SILICA

Company Overview

Clean Environment Commission

Public Hearing

February 27, 2023

SAFETY MESSAGE - Winter Driving

Winter driving reminders to safely reach your destination

- Check the weather forecast and road report between your departure and planned destination and adjust your route and travel plans as needed. Delay or cancel your trip if travel is not recommended.
- Inspect and maintain your vehicle for winter driving conditions – snow tires, clear windows and lights, windshield washer fluid, full tank of gas, etc.
- Carry a winter emergency kit with phone and/or radio, flares, emergency lights, snow shovel first aid, food, water, warm blankets, fire starter etc. Carry and use an InReach device in very remote areas.
- Drive to conditions – slow down, increase following distance, brake and turn smoothly, allow extra time for traveling. If conditions worsen, turn back or find a safe place to stop until the weather eases.
- Use journey management – inform trusted friends, family, colleagues of planned route and departure and arrival time. Stick to the plan and check in once you arrive.

Additional Information

- Manitoba roads are grouped in three levels for winter plowing. The road from Winnipeg to Vivian is level 1 and is planned to be plowed within four hours after a storm.
- Visit the Government of Manitoba website for information on the plowing schedule and road conditions (Winter Driving - What You Should Know | Manitoba 511 - Road and Traveller Information | Province of Manitoba (gov.mb.ca))

Who is Sio Silica

- **Sio Silica,** formerly CanWhite Sands, is a **Canadian Company** headquartered in Calgary with a Manitoba based team.

- Sio's project, the **Vivian Sand Extraction Project**, is a unique high purity quartz silica sand extracted in an environmentally friendly way.

- The Project would supply high purity silica sand to the green energy and technology markets where it is in high demand to contribute to Net Zero 2050 goals.

Company Values

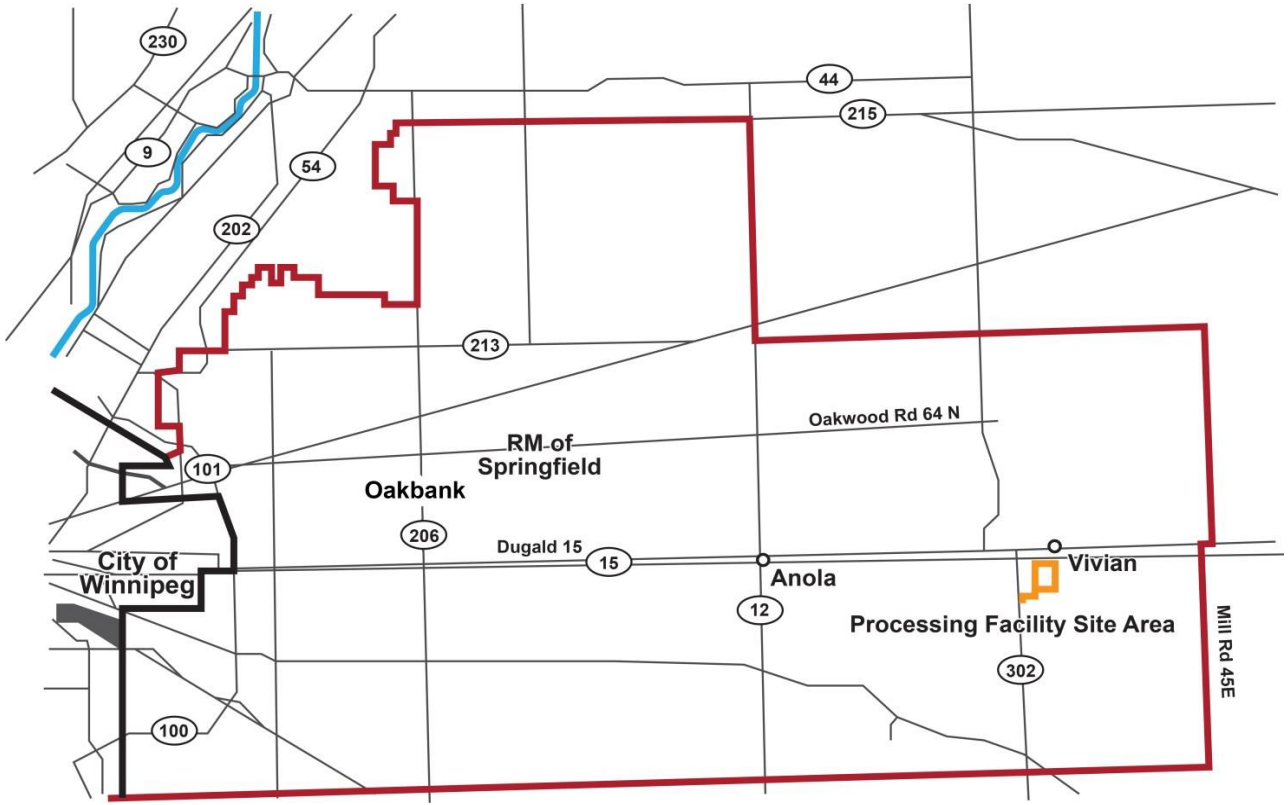
- **Sustainability** and **protecting the environment** is Sio's top priority.
- Our team is dedicated to our success by offering superior products and practicing sustainable development that **respects the people, community, and environment**.

