



VIA EMAIL

March 29, 2011

Ms. Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
PO Box 119  
Gjoa Haven, NU X0B 1J0  
[licencing@nunavutwaterboard.org](mailto:licencing@nunavutwaterboard.org)

Dear Ms. Beaulieu:

**Re: Kiggavik Exploration Licence 2BE-KIG0812 – Amendment Request to Authorize Drilling During a Low Flow Artesian Conditions and Allow Drilling within 30 metres of Ordinary High Water Mark in Andrew Lake area and Mushroom Lake.**

Please accept the enclosed amendment request application for Licence 2BE-KIG0812 to allow drilling to continue when low flow artesian flows are encountered and allow drilling within 30 metres of the ordinary high water mark on Andrew and Mushroom Lakes.

Such drilling would allow further exploration for uranium deposits as well as provide valuable information regarding the groundwater in this area.

Nunavut Water Board (NWB) Licence 2BE-KIG0812 was issued to AREVA Resources Canada Inc. for exploration activities on April 25, 2008 and it expires December 31, 2012. Under the current and previous NWB Licences (2BE-SIS0607 – expired May 2007 and 2BE-KIG0708 – expired May 2008), AREVA believes they have maintained good communication and compliance standards with the NWB as evidenced in the annual report.

AREVA is confident that the attached company commitments will ensure protection of the environment. In support of this amendment request the following documents are enclosed.

- Executive Summary – English and Inuktitut
- Amendment Application Form
- Technical Support
- Application fee \$30.00

The following AREVA environmental Management Plans also support this amendment application. Copies of these plans are provided annually to as appendices to the annual report. They have not been included in the submission as an effort to reduce paper use and also as their size would make electronic submission prior to hard copy submission not feasible. Additional hard copies of the following plans can be provided on request. The plans will be updated as needed to reflect any changes as a result of licence amendments and will be forwarded to the NWB upon completion.

- Spill Contingency Plan
- Abandonment and Restoration Plan
- Waste Management Plan
- Noise Abatement Plan
- Wildlife Monitoring and Mitigation Plan

Exploration at the Kiggavik Project received a positive conformity determination against the Keewatin Regional Land Use Plan by the Nunavut Planning Commission (NPC) on December 15, 2006. The Nunavut Impact Review Board (NIRB) issued a screening decision under the file No. 06AN085 on April 3, 2007 that no review would be required. NIRB subsequently determined a change in Project scope and issued additional recommendations in a letter dated August 30, 2007.

Applications to authorizing agencies including a Project Proposal for mine development were submitted in November 2008. The mine development applications and proposal received a positive conformity determination against the Keewatin Land Use Plan in January 2009 and the NIRB made a screening recommendation for a public review of the Kiggavik Project to the Minister of Indian and Northern Development in March 2009. On March 2, 2010 AREVA received confirmation from NIRB that the Minister's decision indicated that the Kiggavik Project is subject to public review in accordance with Part 5 of Article 12 of the Nunavut Land Claims Agreement (NLCA). AREVA is applying for this amendment under Articles 12.10.2 and 13.5.5 of the NLCA that allow for continued approvals and licences for exploration activities when a project has been referred to a review.

Please note that a copy of this amendment application has been forwarded to the NPC and the NIRB to confirm whether a NPC conformity and/or a NIRB screening is required. If you have any questions or require additional information, please do not hesitate to contact Frederic Guerin, Project Manager, at (306) 343-4631 or me.

Best regards,



Kim Sarauer

Environment and Radiation Protection Supervisor  
Kiggavik Project, AREVA Resources Canada Inc.

[kim.sarauer@areva.ca](mailto:kim.sarauer@areva.ca)

Ph: (306) 343-4043

Enclosure

cc:

Andrew Kiem – Indian and Northern Affairs Canada

Brian Aglukark, Nunavut Planning Commission

Sophia Granchino, Nunavut Impact Review Board

Ryan Barry – Nunavut Impact Review Board

Lyndon Kivi - Department of Fisheries and Oceans

Jeff Mercer – Indian and Northern Affairs Canada

Luis Manzo – Kivalliq Inuit Association

## **EXECUTIVE SUMMARY**

The Kiggavik Project is a uranium surface exploration project located approximately 80 kilometres west of the community of Baker Lake. The project consists of two leases, the Kiggavik Site to the north and Scissons to the south, and a claim, St. Tropez which is north of the Kiggavik Site. It is expected that the drill and support crews will commence mobilization to site between May and June with drilling completed and camp prepared for the winter season by the end of August or beginning of September. Operations and personnel for all work will be based out of the Kiggavik camp and will be supported by helicopter services.

Planned activities for the 2011 field season are similar to those conducted during the 2007-2010 field seasons. In 2011 diamond drilling will continue at the Kiggavik and Scissons sites, largely focusing on exploration drilling areas of potential mineralization. Diamond drilling for the purpose of deposit appraisal on known deposit sites is also planned to take place during the 2011 field season. This includes drilling activities in the Kiggavik area to gain further knowledge of the groundwater and structure of the area in order to better facilitate the design of the proposed future pits. A program of prospecting and geological mapping is planned to take place on the St. Tropez claim and a geophysical survey will be carried out throughout the lease areas to identify potential for additional mineral deposits and to further evaluate known deposit areas. Geotechnical investigations may also be carried out to gain information on foundation and pad design and the possible road routes.

AREVA is submitting this amendment request to continue drilling during low flow artesian conditions as well as to drill within 30 meters of the ordinary high water mark in the Andrew Lake and Mushroom Lake areas in order to carry out the above mentioned activities. Please note that although geological mapping and prospecting may be carried out on the St. Tropez claim, water use will not be required in this area and there will be no adverse impacts to the environment as a result of these activities.

Environmental baseline studies may also continue throughout the 2011 field season. Environmental baseline studies include aquatics, terrestrial, wildlife assessment, hydrological and hydrogeological assessments to address any data gaps required to complete AREVA's Environmental Impact Statement. These environmental baseline studies predominantly take place at the Kiggavik and Scissons areas, however these studies may also take place along the potential road routes and near Baker Lake in order to better assess the potential impacts of each road route option.

AREVA recognizes that continued economic and social growth depends on a healthy environment. AREVA is committed to carrying out its field programs in a safe, environmentally responsible and sustainable manner. AREVA's Kiggavik Project has developed an Environmental Management System which is ISO 14001:2004 certified AREVA is strongly dedicated to avoiding or reducing adverse impacts that our activities may have, and concern for the environment and our personnel is of paramount importance to AREVA.

ΔΗΛΩΣΗ ΠΡΟΒΛΕΠΟΜΕΝΗΣ ΑΝΤΙΔΡΑΣΗΣ

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## Application for Water Licence Amendment

April 2010

P.O. BOX 119  
GJOA HAVEN, NUNAVUT  
XOB 1J0  
TEL: (867) 360-6338  
FAX: (867) 360-6369

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NUNAVUT IMALIRIYIN KATIMAYINGI  
NUNAVUT WATER BOARD  
OFFICE DES EAUX DU NUNAVUT

## DOCUMENT MANAGEMENT

Original Document Date: April 2010

### DOCUMENT AMENDMENTS

	Description	Date
(1)		
(2)		
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		



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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

### APPLICATION FOR WATER LICENCE AMENDMENT

The applicant is referred to the NWB's Guide 7: Licensee Requirements Following the Issuance of a Water Licence for more information about this application form.

**EXISTING LICENCE NO:** 2BE-KIG0812

#### 1. LICENSEE CONTACT INFORMATION

Is the licensee the same as that referred to on the existing licence?

☒ Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB. **A renewal will only be issued in the name of the current licensee in the absence of assignment of the licence.**

If the licensee is the same, but the name of the licensee has changed, attach a certificate of name change.

Name: AREVA Resources Canada Inc

Address: P.O. Box 9204  
817-45<sup>th</sup> Street West  
Saskatoon SK  
S7N 3X5

Phone: 1(306)343-4043  
Fax: 1(306)343-4044  
e-mail: frederic.guerin@areva.ca

#### 2. LICENSEE REPRESENTATIVE CONTACT INFORMATION – If different from Block 1.

Name:

Address:

Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
e-mail: \_\_\_\_\_

(Attach authorization letter.)



**3. NAME OF PROJECT**

Has the name of the project changed?

☐ Yes    ☒ No

If Yes, indicate the name of the project including the name of the location: \_\_\_\_\_

**4. LOCATION OF UNDERTAKING**

Does the proposed amendment change the location of the amended undertaking?

☐ Yes    ☒ No

Provide the project extents and camp locations. Identify proposed changes.

**Project Extents**

Please see Figure 1.0-1 Kiggavik, Sissons Lease and St. Tropez Claim Boundaries which show the project extents.

**Camp Location(s)**

Latitude: (64°26'26" N)    Longitude: (97°39'36" W)

**5. MAP**

Does the proposed amendment change the locations of any of the main components of the undertaking?

☐ Yes    ☒ No

Attach a topographical map, indicating the main components of the undertaking. Identify proposed changes.

