

ALBERTA



UTILITY OPERATOR

NEWSLETTER

FALL 2000 - NUMBER THREE

FEATURE FACILITY: Glencoe Water Treatment Plant

by Tom Armstrong, McPherson & Thom



GLENCOE WATER TREATMENT FACILITY

The Glencoe Golf & Country Club is located in the Elbow River Valley, approximately 8 km west of Calgary on highway 8.

The original approval in 1983 was for a WT1 water treatment facility to service the demands of the Glencoe Golf & Country Club, approximately 40m³ per day. The original equipment included an infiltration gallery in the Elbow River, a pumping well and supply line to the clubhouse, pressure multimedia filtration, disinfection with sodium hypochlorite, 36m³ treated water storage and distribution pumps.

In 1987, McPherson & Thom (Alberta) Ltd. were employed as Contract Operators of the water treatment facility to provide routine monitoring and testing, equipment maintenance, data

collection, reporting and liaison with Alberta Environment. This relationship continues today with daily operations provided by a McPherson & Thom team including Brian Willdig, Eugene Berndt, Bill Arling and Tom Armstrong.

The basic system was upgraded in 1995 to include chemical pre-treatment and rapid mixing prior to filtration and a final polishing filter.

In 1998, The Glencoe Club, in recognition of higher water quality requirements, commenced planning for a further treatment facility upgrade. This was concurrent with an adjacent landowner planning to construct an



ELBOW RIVER, WATER SOURCE

exclusive 98 home residential community overlooking the golf course. The Glencoe Club entered into an agreement with the developer to construct the new water treatment plant with sufficient capacity to supply the club facilities and the "Stonepine" community.

A design/build team was formed with Jubilee Engineering Consultants Ltd. providing the structural, mechanical and electrical engineering expertise and McPherson & Thom (Alberta) Ltd. as General Contractors with specific input pertaining to operational efficiency, control, instrumentation and data collection.

Approval #1387-01-01 was issued on April 19, 1999 with a construction start on the following day. Construction proceeded smoothly with the 500 m3 clear well completed by the end of May. On June 2 a BCA package water treatment plant (ST80 (E)) and a 200kw, 600 volt Simmax diesel standby generator were craned in. By the end of the day, the pump house walls and trusses were in place. Structural, mechanical, electrical and instrumentation proceeded smoothly through June and July with the facility being commissioned at the end of July 1999.

SPECIFIC DETAILS OF THE FACILITY

Raw Water Source; infiltration gallery and wet well with a low lift submersible turbine pump producing 5.0 litres per second.

Treatment; BCA Model ST80(E), including mechanical flash mixer, mechanical flocculator with variable speed drive and



WATER TREATMENT PLANT



TUBE SETTERS



LEFT: TOM ARMSTRONG RIGHT: WILLIAM ARLING

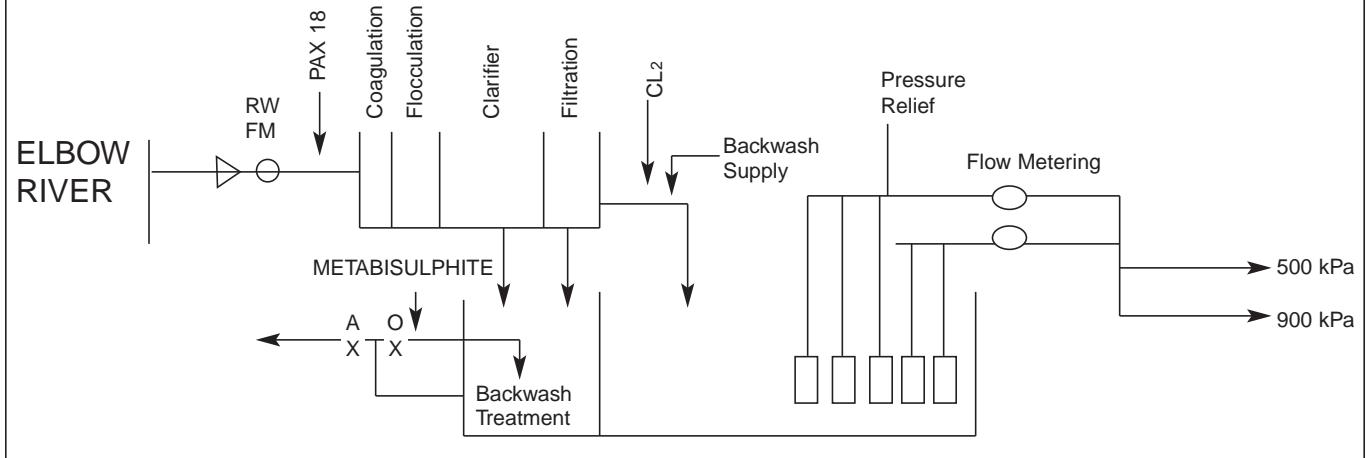
20 minutes detention, 60 degree tube setters with 30 minutes detention in clarifier, multi-media filtration. Chemical pre-treatment includes injection of PAX18 coagulant aid with the provision of potassium permanganate if required. Post filter disinfection uses 12% sodium hypochlorite.

