

Water Resources Nunavut Regional Office P.O. Box 100 Igaluit, NU, X0A 0H0

August 22, 2014

Phyllis Beaulieu Licensing Administrator Nunavut Water Board P.O. Box 119 Gjoa Haven, NU, X0A 1J0 Your file - Votre référence 2BM-ULU0914 Our file - Notre référence CIDM# 840216

Re: 2BM-ULU – Bonito Capital Corporation – Ulu Gold Project – Renewal Application

Dear Phyllis Beaulieu:

Aboriginal Affairs and Northern Development Canada (AANDC) has performed a review of the Bonito Capital Corporation application to renew Type B water licence 2BM-ULU0914 (Ulu Gold Project), submitted to the Nunavut Water Board (NWB) on July 22, 2014.

The following advice has been provided pursuant to AANDC's mandated responsibilities for the enforcement of the Nunavut Waters and Nunavut Surface Rights Tribunal Act and the Department of Indian Affairs and Northern Development Act. In conducting our review, AANDC Water Resources referred to the documents on the NWB's FTP-site under 2BM-ULU0914.

Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4738 or by e-mail at Jean. Allen@aandc-aadnc.gc.ca.

Sincerely,

Jean Allen Water Management Specialist

Enclosure

cc. Murray Ball, Manager of Water Resources, AANDC Erik Allain, Manager of Field Operations, AANDC Karen Costello, Director of Resource Management, AANDC



## **Technical Review Memorandum**

August 22, 2014

To: Phyllis Beaulieu – Manager of Licensing, Nunavut Water Board

From: Jean Allen – Water Management Specialist, AANDC

Re: 2BM-ULU0914 - Bonito Capital Corporation - Ulu Gold Project - Renewal Application

### 1.0 Background

The Nunavut Water Board (NWB or the Board) issued Type B water licence 2BM-ULU0914 (the licence or 2BM-ULU0914) for the Ulu Gold Project (Ulu or the project) to MMG Resources Inc. (MMG) in October 2009. In July 2011, Elgin Mining Incorporated (Elgin) purchased Bonito Capital Corporation (BCC), which owns the Ulu Gold Project, from MMG. The Ulu site was previously used as a satellite mine providing additional mill feed to the Lupin Mine (owned by Lupin Mines Incorporated, also a subsidiary of Elgin).

The Ulu project is located in the Kitikmeot region, approximately 150 km north of the Lupin Mine. The Ulu site is considered to be self-contained and is broken down into 3 main areas: 1) Ulu Camp: a 60 person camp with vehicle repair shop, power house, warehouse, cold storage, office, change rooms, fuel storage tank farm, fresh water and sewage systems, incinerator, ore storage area, waste pad, mine portal and mine sump; 2) Camp 3: fuel tank farm, explosives magazines, detonator magazine, quarry and borrow pit eskers; and 3) an airstrip.

BCC submitted an application on May 30, 2014 to renew 2BM-ULU0914 for a term of 10 years. The project has been in care and maintenance since 2006, with a brief resumption in exploration activity between July and September 2012.

#### 2.0 Results of Review

AANDC Water Resources Division offers the following comments and recommendations for the Board's consideration.

#### 2.1 General

2.1.1 Where the Licence requires the Licensee to provide GPS co-ordinates, AANDC requests that the Licensee also be required to provide the datum source to ensure consistency.

2.1.2 The application references a hydrological assessment of West Lake, submitted in May 2006 in accordance with Part C, Item 4 of the previous licence NWB1ULU0008. AANDC notes that the concern regarding characterizing the hydrology of West Lake was carried over into Part C, Item 3 of 2BM-ULU0914 that requires the Licensee to submit Terms of Reference for the Hydrological Assessment of West Lake within 6 months following notification that operations will resume.

## 2.2 Management Plans

The licence required a Care and Maintenance (C&M) Plan, Quality Assurance/Quality Control (QA/QC) Plan, and updates to the Spill Contingency Plan and the Interim Abandonment and Reclamation (A&R) Plan within 90 days of licence issuance. BCC provided executive summaries in the application for the A&R Plan, Spill Contingency Plan, the Solid and Hazardous Waste Management Plan, the C&M Plan, and the Sewage Treatment Plant Operations and Maintenance Plan. With the exception of the C&M Plan, the plans were last revised in March 2013 for the 2012 Annual Report. AANDC has reviewed the plans and provides comments and recommendations below. In general, AANDC recommends that: a) the management plans below be revised to incorporate comments and recommendations from interested parties within 60 days following renewal of the licence (unless otherwise recommended below); b) plan updates include a revisions list detailing where significant content changes are made as required under Part B, Item 12 of the licence; and c) the licence require the Licensee to provide a revised version of any plan that is found unacceptable to the Board within 30 days (standard requirement of other licences, including 2AM-LUP0914).

## 2.2.1 Care and Maintenance Plan (May 2014)

a) Section 4.2 states that sewage treatment will be carried out with a Rotating Biological Contactor (RBC) and if required, RBC effluent will be pumped to a surface retention pond to allow natural treatment prior to discharge, but during periods of site inactivity, sewage will be either shipped off site or deposited in a latrine pit. The Sewage Treatment Plant Operation and Maintenance Plan and the A&R Plan states that final effluent during start up will be directed to the mine sump containment pond until it meets discharge criteria. The 2012 AANDC Inspection Report, indicates that sewage effluent was to be diverted to the retention pond during operations (July-September 2012) until an alternative method of sewage disposal was implemented because sewage effluent was being discharged without sampling to ensure effluent does not exceed effluent quality limits, as required under Part D, Item 3. Additionally, the 2013 AANDC Inspection Report recommends an alternative sewage management system for short term operations due to the time required for start-up. AANDC recommends that: a) the C&M plan be revised to clarify sewage management methods during periods of activity (short-term vs. long-term) versus inactivity (C&M); b) the revised plan include an alternative sewage management plan for short-term operations; c) the information regarding sewage management is consistent among all relevant management plans; d) any effluent discharged from the retention pond be required to meet effluent quality limits set both for sewage effluent (Part D, Item 3) and for minewater (Part D, Item 6) should the diversion of sewage effluent to the retention pond be authorized by the Board.

- b) Sections 4.3 and 4.4 state that all effluent will be discharged to land towards East Lake in a manner that will minimize surface erosion. More detail should be provided to explain how surface erosion will be minimized.
- c) Section 4.4 states that BCC will carry out necessary repairs to the tank farm berms in 2014 as recommended in the 2011 Annual Geotechnical Inspection Report. AANDC is concerned that it took 3 years to respond to the geotechnical engineer's recommendations and thus recommends that the licence require a timeline of one year for the Licensee to implement the plan required under Part D, Item 10.

## 2.2.2 Interim Abandonment and Restoration Plan (March 2013)

- a) Section 3.2.4 states that contaminated soil will be subjected to in situ landfarming if timing permits and no alternative plan is provided should timing be an issue. AANDC requests: a) clarification regarding the timeline in which landfarming would and would not be considered; and b) that the plan be revised to include an alternative plan for managing contaminated soil should timing not permit landfarming.
- b) The plan doesn't appear to include reclamation procedures for solid waste and equipment during short-term, temporary (C&M) or final closure.
- c) The plan allows for only 3-5 years for post-closure monitoring. AANDC recommends that post-closure monitoring continue for at least 25 years (consistent with other reclamation projects in Nunavut).

## 2.2.3 Solid and Hazardous Waste Management Plan (March 2013)

- a) Section 5 states that waste will be disposed of at onsite facilities or shipped offsite to a third party waste receiver but other plans suggest that there are no plans to dispose waste at an onsite facility and that BCC is not currently authorized to landfill waste at the Ulu site (Section 6.3). AANDC requests clarification on whether there are plans for a landfill at final closure.
- b) Section 6.1 states that clean non-hazardous incinerator ash may be re-usable for onsite reclamation activities but no details are provided on the possible uses for incinerator ash. AANDC requests clarification on the intended uses for clean incinerator ash.
- c) Section 6.2 states that BCC plans to install a new incinerator prior to the next planned exploration season and that an addendum to this plan will be submitted for review and approval by the NWB. Since no timeline is provided, AANDC recommends that this addendum is submitted for review and that approval by the Board be obtained prior to commissioning.
- d) The plan states that contaminated soils (Section 7.1) and hazardous waste (Section 8.2) will be temporarily stored within the Ulu camp tank farm containment area pending transport to an approved hazardous waste treatment/disposal facility. AANDC is concerned that this plan is not being fully implemented by the Licensee (see 2014 Inspection Report) which increases the risk to the environment, particularly water resources. AANDC recommends that the licence require the Licensee to annually backhaul contaminated soil and hazardous waste from the site to prevent accumulation of hazardous material on site.

