*mo's

c. c. W. Berezowski

# United Steelworkers of America, AFL-CIO-CLC

Int'l. Hdq: Five Gateway Center, Pittsburgh, Pa. 15222

Birmingham Office: 409 North 21st Street, Suite 202, Birmingham, Ala. 35203, Phone: (Area Code 205) 251-3486

Chicago Office: 1900 Engineering Bldg., Chicago, Ill. 60606, Phone: (Area Code 312) 782-3126

Canadian Office: 55 Eglinton Avenue East, 8th Floor, Toronto 12, Ontario, Phone: (Area Code 416) 487-1571

Los Angeles Office: 7th Floor, Airport Imperial Building, 999 North Sepulveda Blvd., El Segundo, Calif. 90245, Phone: (Area Code 213) 640-0433

## STRUCTURE:

The USWA has 1,400,000 members in over 5,200 affiliated local unions throughout the United States, Puerto Rico and Canada. It has three top International Officers, a national director of Canada and 24 district directors who comprise a 28-member International Executive Board elected by referendum every four years. This group determines policy between conventions. The supreme legislative body is the biennial International Constitutional Convention held in even numbered years.

Membership in local unions is open to all without discrimination. Local union officers, elected by the members, serve for three years.

## JURISDICTION:

Generally, union membership is employed in the basic steel and allied ferrous and non-ferrous metals producing and fabricating industries. This includes production and maintenance workers as well as clerical, technical and plant protection employees in ore mining, quarrying, smelting & refining, Great Lakes shipping, rail transport, cement, refractory brick & tile making, primary metal production, foundries, coating & plating operations, the manufacture of structural steel, forgings, extrusions, rolled sheets, pipes, tubes, molds, wires, nails, screws, nuts, bolts, ordnance materials, barrels, cans and other containers, etc.

The union also represents workers in a wide range of other manufacturing industries such as engines, valves, fittings, chemicals, heating & plumbing equipment, compressors, home appliances, plastics, musical instruments, sporting goods, toys, hardware, machinery, transportation equipment, cutlery, etc.

## LABOR CONTRACTS:

Approximately 6,700 contracts are currently in force with over 4,000 employers. Most contracts cover only one plant or one operating unit of the employer, although in some cases several operations may be covered by one basic contract.

In addition to wage rate structures and grievance machinery, contracts negotiated by the USWA have featured liberal pension plans, sick and accident insurance coverage, Supplementary Unemployment Benefits, three-month paid vacations every five years, and many other fringe benefits. Prior to formation of the union, the basic steel labor rate was 47¢ an hour; fringe benefits were non-existent.

USWA collective bargaining policy is established by a 166-member International Wage Policy Committee comprised of the 28-member Executive Board and 138 elected members who must be actively employed in industry.

For major segments of the union's membership, all policy decisions related to collective bargaining are determined through separate Industry Conferences.

## OFFICERS:

**I. W. Abel, president.** Began first four-year term June 1, 1965. Born August 11, 1908 in Magnolia, O. Began labor career as mill hand in Canton, O., at the American Sheet and Tin Mill Works, now a division of the U. S. Steel Corp. Appointed staff representative of the Steel Workers Organizing Committee (SWOC), predecessor of the USWA, in 1937 by Philip Murray, founder of SWOC and later USWA president. Appointed Director of District 27, Canton area, in February 1942, and elected District 27 director at 1st Constitutional Convention of USWA in same year. Elected international secretary-treasurer in 1952 and served in that post until elected president.

**Walter J. Burke, secretary-treasurer.** Installed in first four-year term on June 1, 1965. Born Sept. 14, 1911 in Antioch, Ill. After serving as assistant instructor of printing at Waukegan, Ill., Township high school, was employed as inspector in the Metal Finishing division of Sanitary Refrigeration Co. in Fond du lac, Wis., from

1932-37. Appointed to staff of SWOC in 1937 by Philip Murray. Elected secretary-treasurer of Wisconsin State Union Council (CIO) during service as staff representative. Became director of District 32 (Milwaukee, Wis. area) in 1948. Re-elected as District 32 director until elected international secretary-treasurer.

**John S. Johns, vice president.** On June 1, 1973, began his first full term as International Officer. Born in Beaver Falls, Pa., on March 4, 1915, he became a steel worker in Canton, Ohio, in 1935 and was one of the first to join the SWOC at Republic Steel. Active in organizing "Little Steel" group of companies and, as financial secretary of Local 1200 from 1936 to 1942, helped lead a long and bitter strike against that company. Saw military service in South Pacific and joined USWA staff upon returning to civilian life. Initially became director of USWA District 27 in 1953 and was re-elected every four years until chosen, without opposition, to succeed retiring Vice President Joseph P. Molony in 1973.

## HISTORY OF UNION:

The USWA originally grew out of the mass production organizing efforts initiated in 1935 by United Mine Workers' President John L. Lewis and a group of other AFL leaders. They formed the Committee for Industrial Organizations, later the Congress of Industrial Organizations (CIO).

Under an agreement with the Amalgamated Association of Iron, Steel & Tin workers (organized in 1874), Philip Murray established the Steel Workers Organizing Committee (SWOC) and launched a massive organizing drive throughout the industry in June, 1936 with the assistance of the CIO. The organizing drive was almost an immediate success, surviving many desperate efforts of giant steel companies to thwart unionization of their industry.

Within six years, membership growth and collective bargaining progress led to the formation of an autonomous international union at a constitutional convention held in Cleveland, O. At that time, SWOC was disbanded and the union became the United Steelworkers of America, CIO, on May 22, 1942.

The founding president, Philip Murray, died in November, 1952. He was succeeded by David J. McDonald, originally the secretary-treasurer of the organization.

Upon the merger of the CIO with the AFL in 1955, the USWA became an AFL-CIO affiliate. In Canada, the union is affiliated with the Canadian Labour Congress (CLC).

**I. W. Abel** became the third president of the USWA by challenging McDonald's leadership in a referendum election held Feb. 9, 1965. He was re-elected for consecutive four-year terms in 1969 and 1973.

## DIRECTORS:

William Mahoney, National Director of Canada, Toronto, Ontario, Canada

- Dist. 1—Roy H. Stevens, Worcester, Massachusetts
- Dist. 4—Mitchell F. Mazuca, Buffalo, New York
- Dist. 5—Jean Gerin-Lajoie, Montreal, Que., Canada
- Dist. 6—Lynn R. Williams, Toronto, Ont., Canada
- Dist. 7—Hugh P. Carcella, Philadelphia, Pa.
- Dist. 8—Edward E. Plato, Baltimore, Maryland
- Dist. 9—William Moran, Bethlehem, Pa.
- Dist. 15—Joseph Odorich, McKeesport, Pa.
- Dist. 19—Walter E. Bleil, Tarentum, Pa.
- Dist. 20—Kay Kluz, Baden, Pa.
- Dist. 23—Homer E. Bussa, Wheeling, W. Va.
- Dist. 26—Frank Leseganich, Youngstown, Ohio
- Dist. 27—Harry E. Mayfield, Canton, Ohio
- Dist. 28—Joseph J. Kender, Cleveland, Ohio
- Dist. 29—Charles G. Younglove, Detroit, Michigan
- Dist. 30—Harry O. Dougherty, Indianapolis, Indiana
- Dist. 31—Samuel C. Evett, East Chicago, Indiana
- Dist. 32—Bertram McNamara, Milwaukee, Wis.
- Dist. 33—Peter Benzoni, Duluth, Minn.
- Dist. 34—Lloyd McBride, St. Louis, Mo.
- Dist. 35—M. C. Weston, Jr., Atlanta, Georgia
- Dist. 36—Howard Strevel, Birmingham, Ala.
- Dist. 37—James E. Ward, Houston, Texas
- Dist. 38—Frank S. McKee, Los Angeles, Calif.

UNITED STEELWORKERS OF AMERICA

NATIONAL POLICY CONFERENCE

Hamilton, Ont.

April 27-29, 1961

REPORT OF THE COMMITTEE ON SAFETY AND HEALTH

Industrial Accidents and Occupational Health

Substantial progress has been made in promoting industrial safety in our industry. Some measure of this success is reflected in the overall reduction of both fatal and other accidents reported under the Factories Acts, even though industry has become increasingly complex and unemployment has reached its peak. Nevertheless, the number of accidents reported each year is still far too high. It is unfortunate that a large number of industrial accidents are not reported because the resulting injuries are considered minor. These accidents are hidden by workers because they fear reprisals or even loss of employment. There are also many near accidents or dangerous incidents in which workers are fortunately unhurt.