Waste Water dechlorination; the backwash water and clarifier sludge are collected in a 40 m³ backwash sump. Using a sump pump, the backwash water is circulated and injected with a concentrated solution of sodium metabisulphate. The injection rate and circulation time are based on routine manual chlorine residual sampling to determine the actual requirement to reduce the chlorine residual to less than 0.05 mg/L. The process is automated to then discharge the supernatant to a gravel gallery adjacent to the Elbow River. Accumulated sludge from the backwash sump is pumped out as required and disposed of at an approved off site facility.

Distribution; there are two distinct pressure zones in the system. The Glencoe Clubhouse and Maintenance facilities are at a similar elevation to the water treatment plant however; the Stonepine residential area is approximately 50 meters higher. The 5 distribution

pumps maintain a header pressure of 940 kPa with pressure reducing valves set at 500 kPa on the Glencoe discharge and 900 kPa to the Stonepine Community. Distribution pumps include 1 10hp, 1 15hp and 3 25hp pumps all of which are PLC controlled with flow input provided by two Endress & Hauser magnetic flow meters.

GLENCOE WATER TREATMENT PLANT – SCHEMATIC



Treated water storage is a fully baffled in ground concrete 500 m³ reservoir.

Controls, instrumentation, and data collection: fluid levels in the supply well and backwash sump are monitored by Endress & Hauser water pilots, clear well level by a Milltronics ultrasonic unit. There are 4 Endress & Hauser magnetic flow meters in the supply, treatment and distribution system.



DISTRIBUTION PIPING

Raw and treated water turbidity is measured on line by Hach 1720D turbidimeters. All of the data is transmitted to a Klockner Moeller PS4 series PLC that supervises pump operation as well as the subsidiary controller on the package plant.

Operator inputs are made via a K-M interface. All data of possible operator interest are logged and displayed on a Scada system, which is in constant communication with the PLC. In addition to satisfying regulatory requirements, the records are particularly useful in providing ongoing data for the operator's benefit.

ABOUT THE OPERATORS:

MMcPherson & Thom (Alberta) Ltd. is a company that has been in the water well servicing business since 1919. In the mid 1970's, with the trend to cluster rural subdivisions, each

with its own communal water system, McPherson & Thom expanded into the construction of such systems. As these systems got larger, with more water treatment equipment, the need for skilled operators became evident however the facilities were not large enough to employ full-time staff. In 1980, McPherson & Thom started to provide a routine operation service on water treatment facilities they had constructed. In 1986 Tom Armstrong received a Level 1 Distribution Certificate, followed by WTI and WTII. The operations staff was expanded with Eugene Berndt and Brian Willdig, both obtaining their Level II Water Treatment Certification. Recently, Bill Arling joined the team and has just completed his Level I course.

MMcPherson & Thom is well known in the Calgary region for constructing "operator friendly" water treatment facilities. This is only common sense as they now operate most of the water plants they have constructed.