#### 2.2.4 Sewage Treatment Plant Operation and Maintenance Plan (March 2013)

- a) Section 2 states that design conditions for the sewage treatment unit is based on 40 camp residents while Section 4 states that it is based on 50 residents. Given that the camp can accommodate 60 people, AANDC recommends: a) clarification regarding the design loadings; and b) a plan be included for instances when the camp reaches full capacity.
- b) Section 4 states that sewage sludge will be disposed on site in a shallow above ground sump and covered by waste rock that has been determined to be non-acid generating and non-metal leaching. This is inconsistent with Section 5.4 of the A&R Plan which states that sludge will be placed in drums and backhauled to an approved offsite waste disposal facility. AANDC recommends that: a) BCC provide clarification on how sludge will be managed during operations as well as during short-term, temporary, and final closure; and b) the plans be revised so the information is consistent between plans (i.e., C&M Plan, A&R Plan, etc.).
- c) Section 5 states that effluent in the sump would be analyzed prior to discharge if mixed with minewater. AANDC recommends that effluent be analyzed (whether or not it is mixed with minewater) and that it is demonstrated to meet discharge criteria prior to discharge.

## 2.2.5 Spill Contingency Plan (March 2013)

- a) Sections 1.1 and 4.2 provide contact information for people involved in the event of a spill response. Provided that there have been some changes to the organization of the company, it is recommended that this plan be updated to reflect such changes.
- b) Section 2.3.1 does not include alternatives for sewage treatment (see 3.a above). AANDC recommends that the plan be revised: a) to include treatment options during start-up and during periods of site inactivity; b) so the information is consistent between plans (i.e., C&M Plan, Sewage Treatment Plant Operation and Maintenance Plan, etc.).
- c) Section 2.3.3 states that the Camp 3 fuel facility does not contain fuel and that there are no plans to use it. Given that this site has not been used since the tank farm at the Ulu camp was commissioned, AANDC requests clarification from BCC whether there are any plans to decommission Camp 3 facilities.
- d) The plan states that various measures will be undertaken to prevent spills, response procedures will be followed including reporting and action (Executive Summary) and that all spills will be cleaned, tracked and documented (Section 4). AANDC is concerned that this plan is not being fully implemented by the Licensee (see 2014 Inspection Report) which increases the risk to the environment, particularly water resources.
- e) Table 1 in Section 5.1 lists all equipment readily available for a spill response. It is noted that no vehicles were operational during the July 2013 inspection. AANDC requests clarification from BCC: a) whether the equipment identified in this section are operational; b) whether there are any plans for progressive reclamation of equipment no longer operational (removal from site vs. disposal onsite); and c) whether there are sufficient working vehicles on site to carry out reclamation as required under the water licence and A&R.

## 2.3 Operation and Maintenance

- 2.3.1 There are currently no definitions for 'care and maintenance' or 'operation' in the licence. Considering that the Ulu site has the potential to switch between operations and care and maintenance status, it would be pertinent to include definitions in the renewed licence to ensure consistency and clarity. AANDC recommends adopting a definition for care and maintenance consistent with the Mine Site Reclamation Guidelines for the Northwest Territories (INAC, 2007). Refer to Section 1.4 of the guidelines for measures that should be implemented during Care and Maintenance, and should be incorporated as licence requirements. The Licencee should be required to ensure that sufficient staff, equipment and supplies will be at the site for any maintenance or reclamation activities that may need to take place.
- 2.3.2 On May, 8, 2012, BCC provided notification that they would resume exploration activity at the Ulu site in 60 days. On September 11, 2012, BCC advised the NWB of the completion of the 2012 exploration program but it was not clear whether the Ulu site was being closed for the winter season or returned to care and maintenance. Upon review of the 2013 Annual Report, it is stated that "the facility has been in care and maintenance since September 2012". While notification was provided in an annual report, AANDC recommends that the letter of notification of any intended operational change (as required under Part H, Item 1) be clear on the type of closure (i.e., seasonal or short term, long term, final, etc.).
- 2.3.3 It is unclear whether BCC intends to leave the Ulu site in care and maintenance or whether they intend to resume operations during the 10 year licence term requested. AANDC recommends that BCC clarify their intentions for the Ulu site. Should the flexibility to resume operations remain in the renewed licence, AANDC recommends that: a) commencement of operations be subject to Board approval; and b) notification of intention to resume activity on site (required under Part H, Item 1 of 2BM-ULU0914) must be provided at least 90 days before the anticipated start date, and that the notice include: i) updated management plans for review and approval by the NWB; ii) an updated reclamation cost estimate for review and approval by the NWB; iii) any change in the amount of water use; and iv) a schedule of planned activities.
- 2.3.4 The Licensee is required, under the current licence, to submit a number of plans within 60 days following notification to the Board of the intent to resume operations, including:
  - a proposal for the disposal of effluent from the retention pond and settling/neutralization ponds
  - a plan for ongoing acid rock drainage and geochemical characterization
  - a waste rock and ore storage plan
  - an Operation and Maintenance Plan for the Sewage Treatment Facility

The timeframe appears to allow operations to resume without plans being approved. Notification is required 60 days prior to resuming operations and plans are due within 60 days of notification so there appears to be no time for review and approval. AANDC recommends that the management plans must be provided with the notification to resume on-site activities 90 days prior to the anticipated start date to allow time for review by interested parties and approval by the NWB.

#### 2.4 Monitoring

- 2.4.1 The C&M Plan indicates that inspections will be carried out when the site is occupied and at a minimum of twice annually during the open water season when the site is inactive. AANDC is concerned that limited presence on site would increase the risk of unplanned events that could lead to contamination of the environment and recommends that the licence require regular inspections and monitoring during the open water season, even during care and maintenance.
- 2.4.2 Section 4.6 of the C&M Plan states that BCC will carry out an "appropriately scaled" monitoring program outlined in Table 5. Section 1.4 of the *Mine Site Reclamation Guidelines for the Northwest Territories* (INAC, 2007) requires that monitoring programs must continue, even during care and maintenance (or temporary mine closure). Please refer to Table 1 for a detailed AANDC response to BCC's proposed changes to the monitoring program.

#### 2.5 Reclamation Cost Estimate

2.5.1 In Box 21 of the application, BCC references an updated restoration liability estimate submitted to the NWB on August 25, 2011. AANDC submitted comments and recommendations on December 30, 2011 (see Appendix 1).

The total reclamation cost estimate submitted by Elgin on August 25, 2011 was \$1,861,462. AANDC noted that the submission (an Excel spreadsheet) was lacking in detail, specifically in the following:

- the model used was not identified.
- there is no rationale provided for any of the calculations in the spreadsheet.
- the proponent did not provide any information regarding fuel volume, condition of existing equipment, amount of waste rock that is potential acid generating and metal leaching, levels of contamination of hydrocarbon impacted soil, water drainage patterns, present site conditions, etc.
- the proponent made a number of assumptions that are problematic, including the extensive use of equipment on site, no accounting for potential PAG waste rock underground, no costs associated with project management and engineering, and only a 15% contingency. For more detail please refer to Appendix 2.

The Mine Site Reclamation Policy for Nunavut (INAC, 2002) requires that security at any time during the life of the mine should be equal to the outstanding reclamation liability. A third party review, based on available documentation and site photographs (see Appendix 2), suggests that the total reclamation liability was closer to \$3,363,140.

Despite December 2011 comments from AANDC and the Kitikmeot Inuit Association (KIA) identifying deficiencies in the reclamation cost estimate and indicating that the security held under the licence was insufficient to cover the total reclamation liability of the site, there has been no change to the amount of security required under 2BM-ULU0914. It is important, therefore, that the security requirement be updated as part of the licence renewal.

