

Elsa Reclamation and Development Company Ltd.

Project Proposal and Water Use Licence Application  
Care & Maintenance for Keno Hill Mines, Yukon

Water Use Application QZ06-074

Attachment No. 2

Faskin Martineau DuMoulin LLP Letter

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QZ06-074

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March 15, 2006  
File No.: 262912.00002/6353

**Alexco Resource Corp.**  
2300-200 Granville Street  
Vancouver, BC V6C 1S4

**Attention: Mr. Clynt Nauman**

Dear Sirs/Mesdames:

**Re: Legal Opinion as to Water Licence Requirements for Water Treatment  
Activities at United Keno Hill Property (the "Property").**

You have asked for our opinion as to the type of water licence that Alexco will require for its care and maintenance water treatment activities at the Property. This letter contains our opinion which is premised on the facts and assumptions set out in the following section of this letter.

#### **FACTS AND ASSUMPTIONS UPON WHICH OUR OPINION IS PREMISED**

The Property is comprised of approximately 945 mineral claims covering three adjacent mountains, Galena Hill, Keno Hill and Sourdough Hill. The property drains into two major drainages – one located at the South McQuesten River (a Chinook salmon spawning stream) and one located at Lightening Creek (a fish bearing stream). Throughout the Property, numerous adits, open pits and shafts can be found. These resulted from mining activities in the area since the early 1900's until the late 1980's. The adits produce water that typically contains metals (notably zinc) and that drains to various locations within the Property. Upon the abandonment of the mine by its former operators, the Federal and Yukon Governments undertook the treatment of the metals contaminated water from the adits. Access Consulting Group and various contractors have operated the water treatment system since 2001 and have reported to Government on water treatment and quality by way of an interim and a final project report for the period 2005-2006.

The care and maintenance water treatment process involves the continual addition of lime to the mine water at five different sites within the Property. Each treatment site is located

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at the drainage point of a different adit. Currently, the lime is prepared in a slurry mixture at the transport garage and is transferred to a vacuum truck using water directly from Flat Creek. The lime slurry is then trucked to each of the five treatment sites. Less than 100 cubic metres per day of water from Flat Creek are used for this purpose. The slurry mixture is added to the drainage point of the adit at each treatment site and treated water is then directed into settling ponds located at each site that allow the water to sit for a time so that the lime and metals can settle out. The metals and lime remain in the settling ponds and treated water resulting from this process is discharged back to the land and surface waters in the environment. The discharged water largely meets water quality objectives, but sometimes exceeds them.

Alexco intends to continue such treatment activities but may ultimately stop using water from Flat Creek for the preparation of the lime slurry and may instead use mine water from the drainage points of one or more of the adits for that purpose. Access Consulting Group confirms that there would be no technical or operational impediments to doing so and, to the best of its knowledge, no environmental risk is posed by such process.

The particular treatment sites and activities at each are as follows:

- (a) Continuous treatment of water from the Silver King 100 adit and subsequent draining of treated water into 2 settling ponds, then over land, and then into Flat Creek. The volumes of these settling ponds are approximately 1,000m<sup>3</sup> and 1,600m<sup>3</sup> respectively;
- (b) Continuous treatment of water from the Galkeno 900 adit and subsequent draining of treated water into one settling pond, and then over land and into Christal Lake and then into Christal Creek. The volume of this settling pond is approximately 1,200 m<sup>3</sup>;
- (c) Continuous treatment of water from the Galkeno 300 adit and subsequent draining of treated water into one settling pond, then over land, through the bush and into Christal Creek. The volume of this settling pond is approximately 1,778m<sup>3</sup>;
- (d) Continuous treatment of water from Bellekeno 600 adit which drains treated water through two settling ponds and then through a waste rock pile into Thunder Gulch and then into Lightning Creek, a tributary to Duncan Creek and the Mayo River. The volume of these settling ponds are approximately 1,000m<sup>3</sup> and 1,000m<sup>3</sup> respectively; and
- (e) Natural collection of water from surface snow melt/rainwater and various adits at the Valley Tailings where water passes through three dams and is

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then typically treated, in spring only, for approximately 5 weeks with treated water being discharged to Flat Creek. The three dams, constructed at various times during the former mine operations, each impound such water. While the volume of water held behind each dam varies each year and depends on the season and precipitation events, the present estimate of the volume of water held behind dam #1 is approximately 53,000m<sup>3</sup>, behind dam #2 is approximately 122,700m<sup>3</sup>, and behind dam #3 it is approximately 99,000m<sup>3</sup>. The water held behind the dams contains metals in concentrations that may or may not exceed applicable standards.

