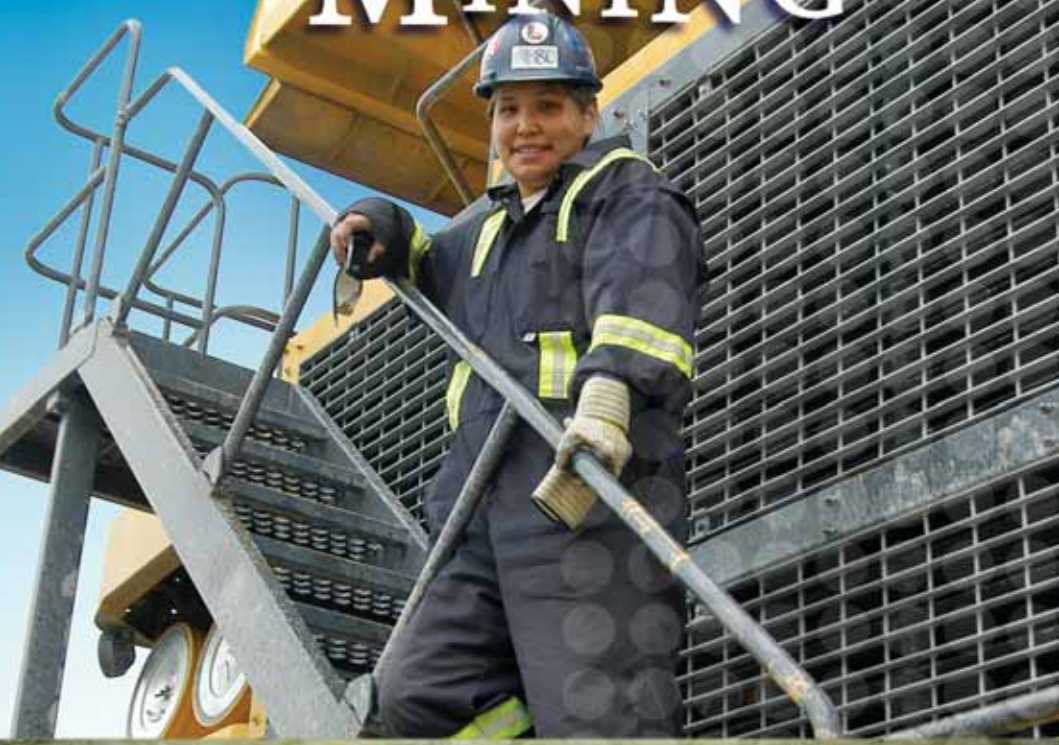


Jobs in MINING



career opportunities series



Photos: Cover, pages 2, 7, 10 and 14 courtesy of Diavik Diamond Mines Inc.

Cette publication peut aussi être disponible en français sous le titre:
Emplois dans l'industrie minière

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JOBS IN MINING

INTRODUCTION

Mining is one of the most attractive industries in Canada. The types of jobs available vary from entry level to trades to professional. Work is rewarding, and statistics show that mining is the highest paying Canadian industry.

This is also very true in the Northwest Territories, where mining continues to be a major source of employment, income and career opportunities. Among the resources that have been mined in the North over the past century are gold, silver, lead, zinc, nickel, uranium, and tungsten. In so doing, the mining industry has contributed to infrastructure and technology in the NWT including a railway, highways, winter road technology, marine shipping, and hydro-power.

Mining has its ups and downs, and in recent years, five mines have closed in the North as their mineral resources ran out. Thankfully, explorers discovered gem-quality diamonds, creating new training, jobs and business opportunities for people in the NWT. Over the last five years, two new diamond mines, Ekati and Diavik, have boosted Canada to third place in the diamond world. Two more diamond mines are under construction and several exploration projects in search of other minerals are under way.

Today is a very exciting time to be part of the northern mining industry.



WHAT IS MINING?