AANDC recommends that BCC submit an updated reclamation cost estimate for review by parties prior to the Board issuing a licence renewal, and that the revised estimate: a) use the most current version of RECLAIM (Version 7), adjusted for unit costs applicable to the site; b)

account for the deficiencies identified in 2011; c) be based on a more detailed and robust Abandonment and Restoration Plan (completed and stamped by a licensed P. ENG with expertise in earthworks and reclamation, and using established methodology); and d) be for the reclamation of the Ulu site independent of the Lupin Site since they are owned by separate legal entities.

## 2.6 Compliance

- 2.6.1 The Compliance Plan proposes changes to terms and conditions of the water licence. Please refer to Table 2 for AANDC responses. AANDC recommends that the Compliance Plan: a) be updated to reflect actual conditions on site and to detail how the Licensee will address all non-compliance both with the Act and with water licence; and b) require approval from the Inspector and the Board.
- 2.6.2 The Ulu site was last inspected on July 12, 2014 and results can be found in the Water Licence Inspection Form (see Appendix 3). Some of the main concerns that may pose an increasing risk to the environment include:
  - hazardous waste has not been backhauled since 2012;
  - hazardous waste is not being stored within secondary containment;
  - spills are not being remediated as per the Spill Contingency Plan;
  - the monitoring plan is not being implemented; and
  - reporting (annual and monthly) is deficient.

BCC has fallen short of providing proper site maintenance during C&M, and has failed to fully respond to Inspector's instructions. AANDC recommends that the Board, in setting terms and conditions for the licence renewal, consider the increase in environmental risks at the mine site and the Licensee's failure to meet licence requirements over the term of the previous licence.

## **TABLES**

 Table 1. AANDC Response to Proposed Changes to the Monitoring Program

| Station      | Description   | Current Monitoring                   | BCC   | Proposed Monitoring Pro   | gram   | AANDC Comments   |
|--------------|---|--------------------------------------|---|---|--|--|
|              |   | Program Sampling<br>Requirements     | Sample Frequency<br>during Operations   | Sample Frequency<br>during C&M  | Analysis<br>Requirements   |  |
| ULU-1        | Water Intake<br>at West Lake  | Daily                                | Daily Volume;<br>Water quality parameters<br>twice during open water<br>period when water has<br>been sourced from West<br>Lake | Daily Volume if in use;<br>Water quality<br>parameters twice during<br>open water period when<br>water has been sourced<br>from West Lake | Volume (m3) Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH                                | AANDC agrees that daily sampling for water quality may be onerous and that annual sampling after freshet would be appropriate.               |
| ULU-2        | Sewage Effluent Discharge Point at East Lake or to land with indirect flow to East Lake | Monthly                              | Monthly   | Monthly if in use   | Volume (m3) Fecal Coliforms Total Suspended Solids BOD5 pH Total Phosphorous Total Dissolved Phosphorus Total Nitrogen Nitrate Nitrite Total Kjeldahl Nitrogen | AANDC notes no change to the licence is required as the Licensee can state whether or not the site was in use in monthly monitoring reports. |
| ULU-3        | Sludge<br>removed from<br>Sewage<br>Treatment<br>Facility                               | Monthly                              | Monthly   | When sludge removal occurs  | Volume (m3) Chemical characterization required to determine suitable disposal method for Sludge.   | AANDC notes no change to the licence is required as the Licensee can state whether or not sludge was removed in monthly monitoring reports.  |
| ULU-4        | Minewater<br>pumped from<br>Portal area<br>and<br>underground<br>Mine Sump              | Monthly                              | Monthly   | When pumping occurs   | Volume (m3)  | AANDC agrees to the proposed change.   |
| ULU-4b (new) | Surface<br>Retention<br>Pond  | Not in current<br>monitoring program | Prior to discharge  | Prior to discharge  | Volume (m3) Total Arsenic Total Copper Total Nickel  | The retention pond needs to be monitored both prior to discharge and weekly during discharge. Additionally, parameters for sewage            |

| Station | Description                                   | Current Monitoring  | BCC   | Proposed Monitoring Pro                                     | gram  | AANDC Comments   |
|---------|---|---|---|---|---|--|
|         |   | Program Sampling<br>Requirements  | Sample Frequency<br>during Operations   | Sample Frequency<br>during C&M                              | Analysis<br>Requirements  |  |
|         |   |   |   |   | Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Conductivity Chloride* Sodium Calcium   | effluent should also be included (ULU-2) since sewage effluent may be diverted to the retention pond during periods of short term operation. |
| ULU-5   | Settling/<br>Neutralization<br>Pond 1         | Monthly during open<br>water season. Prior to<br>discharge and weekly<br>during discharge | Monthly during open<br>water season. Prior to<br>discharge and weekly<br>during discharge | Twice annually during open water season. Prior to discharge | Volume (m3) Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Conductivity Chloride* Sodium Calcium | AANDC agrees to the proposed change.   |
| ULU-6   | Settling/<br>Neutralization<br>Pond 2         | Monthly during open<br>water season. Prior to<br>discharge and weekly<br>during discharge | Monthly during open<br>water season. Prior to<br>discharge and weekly<br>during discharge | Twice annually during open water season. Prior to discharge | Volume (m3) Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Conductivity Chloride* Sodium Calcium | AANDC agrees to the proposed change but recommends that sampling occur prior to discharge and weekly during discharge during C&M.            |
| ULU-7   | Runoff from<br>the waste rock<br>storage area | Monthly during periods of flow  | Monthly during periods of flow  | Twice annually during open water period if flow is present  | Volume (m3) Total Arsenic Total Copper  | AANDC recommends no change to the original licence requirement.  |

| Station | Description                            | Current Monitoring  | BCC   | <b>Proposed Monitoring Pro</b>  | gram  | AANDC Comments   |
|---------|--|---|---|---|---|--|
|         |  | Program Sampling<br>Requirements  | Sample Frequency<br>during Operations   | Sample Frequency<br>during C&M  | Analysis<br>Requirements  |  |
|         |  |   |   |   | Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Conductivity Chloride* Sodium Calcium  |  |
| ULU-8   | Runoff from<br>the ore<br>storage area | Monthly during periods of flow  | Monthly during periods of flow  | Twice annually during open water period if flow is present                              | Volume (m3) Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Conductivity Chloride* Sodium Calcium | AANDC recommends no change to the original licence requirement. Also, AANDC notes that some of the licensed parameters (conductivity, chloride, sodium, and calcium) were not included in the table and seeks clarification on whether this was BCC's intention. |
| ULU-9   | Outflow East<br>Lake                   | Monthly during open<br>water season. Weekly<br>during open water<br>season, if receiving<br>discharge from ore<br>runoff collection ponds | Monthly during open<br>water season. Weekly<br>during open water<br>season, if receiving<br>discharge from ore<br>runoff collection ponds | Twice annually during open water period when discharge to East Lake is planned          | Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Fecal Coliforms                                   | AANDC recommends no change to the original licence requirement.  |
| ULU-10  | Inflow Ulu<br>Lake from<br>East Lake   | Monthly during open water season, if flow present.  | Monthly during open water season, if flow present.  | Twice annually during<br>open water period when<br>discharge to East Lake<br>is planned | Fecal Coliforms Total Suspended Solids BOD5 pH Total Phosphorus Total Dissolved   | AANDC recommends no change to the original licence requirement.  |

| Station | Description | Current Monitoring               | BCC                     | Proposed Monitoring Pro | gram                   | AANDC Comments                    |
|---------|-------------|----------------------------------|-------------------------|-------------------------|------------------------|-----------------------------------|
|         |             | Program Sampling<br>Requirements | Sample Frequency        | Sample Frequency        | Analysis               |                                   |
|         |             |                                  | during Operations       | during C&M              | Requirements           |                                   |
|         |             |                                  |                         |                         | Phosphorus             |                                   |
|         |             |                                  |                         |                         | Total Nitrogen         |                                   |
|         |             |                                  |                         |                         | Nitrate                |                                   |
|         |             |                                  |                         |                         | Nitrite                |                                   |
|         |             |                                  |                         |                         | Total Kjedahl Nitrogen |                                   |
| ULU-11  | Outflow Ulu | Monthly during open              | Monthly during open     | Twice annually during   | Total Arsenic          | AANDC recommends no change to     |
|         | Lake        | water season. Weekly             | water season. Weekly    | open water period when  | Total Copper           | the original licence requirement. |
|         |             | during open water                | during open water       | discharge to East Lake  | Total Nickel           |                                   |
|         |             | season, if receiving             | season, if receiving    | is planned discharge    | Total Mercury          |                                   |
|         |             | discharge from ore               | discharge from ore      | from ore runoff         | Total Cadmium          |                                   |
|         |             | runoff collection ponds          | runoff collection ponds | collection ponds        | Total Lead             |                                   |
|         |             | _                                |                         |                         | Total Zinc             |                                   |
|         |             |                                  |                         |                         | Total Suspended Solids |                                   |
|         |             |                                  |                         |                         | pH                     |                                   |
|         |             |                                  |                         |                         | Fecal Coliforms        |                                   |