Sio's Commitment to Sustainability

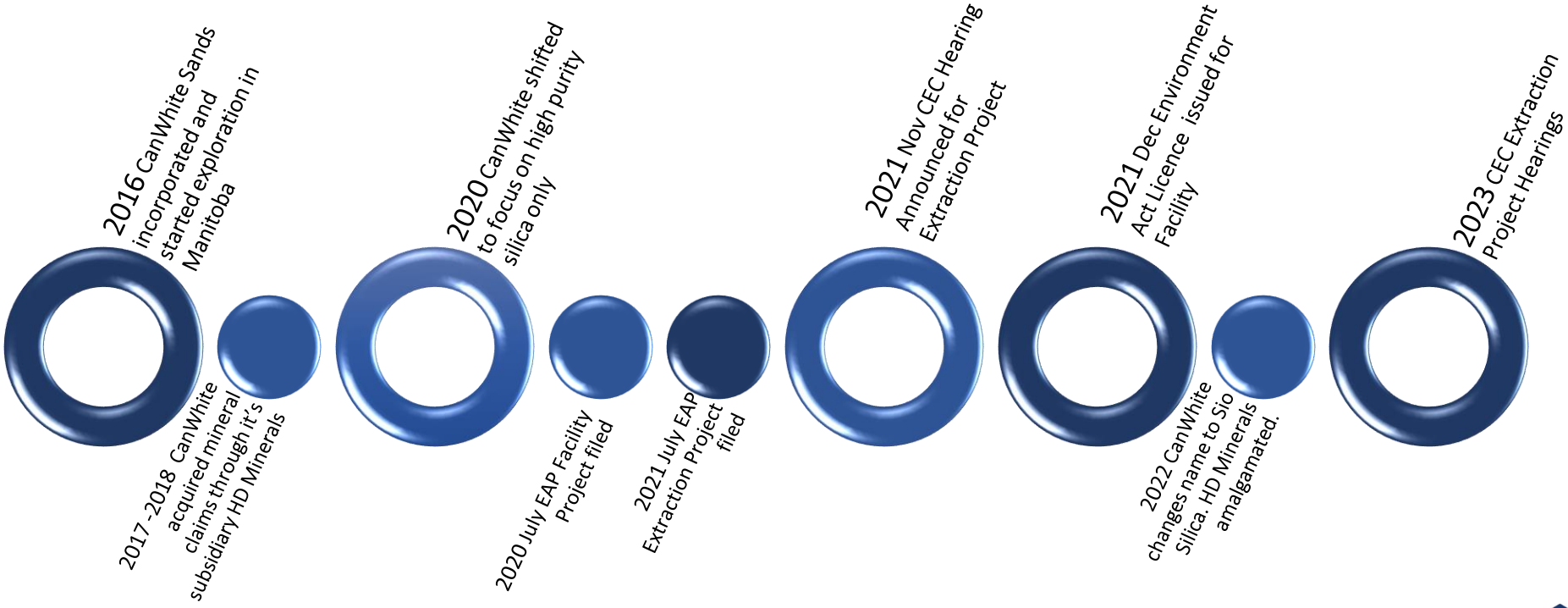
- Sio published an extensive sustainability report in 2021 detailing our leading commitment to local communities, the environment and stakeholders

Patent Pending Borehole Extraction	No open pit, no dust, no trace
Pipe Transport	No heavy machinery, no truck traffic, no dust
Simple Wash Process	No harmful chemicals, no toxic residual ponds, no water discharged on surface
Water Recycling	No water waste, minimal site draw on water from source reservoir

Project Location



Sio’s History in Manitoba and Activities



Sio’s History in Manitoba and Activities

- Approx **$35 million** spent to date.
- Over 95 exploration, monitoring or extraction wells drilled.
- 25+ community or municipality meetings held.

