

Water Use in Mineral Exploration and Small Scale Placer Mining under British Columbia's *Water Sustainability Act*



The purpose of this intentions paper is to describe a proposal to regulate the use of unrecorded water for mineral exploration and small scale placer mining activities under the [Water Sustainability Act](#) (WSA) and the [Water Sustainability Regulation](#) (WSR), while providing new protections for aquatic habitats, wildlife and the rights of water users where these activities occur. Your feedback on these proposed provisions (detailed on page 5) will inform final recommendations to government, currently planned for 2019. These proposals are not final and may change as a result of input from the public, First Nations and government direction.

Proposed Objectives

- Provide certainty for persons engaged in prospecting, mineral exploration and small scale placer mining activities,
- Allow use of available water for these activities subject to regulatory provisions,
- Protect aquatic habitats, wildlife and water users where these activities occur, and
- Enable decision makers to set additional authorization requirements to protect the environment.

Why is Government making these proposals?

Placer mining, the search for minerals in alluvial (bed-stream) deposits, and mineral exploration, the search for minerals in other geological material, have played an important role in British Columbia's (B.C.) economic development since the Cariboo gold rush of the 19th century. The techniques associated with placer mining have barely changed over the generations, and involve using a sluice, water and agitation to separate valuable minerals from gravel. Mineral exploration, on the other hand, which once relied primarily on hand tools like hammers and hand pans, increasingly incorporates advanced technologies like geographic information systems (GIS), spectrometers and drilling systems to explore geological layers with minimal

Mineral Exploration at a glance:

Under WSA, prospecting is defined as searching for a mineral using hand-held tools not involving mechanical disturbance of the surface.

Mineral exploration activities under the WSR refer to the exploration and development of a mineral, coal, sand, gravel or rock.

Mineral Titles can be acquired anywhere in the province where there are no other impeding interests (other mineral titles, reserves, parks, etc.).

Between 2013-16, companies spent over \$1.2 billion on mineral exploration in B.C.

surficial disturbance.

Historically, prospecting, mineral exploration and small-scale placer mining activities could use water without an authorization or restrictions. The *Water Act* (now repealed) allowed a person to use water to prospect for mineral without an authorization, but did not define 'prospect for a mineral'. As a result, mineral exploration and small-scale placer mining activities were generally considered to fall under the prospecting for minerals exemption.

Under the WSA, which updated and replaced the *Water Act*, activities that fell under the exemption for 'prospecting for a mineral' became more limited by defining the term to mean searching for minerals using only hand-held or non-mechanical tools. The result was that mineral exploration and small scale placer mining activities (other than by hand-held tools) became subject to a requirement to obtain a water authorization to use water, or alternatively to have that use allowed through regulation.

Given the existing regulatory oversight for these activities under the *Mines Act*, the Province implemented a temporary provision allowing for the use of unrecorded water (water that has not been allocated for other purposes) for mineral exploration and small scale placer mining activities under regulation (WSR), rather than requiring a water licence or use approval. This allowance for water use under the WSR included restrictions to protect the environment and other users. These protections were (and still are) in addition to the terms and conditions required under a *Mines Act* permit.

The current proposal is to continue the temporary provisions and to have them apply on an ongoing basis through a new regulation which would include additional restrictions to protect the environment. The new proposal recommends allowing the use of available (unrecorded) water without an authorization for mineral exploration and small scale placer mining activities, if they are compliant with the regulation conditions to protect aquatic habitats, wildlife and other water users. In addition to incorporating all the temporary provisions, the proposal would authorize engineers and water managers to require an authorization in circumstances where there is otherwise a risk of significant adverse impact to the stream or to other authorized users.

Prospecting for a Mineral

Individuals prospecting (searching) for a mineral using hand held tools may use available water without an authorization under the WSA. This includes hand-placer activities.



Rock Hammer: one of the oldest prospecting tools

Placer Mining at a glance:

Placer material refers to deposits of sand or gravel in the bed of a river or lake, containing particles of valuable minerals.