 Table 2. AANDC Response to Ulu Compliance

| T&C                           | Description  | BCC Comment  | AANDC Comment   |
|-------------------------------|--|--|---|
| Part B,<br>Item 5             | The Licensee shall, within ninety (90) days following issuance of the Licence, provide the Board with an updated estimate of the Ulu Gold Project restoration liability using the current version of RECLAIM, its equivalent or other similar methods approved by the Board, in accordance with principles of INAC's "Mine Site Reclamation Policy for Nunavut" (2000).  | The comments will be considered when restoration liability estimate is reviewed and updated in 2014.   | The reclamation cost estimate should be provided for review during the licence renewal process.   |
| Part D,<br>Item 8             | The Licensee shall operate and maintain the Retention and Settling/Neutralization Ponds such that:  a) At least one (1) metre of freeboard is maintained at the retention berm at all times; b) Seepage from the pond is minimized at all times; c) Any seepage that occurs and does not meet the Effluent quality requirements as specified in Part D, Item 3 shall be collected and immediately returned to the pond; d) Any constructed facilities that are eroded are to be repaired immediately; and e) Inspections of the Retention Pond and structures are carried out weekly during periods of open water and records kept of these inspections for review upon request of an Inspector. | BCC requests an update to Part D Item 8e of the Licence to clarify inspection requirements during periods of inactivity at site as follows: Inspections of the Retention Pond and structures are carried out weekly during periods of open water when the site is operational and records kept of these inspections for review upon request of an Inspector. | The original licence conditions should continue to apply because regular inspections are required to ensure impoundment structures remain stable and will be maintained in an appropriate manner, both during operations and during care and maintenance (Mine Site Reclamation Guidelines for the Northwest Territories, INAC, 2007). AANDC notes that the most recent geotechnical inspection found on the FTP site (September 2012) recommends an inspection schedule consisting of biweekly inspections during May and June, monthly inspections from July to October of the fuel containments and mine sump, and an annual inspection of the storage pad when the site is in care and maintenance. |
| Part D,<br>Item 11            | The Licensee shall submit to the Board for approval, within sixty (60) days of resuming on-site operations, a plan for ongoing Acid Rock Drainage and Geochemical Characterization. The plan shall be developed in accordance with the Indian and Northern Affairs Canada "Guidelines for Acid Rock Drainage Prediction in the North, September 1992"  | NA - no potentially acid generating rock has been generated as a result of exploration activities.   | AANDC notes that this term and condition remains relevant since ore material and waste rock at the Ulu site are expected to be potentially acid generating (Ulu Mine Waste Rock and Ore Storage Plan, 2005).  |
| Part D,<br>Item 12            | The Licensee shall submit to the Board for approval in writing, within sixty (60) days following notification to the Board in accordance with Part H, item 1 of the intent to resume on-site operations, a Waste Rock and Ore Storage Plan to address the management of all drainage from permanent and temporary ore and waste rock storage areas   | NA - no waste rock or ore has been generated as a result of BCC's exploration activities.  | AANDC notes that this term and condition remains relevant since there are waste rock and ore stored on site.  |
| Part E,<br>Item 2, 3,<br>4, 5 | The Licence requires the Licensee to prevent potential spills from occurring on site   | 2013 Inspection report noted that all fuel is to be stored in secondary containment and covered to prevent water accumulation in the containment during periods of inactivity. In September 2013, BCC cleaned-up its fuel  | The 2014 Inspection Report states that hazardous waste was found without containment and leaking barrels of hazardous waste were found throughout the site.   |

|                   |   | storage areas.  |   |
|-------------------|---|---|---|
| Part E,<br>Item 6 | The licence requires the Licensee to employ the Spill Contingency Plan, report spills, and contain and clean up the spill site in the event an unauthorized discharge of waste occurs.  | Condition incorporated into Spill Contingency Plan, 2013 2013 Inspection report noted that clean-up at the airstrip was required. In September, 2013 BCC cleaned up the airstrip site. The contaminated gravel was shoveled up into a barrel and placed in the hazardous storage area.  | The 2014 Inspection Report states that the spill plan is not being implemented, spills are occurring which are not being addressed, and spills continue to spread into the environment. |
| Part I,<br>Item 5 | The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.   | During the 2014 field season BCC will assess the work required to ensure that all drill sites are reclaimed and a plan will be developed for their progressive reclamation.   | AANDC looks forward to reviewing the plan and recommends that the plan include all progressive reclamation of the entire project site and not only drilling operations.                 |
| Part J,<br>Item 1 | The Licensee shall comply with the Monitoring Program annexed to this Licence as Schedule J, and any amendments to it as may be made from time to time, pursuant to the conditions of this Licence.   | Monitoring program for Stations Ulu-5 to Ulu-8 should replace Chlorine with Chloride, as per direction provided in email dated May 8, 2006 from D. Hohnstein, NWB, to D. Stevenson, EC, Subject Re: SNP - Chlorine or Chloride? In response to the July, 2013 inspection report BCC is proposing an appropriately scaled monitoring program for implementation during periods of site inactivity. | AANDC agrees that Part J should be revised to replace chlorine with chloride as per the direction referenced.  AANDC response to the scaled monitoring program can be found in Table 1. |
| Part J,<br>Item 8 | The Licensee shall, within ninety (90) days following issuance of the Licence, submit to the Board a Quality Assurance/Quality Control (QA/QC) Plan. The Plan shall be include up to date field sampling methods to all applicable standards, acceptable to an accredited laboratory as required by Part J, Item 6 and Part J, Item 7. The Plan shall include a covering letter from the accredited laboratory confirming acceptance of the Plan for analyses to be performed under this Licence. | BCC will submit the required QA/QC Plan before the end of June, 2014  | Noting that this plan was due 90 days following issuance of the licence, five years ago, AANDC looks forward to reviewing the QA/QA Plan during the licence review period.              |

# Appendices

# Appendix 1

AANDC Review of the 2011 Reclamation Cost Estimate (December 30, 2011)

Water Resources Nunavut Regional Office P.O. Box 100 Iqaluit, NU, X0A 0H0

December 30, 2011

Phyllis Beaulieu Licensing Administrator Nunavut Water Board P.O. Box 119 Gjoa Haven, NU, X0A 1J0 Your file - Votre référence 2BM-ULU0914 Our file - Notre référence CIDM# 497994

Re: Water Licence 2BM-ULU0914, Part B, Item 5 – Ulu Gold Project – Elgin Mining Inc. – Kitikmeot Region – 2011 Reclamation Cost Estimate

## Dear Phyllis Beaulieu:

Aboriginal Affairs and Northern Development Canada (AANDC) have completed a review of the 2011 Reclamation Cost Estimate submitted by Elgin Mining Inc. (Elgin) to the Nunavut Water Board (NWB). In conducting our review, AANDC referred to the following documents:

- Assignment of Water Licence 2BM-ULU0914 (NWB, 2011)
- Interim Abandonment and Restoration Plan (Elgin, 2011)
- 2011 Reclamation Cost Estimate (Elgin, 2011)
- Water Licence 2BM-ULU0914 (NWB, 2009)
- Ulu Annual Report (Zinifex Canada Inc., 2007)
- Ulu Licence Renewal (NWB Decision, 2000)
- Water Licence Inspection Report (INAC, 2007)
- INAC Inspection Photos (INAC, 2007)
- Ulu Project Review of A&R Plan and Reclamation Cost Estimate (Brodie Consulting Ltd., 1999)

AANDC agrees with KIA's comments to the NWB (December 24, 2011) regarding Elgin's 2011 Reclamation Cost Estimate, namely, that there is insufficient detail to review the Elgin's estimate and that the total estimate cost is not sufficient to reclaim the site.