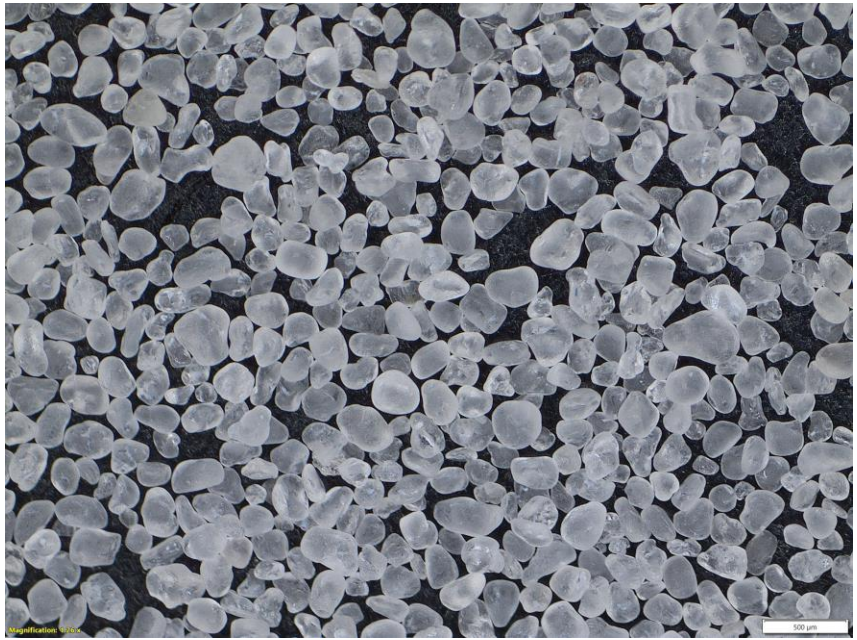
Studies conducted to date:

- *On-site Investigations for vegetation, wetlands and wildlife.*
- *Heritage Resource Impact Assessment*
- *Hydrogeology and Geochemistry Assessment*
- *Geotechnical Assessment*
- *GHG Emission Calculation*
- *NI 43-101 Resource Reports*
- *Preliminary Traffic Projections*
- *Extraction Project Environmental Assessment*

Manitoba's Quartz Silica is unique

Our silica is a unique **natural resource** that is in the top 1% of available high purity deposits in the world.

- **Purity:** Our **raw silica is 99.85%** purity prior to processing. Our **processed silica exceeds 99.9%** purity and is an irreplaceable ingredient for high purity silica applications.
- **Green:** Known for its green extraction and processing activities, ***aiming to be the greenest sand mine in the world.*** Using renewable electricity, natural gas, and efficient processing, Sio Silica is making great inroads contributing to a low carbon future.



Silica is being defined as a **strategic critical mineral** by several producing countries.

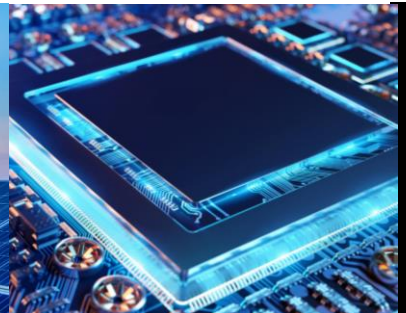
Applications

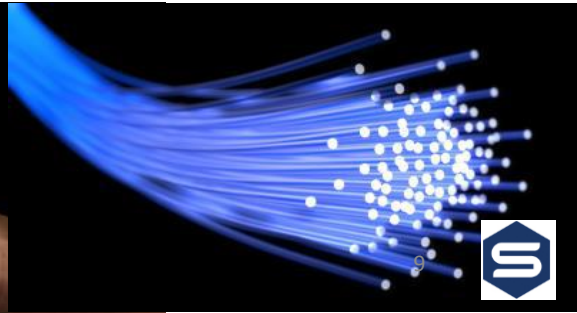
High Purity silica has a significant role in decarbonization and how we live. Silica is the primary invisible ingredient that **keeps our society running**.