Under the WSR, placer mining activities means the exploration and development of a placer mineral, or the production of a placer mineral, which involve the processing of less than 2 000 m³ of pay dirt per year.

Placer Titles can only be acquired in Placer Claim or Placer Lease Areas (PDF) in the Province. You **cannot** use a Mineral Claim to carry out placer activity and vice versa.

The additional provisions proposed, detailed on page 5, would complement the conditions already enforced under the *Mines Act*.

Mineral Exploration and Water Use

Mineral exploration involves searching for minerals in geological material other than placer material. Although geologists in B.C. often use surficial analysis techniques such as channel cutting to search for minerals, they most commonly undertake mineral exploration using drills to retrieve core samples, which when amalgamated with dozens of neighbouring samples, provide a snapshot of the minerals and lithographic composition underground. When water is required for mineral exploration, common practice is to recycle water through settling pits, where it then eventually seeps into the ground. When a mineral exploration activity ends and water use ceases, all disturbed land must be reclaimed in accordance with any *Mines Act* permit and the Health, Safety and Reclamation Code for Mines in British Columbia.

Under the current temporary provisions in WSR, a person who holds a permit under section 10 of the *Mines Act*, in relation to mineral exploration, is allowed to divert and use water for those activities subject to regulatory restrictions that apply province-wide. The proposal is to continue this allowance for diversion and use of water under new, proposed regulatory provisions. In addition, to better align the WSA provision for “prospecting” with standard policy and practice under the *Mines Act*, the proposed provisions would allow diversion and use of water without an authorization for mineral exploration using hand-drills and rock-saws.

The details of these proposals are summarized on page 5.

Small Scale Placer Mining Activities and Water Use

Early placer miners and prospectors used hand-held pans to wash mineralized earth and gravel by agitation to recover placer minerals having the greatest specific gravity. Soon after, prospectors developed methods that allowed them to process pay dirt more efficiently. Sluices and high bankers channelled water and pay dirt over artificial riffles, separating the precious minerals from sand and gravel. The principle of using water and agitation to separate high value minerals from other material still guides placer mining today.

Mineral Exploration activities generally last 3-4 months, and water is most commonly used to cool and lubricate drill bits, and for flush-out. In 2016, over 3,200 British Columbians were employed directly in mineral exploration.



A drill site used for mineral exploration



The drill site following decommissioning

Small scale placer mining operations are restricted to B.C.'s placer reserves, and are generally located near streams or rivers. They are required to operate at a set-back distance from water sources to ensure riparian areas are protected from sediment or surface intrusion. As it is often necessary for placer miners to process a certain amount of their claim area as a 'test' in order to know what's available for production, small scale placer mining was historically considered to be a form of "prospecting for minerals" under the *Water Act* (repealed) and, therefore, exempted from the requirement of a water authorization under the Act.

When considering water use for placer mining activities during development of the WSA, industry water use practices were reviewed, and a threshold that could be used to distinguish between small scale and large scale placer mining activities was considered. Pay dirt—the volume of material processed through the sluice—was selected because of its familiarity to the industry as a unit of measurement.

The temporary regulation in WSR allows for the use of available water for small scale placer mining activities as long as the individual obtains a *Mines Act* permit and processes less than 2 000 m³ of pay dirt. Below this threshold, operations are typically operated by hobbyists or individuals testing a claim. Water use is often temporary and minimized by the practice of recycling water (see side column).

The proposed WSR provisions would continue to allow the diversion and use of available (unrecorded) water by placer miners for operations under the threshold, subject to new terms and conditions under WSR, and existing regulatory provisions under the *Mines Act*. If placer miners were found to be operating outside the restrictions and responsibilities of either legislation, they would be considered to be non-compliant and subject to enforcement action. By allowing and regulating the diversion and use of water for small scale placer mining activities under WSR provisions, as proposed, resources can be assigned to the active review of larger placer mining projects, which are subject to the authorization process.

