ALKANE RESOURCES LTD

Tomingley Gold Project

Preliminary Environmental Assessment – Addendum

December 2010

Prepared by:

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Tomingley Gold Project

Preliminary Environmental Assessment – Addendum

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Ref No. 616/04 - Addendum

December 2010

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1. INTRODUCTION

Alkane Resources Ltd (the Proponent) proposes to construct and operate the Tomingley Gold Project (the Project) located approximately 53km to the southwest of Dubbo and approximately 14km to the north of Peak Hill. A *Preliminary Environmental Assessment* has previously been prepared for the Project and a planning focus meeting was held on-site on 12 August 2009. Since that meeting, the Proponent has undertaken additional drilling and has reassessed the financial modelling for the Project. As a result the Project now includes:

- four proposed open cuts (originally three);
- an underground mining operation underneath the Wyoming 1 Open Cut; and
- slightly redesigned Waste Rock Emplacements 2 and 3 (**Figure 1**).

This *Preliminary Environmental Assessment – Addendum* has been prepared to outline the proposed amendments to the Project. This information is provided to enable the relevant government agencies to determine whether the previously issued requirements for the *Environmental Assessment* adequately address the revised Project.

2. CALOMA TWO OPEN CUT

The proposed Caloma Two Open Cut is located immediately to the south of the previously identified Caloma One Open Cut (**Figure 1**). The open cut would be an irregular ellipse, with a long axis of approximately 400m and a width of approximately 250m. The maximum depth of the open cut would be approximately 100m below surface. This compares with the maximum proposed depth of the Caloma One Open Cut of 180m below surface. The proposed open cut is located entirely within an area bounded by the previously proposed surface water management structures.

The Proponent contends that the proposed Caloma Two Open Cut would not result in any significant additional environmental impacts.

3. WYOMING ONE UNDERGROUND

3.1 INTRODUCTION

The Proponent proposes to develop an underground mining operation beneath the proposed Wyoming One Open Cut (**Figure 1**). This section provides a description of the proposed underground operations.

3.2 INTRODUCTION

The Proponent would establish a portal in the lower section of the Wyoming One Open Cut and develop a decline to permit access to those sections of the Wyoming One ore body that cannot be economically extracted using open cut mining methods. Ore material would be removed using a long hole open stoping mining method.

3.3 FORMATION OF THE PORTAL AND UNDERGROUND INFRASTRUCTURE

Once a suitable point for the establishment of the portal has been identified within the Wyoming One Open Cut, the wall above the portal entrance would be stabilised as required using a combination of rock bolts, cable bolts and shotcrete.

Once stabilised, the portal and subsequently the decline would be constructed using methods similar to those described below. Additional roof and wall support may be required in the near surface sections of the decline. This may include rock bolts, spiling bars, cable bolts or shotcrete.

Once the portal is established, infrastructure required for underground mining operations would be installed. This would indicatively include the following.

- Underground power, including a transformer to reduce the voltage of the distributed electricity to 1 000V, suitable for use underground.
- Temporary ventilation, including one or more vent fans located adjacent to the portal.
- Mine water supply to provide water for underground mining operations.
- A tag board and associated surface safety and communication equipment and infrastructure.
- One or more air compressors.

3.4 DECLINE AND DEVELOPMENT DESIGN AND CONSTRUCTION

Figure 2 presents an overview of the proposed underground development. In summary, the decline would have the following indicative design parameters.

- Height - approximately 5.0m
- Width – approximately 5.0m.
- Gradient – approximately 1:7 (V:H).
- Maximum depth of development – approximately 360m below surface or 210m below portal level (170m below base of the Wyoming One Open Cut).

Development headings and ore drives, namely those drives that would permit access to individual mining areas, would have the following indicative design parameters.

- Height - approximately 4.5m.
- Width – approximately 4.5m.