The extent and nature of these problems are not widely appreciated and understood by both industry and workers. Industrial accidents present a challenge to employers and prevention of accidents is essentially their task, for they are both legally and morally responsible. Industry has the opportunity and the means to discharge this responsibility effectively and should do so. Employees must use the help their own unions can give.

Fatalities in mines, particularly in Ontario, must be checked. Last December we had a terrible record of accidents in the mines at Timmins, Elliot Lake, Bancroft and Red Lake. Your union is now preparing a new mining code which will be submitted to the Ontario Government. For many years we have made representations to the government regarding mine safety. The Quebec Royal Commission on Mine Safety, set up in 1958, has not yet made its report. Our target, therefore, is full revision of mine safety codes.

Occupational Health

We must place greater emphasis on the health of workers on the job. Your union has been stressing the necessity of a full study of such health problems. We are already faced with some 5000 chemicals used in industry and new ones are being introduced at the rate of 500 a year.

Since a very limited number of doctors have the necessary experience in this field, it is important that we take greater interest in it. We can do this by informing all of our members how to improve health conditions by industrial hygiene and by studying their working environment and reporting all suspected causes of illnesses. Your family doctor will be greatly assisted if he is told

what your working conditions are. He will then be able to diagnose illness which results from gas, fumes, dust, etc., although the symptoms are similar to those of flu, pneumonia and colds.

For too many years there has been lack of concern about industrial diseases. The part they play in causing disabilities common to mankind has been underestimated. Some old industrial diseases, such as lead poisoning, have long been recognized, but we are continually faced with new ones - pneumocosis for example. Statistics reveal that, for every day lost through industrial disputes, seven are lost through accidents and no fewer than 100 through illnesses. We must therefore strive for full promotion of health, safety and welfare in factories, mines and other industrial premises. We must investigate and look for solutions of the problems in this field. We must disseminate information and we must write appropriate clauses in our collective bargaining agreements.

#### Workmen's Compensation

We wish to acknowledge the co-operation we are now receiving from the staff of the Ontario Workmen's Compensation Board. However, we cannot stress too strongly the need for greater care in the preparation of reports of accident or industrial disease. We ask local union officers to have their members report all injuries to them so that all possible assistance may be given in the preparation of these reports at all stages and so that proper evidence may be presented in support of their claims. We emphasize again the importance of early processing of claims and appeals in order to have available all the facts and witnesses required for a successful outcome.

#### Welfare Services

The extent of our present unemployment means that too many of our people, through no fault of their own, are unable to look after the costs of medical care, food, clothing and lodgings. It is essential, therefore, that our local unions co-operate fully with the Welfare Services Committees of the Congress, provincial federations and labour councils by setting up welfare committees. The function of these committees should be to help distressed members to obtain assistance from the public welfare departments of their municipalities. They should also urge members who expect to need public welfare assistance in the near future to establish their eligibility immediately in order to avoid delay in receiving help.

#### Ontario Foundry Council

The Ontario Foundry Council has over the years established an understanding and policy with the Foundry Inspection Branch of the Department of Labour. This policy and understanding is that no inspection of any foundry will be made without contact being made with a representative of the local union in that foundry.



## United Steelworkers

## Union view of labor in the mining industry

By LYNN WILLIAMS\*

At one of our union's regional conferences recently a young miner from the Yukon interrupted a discussion on the four-day week. "You people keep talking about the four-day week, the four-day week," he said. "Well, what about the five-day week? We're still looking for the five-day week!"

It's painfully typical of the mining industry—with very few exceptions—that miners have had to catch up in their working conditions and wages. The miner's comment reminded me of that platitude on progress: it's not how far you've come but how far you have to go.

Considering some of our goals, the union in mining has succeeded. The Steelworkers represent 51,000 mining industry workers in Canada, 73.5% of all the non-managerial employees. When you know what the obstacles have been, the terrible strikes, anti-union spies, employer-provoked violence, we think we've come a long way.

But then, I visit mining communities and see the isolation. I visit the mines—and see the technological monsters of today. And I realize how far there is still to go.

The union movement is schizophrenic that way. Perhaps we who've spent a good many years organizing enjoy a little the role of the down-trodden. Perhaps we need that perspective to ratify ourselves.

## Self made

But there's nothing sanctimonious or phony about the underdog image. The union movement has never received a cent of funds or an inch of help from anyone but its members. We had no Local Initiative Grants, no tax incentives or depletion allowances. People paid for this movement, and they built a good movement despite the well-organized opposition of the wealthiest and most ruthless opponents.

What little aid unions have received has been paltry, and too late to be any good. A little over a year ago the provincial government in Ontario passed a law saying it's a union organizer's right to enter company stakes to organize workers living in management bunkhouses. That's the sort of legislative afterthought the labour movement has learned to accept with a shrug of "Who cares?"

The miners in the Steelworkers have had to fight for everything. That's the miner's way. He's an independent man with great pride in his work. He's proud of what his union's done, too.

But he's also aware of what the mining industry has done to him, to his future and to his community. The unions extracted everything he's got from powerful companies dominated by absentee boards of directors who used human effort in the same aloof way they've exploited the resources in our country.

This judgement is not too harsh. Unions, not companies, are still making the most noise about safety. Miners today realize there's no stone tablet that says a certain number of miners must die every year for the industry to survive.

They know the score. They know mining is no safer today than it was a decade ago. They know the death rate for Ontario miners for every million hours worked is actually higher today than it was over a decade ago.

## Safety first

If you think you're seeing an increase in wildcat strikes over safety recently, you're probably right. Heath Steele Mines, Brunswick Mining, and Endako are sites of some recent walkouts over safety. This militancy is the miners' feeling that death in the shafts is unnecessary.

I can't say strongly enough in words the frustration and anger people in our union feel when they face the casualties of mining industry. Dick Hunter, our union's Kirkland Lake, Ont., representative, tells about one injured miner who's actually afraid to go underground again. "He just couldn't cope with the idea of going back to work," Hunter says.

The Steelworkers are working against unsafe conditions. But we often run into a murky consortium between company and government to overlook a hazard as just part of the mining business.

Silicosis, the lung disease picked up from dust particles in the air, is a miner's ailment that has shortened the career of many of our members. Yet miners who have been forced to retire by silicosis can die technically and medically of other, "natural" causes. And their widows are left penniless because the cause of death isn't related directly to the work-

ing place, so the miner's wife gets no pension from workmen's compensation.

Others have to work with that disease eating up their life because they can't get benefits from workmen's compensation boards unless the miner transfers to a lower-paying job. He's still got to drag himself to work every day.

## Social depreciation

And is there compensation for the loss of years of the man's life? If he accidentally disables the company's equipment, the mine's insurance will pay off the company. Who pays off the miner for his decaying life?

The same *laissez faire* attitude toward life by the companies has destroyed mining communities, leaving them frontiers of broken promises when the mines go dry.

Only one mine of 11 operates today in Kirkland Lake, although \$800 million in ore has been extracted from beneath that community. If the mining companies had put only some of their profits back into the land, Kirkland Lake today might be a tourist region with livelihoods for the people left behind when the mining companies ran away. The comment of our representative, Dick Hunter, is ironic but accurate: "The real boomers are the mining companies."

The mining industry must be blamed for leaving vast landmarks to its own social irresponsibility. It is almost incredible, but there is no lake in Kirkland Lake. A once beautiful lake was gorged full by tailings and slime.

Scars on the land like the pain of Kirkland Lake remind me how the mining companies have had life all their own way. If miners are tough and militant today, it's no wonder. They have to be.

The mining companies ran town councils to keep water and hydro

rates low. The mining industry bought and bossed the two old political parties to keep taxes low and royalties small. The companies controlled markets. To anyone who examines the selling of nickel and other important minerals and ores today, the marketing of natural resources is a parody of free-enterprise capitalism.

## Local initiative

Men like Stephen Roman and the mining associations weep in public about initiative. Well, the miners of Canada have lived the work ethic, and many have given their lives serving it. Yet their gains were nothing like the profits of the companies. Since 1961 in Ontario, to cite one example, production per employee went up 54%. The value of the ore they mined increased while the number of miners was actually declining. The miner's hard work and initiative was a joke played on him by the boss.