GLENCOE OPERATION HISTORY 2000

Raw Water Turbidity	
Average	0.52 NTU
Peak	4.2 NTU
Treated Water Turbidity	
Average	0.045 NTU
Peak	0.077 NTU
Distribution Turbidity	0.13 NTU
pH	7.6
Average coagulant input	6.2 mg/L
Average sodium hypochlorite input	1.6 mg/L

Distribution

Average day	60 m ³
Peak day	218 m ³

PERSONAL PROFILE ALLEN KENDRICK City of Drumheller



Allen was born and raised in Drumheller where he works as the *Groundworks Foreman*. Drumheller, also known as “Dinosaur City” has a population of approximately 7,900 and is located on the Red Deer River about 140 km north-east of Calgary. Allen started with the City of Drumheller in 1976 and was in the first group of operators to write certification exams. He holds Certificate #11.

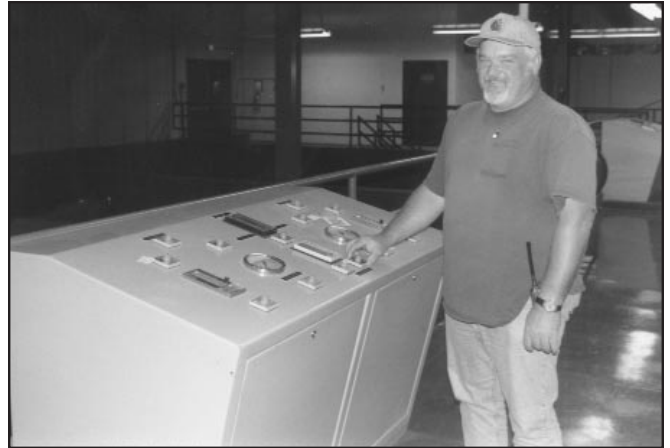
As groundworks foreman, Allen supervises between seven and nine staff and is in charge of all water and sewer facilities, new construction, and graves for the City. He is certified at Level III in all categories. The Class III water plant includes raw water storage with citric acid/copper sulfate treatment, full conventional treatment including fluoridation and pH control and mixed media rapid gravity filters. Five treated water reservoirs and booster stations provide treated water to the region. Wastewater is collected at eight lift stations and pumped to the three wastewater treatment plants that serve the area.



Allen has been a supporter of the Alberta Water and Wastewater Operators Association (AWWOA) for a significant time. He has been a member of both the AWWOA and the Western Canada Water and Wastewater

Association (WCWWA) for 18 years. Last March Allen ran and was elected to the executive of the AWWOA. He is on the AWWOA Operator of the Year Committee so give him a call if you would like to nominate someone. Allen is also on the Northern Alberta Institute of Technology (NAIT) Advisory Committee.

Allen and his bride Glenda have two girls. They are involved with the Ski Club, the famous annual “Passion Play”, golf and in Allen’s spare time he enjoys woodworking. He does keep busy and he also is “on-call” for the City.



MUNICIPAL WASTE MANAGEMENT FACILITY OPERATOR CERTIFICATION FOR COMPOST FACILITIES

Olds College will be offering a 3-day tutorial highlighting the new requirements for the compost Class I and II, A & B Facilities. This tutorial will cover all of the competencies required for the Certification Exam.

Certification Exams will be held by Alberta Environment. Certification Exam Applications must be received by Alberta Environment by September 20, 2000, for the November 2000 exam session. Contact Alberta Environment directly to obtain applications for certification examination. Contact the Certification Section, Municipal Program Development Branch, Environmental Science Division, Alberta Environment, 9820 – 106 Street, Edmonton, Alberta T5K 2J6 or phone (780) 427-8130.

Location: Olds College
Date: November 13 – 15, 2000 or
May 14 – 16, 2001
Fee: \$499 (prior to October 28/April 30)
\$550 (after October 28/April 30)
Fee includes study guide

MESSAGE FROM THE AWWOA CHAIRMAN Doug Thorson

Welcome everyone, hope all of you and your families have enjoyed a nice summer vacation between rains. Now with all the young people back to school, sanity can return to our households and the young people can return to their much-needed studies.

Over the summer myself and several of the executive were provided the opportunity to comment on a draft laboratory data quality assurance policy that Alberta Environment would like to implement. We were allowed comments as to clarity of the policy, accreditation requirements, roles of CAEAL, SCC and Environment, exceptions to the policy and any other concerns we have. To provide you with a brief background: by December 1998 80% of Canada's private sector environmental laboratories were accredited under the SCC, Standards Council of Canada. The program is administered by the Canadian Association for Environmental Analytical Laboratories: CAEAL. The SCC oversees the country's National Standards System and represents Canada worldwide. Other provinces do have this accreditation.