- Battery Anodes
- Low Iron Glass
- Solar Panels
- Silicon Metals
- Solar Cells

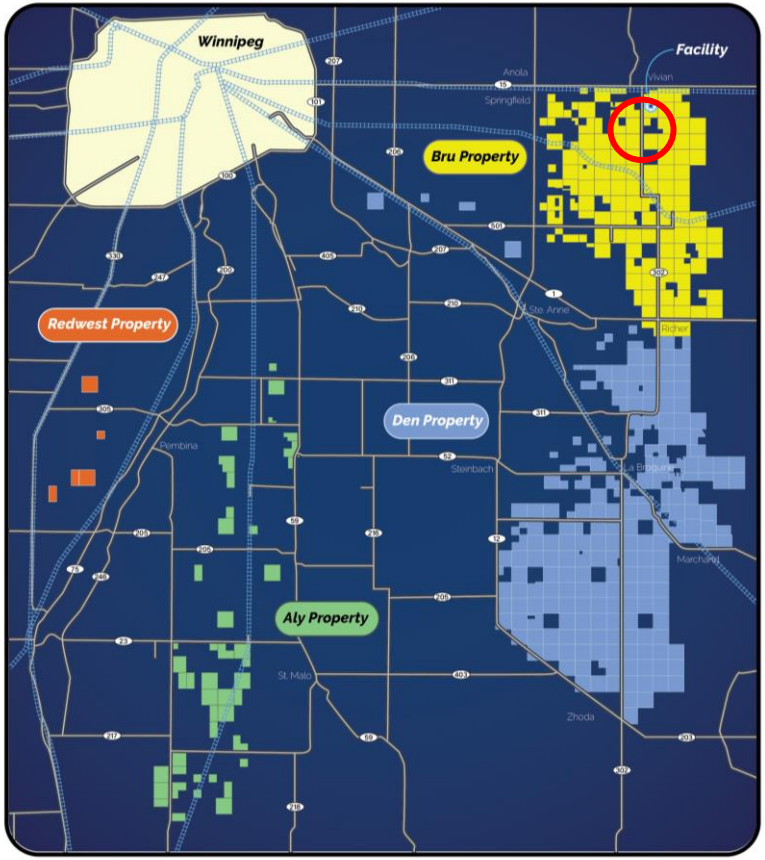
- Cosmetics
- Semiconductors
- Medical
- Food and Agriculture
- Rubber enhancements (tires)

- Smart Glass (Touch screens)
- Medical Glass
- Alloys (car parts, planes)
- Ceramics
- Fiber Optics



Our Resource

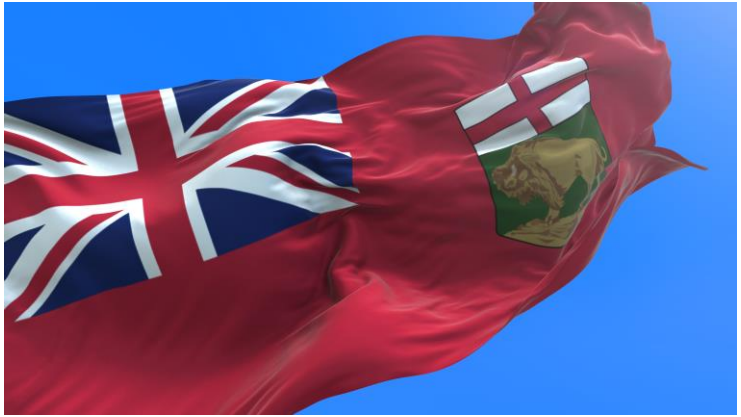


- Sio's Mineral Claim areas - BRU, DEN, Redwest and ALY, totaling over 13 billion tonnes in place.
- Sio's Extraction Project Area – BRU area year 0 – 4.
- Targeting to remove 1,360,000 tonnes per year which is 0.18% over the first 0 - 4 years and 1.06% over the 24 year mine life.
- Even with less than 2% of the silica to be extracted and consistent purity throughout, Sio will allow Manitoba and Canada to be a leader in the supply chain of Silica and Intermediary Silica and Silicon products.

The Manitoba Advantage for Decarbonization

- Intermediary products produced through advanced manufacturing from Silica require three key inputs.