What the industry has done to the mining communities of Canada is a disgrace compared with the industry's profits. In Ontario in 1970 just 2% of the value of the minerals produced was returned to the miners' home towns and the province in taxes and royalties.

Instead of developing their own backyards, through their own profits or through taxes, the mining companies have run off to exploit the rest of the world.

Meanwhile, the miners were paying for the negligence of their bosses. That's why companies get three-year tax breaks for opening

new mines, but miners don't get any break at all for building houses. That's why when the ore is out companies leave mining towns with fat profits. And miners leave

The Northern Miner

## H.L. STEVENS



As director of the newest district in our union I welcome this opportunity to communicate with the members of Local 804 through your publication, Voice of Labour.

When the International Executive board created District 3 as the new Canadian Western District it was recognizing the fact that Canadians unlike many other people in the world, are victims of what could be called the "Tyranny of geography." In other words our country is so huge and spread out that one of our biggest problems is the simple act of communicating with each other. The new structure of our union in Canada will make the job a little easier.

As a native westerner who was born and brought up on the prairies I have always been aware that there are subtle differences between the way things are done in the various parts of our country. It is no secret to those of us in a union as big and far flung as the Steelworkers that we may do things in different ways depending on what serves the membership best in a particular situation or location. Now that we have our own Western Canadian District we will no doubt find that from time to time we may have to approach matters from a different slant than other districts but it doesn't mean for one minute that we are not all part of the same union and dedicated toward preserving, building and improving our union's structure that has served us well for so many years.

There have been many attacks on our international union philosophy over the years, particularly

in the west. This is a problem I will be devoting a great deal of attention to in the coming months, and I intend to carry the fight right back to the union-busters' doorsteps with an aggressive program of organizing and communications within the district.

At the present time we are evaluating the entire situation in the west against the new structure of District 3, and I am attempting to wind up my duties in Manitoba so I can move our new headquarters to Vancouver early in the new year. Office space has already been arranged.

As Steelworkers we're well aware of the fight that all trade unionists in Canada are presently involved in as we try to maintain our standard of living against a federal government that seems determined to push us all collectively face down in the mud of their Anti-Inflation Board B.S. We can also see that prices are skyrocketing in the vital areas of food, clothing and shelter in spite of thousands of words to the contrary from the government and its trained seals at the AIB.

The fight is far from over on the economic front, and I am sure it will occupy a lot of our time over the next two years as we as a union try to fight off the government hand on our paycheques until the AIB finally disappears to whatever hole in the ground it came out of.

Even though we have to continue the struggle on that front, we must also keep pressing for gains in the vital area of health and safety. The breakthroughs that have been made in Ontario with the Ham Commission and its report on mine safety must be followed with solid legislation in every province and the Territories that will protect our members and all other working people from paying with their lives for the right to earn a living.

We in the west have a particular problem with mine safety and our list of dead and injured continues to grow like some casualty report from a war. We should not be satisfied until all workers in every jurisdiction have the right under law to refuse work without penalty should they judge it hazardous to their health and safety. It is a priority item that will receive a great deal of attention in District 3 as I am sure it will in every other part of our union.

page 6

Territories Labour Act could also undertake responsibility for it.

INDUSTRIAL SAFETY:

We support the view which emphasizes the importance of accident prevention as a prime mission of those who administer the Workmen's Compensation Ordinance. The need for adequate accident prevention programs and a staff to enforce safety provisions cannot be over-emphasized as it is not only advantageous to the employee but also to the economic and financial advantage of the employer and the Territory as a whole. We, therefore, strongly urge your board to consider recommendations to establish a Code of Safety Regulations based on the best experiences available with an adequate inspection staff to enforce same.

It is now becoming an accepted fact that accident prevention is a joint venture between the employee and the employer. On the basis of this premise various provincial acts make provision for joint safety committees whose function it is to correct unsafe practices and to develop and maintain interest in accident prevention. The committee in no way removes management's responsibility for the safe operation of an undertaking.

We support such a proposition. In fact in the mining industry both by collective bargaining and via the Mines Safety Ordinance provisions exist for the operation of such committees. It is our experience they have a positive role to play. However, in no way can they properly operate without the active enforcement of safety regulations by responsible authorities.

INDUSTRIAL HYGIENE:

We believe there is much to be done in the field of preventative action to forestall and mitigate effects of certain industrial processes which

page 7

give rise to various industrial diseases. An effective program requires the co-operation of the health authorities, people administering the Compensation Ordinance, management and employee organizations. It is our contention the initiative for these programs should be undertaken by those responsible for workmen's compensation.

June 5, 1975 - The Yellowknifer

## UNION RAPS MINISTER OF HEALTH

Honorable Marc Lalonde,  
Minister of National Health & Welfare,  
Ottawa,

Dear Sir:

The United Steelworkers of America in the Northwest Territories are registering a strong protest with you concerning the interim report on the Yellowknife Arsenic study. Please be advised that there are several aspects about this situation that we find extremely repugnant.

Since we are the union representing employees in the gold mines of Yellowknife and have been concerned about the effects of arsenic and other processes affecting the safety and health of our members, we should have received notice of the press conference.

Our union has been involved in several attempts over the years to have in depth studies, surveys, and medicals done in this

area. After seeing the interim report we are more concerned now than ever before, because the report tends to support our contention that arsenic is affecting our members and their families.

Further we would like to know the answers to the following questions:

1. Why the Steelworkers were not notified of the time and place of the release, of the interim report?
2. Why the interim report is so inconclusive in regard to the accepted levels of arsenic content?
3. What remedial action is being proposed and what, if any, remedial action is being acted upon?
4. When is a complete and detailed study of all present mine and mill workers and their families going to be held?
5. What action if any is being done to trace former employees of the mines to ascertain levels of arsenic present in their bodies?
6. What action if any is being done to assure the other residents of Yellowknife that the levels of arsenic contamination is being controlled?
7. What action if any is being taken to

ascertain the reason and cause for higher arsenic levels in mill and mine workers than the levels in Yellowknife residents in general?

8. What action if any is being taken to ascertain who is going to assume the responsibility for arsenic contamination?
9. Why the mines management received a list of all their employees, participating in the survey, who had results in excess of ten (10) parts per million (ppm), when the Steelworkers did not receive these lists?
10. What if any is the accumulative effect of arsenic in the body?

Signed

Marsh Hawes - President - Steelworkers Area Council  
Don Wilson - President - Local 802 - U.S.W.A.  
Martin Kolenko - President - Local 803 - U.S.W.A.  
Dave Price - President - Local 7288 - U.S.W.A.  
Ed McRae - Staff Representative - U.S.W.A.

MINISTER OF NATIONAL HEALTH AND WELFARE  
AND  
MINISTER RESPONSIBLE FOR THE STATUS OF WOMEN

MINISTRE DE LA  
SANTÉ NATIONALE ET DU BIEN-ÊTRE SOCIAL  
ET  
MINISTRE CHARGÉ DE LA SITUATION DE LA FEMME

OTTAWA, K1A 0K9

Mr. Marsh Hawes,  
President,  
Steel Workers Area Council,  
United Steel Workers of America,  
YELLOWKNIFE, Northwest Territories.

Dear Mr. Hawes:

I have your telex referring to the interim report on the Yellowknife Arsenic study and I have noted and considered the contents with care and concern.

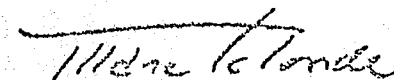
Invitations to the press conference were issued to members of local press, radio and television agencies. It was not intended to be a public forum on the problem, although there were absolutely no restrictions placed on who could attend, and you are aware that in addition to the media representation, officials from the Territorial and Federal Governments and from the United Steel Workers Union were present.

Results of the study were made available on an individual basis to each worker who participated. Letters to this effect were dispatched to all participants before the press conference was convened, and this has been followed by personal contact by health officials from my department. This was done to assure understanding by the participating members of the Union while preserving the confidentiality of their health records. It is my opinion that this combination of individual notification and open press conference has assured that residents of Yellowknife have access to all the facts and implications of the report without any loss of a persons right of medical confidentiality.