Environment Canada has a policy that requires accreditation, and the Canadian Environmental Protection Act has a section that allows Environment Canada to specify accredited facilities. Accreditation provides formal and independent recognition of a laboratory's capability to perform specific analysis. Each laboratory will undergo a site audit to evaluate its competency. There is a great deal more information on this subject that I would like to share with each and every one of you; but space does not allow. If you would like further information please call me at 403-309-8501. Your executive did their best to ensure that your concerns were addressed in this draft policy.

Just a reminder that a number of your executive members have agreed to raise funds for Water for People, with a reward of having their head shaved at the Annual Operators Seminar. I encourage each of you to sponsor one or more of us poor fella's and raise the anti. Don't do it for us, but for all those deprived children and parents in far off countries who have never experienced the gift of water and sewage facilities. I am so proud of our organization for supporting such a life giving cause.

If you are planning on attending our March 2001 Banff seminar, I would encourage you over the winter to create with your own hands a small project or craft that could be donated to the Water for People silent auction table.

The AWWOA has recently revised and updated the new edition of the Level One Operations Manual and it should be available this fall. A big vote of thanks to all of our members who spent time upgrading this manual.

Remember; a team player is an employee who substitutes the thinking of the herd for his own good judgement. Empowerment; is that magic wand management waves to help survivors of restructuring suddenly feel in control of their futures.

Take care, the good Lord willin' I will see you in March at the Operators Seminar.

ALBERTA OPERATOR OF THE YEAR - 2000

The Alberta Water and Wastewater Operators Association solicits nominations for "Operator of the Year". Municipal officials, plant managers, or any member of the Alberta Water and Wastewater Operators Association may submit nominations.

Nomination Guidelines

1. The nominee must be a "member of good standing" of the Alberta Water and Wastewater Operators Association.
2. Written nominations must be received by January 31, 2001 for the March 2001 Presentation.
3. The nominee must have provided exemplary service to the water and wastewater operations field over an extended period of time.

Written nominations can be sent to:

Mr. Joe Vandenakerboom
C/O The AWWOA
P.O. Box 34010
196A Kingsway Mall PO
EDMONTON, AB, T5G 3G4

Or they can be faxed to:

Joe Vandenakerboom
(403) 227-5831

or

Del Morrison
(780) 427-5204

**WESTERN CANADA SECTION
WATER FOR PEOPLE
Attend the WCWWA
Annual Conference
In Winnipeg!**



To get this year's WCWWA conference off to a big splash, the Western Canada Water For People (WFP) Committees are joining together to sponsor a dunk tank!! It will be available for your throwing pleasure from 6:30 to 8:30 pm Sunday, November 5 on the first floor of the Convention Centre (just follow the sounds of falling, water splattering and screaming!!)

In addition, there will be an opportunity for early holiday shopping (just imagine staying home December 24th with an eggnog!) by participating in the WFP Silent Auction. Just think, you can choose from a model racing car, painting, or many other items for that special someone! Please bring cash, your cheque book or Visa card to start your holiday shopping early. Bidding will take place Sunday night from 5 pm to 10 pm, and Monday from 12 pm to

4 pm near the registration desk on the Convention Centre's main floor. Keep in mind that bidding will close on randomly chosen items throughout the auction hours, so bid early, bid often, and bid high!!!

See you there!!

As well, Water For People Canada – Western Canada Section has partnered with UniGlobe Custom Travel in a unique fundraising idea. If you book your travel with UniGlobe Custom Travel they will donate 10% of your travel purchases to Water For People. For more information on this program please contact Pamela Reid at (403) 268-2704. Or if you wish to book your travel arrangements with UniGlobe Custom Travel, you may do so at:

- (403) 272-1000 - Calgary
- (403) 257-7188 - Calgary
- (403) 526-6655 – Medicine Hat
- (403) 240-1331 – Calgary

Or 1-877-UniGlobe.

Please make sure that you mention that your preferred Charity is Water For People.

COURSES OFFERED 2000 – 2001

The following classroom, correspondence and homestudy courses will be offered in 2000 and 2001. The training brochures will be mailed out to all certified operators, members of the Alberta Water and Wastewater Operators Association, as well as all municipalities in late August. If you do not receive your copy by September 1, 2000, please contact Del Morrison at (780) 427-8130.