NTS Map Sheet No.: 64A/05	Map Name: Kiggavik Main Area Components	Map Scale: 1:35,000
	Sissons Main Area Components	1:30,000
	Bong and Granite Main Area Components	1:25,000

## 6. NATURE OF INTEREST IN THE LAND

Does the proposed amendment change the nature of the interest in the land?

☐ Yes    ☒ No

If Yes, indicate changes. \_\_\_\_\_

Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked).

### Sub-surface

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

### Surface

☒ Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)  
Date (expected date) of issuance: Jan. 19, 2010 Date of expiry: April 9, 2012

☐ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☒ IOL Authorization from Kivalliq Inuit Association (KivIA)  
Date (expected date) of issuance: Jan. 12, 2011 Date of expiry: Jan. 3, 2012

☐ IOL Authorization from Qikiqtani Inuit Association (QIA)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ Commissioner's Land Use Authorization  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ Other \_\_\_\_\_  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

Is the name of the entity(s) holding authorizations the same as that considered in the existing water licence?

☒ Yes    ☐ No

If No, a licence assignment must be completed and approved by the NWB.

Name of entity(s) holding authorizations: \_\_\_\_\_

## 7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

Indicate the land use planning area in which the existing project is located.

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> North Baffin | <input checked="" type="checkbox"/> Keewatin |
| <input type="checkbox"/> South Baffin | <input type="checkbox"/> Sanikiluaq          |
| <input type="checkbox"/> Akunnig      | <input type="checkbox"/> West Kitikmeot      |

Does the proposed amendment change the land use planning area?

- ☐ Yes    ☒ No

If yes, indicate the land use planning area in which the amended undertaking is located.

- |                                       |   |
|---------------------------------------|---|
| <input type="checkbox"/> North Baffin | <input type="checkbox"/> Keewatin       |
| <input type="checkbox"/> South Baffin | <input type="checkbox"/> Sanikiluaq     |
| <input type="checkbox"/> Akunnig      | <input type="checkbox"/> West Kitikmeot |

Was a land use plan conformity determination required from NPC prior to the issuance of the existing water licence?

- ☒ Yes    ☐ No

If Yes, indicate date issued and attach copy.      Dec.15, 2006

Does the proposed amendment change the original NPC conformity determination or the need to obtain one?

- ☐ Yes    ☒ No

If Yes, indicate date issued (or expected) and attach a copy. \_\_\_\_\_

If No, provide written confirmation from NPC confirming that a land use plan conformity review is not required.

## 8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Was a screening determination required from NIRB prior to the issuance of the existing water licence?

- ☒ Yes    ☐ No

If Yes, indicate date issued and attach copy.      April 3, 2007

Does the proposed amendment change the original NIRB screening determination or the need to obtain one?

- ☐ Yes    ☒ No

If Yes, indicate date issued (or expected) and attach a copy. \_\_\_\_\_

If No, provide written confirmation from NIRB confirming that a screening determination is not required.

## 9. DESCRIPTION OF UNDERTAKING

Does the proposed amendment change the description of the undertaking?

☒ Yes   ☐ No

List and attach plans and drawings or project proposal. Identify proposed changes.

There are no changes to the field program described in the December 2007 application which, as indicated in this application, will include geological mapping, geochemical and geophysical surveys, approximately 10,000 meters of diamond drilling, and drill core logging and sampling. Environmental Baseline work may be conducted in 2011 including hydrology, aquatics, fish habitat, wildlife, soils and vegetation, marine and archaeology. Such studies would focus on supplementing data collected in previous years.

This amendment request is for an exemption to Part F section 3 of the Water Licence #2BE-KIG0812 which states the following:

“The Licensee 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.”

AREVA is requesting an exemption of this condition in order to drill within 30 metres of the ordinary high water mark of Andrew Lake and the associated streams. As well, drilling within 30 m of the ordinary high water mark of Mushroom Lake has been identified as a possible location for future drilling, however it is not currently planned for the 2011 field season. Although drilling within 30m off the ordinary high water mark of the streams connecting Mushroom Lake and End Grid Lake was included and approved in the NWB Amendment #2, the lake itself was not included at that time.

Additionally, this amendment request is related to Part F section 6 of the Water Licence which states:

“If artesian flow is encountered, drill holes shall be immediately sealed and permanently capped to prevent induced contamination of groundwater or salinization of surface waters. The Licensee shall report all artesian flow occurrences within the Annual Report, including the location (GPS coordinates) and dates.”

AREVA would like to further drilling efforts in areas which have encountered artesian flows in past field seasons. Artesian flows are expected in the Bong Grid area and are a likely possibility in the Kiggavik area although artesian flows can be encountered anywhere while drilling. Exploration drilling, such as that planned for the Bong Grid area, is required in order to further assess the potential for future mining. As well drilling, such as the proposed drilling program for the Kiggavik area, is required to gain further knowledge of the groundwater and structure of the area in order to better facilitate the design of the proposed pits. AREVA is committed to continue to communicate with both NWB and INAC when experiencing artesian flows in order to properly assess the situation on a case-by-case basis.

In addition to the Kiggavik Project's environmental Management Plans the attached Technical Support document outlines the mitigation measures that will be implemented in order to preserve the integrity of the environment while carrying out the proposed activities.

## 10. OPTIONS

Does the proposed amendment change any of the alternative methods and locations that were considered to carry out the project?

☐ Yes    ☒ No

Provide a brief explanation of the alternative methods or locations that were considered to carry out the project. Identify proposed changes.

## 11. CLASSIFICATION OF PRIMARY UNDERTAKING

Indicate the primary classification of undertaking for the existing licence by checking one of the following boxes:

- |  |  |
|--|--|
| <input type="checkbox"/> Industrial  | <input type="checkbox"/> Agricultural  |
| <input checked="" type="checkbox"/> Mining and Milling (includes exploration/drilling/exploration camps) |  |
| <input type="checkbox"/> Conservation  |  |
| <input type="checkbox"/> Municipal (includes camps/lodges)   | <input type="checkbox"/> Recreational  |
| <input type="checkbox"/> Power   | <input checked="" type="checkbox"/> Miscellaneous (describe below):<br><u>baseline studies</u> |

Does the proposed amendment change the classification of primary undertaking?

☐ Yes    ☒ No

If Yes, indicate the primary undertaking of the amendment: \_\_\_\_\_

Information in accordance with applicable Supplemental Information Guidelines (SIG) must be updated and submitted with an Application for Amendment. Indicate which SIG(s) are applicable to your application.

- ☐ Hydrostatic Testing
- ☐ Tannery
- ☐ Tourist / Remote Camp
- ☐ Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil
- ☐ Onshore Oil and Gas Exploration Drilling
- ☒ Mineral Exploration / Remote Camp
- ☐ Advanced Exploration
- ☐ Mine Development
- ☐ Municipal
- ☐ General Water Works
- ☐ Power

## 12. WATER USE

Indicate, using the boxes below, the types of water use(s) approved in the existing licence.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> To obtain water for camp/ municipal purposes |   |
| <input checked="" type="checkbox"/> To obtain water for industrial purposes      | <input type="checkbox"/> To divert a watercourse                    |
| <input type="checkbox"/> To cross a watercourse                                  | <input type="checkbox"/> To modify the bed or bank of a watercourse |
| <input type="checkbox"/> To alter the flow of, or store water                    | <input type="checkbox"/> Flood control                              |
| <input type="checkbox"/> Other: _____  |   |

Does the proposed amendment change the type(s) of water use(s)?

☐ Yes    ☒ No

If Yes, indicate using the boxes below, the proposed change(s) to the type(s) of water use(s) noting any water use(s) that are to be added, continued, or removed.

- |   |   |
|---|---|
| <input type="checkbox"/> To obtain water for camp/ municipal purposes |   |
| <input type="checkbox"/> To obtain water for industrial purposes      | <input type="checkbox"/> To divert a watercourse                    |
| <input type="checkbox"/> To cross a watercourse                       | <input type="checkbox"/> To modify the bed or bank of a watercourse |
| <input type="checkbox"/> To alter the flow of, or store water         | <input type="checkbox"/> Flood control                              |
| <input type="checkbox"/> Other: _____                                 |   |

**13. QUANTITY OF WATER INVOLVED**

Does the proposed amendment change the source of water?

☐ Yes

☒ No

Indicate the water source(s). Identify proposed changes.:

\_\_\_\_\_  
(show location(s) on map)

Does the proposed amendment change the quality of the water source and/or its available capacity?

☐ Yes ☒ No

Describe the quality of the water source(s) and the available capacity(s). Identify any changes.: \_\_\_\_\_

Does the proposed amendment change the overall quantity of water to be used?

☐ Yes ☒ No

Provide the overall estimated quantity to be used. Identify proposed changes. : 300 m<sup>3</sup>/day – no changes required

Does the proposed amendment change the quantity of water to be used from each source?

☐ Yes ☒ No

Provide the estimated quantity(s) of water to be used from each source. Identify proposed changes. :

Does the proposed amendment change the quantity of water to be used for each purpose?