Once the portal has been established and the required infrastructure installed, underground development would commence. Initially this would require development of the decline using a single heading. However, once decline development reaches the initial extraction level, development on multiple headings would be undertaken.

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TN
MN

Tomingley West Road
Main Site Access Road
Hill A
Tomingley
Drainage Line A
Drainage Line B
Sediment Basin 5
Western Emergency Access
Eastern Emergency Access
Processing Plant and Office Area
Transformer
Waste Rock Emplacement 2
Contractors Area
Central Surface Water Diversion Structure
Eastern Surface Water Diversion Structure
Sediment Basin 1
Creek
ROM Pad
Wyoming Three Open Cut
Caloma One Open Cut
Waste Rock Emplacement 3
Gundong
Residue Storage Facility
Newell Highway Underpass
Caloma Two Open Cut
Drainage Line C
Sediment Basin 2
Waste Rock Emplacement 1
Wyoming One Open Cut
Sediment Basin 4
Sediment Basin 3
Drainage Line D
Newell Highway
McPhail Tailings Dam

REFERENCE
- Mine Site Boundary
- Power Transmission Line Route
- Water Pipeline Route
- Relocated Telecommunications Line
- Existing Power Line
- Existing Power Line (to be removed)
- Proposed Distribution Line
- Proposed Limit of Mining
- Open Cut Area
- Waste Rock Emplacement Area
- Proposed Soil Stockpile Location
- Residue Storage Facility Area
- Proposed Amenity Bund
- Proposed Diversion Bank/Channel
- Proposed Catch Bank/Channel
- Proposed Road / Track
- Proposed Haul Road
- Sealed Road
- Contour (m AHD)(Interval = 1m)
- Dewatering Ponds

SCALE 1:20 000

200 0 200 400 600 800 1000 m

Source: Alkane Resources Ltd.

Figure 1
MINE SITE LAYOUT

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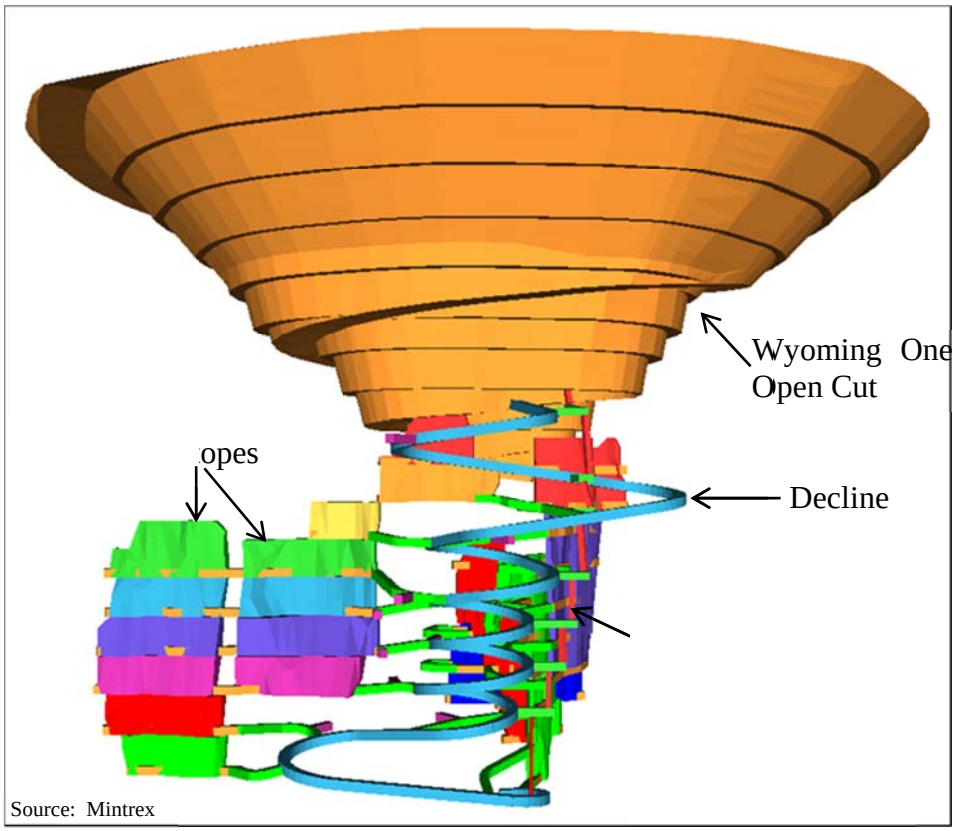