As explained in the press conference, the measurement of arsenic levels in hair is a useful screening process to determine exposure to arsenic. The significance of elevated levels, however, must be determined by detailed clinical evaluations including a 24-hour urine sample for arsenic levels. This second phase of the investigation commenced in Yellowknife on June 9. The results of this phase will enable my officers to differentiate between ingested and "fall-out" arsenic, and thus assess the health hazard to residents of Yellowknife. The answers to the questions posed in your telex therefore are dependent on the results of the investigations currently being carried out.

I can assure you that I view this continuing investigation as a matter of urgency. I hope you will liaise closely with officers of my department in Yellowknife concerning any aspect of the investigation and its progress. If the current study indicates the need, we are prepared to take immediate measures to monitor and protect the health of the residents in the area.

Yours truly,



Marc Lalonde

United Steelworkers of America

NORTHWEST TERRITORIES AREA COUNCIL

Box 969 Yellowknife, N.W.T. Phone 873-2833

June 2, 1975

Mr. Marc Lalonde  
Minister,  
National Health and Welfare  
Ottawa, Ont.

Sir:

We respectfully request a grant of \$20,000. to aid us in our continuing study of the arsenic problem in the Yellowknife area.

We draw to your attention the following facts:

1. We represent over 500 mine employees and their families in the Yellowknife area.
2. We are, and have been, deeply concerned with the health of all the mine employees, including those on staff and all families affected.
3. As high tax paying members of Canada we strongly feel that we are justifiably entitled to such a grant.

A favourable reply is awaited.

Yours very truly,

*Marsh F. Hawes*

Marsh F. Hawes  
President of Area Council  
N.W.T. United Steelworkers

MH:dh

cc L. Williams  
W. Firth

APPENDIX # 11

255 Argyle Avenue,  
Ottawa, Ontario.  
K1A 0L3

June 17, 1975.

Yours sincerely,

Yours faithfully,

850-5-X751 (M67)

Mr. Marsh F. Hawes,  
President of Area Council,  
N.W.T. United Steelworkers,  
Box 969,  
YELLOWKNIFE, N.W.T.

Dear Mr. Hawes:

The Minister, the Hon. Marc Lalonde, has asked me to reply to your letter requesting a grant of \$20,000 to aid you in a study of the arsenic problem in the Yellowknife area.

You are, I am sure, aware of the second phase of the investigation undertaken by my Branch, which started on June 9, 1975. It is the Minister's wish that you and your members be involved in this investigation and that continuing liaison between the Union and our officers take place. Next month two highly qualified industrial hygiene engineers will be in Yellowknife to investigate the mine and mill environment. They will be contacting you in order to ensure a full exchange of information and input from your Union.

In this manner, the Minister feels that your members will be fully informed while preserving the safeguards of personal confidentiality as outlined in his recent letter to you.

- 2 -

Mr. Marsh F. Hawes

Following this present investigation, if you should still feel there is a need for further research and study a formal request to the Department outlining the objectives will receive full consideration.

Yours sincerely,

*D. B. Dewar*  
D.B. Dewar,  
Assistant Deputy Minister,  
Medical Services.

- 5 -

and present that was and will be contributed by Brother Bill Berezowski. Brother Milan also praised the fine work done by Chairman H. Hawes, and his hopes that Brother Hawes would continue his good work.

### Questions

Several questions were asked by the council and were adequately answered by Brother Milan.

### 12. Report of President Area Council, H. Hawes

Brother Hawes again made clear his feeling regarding the present Mine Inspectors. He asked that Area Council write to Brother Lynn Williams expressing the Steelworkers in the Territories appreciation for an in residence Staff man and the much needed secretary. The president commended the locals for the assistance and co-operation he received from them, and that he hopes that whoever succeeds to office will receive the same level of co-operation and respect that Area Council has maintained at all times.

No questions on President's report.

The secretary took note that at this time Mr. Ed McRae was named Executive Secretary of the Area Council with best wishes from all assembled council.

### 13. New Business

Resolution moved by Ed McRae and seconded by B. Herrett.

Whereas	the Area Council of the United Steelworkers have some very grave doubts about the sincerity of the Environmental Protection Services of the Federal Government; and
Whereas	the Area Council of the United Steelworkers has reason to believe that the mining companies are polluting our waterways and air, therefore,
Be it Resolved	that we demand that the government be required to institute a program of complete medical examinations for our members, their families and any other residents which have been or are likely to be exposed to such hazardous or toxic substances such as arsenic, mercury, lead, etc. and
Be it further Resolved	that the government compel all unsafe and/or hazardous conditions be rectified forthwith.

CARRIED

Moved by R. Garlick, and seconded by G. Kendall, that the new council executive continue the correspondence with Minister Judd Duchanan, regarding Mine Safety and Health and try for an acceptable solution to this problem.

CARRIED

Moved by H. F. Hawes, and seconded by R. Garlick.

Whereas	Industrial and Environment Pollutants created by industry are increasingly being recognized as potential killers of our members, and indeed, all members of our communities,
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June 16, 1975

To: Executive, Safety Committeeman, Stewards of Locals 803, 802,  
and 7283.

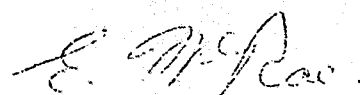
This is a short newsletter to inform you that the Steelworker's Office is doing everything in it's power to remedy the arsenic problem.

- 1) We have, as reported to your local membership meeting, written a letter to Mr. Lalonde, Minister of Health and Welfare, requesting a grant of \$20,000 to assist us in doing some independent study of the arsenic problem.
- 2) We have contacted and made a request of the North West Territories Worker's Compensation Board to hire an independent person specializing in industrial health and hygiene to come into Yellowknife to conduct a complete study.
- 3) We have issued a strong protest to Mr. Lalonde on the way that the Department of Health and Welfare has handled the situation thus far.
- 4) We have requested that a complete medical testing program be implemented immediately, so that all mine mill workers and their families can be tested.
- 5) We have requested that the Department of Health and Welfare institute a program of locating former workers of the mines and residents of Yellowknife, to have them tested also.
- 6) We have asked repeatedly for someone to tell us what the accepted level of arsenic is and have received no answer from anyone as of yet.

We shall continue to follow up on these courses of action until such time that we receive some positive action.

I would request that if you have any suggestions on other avenues that we should follow, please do not hesitate to call on me.

Yours fraternally,



Ed McRae  
Staff Representative

Northern Miner - January 1959

## Giant Yellowknife Mills Higher Rate Deepening Shaft

Giant Yellowknife Gold Mines is gradually increasing its treatment rate. The mill currently is handling better than 900 tons per day with an objective of 1,000 tons daily to be reached in the near future. Average daily treatment rate during the first quarter of this fiscal year, ended Sept. 30, 1958, was 757 tons.

Additional equipment, recently installed in the circuit, has been placed in operation. While it is still in process of being broken in, there are indications that an improvement in recovery is resulting.

The equipment includes a bag house, designed to cope with the arsenic problem, which will also permit recovery of gold-bearing dusts formerly exhausted to the atmosphere. A 2-stage fluo-solids roasting unit is now in operation. It is expected to improve recovery as well as increase overall plant capacity.

Preparatory work for shaft deepening has been completed at the main, or central, shaft. Actual sinking is expected to get under way this week.

The shaft is to add three new levels below the existing bottom level at 1,450 ft. They will be established at 1,600, 1,800 and 2,000 ft. On these levels, lateral work to the extent of 10,000 ft. will be carried out. It has been anticipated that some 500,000 tons of ore will be made available in the ASP and GB-zones in this deeper block of levels.

March 12th, 1958.

Director of Industrial Relations,  
Department of Labour,  
Government of Canada,  
OTTAWA, Ontario.

Dear Sir:

Further to my letter of yesterday's date I enclose copies of letters from the Yellowknife District Miners' Union to Giant Yellowknife Gold Mines Limited requesting negotiations. I also enclose a copy of the Union's requirements for a new collective bargaining agreement.

After an exchange of information and viewpoints via letter between the Union and the Company, our respective negotiating committees met for discussion on the 6th, 7th and 9th of March, approximately full days in each case.

We were unable to reach agreement on all major requirements as submitted by the Union, though agreement has been reached on several minor points.

I enclose a statement made with reference to the copy of our requirements for a new collective bargaining agreement, listing the extent of agreement and differences in regard to each point of our requirements.