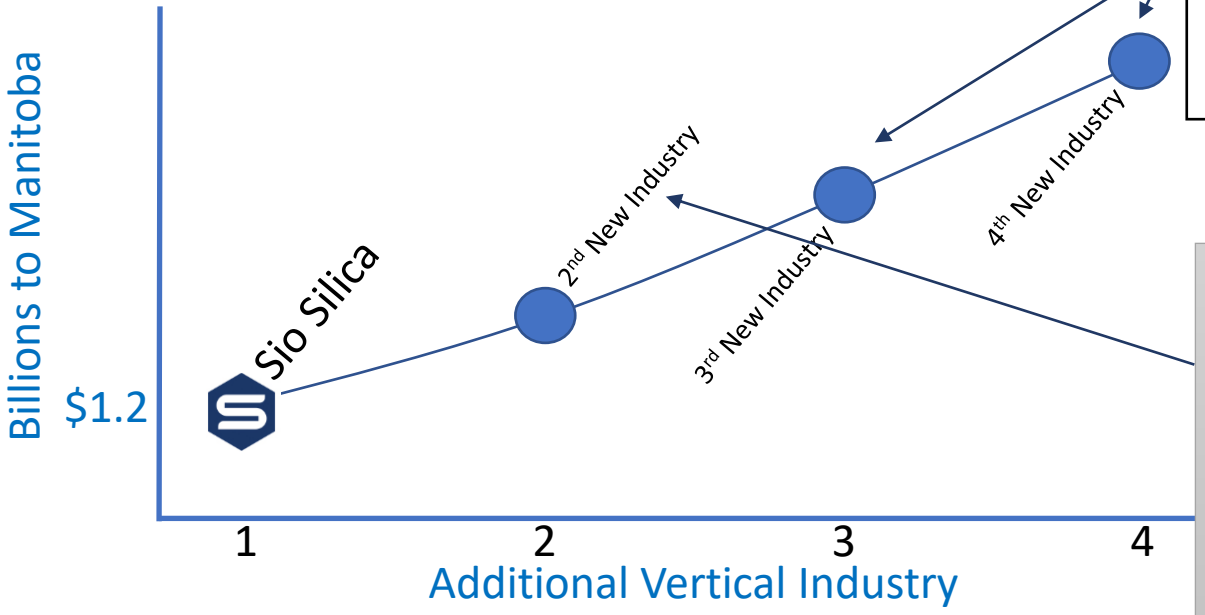
  Silica, Energy to Convert, Transportation.



- Manitoba has the largest, contiguous, scalable high purity deposit of Silica Sand in the world
- Manitoba has competitive Hydro Electricity rates over 30MW in Canada
- Manitoba has an all access shipping proposition

- Transition Technologies such as solar panels, batteries, semiconductors, green silicon, etc. <u>all require Silica.</u>
- Manitoba is positioned to be a world leader in supply of critical materials for the decarbonization of modern society.

The Sio Start to Economic Benefit



- New Industries for Manitoba
- Billions to Manitoba
- 1000's of direct jobs
- 1000's of support jobs

Possible new industry for Manitoba:

RCT Solutions JV

- 10 GW Solar Panel Manufacturing Facility
- $3 billion investment in Manitoba
- 8,000 direct jobs

What does this sand mine mean for Manitoba?

- The Vivian Project is expected to contribute **$1.2 billion dollars** into Manitoba through taxes, payroll, royalties and municipal charges over a 24 year mine life.

- Estimated direct revenue to the RM of Springfield is $2 to 3 million dollars per year. Indirect revenue is estimated at $2 to 4 million dollars per year.

What does this mean for the Community and Province?

- The Vivian Project is expected to spend **$1.4 billion dollars** in Manitoba in capital and operating expenses over a 24 year mine life.
- Expected $55 million per year spent locally on supply and services.
- This means all other business in Manitoba can benefit leading to hundreds of indirect jobs and business opportunities.

Local Benefits

Employment

- The facility and our operations will directly employ approximately 75 to 100 full-time people. In addition, there will be 100 to 200 indirect employment opportunities related to transportation, supplies and services.

Infrastructure

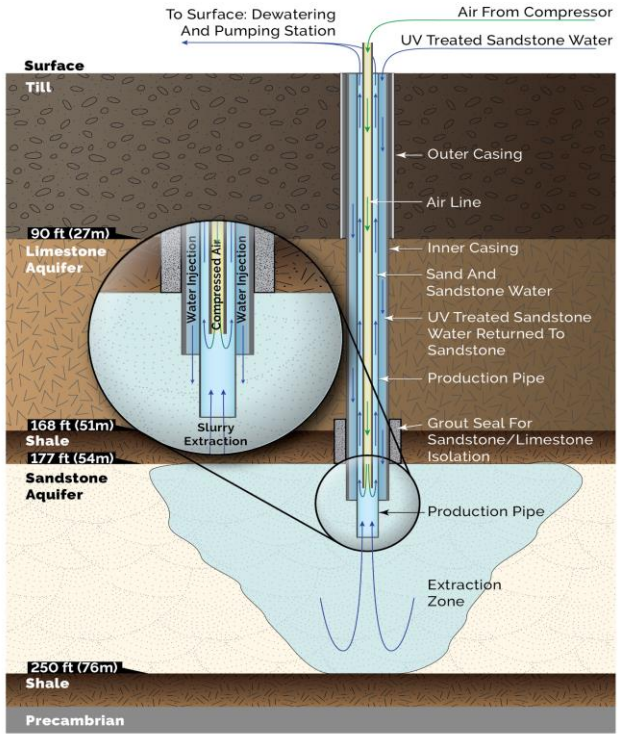
- Sio Silica will invest in developing natural gas, other infrastructure required to operate the facility. This will allow service providers to offer access to residents should they choose.

