Community Information Session Storyboards

Part 1

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Project Exploration Activities: **Drilling**

The holes (15-cm wide) collapse on themselves after drilling is complete and the core is extracted.

CPS, using a sonic drill determines the exact location of the silica sand deposit.

Core is analyzed and samples are sent to a testing lab.

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Project Exploration Activities: Cut Line Survey

These are the cut lines from the 2014 drilling program. Notice how they have revegetated and grown in 4 years.

A team of biologists walked the site in October 2018 to document and evaluate plants, trees, shrubs, and wildlife.

Narrow cut lines are just wide enough for safe access to the drill locations. Curves are incorporated to help protect wildlife as guided by the Conservation Branch.

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Annual restoration activites goal:

Return the land as it was before quarrying.

Onsite research is planned to help regrowth of plants.

Rolling Restoration

CPS will restore the land it impacts concurrently with quarrying operations. CPS anticipates quarrying an average of 5 hectares annually. Once the land has been quarried, the restoration process will begin restoring the topsoil that had been removed and planting trees, (typically two-year old saplings), shrubs, and grasses at the appropriate time of year to assist revegetation.

The Operational Oversight Committee will provide guidance for these efforts.

In addition, CPS will support development of sustainable commercial growing of blueberries, wild rice, or any other crop that would add value to the local community. CPS will work with community members involved in food security issues to guide these efforts.

In the Spring of 2019, CPS will develop an Agricultural Research Station onsite to investigate:

- methods for successful native lowland berry transplanting
- berry production, including review of all possible varieties
- feasibility of greenhouse season extension
- creating a wild rice seed bank
- experimenting with conventional rice growing techniques and rice varieties
- experimenting with 4-season food production to help generate interest in creating a local source of fresh vegetable production

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Why Do We Produce Silica Sand?

Industrial Silica Sand is high purity silica sand produced with closely controlled size specifications. It is a more precise product than sand used in concrete and construction materials. Silica (SiO_2) is a group of minerals composed of silicon and oxygen. Silica is very hard, chemically inert, and has a high melting point, attributable to the strength of the bonds between the atoms. These are prized qualities in applications like foundries and filtration systems. Industrial sand's strength and non-reactive properties make it an indispensable ingredient in the production of thousands of everyday products.

Glassmaking: Silica sand is the primary component of all types of standard and specialty glass. It provides the essential SiO_2 component of glass formulation, and its chemical purity is the primary determinant of color, clarity, and strength. Industrial sand is used to produce flat glass for building and automotive use, container glass for foods and beverages, and tableware. In its pulverized form, ground silica is required for production of fiber glass insulation and reinforcing glass fibers. Specialty glass applications include test tubes and other scientific tools, incandescent and fluorescent lamps, and television and computer monitors and solar panels.

Metal Casting: Industrial sand is an essential part of the ferrous and non-ferrous foundry industry. Metal parts ranging from engine blocks to sink faucets are cast in a silica sand and clay mold to produce the external shape, with a resin bonded core creating the desired internal shape. Silica's high fusion point (1760˚C) and low rate of thermal expansion produce stable cores and molds compatible with all pouring temperatures and alloy systems. Its chemical purity also helps prevent interaction with catalysts or the curing rate of chemical binders. Following the casting process, core sand can be thermally or mechanically recycled to produce new cores or molds.

Metal Production: Industrial sand plays a critical role in the production of a wide variety of ferrous and non-ferrous metals. In metal production, silica sand operates as a flux to lower the melting point and viscosity of the slags to make them more reactive and efficient. Lump silica is used either alone or in conjunction with lime to achieve the desired base/acid ratio required for purification. These base metals can be further refined and modified with other ingredients to achieve specific properties such as high strength, corrosion resistance, or electrical conductivity. Ferroalloys are essential to specialty steel production, and industrial sand is used by the steel and foundry industries for de-oxidation and grain refinement.

Chemical Production: Silicon-based chemicals are the foundation of thousands of everyday applications ranging from food processing to soap and dye production. Industrial sand is the main component in chemicals such as sodium silicate, silicon tetrachloride, and silicon gels. These chemicals are used to produce household and industrial cleaners, to manufacture fiber optics, and to remove impurities from cooking oil and brewed beverages.

Construction: Industrial sand is the primary structural component in a wide variety of building and construction products. Whole grain silica is put to use in flooring compounds, mortars, specialty cements, stucco, roofing shingles, skid resistant surfaces, and asphalt mixtures to provide packing density and flexural strength without adversely affecting the chemical properties of the binding system.