Mining is any process in which rock or minerals are removed from the ground to provide benefits to society. Mines can be of almost any size. However to be a profitable mine, the value of the rocks or minerals to be mined must be higher than the costs of removing them. Rock that can be mined profitably is called “ore”.

Mining ore bodies takes many different skills and people. These include:

- **Scientists and explorers** who study earth sciences and search for minerals in remote areas;
- **Engineers and builders** who design the processes and build the structures;
- **Operators** who run the equipment and processes needed to mine the rock and to remove the valuable minerals;
- **Environmental stewards** who help to protect the land, water, wildlife and air; and
- **Supporters** who look after hiring, training, purchasing, financing, cooking, health and safety and everything else needed to keep a mine running.

If you pick mining as a career option, you will have picked one of the most diverse and interesting industries to work in the world.

EXPLORING FOR MINERALS

To find a mineral deposit, it is necessary to study the rocks themselves. Often, they are hidden beneath soil, plants or water. Using modern high-tech equipment, it is possible for explorers to learn about what is hidden under the ground, often without even setting foot on it.

Explorers use different methods to locate possible ore bodies.

- **Satellites** in outer space can often reveal what type of rock is present using sophisticated imaging equipment.
- **Helicopters** flying over the ground carrying computerized geophysical equipment can “see” beneath the ground using electronics.

- **Laboratory analyses** of tiny mineral grains, or samples of soils, water or leaves, can reveal a “fingerprint” that might provide a clue of what lies beneath the ground.
- **Drilling equipment** can bring chips of rock or solid cores to surface for geologists to study and to test for their value.
- **Underground test mining** allows several thousand tonnes of rock to be sampled to provide even better information on the value of the minerals.

Often explorers work in remote areas, living in tent camps for weeks on end. Expeditors and pilots will bring in supplies and take out rock samples to larger communities for further testing. People who are observant, interested in rocks and who like being in the outdoors for weeks at a time enjoy this type of work.

BUILDING A MINE

Constructing a mine in our remote part of Canada can take two to three years, and many different skills are required.

First, the engineers have to decide on the best way of reaching and mining the ore body. If it's close to surface, they may build an open pit mine. If it's deep, they'll decide to mine underground. In some cases, they do both. Then they design the appropriate facility, picking the right kind of equipment for mining and processing the ore, and for storing wastes.

There is also the question of moving supplies, equipment and people to the site. And if the mine produces large amounts of mineral, such as copper at a base metal mine, then an economic way of moving the many tonnes of product to market is also required. The North has very few roads and railways, so we rely on seasonal winter roads, and of course, airplanes to move workers and materials to and from the mine.

Engineers and technicians design the mine site, choosing the location of buildings, roads and airstrip. Surveyors assist by marking out where to begin construction. Construction contractors order the appropriate materials and equipment, hire the people needed, and then build the mine, often under challenging conditions.

MINING THE ORE AND REMOVING THE MINERALS

Ore may be mined from large holes in the ground called open pits; or it can be mined from underground, working through tunnels and rooms blasted in the rock. Either way, workers drill holes into the rock and fill them with explosives, which they then detonate. Using heavy equipment, machine operators dig out the blasted rock which is then transported to a processing plant.

There the rock is crushed into smaller and smaller pieces and the valuable minerals are removed using various methods. Diamonds for example, are first separated by gravity, using the diamonds' higher weight to separate them from the lighter waste minerals. They are then separated from the other heavy minerals using the diamonds' ability to glow in the dark under X-rays. In gold and zinc mines, special chemicals must be used to separate the valuable minerals from the waste rock.

KEEPING THE MINE RUNNING

A wide range of skills are required to keep a mine running. Office workers provide administrative support just as with other businesses. They hire workers, order supplies, and keep financial records. They manage contracts for services and supplies such as building materials, tools, equipment and food. In addition, other workers provide security services, medical aid, equipment maintenance and transportation. Many of these job skills are transferable to other sectors.