☐ Yes ☒ No

Provide the estimated quantities to be used for each purpose (camp, drilling, etc.). Identify proposed changes.:

Camp: 10 m<sup>3</sup>/day Drills: 290 m<sup>3</sup>/day (no change)

Does the proposed amendment change the method(s) of extraction?

☐ Yes

☒ No

Describe the method(s) of extraction. Identify proposed changes. : \_\_\_\_\_

Does the proposed amendment change the quantity(s) of water returned to source(s)?

☐ Yes ☒ No

Estimated quantity(s) of water returned to source(s). Identify proposed changes. : \_\_\_\_\_ m<sup>3</sup>/day

Does the proposed amendment change the quality(s) of water returned to source(s)?

☐ Yes ☒ No

Describe the quality(s) of water(s) returned to source(s). Identify any changes. : \_\_\_\_\_

**14. WASTE**

Check the appropriate box(s) to indicate the types of waste(s) approved in the existing licence.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Sewage                           | <input checked="" type="checkbox"/> Waste oil           |
| <input checked="" type="checkbox"/> Solid Waste                      | <input checked="" type="checkbox"/> Greywater           |
| <input checked="" type="checkbox"/> Hazardous                        | <input type="checkbox"/> Sludges                        |
| <input checked="" type="checkbox"/> Bulky Items/Scrap Metal          | <input type="checkbox"/> Contaminated soil and/or water |
| <input type="checkbox"/> Animal Waste                                |   |
| <input checked="" type="checkbox"/> Other (describe): Drill cuttings |   |

Does the proposed amendment change the type(s) of waste(s) to be generated or deposited?

☐ Yes    ☒ No

If Yes, indicate using the boxes below, the proposed change(s) to the type(s) of waste(s) to be generated and/or deposited noting the addition, removal or continued generation and/or disposal of waste(s).

- |  |   |
|--|---|
| <input type="checkbox"/> Sewage                  | <input type="checkbox"/> Waste oil                      |
| <input type="checkbox"/> Solid Waste             | <input type="checkbox"/> Greywater                      |
| <input type="checkbox"/> Hazardous               | <input type="checkbox"/> Sludges                        |
| <input type="checkbox"/> Bulky Items/Scrap Metal | <input type="checkbox"/> Contaminated soil and/or water |
| <input type="checkbox"/> Animal Waste            |   |
| <input type="checkbox"/> Other (describe): _____ |   |



# 15. QUANTITY AND QUALITY OF WASTE INVOLVED

Does the proposed amendment change the quantity(s) of the types of wastes involved?

☐ Yes    ✓ No

Does the proposed amendment change the composition(s) of the types of wastes involved?

☐ Yes    ✓ No

Does the proposed amendment change the method(s) of treatment for the types of waste involved?

☐ Yes    ✓ No

Does the proposed amendment change the method(s) of disposal for the types of waste involved?

☐ Yes    ✓ No

If Yes to any of the above, describe the proposed changes: \_\_\_\_\_

For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
Sewage	liquid	~6m <sup>3</sup> /day	NA	Mixed with greywater for disposal into a designated low lying area
Sewage	solid	~0.8 m <sup>3</sup> /day		Incinerated daily
Solid Waste	Paper, non-treated wood, food waste, domestic garbage			Incinerated daily
Hazardous	Used aerosol cans, used oil filters			Properly sorted and stored for future transport to an approved facility
Bulky Items/Scrap Metal				Sorted and stored for future transport to an approved facility
Waste oil				Used in waste oil generators
Greywater	Shower, kitchen water	Up to 10 m <sup>3</sup> /day	Kitchen grease and food particles removed inline	Discharged into low lying depression
Drill Cuttings (non-mineralized)	uranium concentration <0.05%			Pumped to a natural low-lying depression
Drill Cuttings (mineralized)	uranium concentration ≥0.05%			Collected and stored in radioactive storage compound

**16. OTHER AUTHORIZATIONS**

Does the proposed amendment change the need for other authorizations in addition to the sub-surface and surface land use authorizations provided in Block 6?

☐ Yes    ☒ No

If Yes, indicate any additional authorizations required, which authorizations are no longer required, and which authorizations continue to be required.

For each provide the following:

Authorization: \_\_\_\_\_

Administering Agency: \_\_\_\_\_

Project Activity: \_\_\_\_\_

Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

**17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES**

Does the proposed amendment change the predicted environmental impacts of the undertaking and the proposed mitigation measures?

☐ Yes    ☒ No

Describe direct, indirect, and cumulative impacts related to water and waste. Identify any changes.

**18. WATER RIGHTS OF EXISTING AND OTHER WATER USERS**

Was compensation paid and/or an agreement(s) for compensation been entered into with any existing or other users of water during consideration of the existing licence?

☐ Yes    ☒ No

If Yes, provide the names, addresses and the nature of water use by those persons or properties.

Does the proposed amendment adversely affect any known persons or property including those that hold licences for water use in precedence to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature?

☐ Yes    ☒ No

If Yes, provide the names, addresses and the nature of water use of those persons or properties.

Advise the Board if compensation has been paid and/or an agreement(s) for compensation has been reached with any existing or other water users with respect to the proposed amendment.

**19. INUIT WATER RIGHTS**

Was compensation paid/ or an agreement(s) for compensation been entered into with any Designated Inuit Organization (DIO) during consideration of the existing licence?

☐ Yes    ☒ No

If Yes, which DIO(s) \_\_\_\_\_

Does the proposed amendment substantially affect the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL)?

☐ Yes    ☒ No

If Yes, advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more DIO(s) with respect to the proposed amendment.

**20. CONSULTATION** - Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

Consultations are carried out each year and reported in the Annual Reports but the topics in this application were not discussed at the consultations sessions.

**21. SECURITY INFORMATION**

Does the proposed amendment change the financial security assessment?

☐ Yes    ☐ No

Does the proposed amendment change the estimate of the total financial security for final reclamation?

☐ Yes    ☐ No

An estimate of the total financial security for the final reclamation was not submitted with the original water license application. AREVA is in the process of finalizing this estimate with approval from the Kivalliq Inuit Association (KIA) and Indian and Northern Affairs Canada (INAC). Once this estimate has been finalized AREVA can forward it to the NWB if required.

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also include contingency factors appropriate to the particular work to be undertaken. Identify any changes in the financial security assessment resulting from the proposed amendment.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut*, Indian and Northern Affairs Canada, 2002.

**22. FINANCIAL INFORMATION**

Is the statement of financial security the same as that considered in the existing water licence?

☐ Yes ☐ No

A statement of financial security was not included with the original license application.

Provide an updated statement of financial security.

As AREVA Resources Canada Inc. is not a publicly traded company financial statements are generally not shared. Instead AREVA's assets, Sales Revenue and capital expenditures have been provided. AREVA also asks that this information be kept confidential and for that reason this information is not included in the electronic copy of this application.

If the applicant is a business entity please answer the questions below:

Is the list of the officers of the company the same as those considered in the existing water licence?

☐ Yes ☐ No

A list of the officers of the company was not provided with the original application. Please find a complete list of Officers and Directors attached.

Provide a list of the officers of the company.

Is the Certificate of Incorporation or evidence of registration of the company name the same?

☐ Yes ☐ No

A copy of the Certificate of Incorporation was not included with the original license application. Please find a copy of the Certificate of Incorporation attached.

Attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

### 23. STUDIES UNDERTAKEN TO DATE

List and attach updated studies, reports, research etc.

Provide a compliance assessment and status report including a response to any inspector's reports. The licensee must contact the NWB for licence specific direction in completing the assessment and report.

If in non-compliance, a licence may not be issued until compliance is achieved. If in non-compliance, attach plans/reports for consideration. Application will not be processed if significant issues of non-compliance exist.

All licence conditions and what AREVA is doing to be in compliance are included in each Annual Report (Section 11.4). Below are the recommendations/concerns that resulted from the 2010 water use inspection and the actions AREVA is taking to fix these issues.

RECOMMENDATIONS/CONCERNS	ACTION TAKEN
Grease trap and screens are not adequate to efficiently remove grease and food particulate before discharge to the sump. AREVA needs to engineer an adequate grease trap and food particulate separator or purchase a commercially available model and have trained staff on site to maintain it.	AREVA has had communication with the Water Resource Inspector to discuss possible solutions for food particle removal prior to discharge. AREVA will ensure proper installation of such devices and will work closely with catering staff to ensure both the grease trap and food particulate removal system are properly maintained.
AREVA also is responsible to ensure all of their wastes are disposed of in an environmental manner and at an approved waste disposal site.	AREVA is committed to finding an alternative waste disposal site and will continue communication with the appropriate regulatory agencies to find an acceptable alternative for 2011.

It has also come to AREVA's attention that the NWB did not receive the 2010 \$30 water use fee which was due April 25, 2010. A cheque for this amount, the 2011 water use fee, and the application fee has been sent to the NWB with the hard copy of this application.

## 24. PROPOSED TIME SCHEDULE

Does the proposed amendment change the time schedule considered in the existing licence for any phase of development?