Figure 2 Proposed Underground Development

The decline, development headings and ore drives would be developed using drill and blast techniques. A jumbo, or underground drill rig, would drill a pattern of holes, the spacing and length of which would be determined by the mining contractor. Once drilling has been completed, these holes would be loaded with pre-packaged and bulk explosives, and detonators and the in situ material fragmented.

Blasting would only be undertaken once the proposed mine has been evacuated, typically at meal breaks or shift changes.

Fragmented material would be extracted using an underground loader or load-haul-dump (LHD) unit. The LHD unit would be used to load underground haul trucks or transport fragmented material to a loading bay for later reclamation. If required, the LHD unit may be remotely operated.

Once loaded into haul trucks, fragmented waste rock would be transported to the surface and placed either within the lower sections of the Wyoming One Open Cut or Waste Rock Emplacement 1. Once mining operations have progressed sufficiently, waste rock material may be placed within completed stopes to assist with the geotechnical stability of the stopes. The Proponent anticipates that approximately 77 000t of waste rock would be transported to the Wyoming One Open Cut, with a further 50 000t of material placed within Waste Rock Emplacement 1.

Fragmented ore material would be transported to the Run-of-Mine (ROM) pad.

3.5 VENTILATION AND EMERGENCY EGRESS

Once the portal is established, suitable ventilation would be required. Initially this would be provided using a temporary ventilation fan located at the portal which would pump air to the decline face using flexible ventilation ducting. Return air would flow back up the decline. As the decline progresses, the temporary ventilation infrastructure would be advanced to ensure adequate ventilation in all sections of the advancing decline.

Once the decline has been advanced sufficiently, a ventilation access drive would be established and a near vertical ventilation rise or shaft would be constructed. The ventilation rise would have a diameter of approximately 1.8m.

Construction of the ventilation rise would involve a raisebore drill rig which would drill an initial pilot hole. The pilot hole would then be progressively widened from the bottom up, with the drill cuttings permitted to fall to the bottom of the hole where they would be collected from the vent drive. As the decline is developed, the ventilation rise network would be progressively extended.

The ventilation rise would have two ventilation fans installed underground. As a result, surface noise emissions associated with the ventilation rise would be negligible. The ventilation system would have an indicative capacity of approximately $100m^3$/second. The decline would be the only air intake for the mine.

In addition, the vent rise would be fitted with appropriate emergency egress infrastructure, including ladderways and platforms. Other mine services such as power and water may also be installed within the vent rise or the access decline.

3.6 UNDERGROUND STOPING OPERATIONS

Underground mining of ore material would be undertaken using a long hole open stoping mining method. This mining method is particularly well suited to relatively narrow, near vertical ore bodies. **Figure 3** presents a schematic overview of this mining method and the following provides a brief description.

During mining operations, a number of development drives would be established at approximately 20m vertical intervals within the ore zone. A series of holes would then be drilled in rings from each drive. These rings would then be sequentially loaded with explosives and the ore material blasted. The fragmented material would then be removed from the stope or open void using LHD unit, operated remotely where required. Between stopes, pillars (vertical) and sills (horizontal) of unmined material are left to provide support and prevent ground collapse. In addition, a crown pillar would remain between to the top of the underground mine and the base of the open cut.