PROTECTING THE ENVIRONMENT

There are very strict rules in Canada to protect the environment and limit negative effects from mining. Modern mining companies make preparations to protect the environment even before any mining activity has begun. During mining, environmental staff help develop policies and procedures to ensure that the land, the water, the wildlife and the air is protected from harm. At the end of a mine's life, companies will leave the site as close as possible to what it was before the project began. This work is called reclamation and people trained in biology and environmental science plan and carry out this work.

WILL THERE BE JOBS IN MINING?

Mine activity depends on the supply and demand for the particular minerals being mined and the price that those resources can get at market. Mining is an international business and minerals mined in the NWT compete with those mined around the world. Mining companies estimate how long a mine is expected to stay in operation. That time may be increased as new ore bodies are found or as mineral prices go up. The reverse is also true. If a mineral supply decreases too much, or if prices and demand drop too low, the mining company may be forced to stop operations or even shut down the mine.

Today there are tremendous opportunities for work in northern mining, due largely to the commitments made by the new diamond mines and other mines that may come on stream. Not only are there jobs with the mines, but also with their contractors and the many suppliers who sell goods and services to them.

WHAT JOBS WILL THERE BE IN MINING?

There are many different types of jobs associated with mining and they all have different education and experience requirements. It is important to remember that the more training and education you have, the higher the level of job you can get, and the more money you will be paid. Often workers are trained to do more than one specific job. This multi-tasking provides workers with even more skills. And many skills learned in the mining industry are transferable to other occupations.

The best way to get ahead in mining is through a combination of education and experience. Hard work and a willingness to learn will enrich your career in mining.

ENTRY LEVEL JOBS

These jobs require that you be able to read and be willing to complete training on the job.

Trades Helper

Assists journeypersons in their tasks, prepares and cleans work site.

Security Officer

Controls and records movement of goods and people through the mine.

Airport Technician

Communicates with aircraft about weather conditions, inspects airstrip, directs foot traffic.

Fuel Attendants

Monitors fuel transfer, cleans leaks, ensures strict adherence to proper procedures.

Driller Helper

Assists drillers in such work as collecting core samples during exploration programs.



SKILLED JOBS

For these jobs, you need previous mining experience.

Driller Operates mobile drill rigs that drill holes into rock for core samples, cementing, and water monitoring.

Blast Hole Driller Drills holes at mine site in preparation for blasting the rock.

Blaster Packs explosives into holes; ensures safety before blasting.

Plant Operator Looks after day-to-day equipment operation in process plant or maintains drinking, waste water, and sewage treatment plants.

Crusher Safely operates crusher equipment in extraction process.

Surface Equipment Operator Maintains roads, rock piles, airstrips; operates large mining equipment haul trucks, shovels, dozers, graders, backhoes and loaders.

Underground Mining Equipment Operator Operates specialized underground equipment including scoop trams (loaders), jumbos and rock bolters (drills), and LHDs (dump trucks).



APPRENTICESHIP TRADES & OCCUPATIONS

These jobs require that you be a journeyperson, tradesperson, or an apprentice.

<i>Cook/Chef</i>	Cooks meals for workers, plans menus, determines supply needs.
<i>Industrial Electrician</i>	Installs and fixes a large variety of electrical equipment. Reads and interprets drawings and troubleshoots electrical problems.
<i>Heavy Duty Mechanic</i>	Fixes and maintains heavy machinery and equipment required to mine.
<i>Machinist</i>	Makes and fixes equipment parts.
<i>Plumber</i>	Installs and fixes water pipes and fixtures.
<i>Steamfitter/Pipefitter</i>	Puts steam and water pipes together.
<i>Welder</i>	Reads and interprets drawings and then uses a variety of welding equipment to join or separate seams in metal components.
<i>Millwright</i>	Installs and repairs industrial machinery including pumps, piping, conveyors, valves and other specialized processing equipment.
<i>Carpenter</i>	Builds, maintains, and repairs various structures.
<i>Instrumentation Mechanic</i>	Looks after devices that control pumps, motors, and other sophisticated electronic equipment.