COURSE	LOCATION	DATES
Hydrant & Valve Seminar	NAIT	December 12 & 13, 2000
Filter Optimization	Red Deer	January 23 & 24, 2001
Management & Supervision for Operators	Edmonton	February 13 – 16, 2001
Level II Certification Preparation Course	Edmonton	March 21 & 22, 2001
Alberta Operators Seminar	Banff	March 6 – 9, 2001
Chlorination Workshop	Red Deer	April 10 – 12, 2001
Level I Certification Preparation Course Part "A"	Edmonton	April 3 & 4, 2001
Small Water Systems Course	Red Deer	May 2, 2001
Small Wastewater Systems Course	Red Deer	May 3, 2001
Level I Certification Preparation Course Part "B"	Edmonton	May 15 & 16, 2001

Correspondence/Homestudy Course

- Water Treatment Plant Operations Correspondence WCWWA
- Practical Mathematics for Operators Correspondence WCWWA
- Level I Certification Preparation Correspondence
- Level II Certification Preparation Correspondence
- Small Water System Homestudy Course

- Small Wastewater Systems Homestudy Course
- Wastewater Treatment Operations "A" Homestudy Course
- Wastewater Treatment Operations "B" Homestudy Course
- Rotating Biological Contactor (R.B.C.) Homestudy Course
- Pumps; Theory, Operation & Maintenance Homestudy Course

SENIOR CHEMIST SENTENCED FOR FALSIFYING DRINKING WATER RECORDS

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Water Technology ONLINE

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BOSTON – A recently retired senior chemist for the city of Lawrence public drinking water system was sentenced 15 August in federal court on 18 separate counts of filing falsified records regarding the quality of drinking water distributed to Lawrence residents.

US District Court Judge Reginald C. Lindsay sentenced William J. McCarthy, 64, of Lawrence, to two years probation. Judge Lindsay ordered that McCarthy serve the first six months of his probation in home confinement and then wear an electronic bracelet in order to enforce the home detention period. In addition to the probation, Judge Lindsay ordered McCarthy to pay a fine of \$13,500 and a special assessment of \$1,800.00

At the sentencing, Judge Lindsay made a finding that McCarthy had abused the position of trust he held as a senior chemist by submitting the false statements. McCarthy had pleaded guilty in April to charges that over the course of more than three years he repeatedly fabricated drinking water quality results for tests he was required to perform on water treated at the Lawrence facility.

At the April guilty plea hearing, Assistant US Attorney Joshua Levy advised Judge Lindsay that McCarthy had been employed at the Lawrence's drinking water filtration plant for 35 years. During the 1990s, as the senior chemist at the filtration plant, McCarthy was responsible for ensuring that the drinking water met federal and state safety standards.

McCarthy supervised all water quality testing at the plant and was charged with completing and filing test results with government regulators who oversaw the operation of the Lawrence filtration plant. The plant treats water drawn from the Merrimack River before it is distributed to the more than 60,000 residents of Lawrence. Rather than performing all the required test on the water treatment at this plant, McCarthy admitted 15 August that he regularly fabricated results of four different types of drinking water quality tests, and reported them as fact to regulators.

There is no indication, however, that Lawrence residents were physically harmed as a results of the McCarthy's criminal conduct or that the fabricated test actually resulted in contaminated water being distributed to the water supply.

"Mr. McCarthy broke the public trust that each of us depends on every day to make sure that the water our families drink is safe," said US Attorney Donald K. Stern. "This office will continue to investigate and prosecute any individual who compromises the integrity of the water supply or puts the public at risk."

Carmen Martino, plant operator who worked for McCarthy, alerted the EPA about the problems with the Lawrence facility in 1999.

In addition to McCarthy's conviction, the criminal investigation also triggered a comprehensive evaluation of the safety of the Lawrence drinking water system by state and federal environmental regulators.

That evaluation resulted in the issuance of two administrative orders by the Massachusetts Department of Environmental Protection. These orders detail a broad array of violations at the Lawrence water treatment facility. As a result, Lawrence, was required to hire an outside consultant to oversee operation of the plant, commence an upgrade of its failing facilities, and enclose its open reservoir.