Having regard to the opinion of EBA Engineering Consultants Ltd. as set out in its letter to Access Consulting Group Ltd. dated January 18, 2007, a copy of which is appended to hereto, we assume for the purposes of this opinion that the dams located at the Valley Tailings have been properly maintained and repaired as necessary, and that they have not posed, nor are they expected to pose any threat or hazard. Alexco intends to continue using the dams in the water treatment process and to maintain and care for them so that they continue to pose no hazard or threat.

Historically, only one water licence has been required to cover all of the water treatment activities for the whole of the mine property. In the past, the required water licence has been obtained pursuant to the Quartz mining undertaking Schedule to the Yukon *Waters Act Regulations*.

#### EXECUTIVE SUMMARY

A type B licence is required for the intended water treatment activities.

#### ANALYSIS

##### a) The Governing Legislation

Section 31(1)(c) of the Waters Act permits regulations to be made "setting out the criteria to be applied by the Board in determining whether a proposed use of waters or deposit of waste for which a licence is required under this Act requires a type A licence or a type B licence".

Section 7 of the *Waters Act Regulation* O.I.C. 2003/58 to the Act (the "Waters Regulation") sets out licensing criteria and provides that

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“7(1) Subject to subsection (2), a licence issued under subsection 12(1) of the Act shall be a type B licence for one or more uses of water or deposits of waste set out in column 1 of any of Schedules 5 to 10, where any one of those uses or deposits

(a) meets a criterion set out in column 3 of the Schedule; or

(b) meets a criterion set out in column 2 of the Schedule, but does not meet the requirements of paragraphs 4(1)(a) and (b).

(2) A licence issued under subsection 12(1) of the Act shall be a type A licence for one or more uses of water or deposits of waste set out in column 1 of any of Schedules 5 to 10, where any one of those uses or deposits meets a criterion set out in column 4 of the Schedule.”

This means that if the care and maintenance activities amount to a “use” or “deposit of waste” under the Waters Act, and if they meet the criteria set out in column 4 of any of Schedules 5 through 10 of the Waters Regulation for a type A licence, then a type A licence will be required. A type B licence will be required only if a type A licence is not required and if the criteria for a type B licence as set out in these Schedules in relation to the particular activities are met. There are provisions in each Schedule that also indicate the circumstances in which certain activities are exempt from the requirement for a licence.

#### **b) Application to the Circumstances**

“Use” is defined circularly in the Waters Act as follows: “in relation to waters, means a direct or indirect use of any kind...”. “Waters” is defined as “any inland water, whether in a liquid or frozen state, on or below the surface of the land”. Neither the term “direct use” nor “indirect use” is further defined in the Waters Act or the Waters Regulation. Thus, the definition is a broad one and is open to interpretation.

The water treatment process in issue currently involves taking water from Flat Creek to make the lime slurry. This activity likely meets this definition of “use” for the purpose of these licensing provisions. However, the taking of mine water from the discharge point of an adit as Alexco may do for the preparation of the lime slurry should not be considered a “use” of “water” under these provisions because mine water from an adit is the contaminated by-product of historical mine operations and meets the definition of “waste” under the Waters Act.

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“Waste” is defined in the Waters Act to mean, among other things, “water that contains a substance in such quantity or concentration, or that has been so treated, processed, or changed, by heat or other means, that it would, if added to any other water, degrade or alter, or form part of a process of degradation or alteration of, the quantity of that water to the extent [that it is detrimental to its use by people or by any animal, fish or plant]”. Thus, the contaminated mine water may be considered waste and the use of it to make slurry should be considered a use of waste rather than a use of water. While the use of waste does not require a licence under the Waters Act, Alexco would nonetheless require a licence for the “deposit of waste”, even if it took water from an adit rather than from Flat Creek, because some of the water that is released to the environment at the end point of the treatment process using either method contains or may contain metals in excess of applicable effluent objectives, and such water meets the definition of “waste” for the purposes of these licensing provisions.

Accordingly, to determine whether a type A or B licence is required, one must first consider whether the particular “use” and “deposit of waste” in the circumstances is listed in any of Schedules 5 through 10 of the Waters Regulation. If so, then the next task is to determine whether the particular use or deposit meets the criteria for a type A or B licence.

Schedule 5 respects “Licensing Criteria for Industrial Undertakings”; Schedule 6 respects “Licensing Criteria for Placer Mining Undertakings”; Schedule 7 respects Licensing Criteria for Quartz Mining Undertakings; Schedule 8 respects “Licensing Criteria for Municipal Undertakings”; Schedule 9 respects “Licensing Criteria for Power Undertakings”; and Schedule 10 respects “Licensing Criteria for Agricultural, Conservation, Recreational and Miscellaneous Undertakings”.

Schedule 2 describes and defines each of these types of undertakings and therefore determines the applicability of Schedules 5 through 10 to the particular activities in issue – in this case, water treatment.