ADMINISTRATIVE JOBS

For these jobs, you must have a high school diploma and relevant training or experience, or significant experience working in similar mining office positions.

<i>Clerk</i>	Organizes the office environment, types and files.
<i>Administrative Officer</i>	Creates and formats documents, manages information.
<i>Human Resources Officer</i>	Maintains personnel records, advertises open positions, maintains leave records, etc.
<i>Public Affairs Officer</i>	Maintains communication programs that help inform workers, government and communities and help protect the companies' reputation.



TECHNICAL JOBS

*For these jobs, you need a technical college diploma.
Generally, these are one- or two-year programs.*

<i>Mining Technician</i>	Helps mining engineer plan where to mine.
<i>Environmental Technician</i>	Helps ensure environmental rules are followed by taking water, air and soil samples. Monitors wildlife, and keeps careful records.
<i>Engineering Technician</i>	Makes drawings of machines, buildings and systems and helps keep them working.
<i>Surveyor</i>	Maps surface and underground development using sensitive optic and electronic equipment, including GPS and GIS systems.
<i>Computer Support</i>	Provides technical computer support to maintain individual computers and entire networks.
<i>Project Management Technician</i>	Assists in planning and carrying out major building and other projects.
<i>Safety Officers</i>	Develops and oversees mine safety programs by regularly visiting all parts of the mine to identify and then correct unsafe work conditions.

PROFESSIONAL JOBS

For these jobs, you need a university degree, which is a four-year program.

<i>Exploration Geologist</i>	Usually works off the mine site to explore geologically promising areas looking for ore bodies.
<i>Mining Geologist</i>	Generally works on the mine site to understand the ore body, and to advise where to mine.
<i>Mining Engineer</i>	Plans how to get ore out of ground, and helps design whole mining operation.
<i>Environmental Scientist</i>	Understands the effects that mining can have on the environment and finds solutions to any problems related to the environment.
<i>Accountant</i>	Maintains financial records, reports on operating budget. Supervises payment of bills, wages.
<i>Medical Staff</i>	Nurses, doctor assistants or paramedics tend to injuries, and ensure safe, healthy work environment.
<i>Trainer</i>	Develops and provides training and/or education to support safe and efficient mining operations.
<i>Human Resources Manager</i>	Recruits and hires workers; determines pay levels.
<i>Materials Manager</i>	Decides what supplies are needed, makes sure they are purchased on time, at the right price, and are warehoused effectively.

MANAGEMENT & SUPERVISORY JOBS

In addition to education, experience is required to be promoted into management and supervisory jobs.

General Manager, Presidents and Vice Presidents

Oversee the entire mine. Managers and superintendents report to them.

Area Managers

Oversees a number of staff in functional areas such as mining, processing, environment, purchasing, finance, training, and security.

Superintendents

Manages staff in functional areas such as mining, processing, maintenance, health & safety, and human resources.



MORE JOBS WITH MINING CONTRACTORS

Mines often contract work to other companies. These companies can supply employees, or they can supply goods and services that the mines require in the course of their day-to-day operations.

Mining companies advertise for these suppliers of goods and services. Interested companies submit bids to provide the goods or services. The mining company then reviews the bids and awards the contract to the most appropriate bid.

You can create your own opportunities by contracting to the industry. Some examples of jobs and services related to mining are:

- Prospecting
- Sampling
- Geophysical surveying
- Line cutting
- Supplying construction materials
- Expediting
- Camp construction
- Camp management
- Airplane passenger and freight handling
- Road and airstrip building and maintenance
- Supplying food
- Equipment rental
- Making special clothing or equipment
- Diamond drilling
- Maintenance
- Remote communications
- Computer Services



WORKING CONDITIONS

Most mining jobs are inside, either working in buildings, working in mobile equipment, or underground, and the weather doesn't make a big difference to these workers. Some jobs, especially those in open pit mines, require that workers at times work outside, doing maintenance, or surveying, or putting explosives into drill holes. Many work near large and noisy equipment, which requires that workers learn and adhere to safety procedures.