☐ Yes    ☒ No

Indicate the start and completion dates for each applicable phase of development (construction, operation, closure, and post closure). Identify proposed changes.

Exploration activities run approximately May to September of each year.

### Construction

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

### Operation

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

### Closure

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

### Post - Closure

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

For each applicable phase of development indicate which season(s) activities occur.

### Construction

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

### Operation

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

### Closure

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

### Post - Closure

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

**25. PROPOSED TERM OF LICENCE**

On what date does the existing licence expire? December 31, 2012

Is the Licensee applying for a combined renewal and amendment of the existing licence?

☐ Yes    ☒ No

If Yes, indicate the proposed term of the renewal (maximum of 25 years):  
\_\_\_\_\_

Requested date of renewal issuance: \_\_\_\_\_ Requested Expiry Date: \_\_\_\_\_  
(month/year) (month/year)

(The requested date of renewal issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for more information)

**26. ANNUAL REPORTING**

Will the proposed amendment change the content of annual reports or the annual report template?

☐ Yes    ☒ No

AREVA will continue to list all artesian flows encountered and drill holes located within 30 m of the ordinary high water mark within the End Grid, Andrew Lake and Mushroom Lake areas along with dates and GPS coordinates.

If Yes, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

## 27. CHECKLIST

The following must be included with the application for Amendment for the water licensing process to begin.

Completed Application for Water Licence Amendment form.

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Information addressing Supplement Information Guideline (SIG), where applicable (see Block 11)

☐ Yes ☒ No If no, date expected \_\_\_\_\_

Compliance Assessment / Status Report (see Block 23).

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Indication of Renewal Requirement (see Block 26)

☒ Yes ☐ No If no, date expected \_\_\_\_\_

English Summary of Renewal Application.

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Inuktitut and/or Inuinnaqtun Summary of Renewal Application.

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Application fee of \$30.00 CDN (Payee Receiver General for Canada).

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Water Use Fee Deposit of \$30.00 CDN (Payee Receiver General for Canada). The actual water use fee will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

☒ Yes ☐ No If no, date expected \_\_\_\_\_

## 28. SIGNATURE

Kim Sarauer

Environment and  
Radiation Protection  
Supervisor

March 29,  
2011

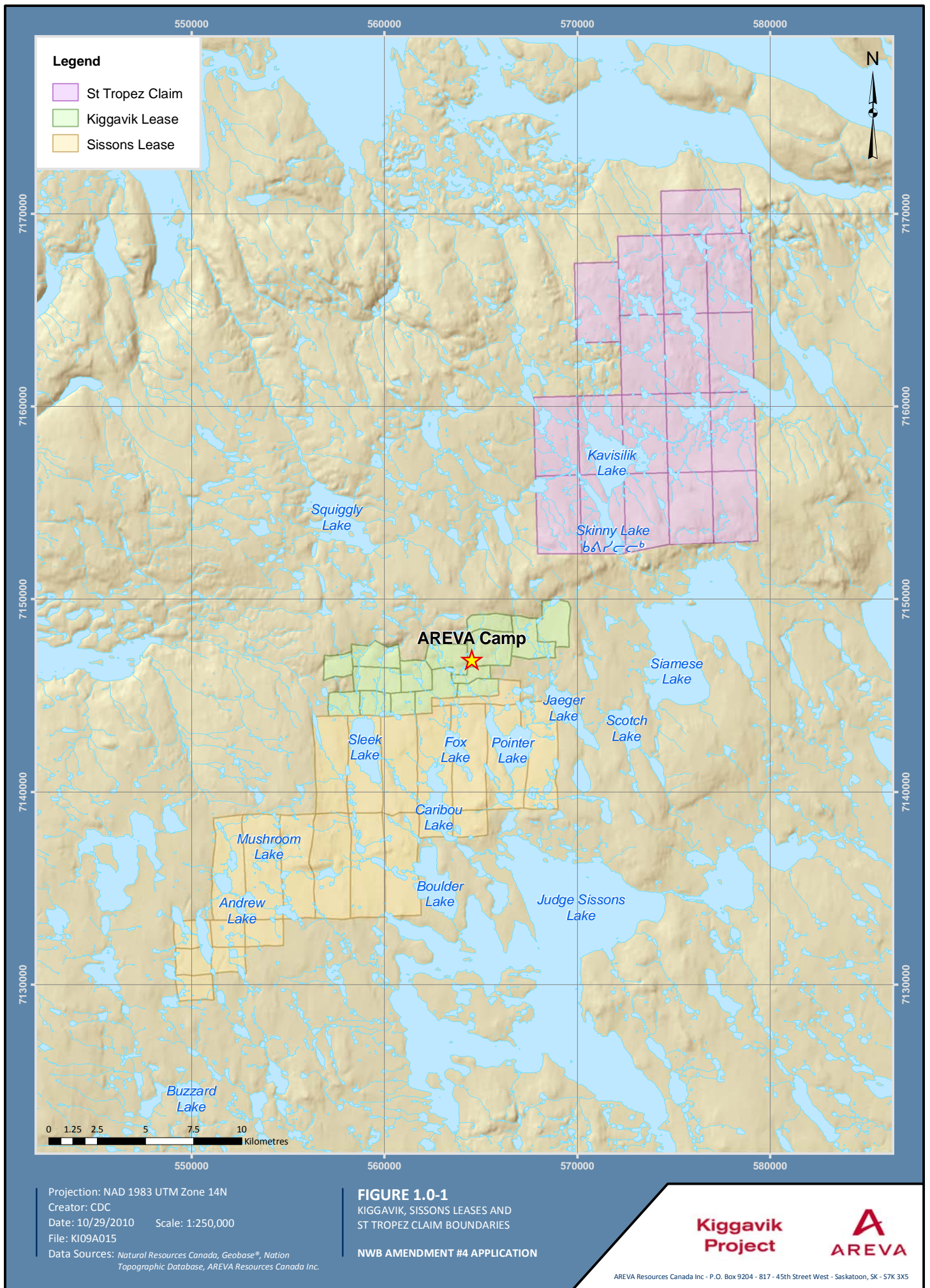
Name (Print)

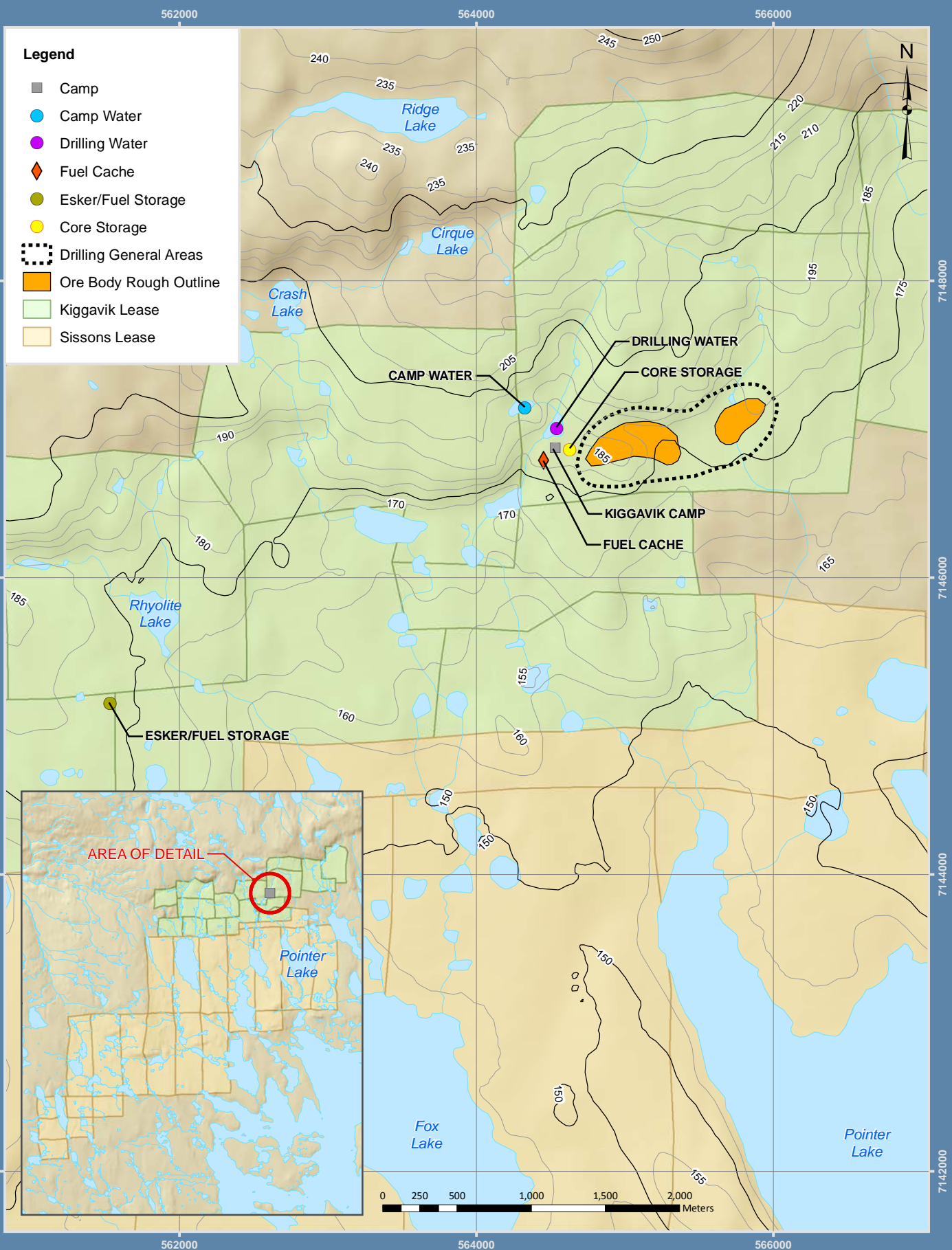
Title (Print)

Signature

Date







Projection: NAD 1983 UTM Zone 14N  
 Creator: CDC  
 Date: 02/18/2011 Scale: 1:35,000  
 File: KI09A017

Data Sources: Natural Resources Canada, Geobase®, Nation  
 Topographic Database, AREVA Resources Canada Inc.