### A. Background

- The Ulu Gold Project is located entirely on Inuit Owned Lands in the Kitikmeot Region of Nunavut and is licenced by the NWB under water licence 2BM-ULU0914.
- Bonito Capital Corp., a wholly owned subsidiary of Elgin Mining Inc. (Elgin), purchased the Ulu Gold Project from MMG Resources Inc. in July 2011. the NWB authorized the assignment of the water licence to Elgin on September 9, 2011. On August 25, 2011, Elgin submitted an updated project reclamation cost estimate pursuant to Part B, Item 5 of the project's water licence.

- On September 2, 2011, the NWB distributed for review Elgin's 2011 Reclamation Cost Estimate. The original comment deadline of October 3, 2011 was extended to December 30, 2011 to allow the AANDC Water Resources Division sufficient time to review the submitted reclamation cost estimate and to discuss the matter with the Kitikmeot Inuit Association (KIA).
- As part of the water licence assignment process, the NWB required Elgin to furnish and maintain security with the Minister of AANDC in the amount of \$1,685,210 under Part B, Item 2 of the water licence. AANDC acknowledged receipt of the required security on July 8, 2011. The current security amount was determined during the Ulu Licence Renewal 2000 (NWB Decision, June 30, 2000) and was unchanged upon renewal of the licence in 2009.

## B. Reclamation Cost Estimate by Elgin

- The total reclamation cost estimate submitted by Elgin on August 25, 2011 was \$1,861,462. AANDC notes that the submission (Excel spreadsheet) is lacking in detail, specifically in the following:
  - The model used was not identified.
  - There is no rationale provided for any of the calculations in the spreadsheet.
  - The proponent did not provide any information regarding fuel volume, condition of existing equipment, amount of waste rock that is potential acid generating and metal leaching, levels of contamination of hydrocarbon impacted soil, water drainage patterns, present site conditions, etc.
  - The proponent made a number of assumptions that are unrealistic and unreliable including the transfer of fuel and waste oil to High Lake including all infrastructure, extensive use of equipment, no potentially PAG waste rock underground, no costs associated with project management and engineering, a 15% contingency, etc.

#### C. Reclamation Cost Estimate by AANDC

- AANDC performed a Reclamation Cost Estimate using the RECLAIM model. The estimated total reclamation cost is approximately \$3,363,140 and is based on the reclamation of the Ulu Gold Project independent of that of the Lupin Mine. This amount should be considered with caution as, in the absence of important information ordinarily provided by the proponent, AANDC used a number of assumptions / estimates based on the documents reviewed as well as information from the KIA (photographs). No site inspection was conducted to support the cost estimate. Please refer to Appendix 1, Ulu Gold Project Reclamation Cost Review (BCL, 2011), for further detail.
- It appears that the reclamation cost estimate submitted by Elgin is not sufficient.

#### **D.** Recommendations

• AANDC recommends that the NWB require Elgin to re-submit a revised estimate based on a more rigorous and detailed A&R Plan developed using a rigorous model. This could alter the reclamation cost estimate significantly. Please refer to Saskatchewan Guidelines for Northern Mine Decommissioning and Reclamation (Appendix 2), British Columbia Mine Reclamation Costing and Spreadsheet (Appendix 3), and the Ontario Regulation 240/00 (www.e-laws.gov.on.ca) for additional reference – reclamation models in other jurisdictions.

- AANDC recommends that reclamation cost estimates for the Ulu and Lupin Projects be calculated independent of one another as they are owned by separate legal entities.
- AANDC further recommends that any revised estimate must include the following:
  - Identification of the model used to calculate the reclamation cost estimate. The
    model should be an established, recognized model such as RECLAIM, its
    equivalent or other similar methods approved by the Board,
  - The A&R Plan and Reclamation Cost Estimate details should be completed and stamped by a licensed P. ENG with expertise in earthworks and reclamation again using established and approved methodology.
  - Rationale should be provided with the A&R Plan and the Reclamation Cost Estimate.

Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4738 or by e-mail at <a href="Jean.Allen@aandc-aadnc.gc.ca">Jean.Allen@aandc-aadnc.gc.ca</a>

Sincerely,

Original Signed By

Jean Allen Water Management Specialist

cc. David Abernethy, A/Manager of Water Resources, AANDC Kevin Robertson, A/Manager of Field Operations, AANDC Bernie MacIsaac, Director of Operations, AANDC

Enclosure (3)

# Appendix 2

Brodie Consulting Ltd. Reclamation Cost Review (December 28, 2011)



December 28, 2011

Tony Brown, M.Sc., P.Eng. SENES Consultants Limited 121 Granton Drive, Unit 12 Richmond Hill ON L4B 3N4

Dear Tony,

Re: Ulu Gold Project – Elgin Mining Inc.

**Reclamation Cost Review** 

### 1.0 Introduction

This letter presents an estimate of the cost for decommissioning the Ulu project. The site, which was previously owned by Echo Bay Mines and is currently owned by Elgin Mining Inc. The Ulu Gold project is located 155 km north of Lupin, which is 567 km north of Yellowknife. The site includes a camp, site roads, bulk fuel storage areas, underground workings, waste rock pad and ore pad, air strip and accommodation buildings. At the conclusion of mine operations, it is to be decommissioned.

The site was granted a water license by the Nunavut Water Board (NWB) on October 8, 2009 (2BM-ULU0914). BCL completed a cost estimate in 1999.

Information on the site was obtained from AANDC and KIA including site photographs.

It should be noted that a site inspection has not been conducted to support the cost estimate. The estimate presented here is based entirely on a scope of work developed from review of the available documentation, 2007 AANDC site inspection report and the site photographs.

It is understood that Elgin Mining Inc. has posted a reclamation bond. The Ulu Gold project is entirely on KIA lands. It is the policy of AANDC to hold security for water-related liabilities. The approach which has been taken on numerous northern mining-related projects is to determine the cost for the

reclamation of the entire site, and then to segregate that amount into land and water related components. The land component is the KIA lands. This methodology has been applied to this work.

The RECLAIM model has been used to develop this estimate. This model has been applied on numerous northern sites and incorporates unit costs derived from actual projects involving comparable work. Appendix A includes details on assumptions and procedures of the RECLAIM model.

## 2.0 Description of Proposed Reclamation Measures and Assumptions

The project description includes the current site disturbance. It is not clear if additional site activities are envisioned.

#### **Site Access**

The Ulu project is located 155 km north of Lupin, which is 567 km north of Yellowknife. Access to Lupin is by the existing winter road. It is assumed that no road existed between Ulu and Lupin so a winter road will be constructed and used over a 2 year period.

#### **Closure Planning**

The existing closure plan is conceptual and is based upon moving equipment to High Lake. It is assumed here that an improved closure planning process would be required. This would involve: site assessment, reporting, permitting and Water Licence hearing, preparation of tender documents.

#### **Portal Access**

When the site was put into care and maintenance the portal was blocked with 400 m3 of material. This material needs to be removed. The portal is also blocked with ice. There is no indication how much so the assumption is 30 m. Prior to accessing the portal for use to dispose of on-site infrastructure the portal requires ventilation and other infrastructure. The assumption is 6 days on site to complete the work. The current water license requires a geotechnical inspection prior to using the underground. The assumption is 3 days for a site visit and report.

## **Equipment for Reclamation work**

Since the Ulu site has been under care and maintenance with little activity the assumption is all the equipment on site is in poor condition and not useable. To complete the reclamation work efficiently it is assumed that 2 scoop trams, 2 dozers, excavator, dump truck, front end loader, and barrel crusher will

be mobilized to site from Yellowknife using the winter road to Lupin and the constructed road from Lupin to Ulu.

#### **Camp and Accommodations**

There is an existing camp which we have assumed will be used once it is updated for housing workers during the reclamation work. It is assumed that 10 men will be required for 45 days.