Mines located in remote areas will fly workers in on a rotating schedule – typically for two weeks of 12 hour days, seven days a week followed by two weeks at home again for a break. This is called fly-in, fly-out or rotational work. Jobs in mines are year-round, permanent jobs, and the mine remains operational through holidays.

Rotational work schedules offer unique opportunities and challenges. On one hand, it means working away from home and family, usually for two weeks at a time, but on the other hand, it allows the worker opportunities to enjoy two weeks off to enjoy traditional lifestyles, travel or just spend extended time with family members.

Most mineral exploration fieldwork is done between May and October. Diamond drilling and bulk sampling are usually done in winter when it's possible to build ice roads and the frozen ground is more resistant to damage caused by the movement of large trucks and equipment. The number of people in a camp varies from as few as two in a prospecting camp to more than 100 in an advanced exploration camp. Large mines can see more than 1,000 employees on site at a time.

Wages for jobs in this industry are very competitive. For more information on current wage and demand see NWT Job Futures, available at the NWT Career Centres or online at www.jobfutures.stats.gov.nt.ca and talk to people at work in the field.



WHERE TO GET TRAINING

AURORA COLLEGE

Aurora College offers pre-employment training courses for many industries that are involved in mining. Depending on the trade, some graduates will be able to challenge the first year of an apprenticeship. Although these courses are a good introduction to many jobs that are involved in mining, most jobs will require additional schooling or on-the-job training.

Aurora College offers many courses that could be useful in getting a job in the mining area. These courses include Trades Access Programs, Trades Introduction, Natural Resources Technology, Office Administration, Management Studies and more.

Call your local campus or visit www.auroracollege.nt.ca to find out about current programs and courses being offered.

NWT MINE TRAINING SOCIETY

The Mine Training Society is a non-profit training partnership between aboriginal groups, government and industry. The goal of the society is to fund initiatives that seek to train aboriginal Northerners for NWT mining jobs. Funding from the society does not go to individual students, but rather to eligible communities, regional groups, businesses and corporations in the NWT that satisfy the society's requirements. For more information, contact:

NWT Mine Training Society
5110-49 Street
Yellowknife, NT X1A 1P8
Tel.: (867) 765-0445
E-mail: mts@yk.com



SOUTHERN COLLEGES

Other programs of study available at colleges in the south could lead to jobs in mining. They include: Mining or Instrument Technology, Project Management Technician, Surveying, and Mine Operations. Check with your regional Career Centre for information on the colleges, or look on the Internet for online calendars.

UNIVERSITY PROGRAMS

For professional jobs in mining, you need a university degree. There are many Canadian universities that offer degrees in such fields of study as geology, geophysics, mining engineering, chemistry, geography, physics and biology. Graduates from these fields can find positions in mining. Academic programs for professions common to most large businesses, such as human resources, business management, and accounting could also lead to jobs in mining. Check with your regional Career Centre for information on the universities, or look on the Internet for online calendars.

APPRENTICESHIP TRAINING & OCCUPATIONAL CERTIFICATION

Apprenticeships are generally three to four year programs during which you take formal training for part of the year and get paid to train on the job with a certified journeyman. When you're finished, you become certified in that trade. As a journeyman, you can make more money, work on your own, train others and find jobs more easily.

To start an apprenticeship you must pass the Trades Entrance Exam and either find an employer to take you on or enroll in a pre-employment trades program through Aurora College. There is no set level of education you need to undertake an apprenticeship, but many employers want apprentices to have a high school diploma and the more education you have, the greater your chance is of passing the exam and being successful in your apprenticeship.

Schools North Apprenticeship Program (SNAP) is a program that allows students to begin apprenticeships while continuing their high school courses. By graduation from high school the student may be several months into their internship.