Community Involvement

- Local businesses supporting other local businesses, in services, sponsorships and participation. Sio already has and continues to make investments in the community locally to actively participate as a community member.

Environment Act Proposal Extraction Project

How will the Sand be Extracted?

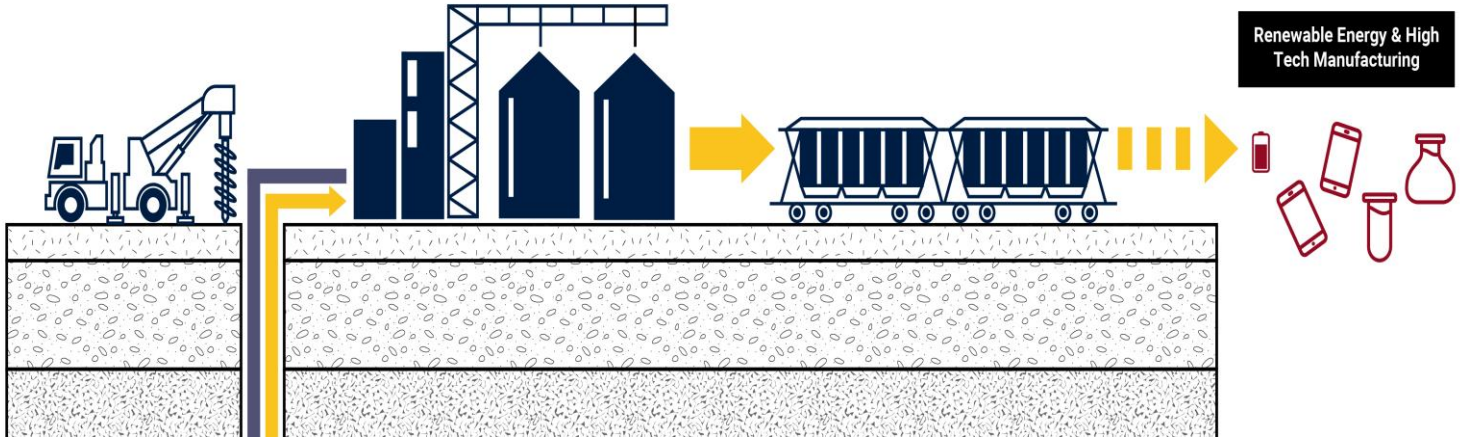


Example Only

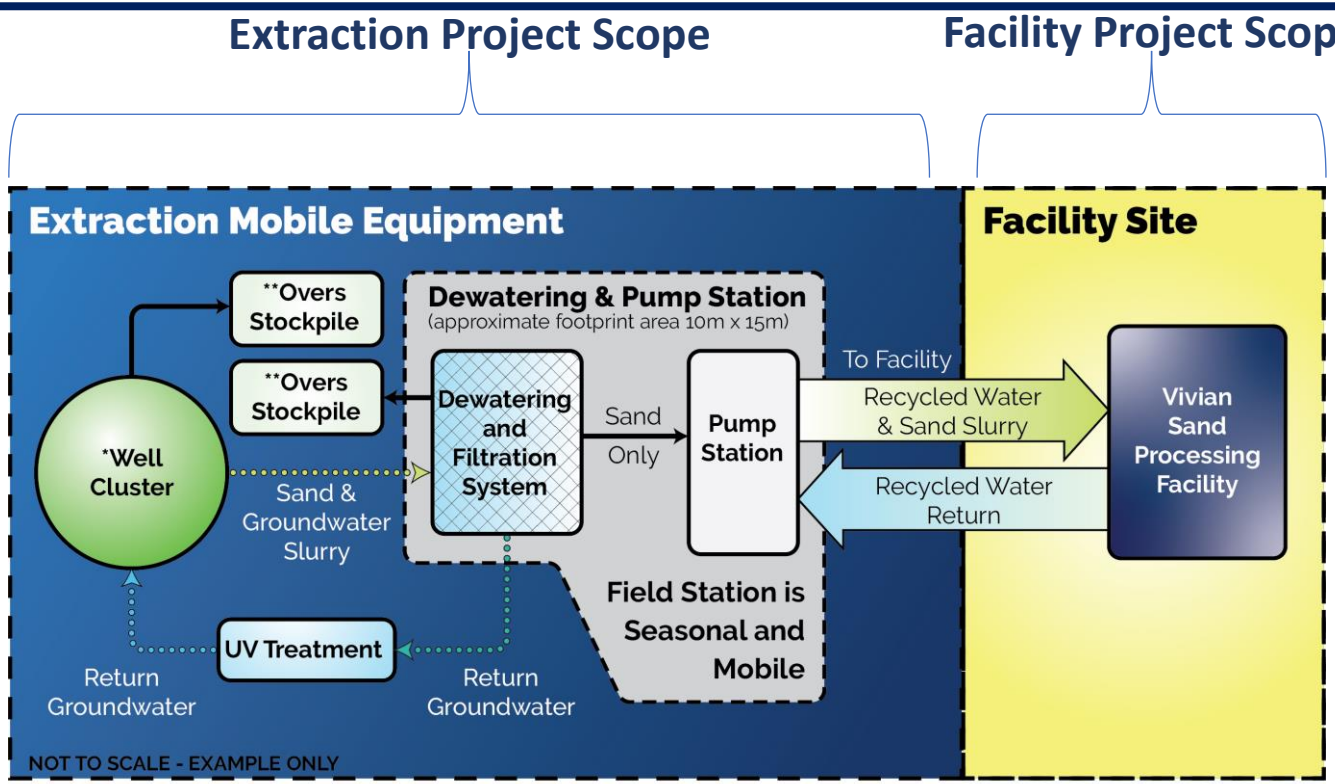
Extraction Video Demo

Where will the sand go?

- **Extracted sand sent by sand & water slurry line to proposed Vivian Sand Extraction Facility:**