Because the mining activities that were undertaken in the past at the Property were in the nature of quartz mining and it is those activities that gave rise to the current need for water treatment, and because previous water licences were issued for the mine operations and water treatment pursuant to the Schedule 7 to the Act entitled “Quartz Mining Undertakings”, Schedule 7 to the Waters Act should apply for the purposes of determining the type of water licence to be issued for water treatment activities in the circumstances. In our opinion, none of the other Schedules of Schedules 5 through 10 would apply to the water treatment activities in the circumstances.

While, in our opinion, no licence should be required for the use of mine water to make the lime slurry for the reasons set out above, for the purposes of this analysis, we

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recognize that the Water Board could take a contrary position. Pursuant to Schedule 7, a type A licence is required only for water use that is for milling or for production leaching, thus a type A licence is not required for the sort of use that is being made of water in relation to the water treatment activities. A type B licence is required only for the "...use of 300 or more cubic metres per day for any other quartz mining activities". The use of less than 100 m<sup>3</sup> per day for the total work program is exempt from the requirement for a licence altogether. Because less than 100m<sup>3</sup> of water per day is needed to prepare the lime slurry in this case, no water licence is required in any event for the taking of water to make the lime slurry, whether water is to be taken from Flat Creek, from the drainage point of any adit, or from elsewhere.

If the water contained in each of the settling ponds located at Silver King 100, Galkeno 900, Bellekeno 600, and Galkeno 300 is sourced from one or more of the adits or other contaminated mine water emanating from the former mine works, then, in our opinion, the contents of these settling ponds constitute "waste" within the meaning of the Waters Act, and consequently no licence ought to be required in relation to the use of these ponds. If the water contained in these ponds is water that is draining from other water sources located within the environment, then a water licence may be required for the use of the water in these settling ponds for care and maintenance activities. In the event that a licence is required to authorize such use, then a Type B licence should be required having regard to the volumes of water in each of the ponds and given that the ponds are not being used for milling or production leaching (which, again, are the only uses that would give rise to the requirement for a Type A licence).

Section 2(5) of Schedule 7 requires a water licence for "alteration of flow or storage by means of dams or dikes". In the case of the Valley Tailings treatment site only, mine water from various adits flows through a series of three dams, each of which are presently estimated to hold approximately 53,000m<sup>3</sup>, 122,700m<sup>3</sup> and 99,000m<sup>3</sup> respectively of water before being treated with lime, directed to settling ponds and discharged upon treatment to the environment. A type A licence is required only for "construction of a dam the maximum height of which is 8m or higher, where 60,000m<sup>3</sup> or more cubic metres of water is stored or where a hazard is posed." Because the dams in this case have already been constructed and have operated for many years, and because no hazard is posed by any of them, a type A licence would not be required. A type B licence is required for "construction of a dam the maximum height of which is 3 or more metres but less than 8m and no hazard is posed, or where 10,000 or more cubic metres of water but less than 60,000m<sup>3</sup> of water is stored and no hazard is posed". The language of this provision does not provide for the scenario where more than 60,000m<sup>3</sup> of water is stored behind a dam. On strict interpretation of this provision, a type B licence would also not be required for the storage activities at the Valley Tailings because the volume of water stored there exceeds 60,000 m<sup>3</sup>. However, we would not be surprised if the Water Board were to take a contrary position and require a license for such activity given the

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volumes currently estimated to be stored. Based on the assumption that no hazard is posed by any of the dams or such water storage, in our opinion, no license is required for such activity, but if the Water Board insists on requiring that Alexco obtain one, then nothing more than a type B water license should be required.

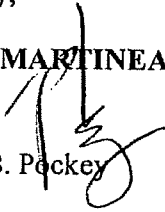
A "deposit of waste" under Schedule 7 requires a type A licence only where the deposit is "from milling at a rate of 100 tonnes or more of ore per day". This provision does not apply to the water treatment activities in this case. However, a type B licence is required under this Schedule for "any direct or indirect deposit of waste to surface water". Because some water leaving the treatment system does not always meet discharge quality standards, a type B licence would be required in relation to its discharge into the environment from the treatment system.

In summary, pursuant to the provisions of the Waters Act and Waters Regulation, a type B licence would be required for the deposit of waste and no licence should be required for any other aspect of the care and maintenance treatment activities. However, if a water licence is required by the Water Board for the use of water from an adit or for the treatment activities at the Valley Tailings, then nothing more onerous than a type B licence could or should be required, if at all, in the circumstances.

We trust that the foregoing answers the issue you have raised with us. If you would like to discuss the contents of this opinion with us further, or if you desire a further opinion on any matters discussed herein, we would be pleased to oblige.

Yours truly,

**FASKEN MARTINEAU DuMOULIN LLP**

Michelle B. Peckey 

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