The Proponent would develop a range of stopes to permit extraction of the ore material. The detailed design of each stope would be determined following completion of additional drilling during development operations to better define the boundary between classes of material. The mine design would be developed to ensure that there would be no surface subsidence within the Project Site.

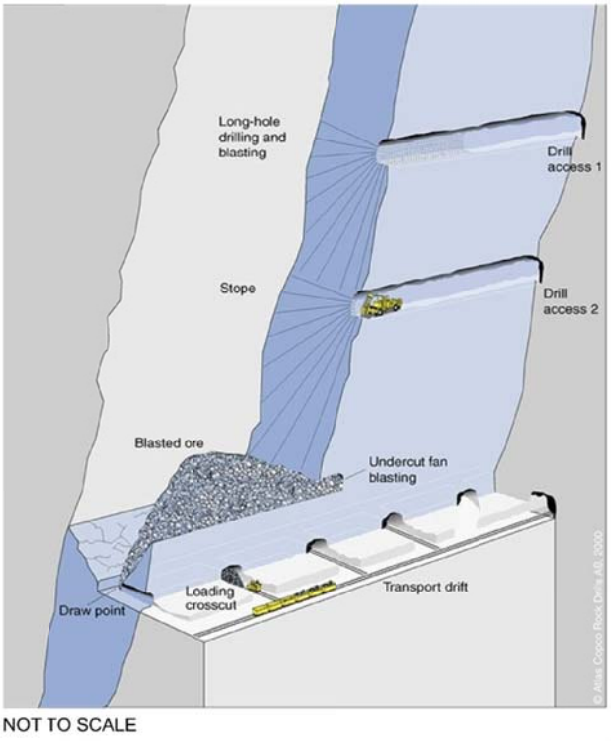

Figure 3 Schematic Sub-level Open Stope Mining Method

3.7 STOPE BACKFILLING OPERATIONS

In order to ensure stability of sections of the proposed underground mine once mining operations have been completed in those sections, mined-out stopes may be backfilled using waste rock material sourced preferentially from concurrent underground development, with additional waste rock material transported from surface as required.

This material would be transported to a drive in the vicinity of the top of the stope using an underground haul truck. The material would be stockpiled in the drive and then pushed or tipped into the stope using a LHD unit. During such operations, the loader may, where required, be operated remotely.

Where required, the strength of the material used during backfilling operations may be increased through the use of cement mixed with the waste rock. In addition, where required to ensure stope stability, waste rock material may be concurrently placed into one end of a stope while mining is progressing at the other end.

3.8 ANTICIPATED ADDITIONAL ENVIRONMENTAL IMPACTS

The Proponent contends that the principal potential environmental impact associated with the proposed Wyoming One Underground compared with the previous proposal would be groundwater-related. As the underground mining operation would not result in additional surface disturbance, there would be no additional surface water, noise, air quality, heritage or other environmental impacts when compared with the previous proposal.

4. REDESIGNED WASTE ROCK EMPLACEMENTS

The consistent with the original proposal, the revised Project includes three waste rock emplacements (**Figure 1**). However, Waste Rock Emplacement 3 has been redesigned to accommodate the additional waste rock material within the Caloma Two Open Cut. In addition, Waste Rock Emplacement 2 has also been slightly redesigned to enable additional waste material to be placed within the emplacement. **Table 1** presents the indicative design criteria for each waste rock emplacement.

Table 1
Indicative Waste Rock Emplacement Design Criteria

Criteria	Waste Rock Emplacement		
	1	2	3
Area (ha)	14	39	40
Maximum height (m)	30	40	40
Lift heights (m)	10	10	10
Number of lifts	3	4	4
Berm widths (m)	5	5	5
Final Slope (V:H)	1:3	1:3	1:3
Final Design Volume (million m^3)	1.04	14.30	14.32
Anticipated Volume Required (million m^3)	1.04	12.99	13.00
Source: Alkane Resources Ltd			