The case was investigated by agents of the EPA-CID and was prosecuted by Levy, who part of Stern's Economic Crimes Unit, and Special Assistant US Attorney John T. McNeil of Stern's Major Crimes Unit.

Notice to All Persons Responsible for Operation of Landfills and Composting Facilities in Alberta

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Alberta Regulation 192/96, passed in August of 1996 outlines the requirement for supervision of all Class II or Class III landfills and Class I or Class II compost facilities by certified operators. The compliance deadline, as stated in the Regulations is September 1, 2001.

To date over 100 municipal waste facility operators have been certified and many more are currently in the process of obtaining certification.

Additional information about the Municipal Waste Facility Operator Certification Program, including the Certification Guidelines can be obtained on the Alberta Environment website at <http://www.gov.ab.ca/env/> or you can contact Del Morrison at (780) 427-8130.

CANDIDATES NEEDED

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The AWWOA election is approaching. Positions in all population categories are open. Any member in good standing may run.

If you want to be actively involved in the Operator's Association, contact

Andy Maguire at (780) 412-7622, FAX (780) 412-7679,
Scott Chant at (403) 646-2902 FAX (403) 646-2653 or
George Mair (780) 891-0628 FAX (780) 891-3772.

Alberta Environmental Protection and Enhancement Act Enforced

"We will continue to take action through the courts whenever necessary to ensure our environment and the laws that protect it are respected."

Halvar C. Jonson, Minister of Environment

ALBERTA CITY GUILTY ON ENVIRONMENTAL CHARGE

A major Alberta City was assessed more than \$200,000 in penalties after pleading guilty in provincial court to a charge under Alberta's Environmental Protection and Enhancement Act.

The \$1,000 fine and creative sentence worth in excess of \$200,000 were related to a chlorine gas release from the Bears paw water treatment plant in 1998. Approximately 160 kilograms of chlorine gas escaped into the atmosphere during the incident. No effect on the environment or human health was detected.

Under the terms of the creative sentence, the city must receive ISO/CD 14001 certification for its Bears paw and Glenmore water treatment facilities by August 2003, and make a presentation on the incident to the Western Canada Water and Wastewater Association annual meeting in October 2001.

The environmental management system certification will ensure the facilities meet ISO's internationally recognized standards for quality. The presentation will review the circumstances leading to the charges, analyze the causes of the release, and distribute a set of standard operating procedures designed to prevent similar releases from occurring at the facilities in future.

"The fact that we do not believe this incident affected the environment or human health does not make it any less serious. It had the potential to do so, and our legislation on that is

straightforward. If you release a substance that could potentially harm the environment, you can expect us to take enforcement action," said Environment Minister Halvar Jonson.

In the early morning of March 24, 1998 a gauge in the Bears paw plant failed and leaked chlorine into a chamber in the facility. The plant's ventilation system was operating inappropriately and allowed the chlorine gas to escape into the atmosphere.

MUNICIPALITY FINED

A Alberta municipality was assessed an Administrative Penalty under the Environmental Protection and Enhancement Act on June 27, 2000.

The municipality was fined \$7000.00 for:

1. Failing to have a certified operator supervising the Water Treatment Plant.
2. Failing to take emergency actions in consultation with the Regional Engineer once the chlorine levels were below 0.2 mg/L.
3. Failing to immediately report the contraventions of the approval.

The municipality paid the penalty on July 24, 2000.

The Alberta Utility Operator is published three times a year by the Municipal Program Development Branch of the Environmental Sciences Division, Alberta Environment, as a means to exchange information for those involved in the operation of water and wastewater facilities. The contents do not necessarily reflect official opinion or policy and, unless otherwise stated, should not be construed as policy or regulations. **The Alberta Utility Operator** and Alberta Environment allow the Alberta Water and Wastewater Operators Association to publish noteworthy information in this newsletter, however, we cannot be held responsible for the accuracy of information submitted. Contributions, comments and criticisms are welcome.

ALBERTA UTILITY OPERATOR
MUNICIPAL PROGRAM DEVELOPMENT BRANCH
ENVIRONMENTAL SCIENCES DIVISION
ALBERTA ENVIRONMENT
5th Floor, 9820-106 Street
Edmonton, Alberta T5K 2J6