



Lakewater

NUTRIENT CAPTURE LTD



Phase 1 Opportunities

Employment Opportunities

- Over \$2.1 million in wages paid into the community

Captains	Scientists	lab technicians	Plant operators
General laborers	Sales staff	Office staff	Maintenance staff
Commercial divers	Truck drivers		

- 20+ staff hired for year round operations
 - Ice free months: 24 hours x 7 days per week
 - Winter: 8 hours x 5 days per week

Economic Benefits to local businesses

- Est. Annually \$1.1 million worth of chemical inputs purchased from local suppliers
- Est. \$100k annual spend on maintenance purchasing parts and supplies from local businesses
- Est. \$1.7 million annual on fuel delivered and maintained by 3rd party contractors
- Local fabrication companies utilized to recondition used shipping containers into new filters for initial build as well as ongoing replacement and new phases.
- Est. \$5 million annual spend allocated for marketing and advertising employing local marketing and social media agencies.
- Est. \$3 million annual spend to hire local legal and financial services.
- Generating significant volumes of tri-calcium phosphate will spur local development of ancillary businesses that can purchase and utilize this resource.
- 50,000 sqft processing facility on a 5 acre site within the Selkirk Industrial Park



NOW AVAILABLE

Industrial Lots

- ✓ Lots designed with flexibility to suit
- ✓ Fully Serviced
- ✓ Lot sizes from 1.52 to 12.83 acres
- ✓ Zoned MI Industrial

Legal Benefits

The City of Winnipeg, Province of Manitoba, and Federal Government are defendants in a class action lawsuit brought forward by 10 First Nation Communities surrounding Lake Winnipeg. These communities have been devastated by the inaction of all three levels of government either by inadequate facilities/upgrades or lack of enforcement to curtail the volume of phosphorus nutrients being discharged into Lake Winnipeg. This excessive volume of discharge has directly contributed to the dramatic increase in hazardous algae blooms that feed and rely on this phosphorus. This class action lawsuit value is currently \$5 billion dollars in damages (10 groups x \$500 million each).



Additionally these same First Nation Groups are in the process of legally assigning personhood status to Lake Winnipeg to gain additional legal protections and avenues of recourse.

The heart of the issue is the lack of perceived action and environmental protection by all levels of governments in the eyes of these First Nation Groups and non-profit organizations.

We propose that the defendants listed in the lawsuit retain our services to show good faith and action towards reconciliation and a commitment to real tangible action. Our Phase 1 volumes are

tailored to match and remove the excessive phosphorus nutrients the City of Winnipeg is discharging above their licensed amount into the Red River and Lake Winnipeg. The City of Winnipeg estimates that it will take 10+ years until they will comply with their license. Our Phase 1 can be implemented quickly and be fully operational by 2026. The service continues to retain value and relevance after the City finally becomes compliant by shifting to capturing phosphorus that has been discharged further upstream by other cities and agricultural run-off.

Environmental Benefits

Although our Phase 1 will capture a small percentage of the phosphorus in Lake Winnipeg, it will represent the single largest commitment and tangible reduction to date. The more we are able to capture and extract, directly reduces the size and frequency at which the hazardous algae bloom appear. The hazardous algae blooms affect a wide swath of the general public and local businesses ranging from commercial fishers to tourism and real estate.

Nearly 23,000 permanent residents live along the lake in 30 communities. Eleven of these communities are First Nations with a population of approximately 14,000.



- Lake Winnipeg commercial fishery valued at \$21 million and represents 61% of all commercial fisheries in Manitoba
- Recreational fishing generate \$17 million annually
- Recreational and leisure industry for beaches, cottaging, all-season recreation, tourism, ecotourism contribute \$110 million per year

If the government fails to implement a reduction in phosphorus, Lake Winnipeg is at serious risk of developing “dead zones” similar to the St.Lawrence Seaway and the Gulf of Mexico. The algae blooms significantly deplete the dissolved oxygen in the water suffocating fish and other organisms. This would

represent a major environmental disaster that would require an even more costly and aggressive fix as well as a major impact to local communities and businesses.

