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November 18, 2008

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Our File: 4703 001 006  
NWB File: 2BE-KIG0812

via e-mail [licensingadmin@nunavutwaterboard.org](mailto:licensingadmin@nunavutwaterboard.org)

**RE: Amendment Request for Drilling at End Grid within 30 Meters of the High Water Mark  
Kiggavik Project- Areva Resources Canada Inc.**

On behalf of Environment Canada (EC), I have reviewed the information submitted for the above-mentioned amendment application. The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities under the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Areva Resources Ltd. (Areva) has applied for an amendment to their current water license NWB 2BE-KIG0812 for the Kiggavik Project located approximately 80 km west of Baker Lake, Nunavut. Many of the sites which were planned to be drilled during the 2008 field season were not drilled as several of the sites are located within thirty (30) meters of the high water mark of permanent or temporary streams flowing into End Grid Lake. Areva states that in order to characterize the End Grid deposit, additional delineation, infilling and geotechnical drilling is required. The amendment, dated October 9<sup>th</sup>, 2008, is to consider an exemption for Condition Part F-Section 3 of the current water licence which states: "The Licencee shall not conduct any land based drilling within thirty (30) meters of the ordinary high water mark of any water body, unless otherwise approved by the Board in writing."

Approximately twelve holes (average depth 450 m) are proposed for the 2009 diamond drilling program at End Grid, some of which are likely to be located within thirty meters of permanent or temporary streams flowing into End Grid Lake. Planned mitigation measures include:

- A collection pan/casing box to be placed around the casing under the drill;
- The return water is collected in the pan and pumped rather than being allowed to flow directly from the casing;
- A manifold system is used to manage the water supply, with the objective of routing the excess supply water (fresh water) back to the lake and reducing the amount of fresh water pooling around the drill site;
- Non-radioactive cuttings are pumped to the designated low-lying area according to Licence No.2BE-KIG0708, Part F-Section 4;
- A separator set-up is used to collect radioactive cuttings when drilling within the mineralized zones. This set-up is located as far as practical from stream systems to prevent contact in case of a spill;
- A large piece of heavy poly may be placed within the cribbing of the drill. This acts as a secondary containment for the collection pan and casing box;

- Silt barriers are installed in the lake to reduce the likelihood of suspended particulate matter from drilling fluid from moving into the lake. The silt barriers consist of approximately 15 m long x 1.5 m high laminated polyester fabric with enclosed foam floats along the length of the upper side and anchor chain, which passes through a sleeve along the bottom side of the barrier. The barrier is impermeable to water and is staked at either end with sections of rebar;
- An arc shaped sandbag barrier is installed within the drainage pathway between drill location and the lake. The sandbag barrier is intended to delay potential flow containing suspended particulates originating from the drill site;
- All fuel storage and fuel tanks are within secondary containment and located as far as practical from the stream system; and,
- Daily inspections of the drill fluid system are conducted by both the drill crew and Areva EH&S group.

Environment Canada generally supports the mitigation measures proposed by Areva, and would like to add the following comments and recommendations:

- One of the main reasons for the 30 m prohibition is to protect the near shore areas of water bodies. To this end, any work that occurs in that area must be done such that there is no disturbance to surficial materials or permafrost, so that surface erosion does not occur. The proponent has not provided details of mitigation measures for protecting surface stability. EC requests that this information be provided for review prior to approval of this amendment request. Our concerns lie with the setup of the drilling rig on the organic materials, and with traffic across the small streams. In addition to the potential for surface disturbance, there is the potential for thermal erosion if ice lenses are exposed and subsequently thaw;
- It is unclear what distance is meant by “as far as practical from the stream system” for fuel storage, fuel tanks and separator set-up used to collect radioactive cuttings. According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type into water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited. The proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes or sediment into any water body;
- Sumps must be sited and managed in such a way that there will be no migration of drilling waste fluids to surface waters;
- Refueling shall not take place below the high water mark of any waterbody and shall be done in such a manner as to prevent any hydrocarbons from entering any waterbody frequented by fish;
- Environment Canada would like to remind the proponent that calcium chloride (CaCl) has been determined to be a toxic substance under the *Canadian Environmental Protection Act*. The proponent shall therefore ensure that if CaCl is used as a drill additive, all sumps containing CaCl are properly constructed and located in such a manner as to ensure that the contents will not enter any water body;
- If artesian flow is encountered, the drill hole shall be immediately plugged and permanently sealed; and,
- In Section 5.1, page 17, of the proponents Spill Contingency Plan (May 2008) the contacts and numbers for Environment Canada should be changed to the following:

**Environment Canada's 24 Hour Duty Officer (Curtis Didham)**

**Phone: 867-975-4644**

**Cell: 867-2221925**

**Fax: 867-975-4645**

Thank-you for the opportunity to comment on the proposed amendment to the current water license for the Kiggavik Project. If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at [carrie.spavor@ec.gc.ca](mailto:carrie.spavor@ec.gc.ca).

Yours truly,

***Original signed by***

Carrie Spavor  
Environmental Assessment Coordinator

cc: (Carey Ogilvie, Head, Environmental Assessment-North, EPOD, Yellowknife, NT)  
(Anne Wilson, Water Pollution Specialist, Yellowknife, NT)  
(Mike Fournier, Northern Environmental Assessment Coordinator, Yellowknife, NT)