Placer mining operations typically recycle water in settling pits. Over time, fine sediments produced from washing will line the pit in an imperfect seal, allowing the individual to reuse the water with additional, intermittent top-ups from a nearby water source.



Settling pit used in a small placer mining operation.



Sluice and water tank used in a small placer mining operation.

The Government’s Proposal at a Glance

1. How do the proposed provisions compare to the current temporary provisions?

Proposed provision	Current temporary provisions	Proposed
Retain the definitions in s. 56 of WSR for “mineral exploration activities” and “placer mining activities”.	✓	✓
Allow the use of available (unrecorded) water in mineral exploration and small scale placer mining activities without an authorization, subject to the limits and conditions in the regulation (See section 3 below).	✓	✓
Retain the specified thresholds and criteria in s. 56 of WSR related to the diversion and use of water for mineral exploration and small scale placer mining activities.	✓	✓
Add provision to allow the use of available (unrecorded) water for mineral exploration using mechanized hand tools (hand-drills and rock-saws), subject to described limits and conditions.		✓
Add a provision to WSR giving engineers and water managers the authority to require persons to obtain an authorization if they consider diversion or use of water may have a significant adverse impact on the stream, including the flow of water within the stream, or on other authorized users.		✓

2. What provisions are being proposed to put into regulation?

1. The person must hold a permit under section 10 of the *Mines Act* in relation to the mineral exploration or placer mining activity, or be using mechanized hand-tools for mineral exploration.
2. The person may only divert available (unrecorded) water;
3. The person must not divert or use unrecorded water from:
 - a stream where there is a treaty water reservation or the Nisga’a water reservation;
 - a sensitive stream designated under the Water Sustainability Regulation;
 - a point of diversion within a protected area; or,
 - a stream when a temporary protection order under the WSA applies;
4. The person must not construct any permanent or semi-permanent works in the stream channel and must remove the works for diverting water from the stream after the placer mining activity or mineral exploration activity is completed;
5. The water supply intake must be equipped with a screen, or otherwise modified, to:
 - prevent potential loss of fish due to entrainment or impingement; and,
 - minimize disturbance of, or removal of sand and gravel from, the stream channel;
6. The person must ensure that any disturbance of the stream channel and riparian areas are minimized when accessing water from the stream; intakes should be hand placed and no sumps or other works dug in the stream channel;
7. The person must not operate mechanized hand-tools in or about a stream or stream channel;

8. The person must ensure that any water that is diverted and used is discharged without causing a significant risk of harm to public safety, the environment, land or other property;
9. The person must ensure that the water supply and works of persons who are lawfully diverting or using water under the WSA are not adversely affected; and,
10. The person must ensure that the diversion or use of water does not cause a risk of significant harm to fish, wildlife or the aquatic ecosystem of a stream.

3. What permissions would mineral exploration and placer mining require to use water under the proposal?

Legislative Requirements	Non Mechanical Prospecting		Mechanical Placer Mining		Mineral Exploration
	<i>Non mechanized hand held tools</i>	<i>Hand placer mining</i>	<i><2000 m3 of pay dirt</i>	<i>>2000 m3 of pay dirt</i>	
WSA	Use of unrecorded water in prospecting exempted under s.6(3) WSA	Use of unrecorded water in prospecting exempted under s.6(3) WSA	Use of unrecorded water continued to be allowed under proposed regulations	Water Authorization required	Use of unrecorded water continued to be allowed under proposed regulations

We want your feedback:

Please provide your feedback on these proposals by visiting the *Water Sustainability Act* blog at:

<http://engage.gov.bc.ca/watersustainabilityact/>

You may also send related questions and comments to government by email at livingwatersmart@gov.bc.ca.

The deadline for comment is November 26, 2018.

Thank you for your input.

Photo credits:

Wikipedia.org

Wikimedia.org

Ministry of Energy, Mines and Petroleum Resources