## **Buildings and Equipment**

There is a 60 man weatherhaven camp on site which is assumed to be 4800 m2 (110829 2BM-ULU0914 Interim Abandonment and Reclamation Plan page 3). There is a weatherhaven shop on site which is assumed to be 40 m x 80 m (110829 2BM-ULU0914 Interim Abandonment and Reclamation Plan page 3). Using the site photographs provided by the AANDC inspector, KIA and in the Elgin Reclamation estimate it is assumed there are 10 trailers on site 10 m x 20 m. Provisions have been made for the other miscellaneous metal debris and equipment on site. All buildings and inert metal debris will be crushed and disposed of underground. It is assumed that the crushed volume is 25% of the original volume.

#### **Fuel**

For reclamation purposes fuel will be brought to site. It is assumed that 130,000 litres of fuel will be required. There are 11 14,000 USG fuel tanks and 2 350,0000 USG fuel tanks on site (110829 2BM-ULU0914 Interim Abandonment and Reclamation Plan page 6-7 and Elgin Reclamation estimate). These tanks will be thoroughly cleaned and disposed of underground. It is assumed that 15% of the total volume of fuel is still in the tanks. It is assumed that the existing fuel is not useable due to water content and venting of volatile fraction. Fuel tank capacity on site 3,221,788 litres, assume 15% full – 483,268 litres. The fuel will be trucked to Lupin. The number of barrels on site was assumed to be 450 which were determined from site photographs provided by the 2007 AANDC site inspection.

#### **Ore and Waste Rock disposal**

From documentation (110829 2BM-ULU0914 Interim Abandonment and Reclamation Plan page 11 and Elgin 2011 Reclamation Cost Estimate) there is 1222 m3 of ore on the ore pad. This material is PAG or ML so it is disposed of underground. The process is done using an excavator and dump truck to haul the ore to the portal and then a scoop tram to take it underground. This will be a slow process and has a

high unit cost associated with it. There is 42,000 m3 of waste rock sitting on surface (Ulu Mine Waste Rock and Ore Storage Plan, March 21, 2005 page 4). Documentation indicates that some of the waste rock is PAG and ML (Ulu Mine Waste Rock and Ore Storage Plan, March 21, 2005 page7-8). No documentation was found to suggest that the waste rock was segregated. It is assumed that 50% of the material is PAG and ML which needs disposal underground. A geologist should be on site to assist with the visual identification of materials.

## Hydrocarbon contaminated soil

From documentation 1074 m3 of hydrocarbon contaminated soil was identified in Elgin 2011 Reclamation Cost Estimate. This will be disposed of underground which is the same assumption of the company. In a northern setting land farming is not practical and will take many years. The use of placing hydrocarbon contaminated soils underground has been done at many northern sites. As the area underground will be frozen then there is no impact to the environment.

#### **Roads and Airstrip**

There are 14 km of roads and 1200 m airstrip which will be required to be scarified (110829 2BM-ULU0914 Interim Abandonment and Reclamation Plan page 7). Some of the roads have culverts. It is assumed 6 culverts will be removed (Elgin 2011 Reclamation Cost Estimate).

#### **Portal and Vent Raise**

At the completion of disposal of the infrastructure underground the portal "box cut" will be graded and backfilled with 800 m3 of material (Elgin 2011 Reclamation Cost Estimate). The vent raise will be capped with a precast concrete slab as per Ontario regulations of 3 m x 3 m x 1 m.

#### 3.0 Description of Additional Reclamation Measures

The reclamation activities described are based on the previous mine plan developed and no additional work is done on site. The activities assume that the footprint and disturbances remain the same.

Reclamation measures for the project are assumed to include the following:

- All fuel and waste oil will be removed for off-site disposal to Lupin and used or burned,
- Fuel tanks will be disposed underground
- Demolition and consolidation of buildings and inert industrial waste for disposal underground

- Loosening of compacted surfaces and flattening of side slopes on all elevated pads and roads
- Removal of all culverts
- Restore drainage patterns by creating cross-drainage as necessary.
- Seeding of disturbed areas

AANDC policy is not to consider the potential salvage value of material or equipment. This is assumed here.

### **Post Closure Monitoring and Maintenance**

Within the post closure phase the reclamation cost estimate included:

- Closure and permit plan
- Final site audit
- Final geotechnical inspection
- Inspection one year later

The work and activities described above were to be completed to minimize the post closure liability. No long term monitoring is required of the waste rock or ore pads as the problematic material has been relocated underground. No other geotechnical instabilities exist on site. Upon completion of the assumed scope of work there will be no residual structures remaining on site which are must perform for the closure plan to be effective.

#### Contingency

Based on limited and incomplete information a 25% contingency has been added to the cost estimate.

#### 4.0 Estimated Reclamation Cost

The estimated cost for reclaiming the Ulu Gold project is approximately \$3.363 M. The land liability is \$1.588M and the water liability is \$1.805M.

Table 1 Summary of Costs presents a breakdown of the cost estimate for the decommissioning of the Ulu Gold Project.

I trust that this letter addresses your requirements for this project. Please call if you have any questions.

Yours truly,

Cassandra Hall, P.Geo, EIT

Reviewed by,

M. J. Brodie, P.Eng.

## Table 1 Summary of Costs for

## Reclamation of Ulu Site

| SUMMA                                       | ARY OF COSTS      |             |                   |                    |
|---|-------------------|-------------|-------------------|--------------------|
| CAPITAL COSTS                               |                   |             |                   |                    |
| COMPONENT TYPE                              | COMPONENT<br>NAME | TOTAL COST  | LAND<br>LIABILITY | WATER<br>LIABILITY |
| OPEN PIT                                    | 0                 | \$0         | \$0               | \$0                |
| UNDERGROUND MINE                            | 0                 | \$255,282   | \$27,822          | \$227,461          |
| TAILINGS                                    | 0                 | \$0         | \$0               | \$0                |
| ROCK PILE                                   | 0                 | \$248,275   | \$20,630          | \$227,645          |
| BUILDINGS AND EQUIPMENT                     | 0                 | \$601,179   | \$539,791         | \$61,388           |
| CHEMICALS AND SOIL MANAGEMENT               |                   | \$55,643    | \$0               | \$55,643           |
| WATER MANAGEMENT                            |                   | \$354       | \$0               | \$354              |
| POST-CLOSUREMONITORING AND MAINTE           | NANCE             | \$109,000   | \$0               | \$109,000          |
|   | SUBTOTAL          | \$1,269,734 | \$588,242         | \$681,492          |
|   |                   | PERCENTAGES | 46%               | 54%                |
| MOBILIZATION/DEMOBILIZATION                 |                   | \$1,556,599 | 721,141           | 835,458            |
| PROJECT MANAGEMENT                          | 5%                | \$63,487    | \$29,412          | \$34,075           |
| Site Assessment, closure plan, & permitting | (from Mob sheet)  | \$92,400    | \$42,807          | \$49,593           |
| Taxes (GST on supplies) - est.              | allowance         | \$0         | \$0               | \$0                |
| Insurance                                   | 0%                | \$0         | \$0               | \$0                |
| ENGINEERING                                 | 5%                | \$63,487    | \$29,412          | \$34,075           |
| CONTINGENCY                                 | 25%               | \$317,433   | \$147,061         | \$170,373          |
| Market Drive France Advantaged              | 0%                | \$0         | \$0               | \$0                |
| Market Price Factor Adjustment              | 0 70              | <b>\$</b> 0 | φ0                | φ0                 |

## Appendix A – General Assumptions on Reclamation Cost Estimating

This Reclaim estimate is based on the following assumptions:

- The company goes bankrupt or abandons the property,
- No allowance for progressive reclamation,
- All work is based on independent contractor rates,
- All costs are 2011 Canadian dollars, respectively,
- The cost estimate does not include revenue from recovery of assets,
- The mine is developed substantially as planned,
- The estimate does not include costs for catastrophic events such as failure of dams, dikes or dump slope.

The RECLAIM model, version 6.1, was used in the preparation of this estimate. This incorporated the most current unit cost information available. Unit costs are regularly updated, based upon third party cost information from actual northern remediation work, where possible. The unit costs include equipment, operator, fuel, consumables, maintenance, plus supervision, profit, insurance, and bonding.