  - Slurry line monitored regularly for leaks
    - Uses recycled water loop to minimize water use
  - No sand transport truck traffic



Returning Groundwater Safely to the Aquifer



*1-5 wells in each cluster

**the overs stockpile is stored in appropriate containment until it is removed for disposal

Returning Groundwater Safely to the Aquifer

- **Two-Step Precautionary Groundwater Treatment Processes:**

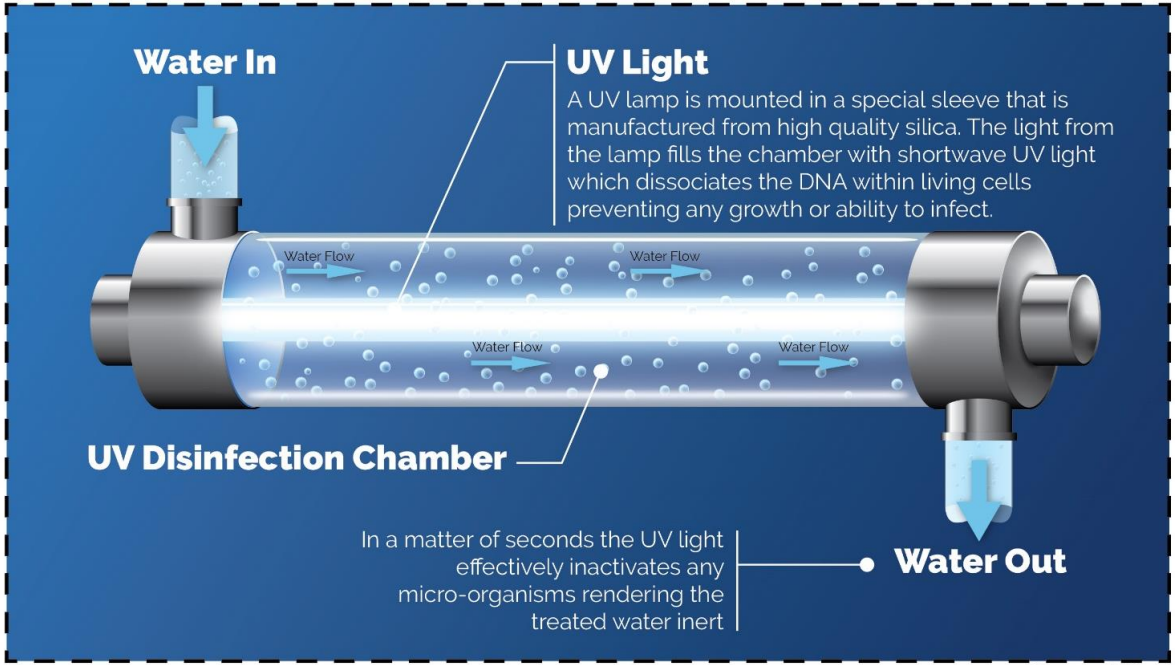
1. **Filtration Process** – to minimize suspended particles