Nearly 20 occupations are certifiable in the NWT. Several of these may be applicable to the mining industry or its service industries, such as Security Guard, Environmental Monitor or Warehouse Technician. Certification is administered through the Department of Education, Culture and Employment and is recognized across the NWT. It requires a minimum number of work hours, on-the-job training, an examination and a demonstration of skills.

Your regional Career Centre can give you more information or help you start an apprenticeship or occupational certification.

FINANCIAL ASSISTANCE

To find out if you qualify for financial help while you study, contact:

NWT Student Financial Assistance

Department of Education Culture and Employment, GNWT

P.O. Box 1320 Yellowknife, NT X1A 2L9

24-Hour Information Line - Tel.: (867) 873-7190

24-Hour Toll-Free Line - Tel.: 1-800-661-0793

www.nwtsfa.gov.nt.ca



HOW TO APPLY FOR A JOB IN MINING

The most common way of applying for a job is to send your resume and a cover letter to all of the mines where you would like to work, or to companies that provide services to the mining industry. However, because of the very strong interest in jobs, some of the companies only accept an electronic application, which you can access and complete on their websites. Make sure you indicate which job or jobs you are interested in and why you think you are qualified for those jobs.

If you are interested in getting a job in mining or finding out more about it, talk to someone who works in the industry, call the Mine Training Society, or contact the mining companies directly. Look for mining jobs advertised in the newspapers, on the company websites, or on www.jobsnorth.ca. If you want help in applying for a job or writing your resume and cover letters, ask your regional Career Centre.

For an updated list of operating mines in the NWT, contact:

NWT & Nunavut Chamber of Mines

Box 2818

Yellowknife, NT X1A 2R1

Tel.: (867) 873-5281

Fax: (867) 920-2145

Website: www.miningnorth.com

WORKPLACE RIGHTS AND RESPONSIBILITIES

Employers and workers have responsibilities to each other. The Labour Standards Act sets out the general rules, minimum requirements, and principles of employment standards in the Northwest Territories. The Act covers such areas as hours of work, minimum wage, termination of employment, annual vacation and general holidays, and pregnancy and parental leave. It is up to you to know what rights you have as an employee and also your responsibilities.

For more information, contact Labour Services at 1(867) 873-7486 or toll free at 1 (888) 700-5707.

CAREER PLANNING

Career planning is an ongoing process that starts in your youth and extends throughout adulthood. When you think about affecting change in your working life, you should try to make decisions based on your personality, passions, aptitudes and skills. You should also consider what training and education you want to pursue and what opportunities are available to you. By finding the best fit between your interests, skills and values and available jobs, you'll have more control over your life and you'll find greater satisfaction in your work.

For more information or assistance with career planning and decision-making, contact your local Career Centre, adult educator, or school counsellor.

You'll need to put a lot of effort into your career today in order to make the most of your work and to continue creating new opportunities for yourself in the future.

NWT CAREER CENTRES

Your regional Career Centre will be able to help you learn about:

- Your skills, interests and values
- Where to find information
- How to search for jobs
- How to write resumes
- How to apply for jobs
- How to do a job interview
- How to do your own career planning

The six regional career centres are located at:

Fort Simpson	Deh Cho Hall	(867) 695-7335
Fort Smith	Sweetgrass Building	(867) 872-7425
Hay River	Courthouse Building	(867) 874-9200
Inuvik	Perry Building	(867) 777-7365
Norman Wells	Town Square	(867) 587-7120
Yellowknife	Greenstone Building	(867) 766-5100

Other booklets in the Career Opportunities Series include:

- Jobs in Oil and Gas
- Jobs in Construction
- Jobs in Tourism
- Jobs in Health Services
- Jobs in Aviation
- Jobs in Community Government
- Jobs in Diamond Manufacturing
- Jobs in Social Sciences
- Jobs in the Service Sector
- Jobs in Information Technology
- Jobs in Arts, Culture and Heritage