It is important to note that the RECLAIM model is not a statistical model. It relies solely upon user entry values and does not manipulate those entry values other than to multiply or add the values for the user. Ideally, an engineer with earthworks and reclamation experience would complete the reclamation cost estimate.

The RECLAIM model is broken down into a series of mine components (e.g. Open Pit), and then into a series of activities (i.e. "line items"). A unit value is entered within each line item, and then the user must decide the unit cost code which applies to that activity. The model will then multiply the unit value by the unit code for the user. The sum of the mine components is added to generate a subtotal, and as a final step, the user must decide values for project management, engineering, and contingency. These values are calculated as a percentage of the subtotal and then added to the subtotal.

The final calculation provides an estimate of the total reclamation cost. This total reclamation cost amount may be segregated into water related reclamation cost and land related reclamation cost.

Where possible information provided by the proponent is utilized, in an effort to minimize the need to make assumptions within the cost estimate. However, it must be clear that should insufficient information exist or the level of detail be lacking, a "precautionary approach" is utilized. Should additional detailed information become available at a later date the estimate can be revisited.

# Appendix 3

2014 AANDC Water Licence Inspection Form



## WATER LICENCE INSPECTION FORM

| 1       |            |
|---------|------------|
| Origina | al         |
| Follow  | -Up Report |

| Licensee   |                 |             | Licensee Ro  | presentat          | ive               |  |            |                   |
|--|-----------------|-------------|--|--------------------|-------------------|--|------------|-------------------|
| LMI / Elgi Licence No. / Expiry  | n M             | ini         | Ny   |                    |                   | · · · · · · · · · · · · · · · · · · ·  |            |                   |
|  |                 |             | Representa   | itive's litle      |                   |  |            |                   |
| 2BM-ULU 00 Land / Other Authorizations   | 119             |             | Land / Other   | ar Authoriz        | ations            |  |            | a contra          |
| Land / Other Authorizations  |                 |             | Zuna / Juna  |                    |                   |  |            |                   |
| Date of Inspection   |                 |             | Inspector  | Maria Albania      |                   |  |            |                   |
| 12 July 2  | 410             |             | ENT  | Pa                 | ul                |  |            |                   |
| Activities Inspected   |                 |             |  |                    |                   |  |            | 2 500 4 1 1       |
|  | Drilling Other: | VASTE       |  | nstruction<br>ner: | Reclama           | tion 🔀   | uel Storag | е                 |
|  |                 |             |  |                    |                   |  |            |                   |
|  | ceptable        |             | C - Concern U - Unaccept   |                    | NA – Not Appli    |  | - Not Ins  |                   |
| Water Use  | Condition       | Comment     | Site Conditions  Water Management Structures   | Condition          |                   | t Management   | Condition  | Comment           |
| Intake/Screen Flow Measure. Device   | N-A             |             | Culverts / Bridges   | A                  | Storage           |  | 14         | 2                 |
|  | NA              |             |  | A                  | Spills            |  | u          | 2                 |
| Source:  | NA              |             | Drainage / Sadimont  | A                  | Spill Pla         |  | A          | 2                 |
| Water Use:   | NA              |             | Erosion / Sediment   | A                  |                   |  |            |                   |
| Recirculation (y/n)  | NA              |             | Mitigation Measures  | ·U                 | 2 Adminis         | No. of the last of |            |                   |
|  |                 |             | Reclamation Activities   | MI                 | Records           |  | NI         |                   |
|  |                 |             | Materials Storage  | A                  | Reports           |  | u          | 4                 |
| Waste Disposal   |                 | 30年代        | Signage  | A                  | Plans             | Marie 4-14 K   | A          |                   |
| Waste Water  | NI              |             |  |                    | Notifica          | tions  | NI         |                   |
| Solid Waste  | C               | ١,          | Monitoring   |                    | Other             |  |            | <b>在</b> 基本是      |
| Hazardous Waste  | u               | 2           | Sample Collection / Analysis   | u                  | 3                 | 4.45   |            |                   |
| The state of the s |                 |             | THE PERSON NAMED OF THE PERSON NAMED IN  |                    | - Desired and     |  |            |                   |
| *7   | he number       | er in the   | comments field will correspond v   | vith speci         | fic comments prov | ided below.  | 7.5        |                   |
| Samples taken by Inspec  | ctor:           |             | Location(s):   |                    |                   |  |            |                   |
| ☐ Yes ☒ No   |                 |             |  |                    |                   |  |            |                   |
|  |                 |             |  |                    |                   |  |            |                   |
| SECTION 1  | Commer          | nts (s. ] - | Non-Compliance wi  | th Act or          | Licence (s.2)     | X Action Re  | quired (s  | 3)                |
| 1. It does not   |                 | - v         | last made were 1   | 200                | landel 6          | he 2-12  | 11         |                   |
| " " was vol  | appe            | eur 7       | hat waste was I  | nex                |                   | The 2012   | . 100      | 1                 |
| records were   | - prov          | rded        | in the annual  | rel                | Dort.             |  |            |                   |
|  |                 |             |  |                    |                   |  |            |                   |
| 2. While the   | 2013            | Anv         | und Report indi  | cutes              | that alm          | me and   | wast       | -                 |
|  |                 |             |  |                    |                   |  | - 0        | 1                 |
|  |                 |             | r the 2013 Inspe   |                    |                   |  |            | und               |
|  |                 |             | munuous area   |                    |                   |  |            |                   |
| was not ren  | roved           | as          | indicated in the   | ann                | ual report        | T. I for   | und        | leakin            |
| barrels of b   | razar           | dows        | waste on the   | mine               | waste pad         | d. at the  | e bo       | 1                 |
|  |                 |             | be tank farm,  |                    |                   |  |            |                   |
|  |                 |             |  |                    |                   |  |            |                   |
| of the hell pa   | a an            | d b         | ands at the a  | rem                | p which           | Should   | rare       |                   |
| removed is   | 1 201           | 3,          | The waste mana   | gem                | ent plan          | and the  | e Ca       | re                |
| and Manten   | emle            | Plan        | n indicate that  | h                  | izardou           | materia  |            |                   |
| to be stored   | in              | Con         | tarment until ba   | okla a             | 1 The             | Spill Pla  |            |                   |
|  |                 |             |  |                    |                   |  |            | , (8)             |
| ocing tollor   | via,            | us          | spills are deur  | 120                | which are         | e het be   | shg.       | - 1               |
| addressed.   | 100             | per         | mitigation for   | Spill              | s 13 net          | being e  | mpla       | yed               |
| by lack  | 64              | conto       | winnert, monto   | ma                 | and el            | ean-up   | . Sp       | riled             |
| fuel 15 m  | ngra            |             | out of the   | ctore              | as pad            | and do   |            | Ine.              |
| •  | 0               |             |  |                    | 7                 |  |            | 7                 |
| Licensee or Representative   |                 |             |  | or's Name          |                   |  |            |                   |
| Signature  |                 |             | CONTRACTOR OF THE PROPERTY OF  |                    | sul               |  |            |                   |
| Signature  |                 |             | Signatu  | re                 | 0                 |  |            |                   |
| Date   |                 |             | 1  |                    |                   |  |            |                   |
| Date of the second seco |                 |             | Date   | 1                  | 111 0             | A CONTRACTOR OF THE CONTRACTOR |            | TACINE / NO       |
|  |                 |             | بال ا  | ny                 | 14,0014           | ,  |            |                   |
| Office Use Only: Follow-up   | report to b     | e issued by | Inspector  | The state of       | ☐ Yes ☐ No        |  | The Later  |                   |
| , onow up  | U               | - John D    | COLUMN TO SERVICE AND ADDRESS OF THE PARTY O |                    | LI ICS LINO       |  |            | CENSULE PROPERTY. |