Phase 1 is a trial and prototype system by nature, designed to gather data and experience for future phases. We anticipate these phases would consist of installing additional filters in Lake Winnipeg as well as additional installations within the greater Lake Winnipeg Basin. In effect we will create a network of filters and monitoring buoys to capture phosphorus nutrients prior to, and in Lake Winnipeg. The Province has set a 0.05 mg/L concentration target for Lake Winnipeg, which is roughly a 50% reduction. We believe our company has the ability to scale to make that happen in partnership with the Lake Winnipeg stakeholders.



Technology

Manitoba has the opportunity to gain international recognition as being the birthplace for a world changing service and technology capturing phosphorus from non-point sources. There are very few technologies and businesses able to capture phosphorus nutrients in a continually loaded non-point source environment like lakes and rivers, especially in large volumes. Australia previously held this title with the development of Phoslock and the patenting of this technology in the 1990's. This proved to be a major step forward in phosphorus capture; however, this technology has some major limitations from an environmental and practical perspective preventing it from being used in large-scale applications.

Our system and technology relies on a core media developed and tested by research groups in Ohio in collaboration with the University of Michigan and funded by the US government. Testing has been conducted in labs as well as in experimental lakes detailing out its phosphorus capture abilities and safety. The media is currently being used in smaller capacities in US fish farms, HOA managed lakes, aquariums, and stocked ponds managed by prestigious angler groups.

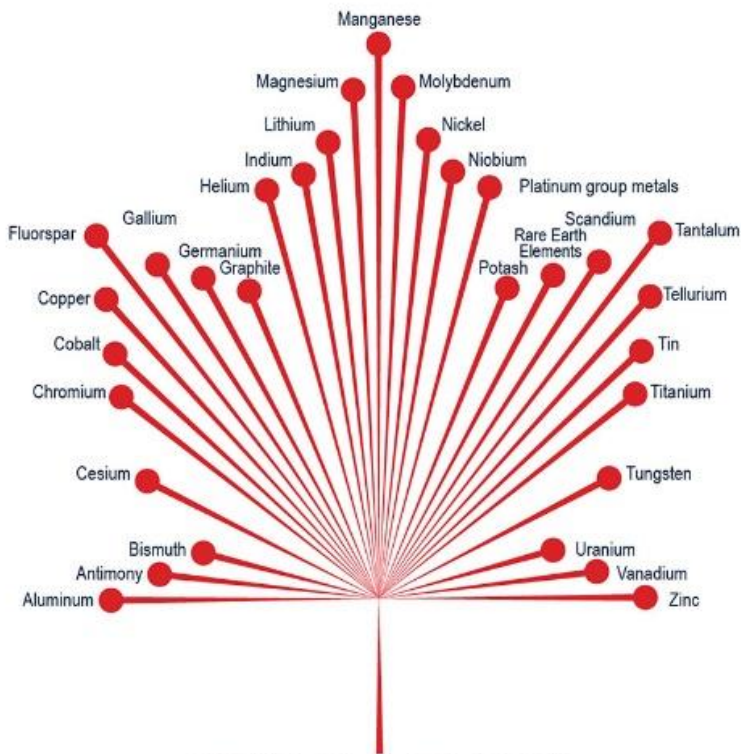
Our system and service has been initially designed for capturing phosphorus, but also was designed in a manner that it can be adapted to capture other pollutants such as PFAS, micro plastics, heavy metals, and pharmaceuticals. By switching out the palletized media inside, we are able to utilize the same filter container concept and network. We have already identified several methods and materials that would be suitable for this future service. We intend on developing and a full range of filters that will be designed and built in Manitoba, that are exported and implemented around the world. This is a multi-billion dollar industry with \$120 billion potential in the USA alone.

Critical Minerals

Phosphate has been identified by the Government of Canada as a critical mineral essential for food security as well as green technology such as producing lithium iron phosphate batteries.

As of 2018 World Integrated Solution reported Canada imports a total of 2,078 tonnes phosphorus, of which 1,999 tonnes is





CANADA'S CRITICAL MINERALS LIST 2021

from the United States. Our phase 1 will capture 175 tonnes of phosphorus and can completely replace all imports of phosphorus outside of the United States.

As of 2019 World Integrated Solution reported USA imported the majority of phosphorus from Kazakhstan and Vietnam at 6,427 tonnes and 4,387 tonnes each.

Our company has the ability to significantly reduce the reliance on these countries as we scale and are able to capture more phosphorus.