Except for concessions in the way of "dirt pay" in the mill, the Company has refused to make any offer in regard to wage increases and does not appear to us to be bargaining in good faith on this matter.

We would request that a conciliator be sent at an early date, preferably the beginning of next week, and would suggest Mr. George Currie, who has acted in several previous conciliations at Yellowknife, and who I am sure is satisfactory to both the Company and ourselves.

.....2

- 2 -

During negotiations with the Company our requirements and many related matters were covered in great detail and it does not appear likely that any further progress is possible without the assistance of a conciliator.

Yours sincerely,

(Charles Crate)  
Corresponding Secretary and  
Research Director.

CC:hep

(NEWS RELEASE)

# YELLOWKNIFE DISTRICT MINERS' UNION SIGNS NEW BARGAINING AGREEMENT WITH GIANT MINE

Coming into effect April 1st, a new, one-year, agreement was concluded between the Yellowknife District Miners' Union, Local 302 of Mine-Mill and Giant Yellowknife Gold Mines Limited. The agreement was reached with the assistance of Federal Conciliator, Don Tysoe.

The new Collective Agreement provides for:

- General improvement in Union security including maintenance of membership.
- A seven-cents across-the-board increase, with provision that underground contracts be adjusted so that men on contract work receive the full benefit of the new rates.
- An additional 5¢ increase to apply to Kiln Plant Operator, Solution Operator, Dorrco Roaster Operator, Cottrell Operator and Crusher Operator.
- An additional 3¢ increase to apply to Lead Hands and Straw Bosses. (Trades and Surface)
- Establishment of a list of jobs and places in the treatment plant to which "dirt pay"--a premium of 25¢ over regular rates--applies.
- Establishment of some control over rates and conditions provided by any contractor taking over work normally performed by Giant employees, thus giving a greater measure of protection to the present work force.
- Contract re-wording, also covering letters in regard to certain points, in order to prevent misunderstandings and reduce grievances.
- Commissary extension to reduce costs to married employees.

The Union bargaining committee consisted of Dave Dale, Chuck Grate, Ted Williams, Howie Peever and Dave Lovellin and--representing the Con Sub-Local--George Sian and Elmer Viney. Advisors to the Committee were Nick Mushoy (Mill) and Oral Butler and G. Schwachow (U.S.), the former two taking part in several of the meetings with the company. National Officer, Ken Smith, assisted the Union and took active part in the deliberations.

The Company was represented by Murray Pickard, Jack Smith, John Parker (as legal advisor), Bob Tate, Ken Russell and "Bing" Rivett and Gordon Brown.

14 th. February. 1959

Requirements for a New Collective Bargaining Agreement.  
~~1. The Sloan Formula.~~

- (1) The Sloan Formula.
- (2) A percentage increase in pay to average 25¢ per hour.
- (3) A reduction in board of 40¢ per day and an increase in cost of living bonus for married men of 40 ¢ per shift.
- (4) Employees maintaining home and legitimate dependents other than wife and children in Yellowknife to receive the same benefits as married men supporting family in Yellowknife.
- (5) A minimum bonus of \$3.50 per shift for all employees when working underground and the same for all employees working in dangerous or hazardous places.
- (6) Vacation pay of 4% after twelve months and 6% after five years continuous employment.
- (7) Xmas bonus per employee of \$25.00 yearly.
- (8) One more Statutory Holiday per year and double time and an half for work done on a Statutory Holiday.
- (9) A Pension Plan.
- (10) Severance Pay.
- (11) Seniority Pay of 5¢ per hour after two years and 10¢ per hour after five years employment.
- (12) Maintenance of all benefits contained in present contract and clarification of meaning of clauses where necessary and rephrasing to prevent abuses.
- (13) Improved Medical and Hospital Services.

~~14th~~

Mill Demands.

- (14) Reclassifications :-
  - (a) Dorco helper to \$1.70 per hour.
  - (b) Ball Mill Operator to \$1.70 per hour.
  - (c) Assay Pulp Balanceman to \$1.75 per hour.
  - (d) Assay Furnaceman to \$1.70 per hour.
  - (e) Wage rate set for pumping dust in bag house.
- (15) Employees working in dust contaminated places and during removal of Kiln dust to receive one and a half times regular pay.
- (16) Condition Pay if severe conditions occur in any part of the plant.
- (17) Employees to obtain coveralls at half price and half price of necessary laundering of same.
- (18) Chemical resistant boots at cost.
- (19) Vaccination and inoculation without cost. also prescriptions where purchased in Drugstore.
- (20) In Article 4 (d) of Miscellaneous four hours to be changed to one hour.

15.04 (a) At the time of the annual chest X-ray, each employee taking his X-ray will be given one-half ( $\frac{1}{2}$ ) hour on Company time.

(b) For Hoistmen taking annual medicals and Mill employees taking arsenic medicals, two (2) hours on Company time will be allowed.

15.05 (a) The following special rates will apply in the Mill:

1. Pay at the rate of  $2\frac{1}{2}$  times basic rates will be paid for time actually spent in the following work:

- i) When workmen are required to work inside a Cottrell Precipitator;
- ii) When workmen are required to work inside the Dracco Dust Collector;
- iii) When workmen are required to enter the flues between the Roaster and the main stack;
- iv) When workmen are required to work inside the Roaster while removing bed.

(b) Pay at the rate of  $1\frac{1}{2}$  times basic rates will be paid for time actually spent on the following work:

- i) When workmen are required to change or scrape electrodes or remove shorts in the Cottrell Precipitator;
- ii) When workmen are required to open inspection doors or remove casings of the Cottrell or main stack fans for work

- 17 -

on interior parts;

- iii) When workmen are required to handle interior parts of the Cottrell Precipitator or Dracco Dust Collector;
- iv) When material specifically classed as arsenic and requiring storage in arsenic disposal chambers must be manually dumped into such chambers.
- v) Handling Dorcco Roaster bed material outside the actual Roaster during scheduled clean-out.

The pay referred to in the above sections will be for a minimum of one (1) hour.

It is understood that changing techniques or practices or conditions shall be cause for review of the above classifications.



APPENDIX # 19

February 22, 1977.

Mr. E. McRae,  
Staff Representative,  
United Steelworkers of  
America,  
P. O. Box 969,  
5022 - 51st Street,  
YELLOWKNIFE, N.W.T.

Dear Mr. McRae:

Re: Arsenic

The Ontario Compensation Board has accepted at least 2 dozen cases of lung cancer arising out of arsenic exposure.

As you probably know, this took place at the old Doloro Smelting and Refining Company which was in production roughly between 1906 and 1967. During the early years, arsenic bearing gold ore was refined and later on ores containing silver, copper, iron, nickel and cobalt were put into the process and this ore contained between 25% and 35% arsenic.

Up to the second war, the process ores were mostly cobalt, nickel, and some silver in the form of arsenides.

Among the various processes involved in the smelting of this arsenic containing ore, it was found that the primary treatment plant (containing a crushing and grinding installation), electro-melt furnaces, blast furnaces, a roaster, thickeners, and precipitation tanks and a calciner and a cobalt oxide building containing precipitation tanks for iron, cobalt, copper and nickel, furnaces, wash tanks and dryer, produced an increased incidence of lung cancer.

For many years, exposure to arsenic in the tri-oxide form was a problem in the refinery, particularly in the silver plant (or primary treatment plant) and in the bag house where arsenic tri-oxide fume was collected and packed. There were quite a few cases of arsenical dermatitis in the early years, and laterally some skin cancers.

Obviously, without a detailed knowledge of the refining process, I would be reluctant to arrive at any conclusion other than the

fact that exposure to arsenic dust involves an increased risk, of lung cancer. Our Legislation does not enable us to deal with cases of lung cancer which appear before 1947 and I estimate that the plant has produced at least 3 dozen cases of occupational lung cancer since it began operations in 1906.

The inception period or the time it takes to develop lung cancer after first being exposed is probably 15 to 20 years at least and the risk continues after leaving exposure for another 15 to 20 years.

I am giving a copy of your letter to Dr. Dorothy Burton of the Compensation Board who deals in industrial intoxicology and perhaps she can enlighten you further.