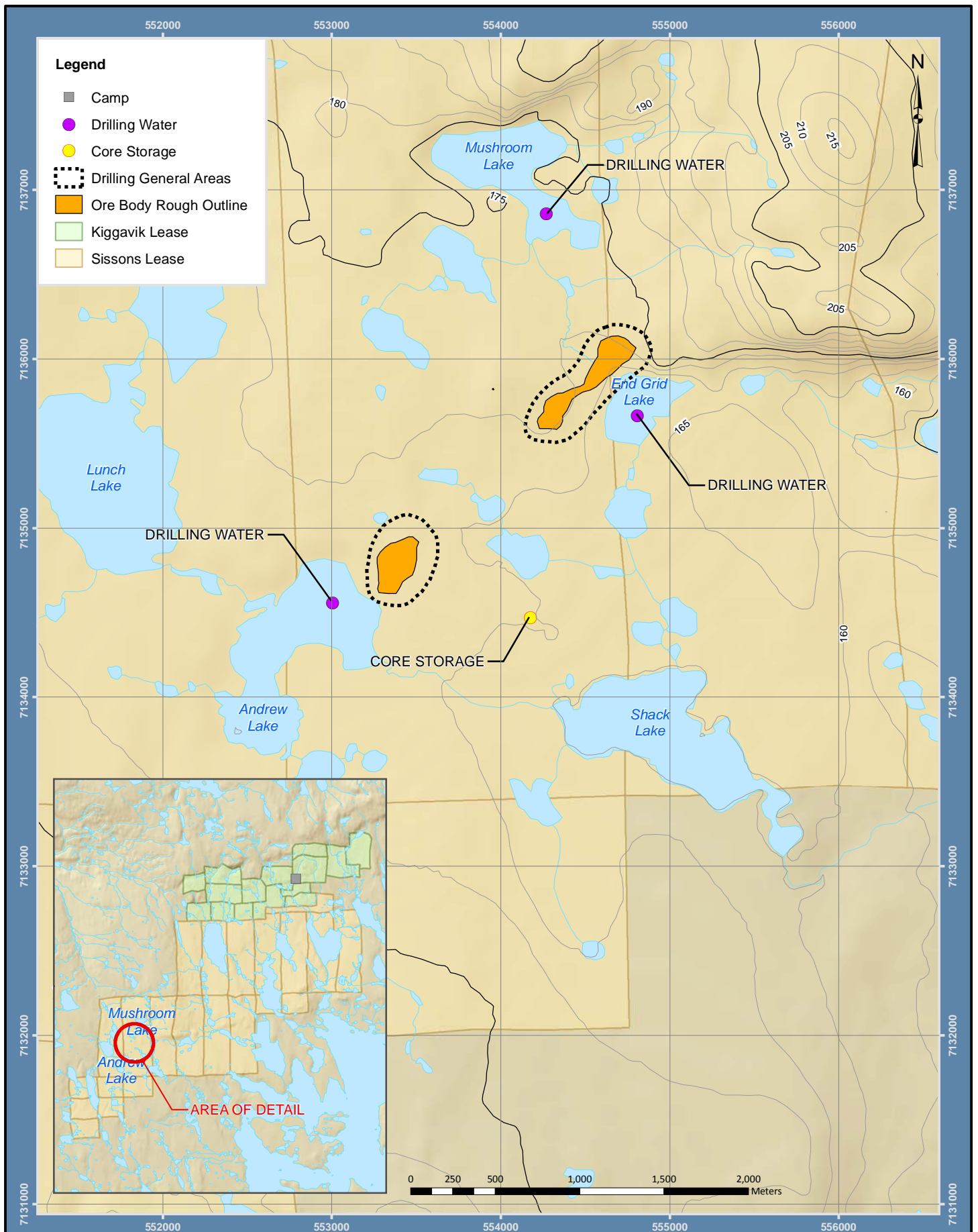
**FIGURE 1.0-2**  
 KIGGAVIK MAIN AREA COMPONENTS

NWB AMENDMENT #4 APPLICATION

**Kiggavik**  
**Project**







Projection: NAD 1983 UTM Zone 14N  
 Creator: CDC  
 Date: 02/18/2011 Scale: 1:30,000  
 File: KI09A018

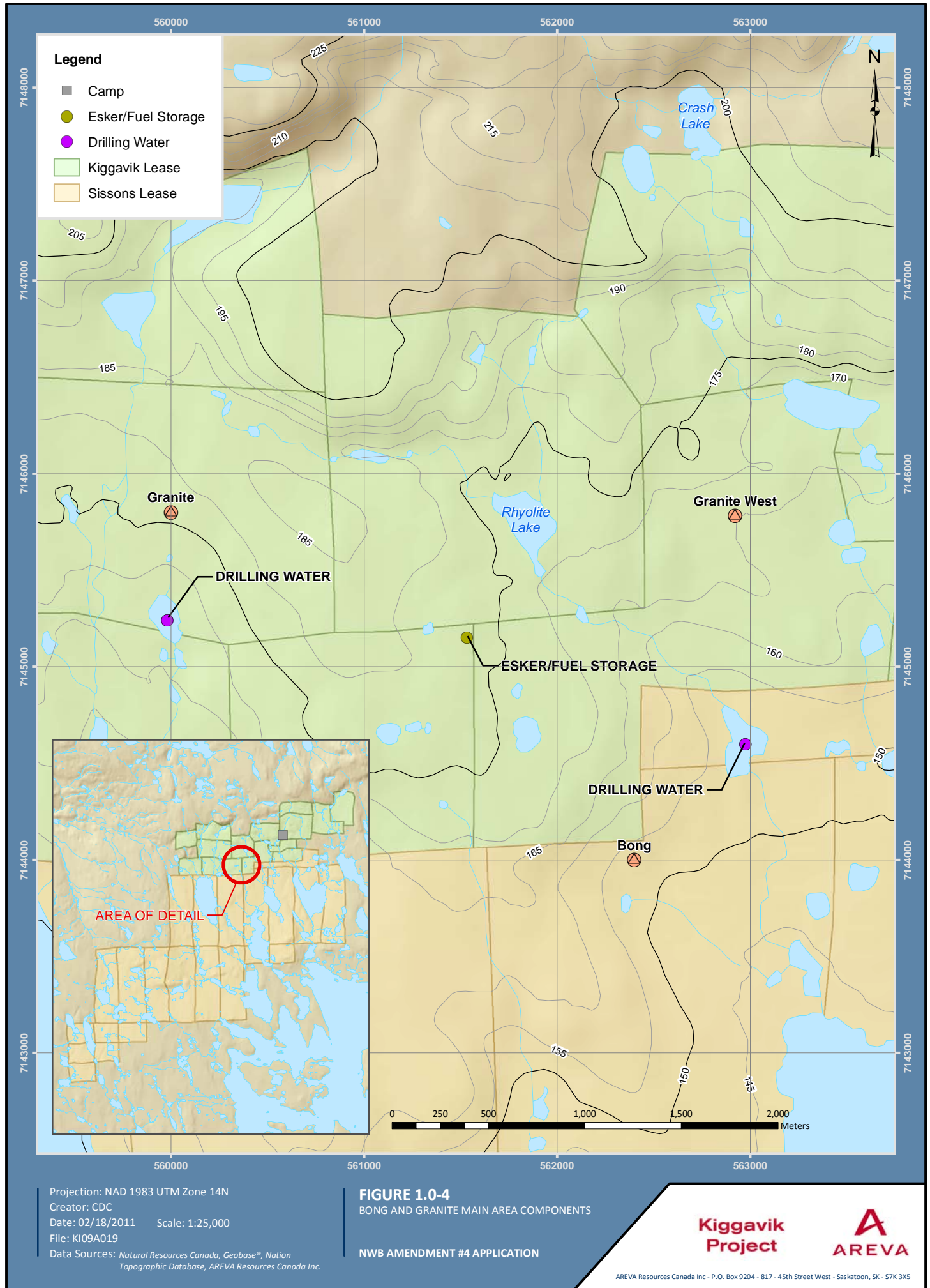
Data Sources: Natural Resources Canada, Geobase®, Nation  
 Topographic Database, AREVA Resources Canada Inc.