White Copy: Inspector

| * | Aboriginal Affairs and<br>Northern Development Canada |
|---|---|
|   | Northern Development Canac                            |

| The second secon | Licensee Representative  |
|--|--|
| LMI / Elgin Mining Licence No. / Expiry  |  |
|  | Representative's Title   |
| 26M-WW 0914  Date of Inspection  | Inspector  |
| 12 July 2014   | Eva Paul   |
|  | Z va vau   |
| SECTION $2$ $\square$ Comments (s. $2$ ) $\square$ Non-Comp  | liance with Act or Licence (s. 2) Action Required (s)  |
| 3. Monitoring is not occurring, co   | ntrany to the C+M Plan and   |
| the licence. Full monitoring is  | still regimed as outlined in the   |
| licence. Monthly reports a   | re inadequate.   |
| 4. Annual Report was detror  | ent in details. No numbers were  |
| provided with respect to wast  | = backhard or work antrepate   |
| Por 2014. Inspector's concern  | e of 2012 and 2013 have  |
| not been addressed. Monthly  | reports should include montoning   |
| results, not the are m   | c+M2.  |
| Non-Compliance:  |  |
| Part B. 13. Implementation o   | + Plans as approved:   |
| Care and Maintenance   |  |
|  |  |
| Sp. M. Contingency Plan<br>Waste Management Pla  | ~ ·  |
| Part E. 3. Secondary Contas  | mment For all hazardous  |
| materials and full shorage   |  |
| Part E. G. Employment of   | the Spill contingency Plan,  |
| reporting of spills, chean   | up of spMs.  |
| Part E. b. Employment of reporting of spills, clean part J. I. Implementation of   | Monitoring Program.  |
|  | 3 0  |
|  |  |
|  |  |
| SECTION <u>3</u> Comments (s) Non-Compl  |  |
| SECTION 3 Comments (s) Non-Compl  (1) All hazardous materials at 512   | iance with Act or Licence (s) 💆 Action Required (s.3)  |
| 1) All hazardous materials at siz  | iance with Act or Licence (s) Action Required (s.3) te are to be placed within   |
| DAIL hazardous materials at size<br>secondary containment. Open<br>to prevent creation of contain  | te are to be placed within bands are to be covered also,   |
| 1) All hazardous materials at sie<br>secondary containment, Open<br>to prevent creation of contain<br>2) Spills around site are to be  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within bounds are to be covered also, whated watersept 30,2014- se addressed as per the Spill  |
| DAIL hazardous materials at sie<br>secondary containment. Oper<br>to prevent creation of contain<br>2) Spills around site are to L<br>Plan. Contaminated soil is to  | iance with Act or Licence (s) Action Required (s3)  Le arc to be placed within  barrels are to be covered also,  yhated water Sept 30,2014-  se addressed as per the Spill  be backhauled Sept 30, 2014-   |
| DAIL hazardous materials at sie<br>secondary containment. Oper<br>to prevent creation of contain<br>2) Spills around site are to L<br>Plan. Contaminated soil is to  | iance with Act or Licence (s) Action Required (s3)  Le arc to be placed within  barrels are to be covered also,  yhated water Sept 30,2014-  se addressed as per the Spill  be backhauled Sept 30, 2014-   |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3 Monthly monitoring during simplemented (including freshet  | iance with Act or Licence (s) Action Required (s.3)  Le arc to be placed within  barrels are to be covered also,  yhated watersept 30, 2014-  se addressed as per the Spill  be backhauledsept 30, 2014-  how-free scason is to be  ). This metudes memoring if  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3 Monthly monitoring during simplemented (including freshet  | iance with Act or Licence (s) Action Required (s.3)  Le arc to be placed within  barrels are to be covered also,  yhated watersept 30, 2014-  se addressed as per the Spill  be backhauledsept 30, 2014-  how-free scason is to be  ). This metudes memoring if  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to I Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshet waste five as well as implemented the trence Effective immed   | iance with Act or Licence (s) Action Required (s.3)  Le are to be placed within  barrels are to be covered also,  ynated water. — sept 30, 2014—  se addressed as per the Spill  be backhauled Sept 30, 2014—  how-free season is to be  ). This netudes monitoring if  y the Mondonny Program as per  licately.   |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Contaminated soil is to B Monthly monitoring during simplemented (including Freshet wasteful, as well as implement in the trence Effective immed 4) All new hazardous waste it to   | iance with Act or Licence (s) Action Required (s3)  the arc to be placed within  a bounds are to be covered also,  whated watersept 30, 2014-  be addressed as per the Spill  a be backhauledsept 30, 2014-  how-free season is to be  ). This netudes monitoring if  y the Montoning Program as per  breately.  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Contaminated soil is to B Monthly monitoring during simplemented (including Freshet wasteful, as well as implement in the trence Effective immed 4) All new hazardous waste it to   | iance with Act or Licence (s) Action Required (s3)  the arc to be placed within  a bounds are to be covered also,  whated watersept 30, 2014-  be addressed as per the Spill  a be backhauledsept 30, 2014-  how-free season is to be  ). This netudes monitoring if  y the Montoning Program as per  breately.  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containinated soil is to 3) Monthly monitoring during simplemented (including Freshet wastefwas nell as implement no the trence Effective immed 4) All new hazardous waste is to created to prevent the accumulations.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at sie secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containmented soil is to 3) Monthly monitoring during simplemented (including Freshot waste five as well as implemented the licence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s.3)  the arc to be placed within barrels are to be covered also, whated watersept 30, 2014- be addressed as per the Spill be be backhauled -sept 30, 2014- how-free scason is to be  I this metudes monitoring if y the Montoning Program as per licately -  be backhauled in the year it is lation of waste to unmanageble  |
| DAIL hazardous materials at six secondary containment. Open to prevent creation of contain 2) Spills around site are to I. Plan. Containinated soil is to 3) Monthly monitoring during simplemented (including Freshet waste fields well as implement in the trence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  (5) A report with the details submitted to the inspector by  | te are to be placed influence (s.)  The are to be placed influence beareds are to be covered also, whated water. — sept 30, 2014—  se addressed as per the Spill of be backhauled Sept 30, 2014—  how free season is to be  I this metudes mentoring if a the Mondoning Program as per brately—  be backhauled in the year it is lation of waste to unmanageble  of Ot 2 above is to be  y extober 31, 2014  |
| DAIL hazardous materials at six secondary containment. Open to prevent creation of contain 2) Spills around site are to be Plan. Containinated soil is to Monthly monitoring during simplemented (including Freshet waste five as well as implement in the litence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  | iance with Act or Licence (s) Action Required (s3)  the arc to be placed influe a bounds are to be covered also, whated water. — sept 30, zo14— be addressed as per the Spill be backhauled. — sept 30, zo14— how - free scason is to be  1. This meludas monitoring if y the Montoning Program as per bratchy— be backhauled in the year it R lation of waste to unmanageble  Inspector's Name  |
| DAIL hazardous materials at six secondary containment. Open to prevent creation of contain 2) Spills around site are to I. Plan. Containinated soil is to 3) Monthly monitoring during simplemented (including Freshet waste fields well as implement in the trence Effective immed 4) All new hazardous waste is to created to prevent the accumulated.  (5) A report with the details submitted to the inspector by  | iance with Act or Licence (s.)  Action Required (s.3)  Le arc to be placed influe bounds are to be covered also, whated water. — sept 30, zo14— se addressed as per the Sp. III be backhauled Sept 30, zo14— how - free scason is to be  1. This meludes monitoring if ye the Montoning Program as per wately.  The backhauled in the year it is lation of waste to unmanageble  A Dt 2 above is to be y otober 31, zo14  Inspector's Name  EJA PAUL Signature   |
| DAIL hazardous materials at six secondary containment. Open to prevent creation of containing 2 Spills around site are to be Plan. Containinated soil is to Monthly monitoring during simplemented (including Freshet was to five including freshet was to five in the livence Effective immed 4 All new hazardous waste is to created to prevent the accumulatives.  5) A report with the details submitted to the inspector by   | te are to be placed within bands are to be covered also, whated water Sept 30, 2014- se addressed as per the Sp.III of be backhauled Sept 30, 2014- how-free scason is to be  I this meludes monitoring if a the Montoning Program as per vicately.  The backhauled in the year it is lation of waste to unmanageble  I Dt 2 above is to be  Action Required (s3)  Action Required (s3)  Action Required (s3)  When Mondon  Frequency  The backhauled also, when the spent it is a be  I at 2 above is to be  Inspector's Name  EJA PAUL |