Yours truly,

C. Stewart, M.D.,  
Chest Disease Consultant,  
Medical Branch,  
Rehabilitation Services Division.  
CS\*sn

APPENDIX # 20

Mr. Charles Crate,  
Corresponding Secretary  
Local No. 802,  
Yellowknife District,  
Miners' Union,  
Box 92,  
YELLOWKNIFE, N.W.T.

Dear Mr. Crate:

It is regrettable that the Department of Labour library recommended that you apply to us for lists of material on industrial diseases and for legislation, as we have no lists and do not distribute legislation.

The reference material collected in this Department is highly technical and useful only to medical research workers. We do publish the Occupational Health Bulletin for general distribution and have much pleasure in adding the address of Local 802 of your Union to the mailing list. We also publish the Occupational Health Review whose distribution is limited to interested medical personnel in Canada. If your medical adviser is not already receiving this, he may apply to the Chief, Occupational Health Division of this Department to have his name placed on the mailing list.

...

Mr. Charles Crate


-2-

November 2, 1955.

Our Occupational Health Division does not administer any Federal acts and regulations, and it is our impression that other public health legislation administered by the Department - Food and Drugs Act, Narcotics Act, Immigration Medical Service, etc. - would be rather useless to you.

Provincial and Territorial legislation may be secured directly from each issuing government. A brief check indicates that the inspection and regulation of working conditions in mines is authorized by the Mines Act of some provinces rather than the Public Health Act.

Very truly yours,

  
for (MISS) M.D. MORTON  
Departmental Librarian



DEPARTMENT OF  
NATIONAL HEALTH AND WELFARE



MINISTÈRE DE LA  
SANTÉ NATIONALE ET DU BIEN-ÊTRE SOCIAL

Medical Services  
Northern Regional Headquarters  
12702 114th Avenue  
Edmonton, Alta

April 26, 1966

Mr. M. Walcer,  
President,  
Yellowknife District Miners Union,  
Giant Sub-local 802,  
P.O. Box 787,  
Yellowknife, N.W.T.

Dear Mr. Walcer:

The Northern Health Service in co-operation with the Environmental Health Services of the Department of National Health & Welfare and the Yellowknife doctors propose to carry out a detailed Health Survey of the Yellowknife area during the summer months.

This survey is one of four which are being carried out in Canada this year, the other three being carried out in Newfoundland. The objects of this survey are:

- (a) To assess in detail the state of health of male residents who have been ten years or more in Yellowknife.
- (b) To generally assess the incidence of both minor and major diseases in the total community.
- (c) To investigate the effect, if any, of the various occupations on the health of employees.
- (d) To ascertain whether the health of the population differs from that in other areas of Canada - as climate, diet and environment may affect the health of communities.
- (e) To investigate the environment of Yellowknife - this will include the sampling of water, air, soil and vegetation - particular attention will be paid to the quantity of arsenic in the environment.

In order to obtain sufficient information, it will be necessary to carry out the following investigations:

- 2 -

1. A house-to-house survey

This will involve a weekly visit to each household for a period of three months (June - August) by a medical student who will:

- (a) on his initial visit take a census of each household;
- (b) on his second visit request that a health questionnaire be filled out for each member of the family. When completed, these forms will be placed in sealed confidential envelopes by the householder and sent either to the Medical Clinic or to the Health Centre. No one except the patient's own doctor or the doctors in charge of the survey will have access to these forms;
- (c) on subsequent visits enquire about the health of each member of the family since the previous visit, and,
- (d) measure the height, weight and lung capacity of each member on one occasion during the survey.

2. Clinical Survey

This will take place during the month of June and will be restricted to male residents over 20 years of age who have lived ten or more years in the Yellowknife area. These persons will be requested to come for an examination by four specialists each of whom will check a particular body system (Respiratory System, Digestive System, etc.). Each person will be asked to provide a sample of urine, and an electrical heart recording, x-rays and a blood sample will be taken.

The results of this examination will only be relayed to the person's own doctor and the person examined and will not be disclosed to his employer or any other person. All records of these examinations will be left with the person's own doctor.

- 3 -

### 3. Environmental surveys

Environmental Surveys will be carried out by Engineers and Technicians of the Environmental Health Division and these will include water, air, soil and vegetation sampling.

In order to make this Health Survey a success, the assistance of each member of the community is required as well as the assistance and support of Service Clubs, employers, union officials, radio and newspaper managements and, of course, the Municipal Council of Yellowknife and the Yellowknife Board of Health who have already promised full support.

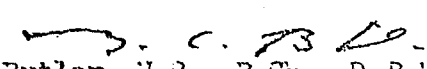
These surveys will provide much information on the health of the Yellowknife community and will be of great value to the local population, the persons examined, the general practitioners, and to the Northern Health Service in planning their future programs for this community. The clinical examinations will include detailed investigations of heart, lungs, skin and nervous systems and we would have liked to offer this examination to a greater number of persons, but even with four specialists working overtime for a period of three weeks, it will only be possible to examine about 400 persons and it is for this reason that it is restricted to adult male residents who have been ten years in Yellowknife.

I have gone into detail on this subject so that you may understand the importance of this survey to the community of Yellowknife and to elicit your support in making it a success.

I will be arranging that our Health Educator visits Yellowknife in early May to talk to Service Clubs and other community organizations to ensure that the community is fully informed of the reason for the Survey and of the benefits which we hope will accrue to the community from the knowledge gained therefrom.

Finally, I would like to stress that there is no indication that the health of the population of the Yellowknife area differs in any manner from that of the rest of Canada, but it is good public health practice to assess the health of selected communities at suitable intervals and as Yellowknife has a few environmental problems, it has been chosen for this survey.

Yours sincerely,

  
G. C. Butler, M.B., B.Ch., D.P.H.  
Chief Medical Health Officer

# INQUIRY OF MINISTRY

## DEMANDE DE RENSEIGNEMENTS AU GOUVERNEMENT

PREPARE 10 COPIES IN ENGLISH AND FRENCH MARKED "TEXT" AND "TRANSLATION"  
PRÉPARER 10 COPIES EN ANGLAIS ET FRANÇAIS RÉSÉRVIANT "TEXTE" ET "TRADUCTION"

BY - DE <div style="text-align: right;">Mr. Firth ✓</div>	QUESTION NO. <div style="text-align: right;">1336</div>
ORDER OF BUSINESS AND NOTICES NO. ORDRE DES TRAVAUX ET AVIS N° <div style="text-align: right;">64</div>	DATE <div style="text-align: right;">January 28, 1975</div>
SUBJECT - SUJET <div style="text-align: right;">An investigation of the health status of inhabitants of Yellowknife</div>	PAGE <div style="text-align: right;">VII</div>

REPLY BY THE MINISTER OF NATIONAL HEALTH & WELFARE  
RÉPONSE PAR LE MINISTRE DE LA SANTÉ NATIONALE ET DU BIEN-ÊTRE

SIGNATURE  
 MINISTER OR PARLIAMENTARY SECRETARY  
 MINISTRE OU SECRÉTAIRE PARLEMENTAIRE

QUESTION

No. 1336--Mr. Firth--January 28

1. How many copies of the report entitled "An investigation of the health status of inhabitants of Yellowknife, Northwest Territories" by de Villiers and Baker have been sent to individuals and agencies?

2. (a) To whom were such copies addressed (b) on what date were they sent?

REPLY - RÉPONSE

TEXT  
TEXTETRANSLATION  
TRADUCTION

- |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | 108 (approximately)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2a&b | Commissioner and Deputy Commissioner of Northwest Territories -<br>Copies sent 1971<br><br>Chairman, Technical Committee, Northwest Territories Water<br>Board, I.N.A., Yellowknife - Copies sent 1971<br><br>Regional Director, Northern Region, Medical Services Branch,<br>Department of National Health and Welfare - Copies sent 1971<br><br>Town of Yellowknife - Dopy sent 1972<br><br>Parliamentary Library<br>National Health and Welfare Library<br>Medical Services Library, National Health<br>and Welfare |
- }
Copies sent 1975

TELEX 034-5314

GIANT YELLOWKNIFE MINES LIMITED  
 YELLOWKNIFE, N.W.T.  
 XOE 1HO  
 CANADA

September 28, 1976.

Mr. M.L. Brown,  
 Regional Mining Engineer,  
 Indian & Northern Affairs,  
 P.O. Box 1500,  
 YELLOWKNIFE, Northwest Territories.