**FIGURE 1.0-3**  
 SISSONS MAIN AREA COMPONENTS

NWB AMENDMENT #4 APPLICATION

**Kiggavik  
 Project**





**FIGURE 1.0-4**  
BONG AND GRANITE MAIN AREA COMPONENTS

NWB AMENDMENT #4 APPLICATION

**Kiggavik  
Project**



**AREVA Resources Canada Inc.  
Board of Directors  
2011**

<b>Name</b> (Last name, First name)	<b>Address</b> (Street, City, Province, Country, Postal Code)	<b>Position held as Officer</b> (if any)
DE MONTESSUS, Sebastien	27 Avenue André Malraux 92300 Levallois Perret FRANCE	<b>Chairman</b>
CHABOT, Xavier	10 rue des Pavillons 92800 Puteaux FRANCE	
BELAND, Jean-François	925 Brock Road Pickering ON L1W 2X9 CANADA	
MARTIN, Vincent	817 45 <sup>th</sup> Street West Saskatoon SK S7K 3X5 CANADA	President & CEO
SCHERMAN, Gerald	523 Whitewood Crescent Saskatoon SK S7J 4L4 CANADA	Senior Vice President and Chief Financial Officer
VAN LAMBALGEN, Tammy	89 Harvard Crescent Saskatoon SK S7H 3R1 CANADA	Secretary
CORMAN, Jim	1013 McPherson Ave Saskatoon SK S7N 0Y4 CANADA	Vice President, Operations & Projects

**Roger Alexander resigned November 16, 2010.**

**AREVA Resources Canada Inc.**  
**List of Officers**  
**2010**

Current Officers

<b>Name</b> (Last name, First name)	<b>Address</b> (Street, City, Province, Country, Postal Code)	<b>Position held as Officer</b> (if any)
DE MONTESSUS, Sebastien	27 Avenue André Malraux 92300 Levallois Perret FRANCE	Chairman
MARTIN, Vincent	817 45 <sup>th</sup> Street West Saskatoon SK S7K 3X5	President & CEO
SCHERMAN, Gerald	523 Whitewood Crescent Saskatoon SK S7J 4L4	Sr. Vice President, CFO
VAN LAMBALGEN, Tammy	98 Harvard Crescent Saskatoon SK S7H 3R1	Secretary
HUFFMAN, Dale	817 45 <sup>th</sup> Street West Saskatoon SK S7K 3X5	Vice President, Science, Health, Environment and Quality
CORMAN, Jim	1013 McPherson Avenue Saskatoon SK S7N 0Y4	Vice President, Operations & Projects
WALLS, Bruce	347 Emerald Court Saskatoon SK S7J 4A5	Vice President, Human Resources and Industrial Relations
THOUMYRE, Olivier	AREVA Inc One Bethesda Center 4800 Hampden Lane Suite 1100 Bethesda MD 20814 USA	Treasurer
ROUX, Joseph	817 45 <sup>th</sup> Street West Saskatoon SK S7K 3X5	Vice President, Exploration
GLADUE, Richard	817 45 <sup>th</sup> Street West Saskatoon SK S7K 3X5	Vice President, Corporate Social Responsibility



Industry Canada

Industrie Canada

**Certificate  
of Amendment**

**Canada Business  
Corporations Act**

**Certificat  
de modification**

**Loi canadienne sur  
les sociétés par actions**

AREVA Resources Canada Inc.

333436-8

Name of corporation-Dénomination de la société

Corporation number-Numéro de la société

I hereby certify that the articles of the  
above-named corporation were amended:

Je certifie que les statuts de la société  
susmentionnée ont été modifiés:

- a) under section 13 of the *Canada Business Corporations Act* in accordance with the attached notice;
- b) under section 27 of the *Canada Business Corporations Act* as set out in the attached articles of amendment designating a series of shares;
- c) under section 179 of the *Canada Business Corporations Act* as set out in the attached articles of amendment;
- d) under section 191 of the *Canada Business Corporations Act* as set out in the attached articles of reorganization;

- ☐ a) en vertu de l'article 13 de la *Loi canadienne sur les sociétés par actions*, conformément à l'avis ci-joint;
- ☐ b) en vertu de l'article 27 de la *Loi canadienne sur les sociétés par actions*, tel qu'il est indiqué dans les clauses modificatrices ci-jointes désignant une série d'actions;
- ☒ c) en vertu de l'article 179 de la *Loi canadienne sur les sociétés par actions*, tel qu'il est indiqué dans les clauses modificatrices ci-jointes;
- ☐ d) en vertu de l'article 191 de la *Loi canadienne sur les sociétés par actions*, tel qu'il est indiqué dans les clauses de réorganisation ci-jointes;

Richard G. Shaw  
Director - Directeur

May 30, 2006 / le 30 mai 2006

Date of Amendment - Date de modification

## **TECHNICAL SUPPORT**

### **1 DRILLING IN LOW FLOW ARTESIAN CONDITIONS**

#### **1.1 Scope of Work**

Planned drilling activities for the Kiggavik Project's 2011 field season include drilling at the Kiggavik site in order to collect hydrogeological data and conduct groundwater monitoring and exploration drilling in and around the End Grid, Bong Grid, Granite Grid, Sleet Lake and Andrew Lake areas. Artesian flows have been encountered in the End Grid, Bong Grid, and Main Zone (Kiggavik) areas during past field seasons. As uranium mineralization has been found at Bong Grid in past drilling programs, further drilling is required to gain knowledge of the extent of this deposit. Further drilling in the Kiggavik area is also required to gain further knowledge of the geological structure in order to better facilitate the design of the proposed pits.

#### **1.2 Overview of Artesian Flow Conditions**

AREVA encountered two flowing artesian during the Kiggavik Project's 2010 field program: The first artesian flow was encountered on Friday June 18<sup>th</sup> at BONG045 at a depth of 320m. A water sample was taken immediately (see appendix I for results) and the flow rate was estimated to be 12 L/min. The target depth for this hole was ~500 m. The second artesian was encountered on June 27<sup>th</sup> at BONG047 at a depth of 282m. An estimate of the water flow was not conducted; however upon visual inspection the drillers and project geologist on site noted that the flow was less than BONG045. No water sample was taken at BONG047 and the hole was immediately sealed and permanently capped. Additionally, one non-flowing artesian was noted while conducting a packer test on MZ-10-01 where the pressure response of the hydrogeological test interval (222.1-247.9 mbgs) was interpreted as artesian conditions. Although the static hydraulic head was estimated at 17.6 m above the borehole collar there was no water flowing from the hole. Packer testing takes approximately 2-4 hrs to complete and is conducted once drilling is completed on that hole. MZ-10-01 was permanently capped and sealed upon completion of the packer test.

In 2009, artesian flow conditions were experienced in the End Grid, Andrew Lake and Main Zone (Kiggavik) areas. The hydraulic head measured in drill holes END-09-01 in the End Grid area, AND-09-03 in the Andrew Lake area and MZ-09-04 in the Kiggavik Main Zone area were 175.5 masl (9.3 mags), 169.7 masl (3.5 mags) and 215.5 masl (25.2 mags), respectively. The artesian flow at Main Zone site was encountered at a depth of 270 mbgs with a flow rate of about 28L/min. Two water samples were collected at MZ-09-04 and the results of the laboratory analysis is included in Appendix I.

In 2008, artesian flow conditions were observed in the Bong and Kiggavik Main Zone areas. The first artesian flow was observed in drill hole BONG-041 at a depth of approximately 300 mbgs with a flow rate of approximately 2.5L/s (150L/min). The



hydraulic head measured at BONG-041 was >1 mags. The second artesian flow was encountered in drill hole MZ-08-04 with a flow rate of 4.5L/min. The hydraulic head measured at MZ-08-04 was the same as in the Bong area.

In 2007, the observation from pressure transducer at the bottom of the drill hole (near bottom of permafrost) was interpreted as artesian flow conditions in drill hole MZ-07-03 at the Kiggavik Main Zone site. Hydraulic head was estimated as 66m above ground surface likely caused due to volume expansion in the drill hole cavity due to ice pressure in the deep permafrost zone.

### **1.3 Hydraulic Conductivity of Rock Formations**

Some lakes in the vicinity of the Kiggavik Project area have melt zones (generally known as “Taliks”) below them and are believed to be hydraulically connected and they penetrate through the deep groundwater flow system. During the 2008-2010 field campaign, hydrogeological tests were conducted in the Kiggavik Main Zone area to obtain information to assess the deep groundwater flow regime beneath the continuous permafrost. Measured hydraulic conductivity values ranged from 1E-7 to 4E-8 m/s, which indicated the low permeability of granitic rock formations within the deep aquifer system in the area.