Paint and Coatings: Paint formulators use micron-sized industrial sands to improve the appearance and durability of architectural and industrial paint and coatings. High purity silica contributes critical performance properties such as brightness and reflectance, color consistency, and oil absorption. In architectural paints, silica fillers improve tint retention, durability, and resistance to dirt, mildew, cracking, and weathering. Low oil absorption allows increased pigment loading for improved finish color. In marine and maintenance coatings, the durability of silica provides excellent abrasion and corrosion resistance.

Ceramics & Refractories: Ground silica is an essential component of the glaze and body formulations of all types of ceramic products, including tableware, sanitary ware, and floor and wall tile. In the ceramics, silica is the skeletal structure upon which clays and flux components attach.

Filtration and Water Production: Industrial silica sand is used in the filtration of drinking water, the processing of wastewater, and the production of water from wells. Uniform grain shapes and grain size distributions produce efficient filtration bed operation in removal of contaminants in both potable water and wastewater. Chemically inert, silica will not degrade or react when it comes in contact with acids, contaminants, volatile organics, or solvents. Silica gravel is used as packing material in deep-water wells to increase yield from the aquifer by expanding the permeable zone around the well screen and preventing the infiltration of fine particles from the formation.

Recreational Products: Industrial silica sand even finds its way into sports and recreation. Silica sand is used for golf course bunkers and greens as well as the construction of natural or synthetic athletic fields. In golf and sports turf applications, silica sand is the structural component of an inert, uncontaminated growing media. Silica sand is also used to repair greens and to facilitate everyday maintenance like root aeration and fertilization. The natural grain shape and controlled particle size distribution of silica sand provides the required permeability and compaction properties for drainage, healthy plant growth, and stability.

Oil and Gas Recovery: Known commonly as proppant, or "frac sand," industrial silica sand is pumped down holes in deep well applications to prop open rock fissures and increase the flow rate of natural gas or oil. In this specialized application, round, whole grain sand particles are used to maximize permeability and prevent formation drill cuttings from entering the well bore. Silica's hardness and its overall structural integrity combine to deliver the required crush resistance of the high pressures present in deep wells.

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Work Force Development Priorities

- Job Fair and Community Workforce Inventory
- Mentoring Program
- On going Support and Coaching
- Worker Wellness Program

CPS will begin a rolling Community Workforce Inventory in December 2018 to prepare for training programs to begin in 2019. Job Fairs and public office hours at the CPS office in Seymourville will provide ongoing opportunities for candidates to identify and apply for available jobs.

Job categories

These CPS jobs will include:

- General Labor
- Heavy Equipment Operation
- Process Equipment Operation
- Land Clearing
- Road Building
- Land Restoration
- Maintenance
- Mechanics
- Welders
- Fabricators
- Logistics Professionals
- IT Professionals
- Administrative
- Safety
- Health & Wellness
- Environmental Management
- Security

Potential Businesses CPS will need

Start-up businesses expected to provide services to CPS include:

- Uniform and Laundry Services
- Shop Supplies
- Janitorial Services
- Fuel, Oil and Grease Supply
- Grounds Keeping and Snow Removal
- Small Tools and Equipment Supply
- Trash Removal
- Office Supplies
- Potable Water Supply
- Plant Road Maintenance
- Catering
- Health, Wellness and Emergency Care Services
- Safety Supplies
- Commercial Growing Services
- Shipping and Expediting

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Advisory Councils

Elders Committee
(strategic guidance)

This committee will provide long-term strategic guidance to Wanipigow Sand and will meet no less than twice per year. All Wanipigow Elders are invited to participate in this group.

Operational Oversight Committee
(tactical decision-making guidance)

This committee will provide regular tactical guidance and will meet no less than quarterly to review and approve third party compliance data, quarry plans and restoration activities. This committee will also be responsible for an annual investigation and recommedation for the area to be disturbed in the coming year.

Business Strategy Committee and Advisory Board
(both strategic and tactical guidance)

This committee will provide guidance regarding the business relationships, partnering relationships, and potential joint venture opportunities with CPS. Participation in this committee will be open to current area-wide business leaders and professionals.

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Our Guiding Principles

Our Values

As Natural Resource Providers we have a deep respect and love of the land. We believe this 50+ year project represents a very short-term use of the land. Therefore, we will take great care to be wise stewards and develop the next use with our efforts.

By following our values and living their guidance, we will make decisions in the long-term best interest of everyone and position CPS to better live in harmony with our Wanipigow communities—and all those who care about traditional lands.

Our Commitment

Workforce
Fair compensation, training and continuing mentorship

Community
Ongoing engagement for the life of the operation

Land
Wise next-use and using high environmental standards

Partners
Success for local partners and suppliers for mutual prosperity and benefit