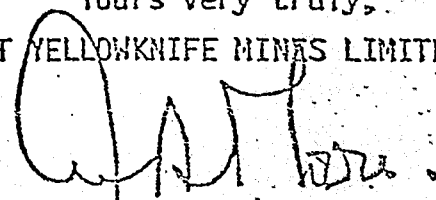
Dear Mr. Brown:

RE: Stack Tests - 1976

We have enclosed a summary of the Stack Tests taken during the 1976 season. Five tests were completed and the results indicate a total efficiency of 98.06% and a daily arsenic loss averaging 436 lbs. per day compared to 97.66% and 479 lbs. per day respectively in 1975.

Yours very truly,

GIANT YELLOWKNIFE MINES LIMITED



W. A. Moore  
 Mine Manager

WAM:jc  
 Encl.  
 c.c. H. Pawson

cc. to E. McRae  
 White Sulphur  
 America

1/5/76  
 gf.




STACK TESTS - 1976

<u>Date</u>	<u>Stack Vol.</u>	<u>As lbs/Day</u>	<u>Baghouse Efficiency</u>	<u>Total Efficiency</u>
May 10	36,429	390.4	98.11%	98.18%
June 18	32,685	343.8	98.33	98.41
July 16	33,359	266.3	98.66	98.71
Sept. 2	35,081	482	98.00	98.09
Sept. 23	37,665	698	96.81	96.94
AVERAGE:		436.10		98.06%

Environment Canada Environnement Canada

## MEMORANDUM NOTE DE SERVICE

DATE February 6, 1975

Mr. H. Veldhuizen  
Head  
Air Pollution Control Section  
EPS, Northwest Region

Mr. C. A. Lewis  
District Manager  
Environmental Protection Service  
Yellowknife

SUBJECT: Re: Industrial Hygiene Standard for Arsenic  
OBJET:

I was advised yesterday afternoon that OSHA-NIOSH, the organization that sets industrial hygiene standards for in-plant environmental conditions, has recommended that the previous arsenic 8 hour exposure limit be reduced from 500 micrograms per cubic meter to 4 micrograms per cubic meter. This announcement has been made in the American Federal Register. Public hearings are expected to begin April 9, 1975.

This very dramatic change in the industrial hygiene standard resulted from the review of an old study upon which the 500 micrograms/m<sup>3</sup> (µgm/m<sup>3</sup>) was based. The known carcinogenic characteristics of arsenic, confirmed in two recent studies, had prompted the review.

You may appreciate why I felt that the Ontario ambient air standard of 25 micrograms/m<sup>3</sup> (µgm/m<sup>3</sup>) was not realistic.

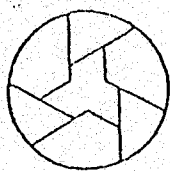
You may wish to advise Allan Patrick, DINA, of this recommended change for industrial working environments.

\* It would be advisable not to release this information to the public as it may cause undue concern at this time.

*47 Mary Chastard*

f. H. Veldhuizen

c.c. Dr. R.D.P. Eaton, Dept. of Health & Welfare, Edmonton  
Mr. J. J. Eatock, Regional Director, EPS, Northwest Region



## AMERICAN PUBLIC HEALTH ASSOCIATION

1015 Eighteenth Street, N.W., Washington, D.C. 20036 • (202) 467-5000

September 7, 1976

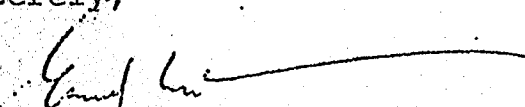
Joseph Seifter, M.D.  
Consultant and Project Officer  
on Arsenic Studies  
Office of Toxic Substances  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

Dear Dr. Seifter:

The enclosed material was presented at the open meeting of EPA contractors on August 20, 1976. The study was designed as a test or feasibility study, not as an occupational health study per se.

Please advise OSHA of the preliminary nature of the data. Also, advise them of the excellent cooperation of the smelter.

Sincerely,

  
Emanuel Landau, Ph.D.

Enclosure



## BEHAVIORAL EFFECTS OF COMMUNITY EXPOSURE TO INORGANIC ARSENIC

A feasibility study was completed recently in Tacoma, Washington, on the use of nerve conduction velocity tests to indicate subtle neurological effects of chronic exposure to inorganic arsenic, specifically, arsenic trioxide. Workers at a copper smelter were used to test the proposed method before attempting to apply it to a community population. By carefully choosing the industrial situation, it was possible to find a population which had been exposed to rather high levels of arsenic for a lengthy period. The study is still in the process of analysis and will be for some weeks yet. However, as of today, it appears that we should continue our planning for a community study. Let me mention the tentative findings underscoring the need to wait for the results of a more detailed analysis. Incidentally, we have also arranged for an ongoing wholly independent analysis of all the study data. We have also arranged to obtain biological measurements of eight other metals: antimony, cadmium, copper, lead, mercury, nickel, selenium and zinc.

Very preliminary results of the pilot study indicate two interesting findings. First, there is evidence of slowed conduction in the peroneal nerve among the workers exposed to arsenic in the workplace as compared to those workers not so exposed. This reduction in velocity is statistically significant at the 1% level. Although the effects of age and smoking have been examined in this analysis, and have not affected the results, the data have not yet been adjusted for the influence of diabetes and selected factors other than occupational exposure.

Second, there is an increased proportion of clinically assessed neuropathy, principally sensory, with increasing exposure to arsenic. Among the controls, the percentage of those with clinically noted sensory neuropathy was 9%, rising to 37% for those lightly exposed to arsenic and to 47% for those heavily exposed. One has the impression that the neurologists were in all likelihood overdiagnosing the presence of neuropathy. However, given the double blind nature of the study, this should represent a systematic bias as the employer of the test subject was unknown to the examiner. It should be noted that the clinical impressions of neuropathy are not wholly consonant with the results of the nerve conduction tests on an individual subject basis.

This discrepancy is undergoing additional review at this time. It is quite possible that the clinical assessment of neuropathy may represent a more sensitive indicator of biological effect than does the nerve conduction velocity test. Nevertheless, it would appear at this time, subject to change as more extensive analysis are made, that there may be adverse effects on the nervous system associated with chronic occupational exposure to inorganic arsenic even in production activities involving light exposure.

## and Mail

NESS

and Proprietors

Telephone 361-5000

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man and President

and Editor-in-Chief

LIN McCULLOUGH, Assistant Publisher

C. W. DAVEY, Managing Editor

Other countries on request.

29, 1977

## arsenic

al health officials say that while some confusion on acceptable levels of arsenic in hair is regarded as normal. er, a study reported this week by the Royal College of Physicians and Surgeons of Canada disclosed that nerve damage begins to occur in people with arsenic concentrations in hair samples slightly above one part per million. One part per million appears to be the upper limit of acceptability for arsenic," said Dr. J. T. Smith of Dalhousie University. "If the arsenic level climbs above this level, nerve damage soon develops."

Smith was reporting on a study of chronic arsenic poisoning by drinking well-water in a mining community 20 miles from Halifax. The study found abnormally high levels of arsenic in 29 of the 110 wells. Of 110 people tested, 33 had arsenic levels greater than the acceptable level in their hair. Of these 33, 27 of them "have signs of nerve damage."

The study which says the acceptable level for arsenic in hair is too high.

Environmental damage to infants. Nobody knows the dangers are in the air here else in Canada. said that an independent examination of the situation will have to ask whether the probability of greater than he

Government of Canada / Gouvernement du Canada

## MEMORANDUM

## NOTE DE SERVICE

M.L. Brown,  
Mining Engineer

E. Bangts,  
Mining Inspector

SUBJECT  
OBJET

SECURITY CLASSIFICATION - DE SÉCURITÉ
Confidential OUR FILE - N. REFERENCE
YOUR FILE - V. REFERENCE
DATE May 9, 1973.

The gold ores in the Yellowknife district often contain arsenic in the form of arsenopyrite,  $\text{Fe As S}$ . When this mineral is involved in a roaster process, it is altered to the tri oxide arsenolite,  $\text{As}_2\text{O}_3$ . Recent testing and analyses of the roaster product have shown that 29.65 percent of the arsenolite consists of water soluble arsenic.

Considerable amounts of the roaster product is stored on the surface at Con and Negas mines. These roasters were shut down several years ago.