AREVA, with the help of the drilling contractor, has defined a low flow artesian as an artesian with a flow rate equal to or less than 95 L/min. At this flow rate water and cuttings management can be carried out in the same manner as all other drill holes. Water and cuttings management methods are described below. Due to the deep continuous permafrost condition and generally low permeability of the deeper rock formations, the only significant source of artesian flow conditions are likely to be geological structures hydraulically connected to taliks beneath nearby lakes. With the nearest major lakes (those supporting taliks) being approximately 2 km and more from the proposed drilling areas, it would be unlikely to find such highly permeable structural features (faults) so well hydraulically connected over the distance at a sub-permafrost depth of 200 mbgs and deeper. Additionally, hydrogeological testing across several faults in the Kiggavik Project area has not indicated an increased permeability compared to the competent rock formations due to mineralization and gouge in the structures. Hence, the artesian flow rate is expected to be less than the defined low flow artesian criteria.

### **1.4 Environmental Protection Measures**

Following is an explanation of the steps that will be taken; in addition to Kiggavik's pre-existing management plans in order to minimize any erosion or surface water contamination or salinization. Along with these measures AREVA will continue to communicate any artesian flow occurrences with the NWB and INAC.

**Drill Water and Cuttings Management:**

Water and cuttings management when a low flow artesian is encountered will be carried out in such a way as to minimize erosion and surface water contamination. Two methods of drill water and cuttings management can be carried out depending on whether or not uranium mineralization is present.

When drilling through non-mineralized rock, drill water is collected at the base of the drill and pumped to a natural low lying depression located a minimum of 30m away from the ordinary high water mark of any water body and where direct flow into a water body is not possible. Small trenches are also created near the edge of the drill in order to catch any excess water that may not have been collected at the base of the drill. An additional pump is placed in the trench and the water is pumped to the same natural low lying depression. Radiation measurements are taken at the natural low lying depression daily by Environment and Radiation Protection (ERP) staff to ensure radiation levels are below 1  $\mu\text{Sv}$  at a distance of 1m from the ground. This ensures that water from the artesian is managed in such a way as to prevent surface water contamination and minimize erosion.

When uranium mineralization (0.05% U) is present the drill water and cuttings are collected from both below the drill and from the trench in the same manner as above but are pumped to tubs where the water and cuttings are separated from each other. The water is then pumped to the natural low lying depression and the cuttings are bagged. The bagged cuttings are then placed in the radioactive storage compound.

All artesian conditions encountered which have flow rates greater than 95L/min will be immediately capped and permanently sealed.

**Water Analysis:**

When an artesian flow is encountered a sample of the water will be taken and sent to the Saskatchewan Research Council (SRC) for analysis. The analysis results will be forwarded to the NWB as they are received.

**Drill Hole Abandonment and Restoration:**

Abandonment and Restoration measures are conducted on all drill holes. This includes conducting a gamma survey prior to and upon completion of drilling at each drill hole. The pre and post gamma surveys for each drill hole are then compared to one another. If any area is 1 $\mu\text{Sv}$  or more above background, material is collected until radiation levels are again below 1 $\mu\text{Sv}$  above background. Any material collected in this cleanup will be brought to the radioactive storage compound.

## **2 DRILLING WITHIN 30 METERS OF THE ORDINARY HIGH WATER MARK IN THE ANDREW LAKE AND MUSHROOM LAKE AREAS**

### **2.1 Scope of Work**

Exploration drilling near the Andrew Lake deposit will be done in order to test the hypothesis that additional mineralization extends south of the deposit. Drilling near Mushroom Lake is not currently planned for the 2011 field season but has been identified as a possible drilling location in future field programs. Although drilling near the streams connecting Mushroom Lake and End Grid Lake was approved in the NWB amendment #2, Mushroom Lake was not included in the amendment #2 application.

### **2.2 Environmental Protection Measures**

All proposed drilling within 30 m of the ordinary high water mark will be carried out in the same manner as is required for drilling within 30 m in the END Grid area. ERP staff will conduct daily inspections of all drill rigs. Secondary containment for the storage of fuels and all external pumps and motorized equipment will be used throughout the drilling process and fuel used for drilling will be stored as far away as practical from the water bodies.

AREVA will follow the appropriate timing windows as defined in the Department of Fisheries and Oceans (DFO) Nunavut Operational Statement for Mineral Exploration Activities and Timing Windows. Golder Associates has provided a Technical Memorandum (Appendix II), which outlines what fish species and spawning habitat have been found in each lake.

#### **Drill Water and Cuttings Management:**

Non-mineralized and mineralized cuttings will be managed in the same manner as described above for drilling in low flow artesian conditions. Sand bags will also be used as needed in order to contain drill water. Silt barriers will be installed, if required, to reduce the likelihood of suspended particulate matter from drilling activities from moving into the lake. The silt barriers will be deployed only if sediment and erosion controls fail near the drill site in order to avoid acting as a barrier to fish passage.

#### **Water Analysis:**

Baseline water quality will be established through water samples of each lake prior to and upon completion of drilling in each area. All samples will be sent to SRC for analysis and included in the annual report submitted to the NWB.

#### **Drill Hole Abandonment and Restoration:**

Drill hole abandonment and restoration will be carried out as prescribed above.

## **Appendix I – Water Sample Results**

Sample Sample Collection Date Sample description	Parameter/ Units	Method Detection Limit	MZ09-04A	MZ09-04A	MZ09-04B	MZ09-04B
			08/12/2009	Precision	08/12/2009	Precision
			Original	(+/-)	Duplicate	(+/-)

Field pH	-	-	7.77	-	7.77	-
Field Temperature	oC	-	2.4	-	2.4	-
Field Total Dissolved Solids	mS	-	2	-	2	-
Field Conductivity	ppm	-	4.07	-	4.07	-

#### Inorganic Chemistry

Bicarbonate	mg/L	1	144	10	144	10
Calcium	mg/L	0.1	370	20	367	20
Carbonate	mg/L	1	<1	-	<1	-
Chloride	mg/L	5	1280	5	1280	5
Hydroxide	mg/L	1	<1	-	<1	-
Magnesium	mg/L	0.1	126	3	128	3
pH	pH units	0.07	7.63	0.1	7.66	0.1
Potassium	mg/L	0.1	7.3	1	7.3	1
Sodium	mg/L	0.1	129	4	128	4
Specific conductivity	uS/cm	1	3710	60	3720	60
Sulfate	mg/L	0.2	<0.2	-	<0.2	-
Sum of ions	mg/L	1	2060	40	2050	40
Total alkalinity	mg/L	1	118	4	118	4
Total hardness	mg/L	1	1440	30	1440	30
Nitrate	mg/L	0.04	0.13	0.07	0.13	0.07
Aluminum	mg/L	0.0005	0.0012	0.0008	0.0009	0.0007
Aluminum, dissolved	mg/L	0.0005	0.0008	0.0006	0.0018	0.0009
Antimony	mg/L	0.0002	<0.0002	-	<0.0002	-
Antimony, dissolved	mg/L	0.0002	<0.0002	-	<0.0002	-
Arsenic	ug/L	0.1	0.3	0.1	0.3	0.1
Arsenic, dissolved	ug/L	0.1	0.3	0.2	0.3	0.2
Barium	mg/L	0.0005	1.90	0.02	1.90	0.02
Barium, dissolved	mg/L	0.0005	1.88	0.02	1.92	0.02
Beryllium	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001
Beryllium, dissolved	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001
Boron	mg/L	0.01	0.17	0.04	0.17	0.04
Boron, dissolved	mg/L	0.01	0.17	0.04	0.17	0.04
Cadmium	mg/L	0.0001	<0.0001	-	<0.0001	-
Cadmium, dissolved	mg/L	0.0001	<0.0001	-	<0.0001	-
Chromium	mg/L	0.0005	<0.0005	-	<0.0005	-
Chromium, dissolved	mg/L	0.0005	<0.0005	-	<0.0005	-
Cobalt	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001
Cobalt, dissolved	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001
Copper	mg/L	0.0002	0.0004	0.0003	0.0004	0.0003
Copper, dissolved	mg/L	0.0002	0.0004	0.0003	0.0005	0.0003
Iron	mg/L	0.0005	0.52	0.01	0.52	0.01
Iron, dissolved	mg/L	0.0005	0.52	0.01	0.52	0.01
Lead	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001
Lead, dissolved	mg/L	0.0001	0.0002	0.0001	0.0001	0.0001
Manganese	mg/L	0.0005	1.56	0.002	1.56	0.002
Manganese, dissolved	mg/L	0.0005	1.55	0.02	1.57	0.02
Molybdenum	mg/L	0.0001	0.0094	0.001	0.0094	0.001
Molybdenum, dissolved	mg/L	0.0001	0.0089	0.0008	0.0090	0.0008
Nickel	mg/L	0.0001	0.0005	0.0003	0.0005	0.0003
Nickel, dissolved	mg/L	0.0001	0.0006	0.0002	0.0006	0.0002
Selenium	mg/L	0.0001	<0.0001	-	<0.0001	-
Selenium, dissolved	mg/L	0.0001	<0.0001	-	<0.0001	-
Silver	mg/L	0.0001	<0.0001	-	<0.0001	-
Silver, dissolved	mg/L	0.0001	<0.0001	-	<0.0001	-