Tri-calcium phosphate by-product

Tri-calcium phosphate is an ingredient that is heavily used across many industries – toothpaste, antacids, bone grafting material, baby powder, water filtration, nutritional supplements and ceramic coatings – and it is also in our food supply. Tri-calcium phosphate is a mineral found in many foods for many purposes.

Within foods, tri-calcium phosphate has roles such as anti-caking, clouding, and fortification. These all support the formulation of more desirable food products in terms of texture, appearance, performance, shelf-life, and nutrition. Generally Recognized As Safe (GRAS), tri-calcium phosphate is an ingredient that helps foods, food products and food ingredients live up to consumer expectations time and time again, even after sitting in the pantry or refrigerator after purchase.

Tri-calcium phosphate has several properties that make it useful in food formulation

- Tri-calcium phosphate is almost insoluble in water, has a very low flavor profile, and usually comes in a fine white powder.
- The chalky texture of tri-calcium phosphate makes it useful as a free-flowing agent, as it has the ability to take up to 10% of its weight in moisture.
- Its texture and color properties also make it an effective clouding agent.
- Ingredient labels list it as tribasic calcium phosphate, tri-calcium orthophosphate, and precipitated calcium phosphate, or it's labeled in formulation paperwork as TCP. Tri-calcium phosphate is also known as hydroxyapatite.

Tri-calcium phosphate can also be used to meet the nutrition and dietary considerations of consumers

- Chemically, tri-calcium phosphate is a calcium salt of phosphoric acid. Its primary function in fortification is to increase the calcium content of foods.
- Due to its mineral source, tri-calcium phosphate can be used in vegan foods and is also allowed in organic products in the U.S.

Tri-calcium phosphate is also commonly used in agriculture as a fertilizer and soil amendment.

Salt by-product

Industrial salt is also generated as a by-product of the extraction process. This salt will be sold to local businesses and governments for use on roads & highways during the winter season.

Lakewater Nutrient Capture Phase 1 uniquely positions Manitoba to become a local supplier and regional exporter to neighboring Provinces and States generating approximately 1,000 tonnes per year.

Both the generation of tri-calcium phosphate and industrial salt offer both opportunity and security.



Project Financing & Oversight

The “government” has a unique opportunity to drive innovation in a field that it is dire need of assistance of, by providing the initial financing capital. With this investment, the “government” has the ability to both be the lender and primary customer of the business being financed, essentially providing itself with contract security. This can be further reinforced through 3rd party audits of finances and oversight to ensure the business is operating as intended and within accepted business practices. This level of oversight ensures that the government receives its return on investment from a lending perspective but also benefits from a service rendered that typically otherwise would not be available through traditional means.

At prime + 1% ensures the “government” is fairly compensated for this service over a proposed 10-year term.

The initial investment would facilitate the initial phase, which in turn will create a cascade of additional projects such as a filtration service for Lake Erie in partnership with the Ontario government. Thus, in short order, leading to a more robust diversified company while reducing risk. The result is the creation of a company that solves a highly politicized and environmental issue, contributes to the local economy driving growth, and exports services and materials across North America and the World.

Summary

According to the Lake Winnipeg Basin Initiative Report, between 2012 and 2017, \$18 million was spent resulting in less than a 1% reduction in phosphorus. The government now has the opportunity to invest in its future and finally solve a problem that it has been struggling with at an estimated annual cost of \$58 million for a 2.4% reduction of total phosphorus per year. To facilitate this venture we are looking to the “government” to finance a portion of the initial required capital with a combined repayable loan with interest, \$80 million at prime + 1% over 10 years (shared between Fed. and Prov.). The remaining \$40 million to be funded through private equity investment.

The benefits to the “government” and community as a whole would be immediate and widespread. In addition, Manitoba would establish the framework through which other watersheds could be modeled after, bringing the much needed filtration service to lakes such as Lake Erie and Lake St.Clair. Manitoba would establish itself on the world stage as being at the forefront of water filtration and innovation with a locally developed solution that can be exported internationally.



Hnausa

Little Black River
First Nation

Lake Winnipeg South Basin

Traverse
Bay

Gimli

Sagkeeng
First Nation

Grand
Beach

WPG
Beach

Phase 1 filter locations

Balsam
Harbour

Brokenhead
First Nation

With so many benefits, this project has to offer, the risk is worth the reward to finally see action. Lets work together to make our waters clean again!