The production of arsenolite at Giant is stored in sealed off underground stopes located within the so called "permafrost" horizon. This storage, it is estimated, will contain close to 174,000 tons of arsenolite by the end of 1974. This is equivalent to 46,800 metric tons of water soluble arsenic.

- \* Two grams of arsenic is considered a lethal dose to a human. (1) Inorganic arsenicals are more powerful poisons than organic, - a toxic dose equal to 100 milligrams. (2) Thus the Giant storage contains sufficient water soluble arsenic to kill the world population four times over.

The Department of the Environment has published "Guidelines for Water Quality Objectives and Standards". In this, a concentration of 0.01 milligrams of arsenic per liter is considered acceptable. Since lake and other fresh waters contain some arsenic, we may consider a pollution of 0.01 milligram per liter above the acceptable level. Thus the Giant storage of soluble arsenic is sufficient to pollute a fresh water body 290 miles long by 62 miles wide by 330 feet deep to above the acceptable level.

- \* (1) Poison Control, U. of A., Edmonton, Alberta.
- \*\* (2) The Pharmacological Basis of Therapeutics by Prof. Luis S. Goodman, U. of Utah & Prof. Alfred Gilman, Columbia University.

.../2

Government of Canada / Gouvernement du Canada

## MEMORANDUM

## NOTE DE SERVICE

SECURITY CLASSIFICATION - DE SÉCURITÉ

**Confidential**

OUR FILE - N. RÉFÉRENCE

YOUR FILE - V. RÉFÉRENCE

DATE

SUBJECT  
OBJET

Page 2. M.L. Brown - continued

May 9, 1973.

During the past two years I have had the opportunity to investigate twelve abandoned shafts from Great Slave Lake in the south to Great Bear Lake on the north. During July, August and September I found all of these shafts, except one, thawed out to a depth of in excess of 50 feet. Drillholes equipped with thermocouples in various locations near Yellowknife similarly indicate periodic above freezing temperatures to the maximum depth of the drillholes of 50 feet. Thus, it is my opinion, that periodic, or seasonal thawing, may penetrate to considerable depth, much in excess of fifty feet, particularly where overburden is light or non-existent.

The bottom level of the so called "permafrost" horizon at Giant variously is given from 250 to 450 feet or more below surface. The presence of "permafrost" is usually established when driving development headings. Whether or not frost conditions existed there a period of time earlier or later, or continuously throughout the year is as a rule not known since mine ventilation tend to keep the rock surfaces above freezing temperatures.

The Giant mining operation appears to be approaching a shut down within two years. When the operation shuts down the underground de-watering operation will cease. Thus the ground water will accumulate and the underground workings become flooded. It is estimated this will require from 3 to 6 years. If at that time the "permafrost" is less than perfect, the ground water will enter the arsenic storage and dissolve arsenic. The dissolved arsenic will be carried by the natural water table and discharged into a fresh water system at some unknown point. If this is allowed to happen a most serious condition may develop.

If the "permafrost" horizon at Giant is perfect, there is of course no danger from arsenic pollution. However, within a period of several years or decades, it is possible that climatic changes may result in the reduction of the frost.

It is my opinion the Giant mine workings should not be allowed to become flooded until the extent and permanency of the "permafrost" is determined.

.../3

## MEMORANDUM

## NOTE DE SERVICE

SECURITY CLASSIFICATION - DE SÉCURITÉ
Confidential
OUR FILE - N° RÉFÉRENCE
YOUR FILE - V° RÉFÉRENCE
DATE

SUBJECT / OBJET: Page 3. M.L. Brown - continued

May 9, 1973.

This may be handled as follows:

1. In co-operation with departmental geologists locate a minimum of five preferably seven vertical drillholes near but not through the storages.
2. Each drill hole should extend at least 200 feet below the bottom of the arsenic storages.
3. Each drillhole should be of sufficient diameter to accept thermocouples and necessary wiring.
4. The thermocouples should be located every 20 to 30 feet and connected to an electronic selector/reader/recorder, for weekly recording.
5. The installation should be of sufficient quality to allow readings for a period in excess of twenty years.

It is recommended that necessary planning and engineering should commence immediately in preparation for drilling and installation of equipment during the summer of 1974. If seven holes to a depth of 500 feet is considered, the cost of the project probably will be about \$175,000.

In addition to the vital information required for the arsenic storage, the projects would be of great value into the research of frost conditions near the southern edge of the permafrost. After a period of years, for instance, it should be possible to determine whether or not the permafrost edge is constant, advancing or retreating.

The storages at Negus and Con are less urgent but should also be the target for consideration.

Bengts:eda

Erland Bengts,  
Mining Inspector.

c.c. R. Hornal

sent to J Joyce - Ottawa via Alex  
8/2/77

GIANT YELLOWKNIFE MINES LIMITED  
YELLOWKNIFE, N.W.T.

*to Mr. Mac*  
MEMORANDUM

To A.K.C. c.c. A. Patrick, M. L. Brown.

Date August 1, 1974.

From R. S. Brown.

Ref.

Subject Drill Holes from C2-12 Arsenic Stope Encountered in C3-12 Sub-Drift.

Mining in C3-12 Stope, which lies directly below the C2-12 Arsenic Stope will be carried out to within 40 ft. of C2-12 Stope. To define this 40 ft. pillar and to provide service into this stope through a second service raise, a sub-drift is now being driven.

From cross-sections, it was apparent that this sub-drift would encounter two diamond drill holes from C2-12 Stope. Our records show that these holes were never cemented during the stope preparation for Arsenic. We were therefore, on the lookout for these holes as the sub-drift reached the intersection of each hole.

The first hole was encountered July 17, 1974 and a considerable amount of water flowed from the hole before plugging. A water sample was not taken at this time.

On July 25, 1974, the second hole, 25 feet north was hit while drilling the round and although no flow of water resulted, some sludge was flushed out. This round was blasted and the hole plugged with little more than a drip of water coming from the hole.

At this point I stopped the heading after slushing out the round and took water samples. The results of the samples were as follows:

Hole #1	4529.6 ppm As
Hole #2	5816.6 ppm As

The following procedures and precautions will be taken in this stope.

1. Diamond drill hole plugs will be installed at 10 ft. above the back of the sub-drift.
2. The holes will then be cemented and the cement allowed to set for 2 - 3 days.
3. Sub-drifting will continue up to raise break through, some 30 ft. away.
4. Mining will continue in the stope using shrinkage methods.
5. Should any evidence of water be encountered, mining will be stopped immediately, samples taken, and the flow stopped by an appropriate method.

*RSB*

Environment Canada Environnement Canada

MEMORANDUM NOTE DE SERVICE

DATE

December 5, 1974

Our file Notre référence

4705-37/Gi

FROM: Dr. Ron Wallace  
DE: D.O.E. Representative  
N.W.T. Technical Committee

TO: Mr. D. Fowler  
A: Inland Waters Directorate  
Yellowknife, N.W.T.

SUBJECT: RE: UNDERGROUND STORAGE OF ARSENIC WASTES AT GIANT MINE  
SUJET:

I have recently received copies of correspondence from Dr. Van Everdingen to Mr. Durrant on this topic and the closely related aspect of permafrost/groundwater stabilization at this mine.

If and when this mine and its associated shafts are abandoned, the potential problems from the possible (translocation of the arsenical wastes from the mine into the aquatic environment) could be enormous. This could well represent one of the most serious pollution threats in the N.W.T. I am therefore rather surprised, and disappointed, that no government agencies have addressed themselves to studies of this problem, notwithstanding the previous recommendations from various experts within the government.

I recommend that Mr. Fowler and Dr. Van Everdingen attend the next Technical Committee meeting discussing Giant Mine, with a view to making positive recommendations for possible studies which should be done to clarify the problem of future containment of wastes at Giant Mine. Please refer to the letter of Oct. 31/74 from Mr. Lewis to Mr. Morison for the details of the concerns raised by E.P.S. on this matter.

Yours truly,

*Ron Wallace*

Ron R. Wallace, Ph. D.  
D.O.E. Representative

cc. C. A. Lewis  
A. Redshaw (D.I.A.N.D.)  
Dr. Van Everdingen (I.W.D.)  
B. Hornel (D.I.A.N.D. Yk.)  
J. Marsh  
A. Pick

*Copy to Mr. Brown  
Steve H.  
Acting Administrator  
1 Nov  
Ottawa*