Strontium	mg/L	0.005	9.5	0.2	9.5	0.2
Strontium, dissolved	mg/L	0.005	9.5	0.2	9.6	0.2
Thallium	mg/L	0.0002	<0.0002	-	<0.0002	-
Thallium, dissolved	mg/L	0.0002	<0.0002	-	<0.0002	-
Tin	mg/L	0.0001	<0.0001	-	<0.0001	-
Tin, dissolved	mg/L	0.0001	<0.0001	-	<0.0001	-
Titanium	mg/L	0.0002	<0.0002	-	<0.0002	-
Titanium, dissolved	mg/L	0.0002	<0.0002	-	0.0002	0.0002
Uranium	ug/L	0.1	3.4	0.4	3.3	0.4
Uranium, dissolved	ug/L	0.1	3.2	0.2	3.3	0.2
Vanadium	mg/L	0.0001	0.0002	0.0001	0.0002	0.0001
Vanadium, dissolved	mg/L	0.0001	0.0002	0.0001	0.0002	0.0001
Zinc	mg/L	0.0005	0.018	0.005	0.016	0.004
Zinc, dissolved	mg/L	0.0005	0.018	0.003	0.029	0.003
Fluoride	mg/L	0.01	1.15	0.1	1.16	0.1
Total dissolved solids	mg/L	5	3500	100	3310	100

#### Radio Chemistry

Deuterium	--	0	-184.9	-	-186.5	-
Oxygen-18	--	0	-22.69	-	-23.38	-
Radium-226	Bq/L	0.005	9.9	0.7	8.6	0.6
Radon-222	Bq/L	3	3000	3	3100	3

**SRC ANALYTICAL**

Jul 02, 2010

422 Downey Road  
 Saskatoon, Saskatchewan, Canada  
 S7N 4N1  
 (306) 933-6932 or 1-800-240-8808  
 Fax: (306) 933-7922

AREVA  
 Baker Lake  
 P.O. Box 9204  
 817 45th Street West  
 Saskatoon, Saskatchewan S7L 5X2  
 Attn: Kim Sarauer

Page 1 of 1

Sample # **19514**  
 Date Sampled: **Jun 18, 2010 15:00**  
 Sample Matrix: **WATER**  
 Description: **BONG-045 ARTESIAN**

Client PO #: **7900 000 788**  
 Date Received: **Jun 22, 2010**

Analyte	Units	Result	DL
<b>Inorganic Chemistry</b>			
pH	pH units	6.93	0.07
Specific conductivity	uS/cm	23	1
Total suspended solids	mg/L	<1	1
<b>ICP</b>			
Aluminum, dissolved	mg/L	0.034	0.0005
Antimony, dissolved	mg/L	<0.0002	0.0002
Arsenic, dissolved	ug/L	0.2	0.1
Barium, dissolved	mg/L	0.032	0.0005
Beryllium, dissolved	mg/L	<0.0001	0.0001
Boron, dissolved	mg/L	<0.01	0.01
Cadmium, dissolved	mg/L	0.00001	0.00001
Chromium, dissolved	mg/L	<0.0005	0.0005
Cobalt, dissolved	mg/L	<0.0001	0.0001
Copper, dissolved	mg/L	0.0031	0.0002
Iron, dissolved	mg/L	0.074	0.0005
Lead, dissolved	mg/L	0.0006	0.0001
Manganese, dissolved	mg/L	0.010	0.0005
Molybdenum, dissolved	mg/L	<0.0001	0.0001
Nickel, dissolved	mg/L	0.0007	0.0001
Selenium, dissolved	mg/L	<0.0001	0.0001
Silver, dissolved	mg/L	0.00001	0.00001
Strontium, dissolved	mg/L	0.013	0.0005
Thallium, dissolved	mg/L	<0.0002	0.0002
Tin, dissolved	mg/L	0.0001	0.0001
Titanium, dissolved	mg/L	<0.0002	0.0002
Uranium, dissolved	ug/L	<0.1	0.1
Vanadium, dissolved	mg/L	<0.0001	0.0001
Zinc, dissolved	mg/L	0.012	0.0005

"<": not detected at level stated above.

## **Appendix II – Technical Memorandum**



**DATE** March 31, 2011**PROJECT No.** 09-1362-0610/9000/9700**TO** Ms. Kim Sarauer, Environment & Radiation Protection Supervisor  
Kiggavik Project, AREVA Resources Canada Inc.**CC****FROM** Brian Christensen and Francine Audy**EMAIL** Brian\_Christensen@golder.com**DRILLING IN PROXIMITY TO ANDREW AND MUSHROOM LAKES**

Dear Ms. Sarauer:

It is Golder Associates Ltd. (Golder's) understanding that AREVA Resources Canada Inc. (AREVA) is requesting an amendment to its Nunavut Water Board Licence 2BE-KIG812 to allow drilling at the Sissons Lease site within 30 metres of the ordinary high water mark of Andrew and Mushroom lakes, including the streams flowing permanently or temporarily into and out of these lakes. However, AREVA does intend to comply with Fisheries and Oceans Canada's (DFO) Nunavut Operational Statements for Mineral Exploration Activities, and Timing Windows. AREVA has provided information to Golder regarding a similar amendment to the Water Board Licence approved in March 2009 for drilling near End Grid Lake.

Andrew Lake is shallow (1.0 m) and freezes to the bottom each winter. Although Andrew Lake supports Arctic grayling (*Thymallus arcticus*), cisco (*Coregonus artedii*), round whitefish (*Prosopium cylindraceum*) and burbot (*Lota lota*) during the spring and summer, it is only used by Arctic grayling for spring spawning. The other species use the lake for foraging purposes and vacate it prior to freezeup each fall. Golder captured Arctic grayling eggs in the stream connecting Lunch Lake to Andrew Lake (referred to as Lunch/Andrew Stream [LUANS]), and in the stream connecting Andrew Lake to Shack Lake (referred to as Andrew/Shack Stream [ANSHS]). For Andrew Lake, the timing window restricts drilling from May 1 to July 15, spring spawning season for Arctic grayling (DFO 2007).

Mushroom Lake is one of the deeper, small lakes in the Kiggavik Project area with a maximum depth of 8.9 m. Arctic grayling, round whitefish, and lake trout (*Salvelinus namaycush*) were captured in Mushroom Lake during recent baseline surveys, while cisco have been historically captured. Lake trout spawning and overwintering habitat are available in Mushroom Lake, and potential Arctic grayling spawning habitat is available in the stream connecting Mushroom Lake to End Grid Lake (referred to as Mushroom/End Grid Stream [MSEGS]). For Mushroom Lake, the timing window restricts drilling from August 15 to July 15, combining the fall spawning season for lake trout, cisco, and round whitefish, and the spring spawning season for Arctic grayling (DFO 2007).

AREVA is seeking regulatory approval to conduct exploration drilling within 30 m of the high water mark of Andrew and Mushroom lakes, and streams flowing into and out of these lakes. Both of these lakes are fish bearing, as are the connecting streams that link these lakes to the Lower Lake sub-basin. If the work can be



conducted during the specified periods of least risk for instream works (i.e., after 15 July), and the general environmental protection provisions of the DFO Mineral Exploration Operational Statement are followed, the potential for the exploration drilling to have a negative impact on the aquatic environment can be significantly reduced.

## REFERENCES

Fisheries and Oceans Canada (DFO). 2007. Timing Windows, Nunavut In-Water Construction Timing Windows for the Protection of Fish and Fish Habitat. Version 3.0 of the Fisheries and Oceans Canada, Nunavut Operational Statement. Available at [http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/provinces-territoires-territoires/nu/pdf/os-eo21\\_e.pdf](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/provinces-territoires-territoires/nu/pdf/os-eo21_e.pdf). Accessed 18 January 2011.

Fisheries and Oceans Canada (DFO). 2009. Mineral Exploration Activities. Version 1.0 of the Fisheries and Oceans Canada, Nunavut Operational Statement. Available at [http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/provinces-territoires-territoires/nu/pdf/os-eo24\\_e.pdf](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/provinces-territoires-territoires/nu/pdf/os-eo24_e.pdf). Accessed 19 January 2011.

## CLOSURE

We trust that the information provided will be sufficient to allow DFO to make a decision with regards to allowing AREVA to drill in proximity to Andrew and Mushroom lakes while respecting the appropriate timing restriction window for the protection of fish and fish habitat (DFO 2007). If you have any questions or concerns, please contact Mr. Brian Christensen at your convenience.

Yours very truly,



Francine Audy, B.Sc.  
Aquatic Biologist



Brian Christensen, M.Sc.  
Senior Environmental Scientist

FA/BLC/BT/JDH/ALL/msd

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