2. **Ultraviolet (UV) Treatment** – prevents potential for contamination (e.g., bacteria)

Returning Groundwater Safely to the Aquifer

- **Ultraviolet (UV) Treatment:**
  - Commonly used in municipal water treatment systems
  - Groundwater separated from sand at dewatering station passes through UV system before being immediately returned to extraction well and original Sandstone Aquifer

Water Treatment



Concept Only

2023 Extraction Plan Update Process

Stantec - Updated Geotechnical Model Issued Winter 2022

→

Stantec - Updates Geologic Model With New Borehole Data from Exploration Program – Summer/Fall 2022

→

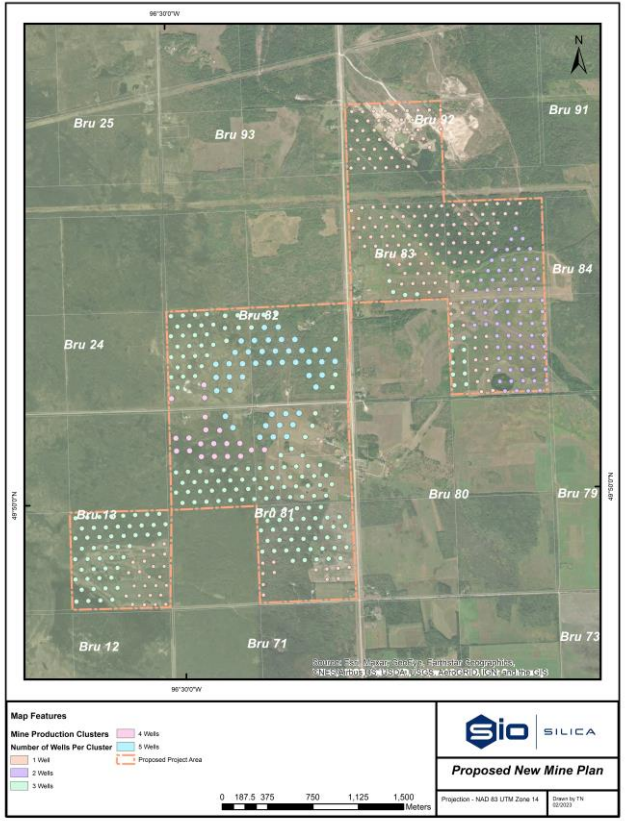
Sio Operations Team, Updates Mine Plan Based on Geologic Constraints and Allowable Spans from Model - Late Fall 2022

→

Stantec reviews new Mine Plan and approves Jan 2023

Updated Extraction Plan

- Cluster sizes are based on Stantec updated Geotechnical/Geologic Model – Jan 2023
- Each cluster will have a pre-determined allowable span and number of wells.
- The spacing of clusters follows Stantec Geotechnical Model for no subsidence.
- **New Extraction Plan = 401 less wells** in first 0-4 year from original EAP Proposed Plan of July 2021. >23% reduction in number of wells
- Clusters will vary in size between 1 – 5 wells, beginning with 1-2 wells clusters in year 1-2.



Sio Silica CEC Panels

Geotechnical Panel

- *Stantec:* *Steve Bundrock, Arash Eshraghian*
- *Aecom:* *Douglas McLachlin*
- *Sio Silica:* *Feisal Somji, Brent Bullen, Laura Weeden*

Hydrogeology and Geochemistry Panel

- *Aecom:* *Ryan Mills, Miln Harvey, Cheibany Ould Elemine*
- *Sio Silica:* *Feisal Somji, Brent Bullen, Laura Weeden*
- *Life Cycle Geo:* *Tom Meuzelaar*

Permitting, Water Treatment and Business Panel

- *Aecom:* *Clifton Samoiloff, Marlene Gifford*
- *Sio Silica:* *Feisal Somji, Brent Bullen, Laura Weeden*
- *Recens:* *Mohsen Barkh*

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www.viviansilicaproject.com