SCIENTIFIC RESEARCH LICENCE APPLICATION
LAND, FRESHWATER & MARINE BASED RESEARCH

NRI strongly recommends that applicants review the following documents prior to submitting an application: *Scientific Research Licencing Guidelines* and *Negotiating Research Relationships in Inuit Communities: A Guide for Researchers.*
For more information about the Nunavut Research Institute (NRI) please visit our web site www.nri.nu.ca

IMPORTANT
This application fulfills the requirements for the NIRB environmental screening.
Please be advised that your application will not be processed until the application form, project summary, and maps are received.

SECTION 1: APPLICANT INFORMATION

1a. Project Title **2014 Back River Project Baseline Program**

1b. Project Number

Please indicate if applicant has submitted any previous application(s) to NRI related to this project proposal? Yes ✓ No ___
If yes, please indicate the previous NRI licence number: 04 001 13R-M

Please indicate if applicant has submitted any previous application(s) to NIRB related to this project proposal? Yes ___ No ✓
If yes, please indicate the previous NIRB project number(s): NIRB file referenced in correspondence is 07YN030 (and 08MN006 in the 2011 multi-year application)

2. Applicant's full name and mailing address:

Deborah Muggli	Phone:	604-689-9460
Rescan-ERM	Fax:	604-687-4277
6th Floor, 1111 West Hastings Street Vancouver, BC V6E 2J3	Email:	deborah.muggli@erm.com

3. Field Supervisor's name and mailing address:

Deborah Muggli	Phone:	604-689-9460
ERM – Rescan	Fax:	604-687-4277
6th Floor, 1111 West Hastings Street Vancouver, BC V6E 2J3	Email:	deborah.muggli@erm.com

4. Other Personnel list (name, position, affiliation)
Please note: Rescan – ERM's field schedule for 2014 is not completed and some personnel may change. Additional field assistants will be provided by Sabina Gold & Silver Corp.

Jem Morrison, Atmospheric Scientist, Rescan-ERM
Eli Heyman, Hydrologist, Rescan-ERM
Fiona Hodge – Aquatic Biologist, Rescan-ERM
Ben Beall, Aquatic Biologist, Rescan-ERM
Kyla Warren, Fish Biologist, Rescan-ERM
Fraser Ross, Fish Biologist, Rescan-ERM
Tyler Gale, Groundwater Scientist, Rescan-ERM
Scott Hawker, Ecologist, Rescan-ERM
Julia Shewan, Wildlife Biologist, Rescan-ERM
Andrea Buckman, Wildlife Biologist, Rescan-ERM
Sean McKnight, Archaeologist, Rescan-ERM
Lisa Seip, Senior Archaeologist, Rescan-ERM

SECTION 2: AUTHORIZATION NEEDED

1. Indicate <u>all</u> authorizations associated with the project proposal:

- [ ] Regional Inuit Association (RIA)
- [ ] Nunavut Water Board (NWB)
- [ ] Nunavut Planning Commission (NPC)
- [ ] Department of Indian And Northern Development (DIAND)
- [x] Department of Fisheries and Oceans (DFO)
- [ ] Community Government & Services (CG&S)
- [x] Nunavut Research Institute (NRI/GN)
- [x] Department of Culture, Language, Elders, and Youth (CLEY/GN)
- [ ] Canadian Launch Safety (CLS)
- [ ] Environment Canada (EC)
- [x] Department of Environment (GN)
- [ ] Department of National Defense (DND)
- [ ] Hamlet
- [ ] Parks Canada (PC)
- [ ] Canadian Wildlife Service (CWS)
- [ ] Other (please specify):

_____

2. List the <u>active</u> permits, licences, or other rights related to the project proposal and their expiry date:

Below is a list of existing permits and licences held by Sabina Gold & Silver Corp. for on-going exploration.

Permit No.	Permit Name	Type	Expiry	Agency	Description
N33221	Prospector permit		2014-03-31	AANDC	
N2011F0029	Winter road Beechy Area	Class A	2013-12-13	AANDC	
N2010F0017	Winter road Bathurst Inlet to Back River	Class A	2013-09-16	AANDC	Winter Road
N2009F0015	Winter road Hackett to George	Class A	2014-02-28	AANDC	Winter road connecting Hackett and George Camps
KTL304F049 – Amended	Winter road Bathurst Inlet to Goose Lake and George Lake	Level 3	2013-12-13	KIA	Winter Road
KTL304F012	Winter road Hackett to George	Level 3	2013-12-13	KIA	Winter road connecting Hackett and George Camps
N2010C0016	Back River Mineral Exploration	Class A	2013-10-31	AANDC	
KTL304C017 –Amended	Goose Camp	Level 3	2013-12-13	KIA	Staking/prospecting, exploration (ground/air geophysics), drilling, bulk sampling, bulk fuel storage, camp, winter road, all-weather airstrip and connecting road
KTL204C012 – Amended	Boulder	Level 2	2013-12-13	KIA	Staking/prospecting, exploration (ground/air geophysics), geophysical survey, gridding and drilling

KTL304C018 – Amended	George Camp	Level 3	2013-12-13	KIA	Staking/prospecting, exploration (ground/air geophysics), drilling, bulk sampling, bulk fuel storage, camp, winter road
KTL204C020 – Amended	Boot	Level 2	2013-12-13	KIA	Exploration (air/ground geophysics), staking, prospecting, fly/survival camp and drilling
2BE-GEO1015	George Water	Type B	2015-06-15	NWB	Water use and waste disposal for exploration and clean-up activities
2BE-GOO1015	Goose Water	Type B	2015-03-31	NWB	Industrial water use and waste disposal, bulk sample and exploration
N2012C0003	Wishbone - Malley exploration activities on crown land	Class A	2014-02-06	AAND	Staking/prospecting, exploration (ground/air geophysics), drilling, bulk sampling, bulk fuel storage, camp, winter road
KTL312C004	Wishbone - Malley exploration activities on IOL	Level 3	2013-12-13	KIA	Staking/prospecting, exploration (ground/air geophysics), drilling, bulk sampling, bulk fuel storage, camp, winter road
2BEMLL1217	Wishbone - Malley water	Type B	2017-03-26	NWB	Water use and waste disposal for exploration and clean-up activities

3. Have you applied for all authorizations required to conduct the project proposal activities?

☐ **YES** ✓ **NO**

SECTION 3: PROJECT PROPOSAL DESCRIPTION

1. Indicate the activities related to the project proposal:

	Temporary camp (to be removed at end of field season)
	Permanent camp (to remain for life of authorization)
	Construction of recreational or safety cabin
	Temporary fuel storage (to be removed at end of field season)
	Permanent fuel storage (to remain for life of authorization)
✓	Placement of structures for life of permit (other than camp or cabin – i.e. scientific instruments)
	Placement of permanent structures (other than camp or cabin – i.e. scientific instruments)
✓	Air surveys (i.e. geophysical, wildlife)

✓	Use of aircraft/watercraft/land vehicle for personnel drop-off and pick-up to project location
✓	Use of on-site mechanized vehicles (i.e. atv, snowmobile, truck, zodiac)
	Sewage or grey water disposal via sump
	Hazardous waste storage or disposal
	Solid waste disposal
✓	Chemical storage
	Explosives storage
✓	Soil testing
	Soil disposal/ soil storage

	Incineration of combustible wastes and removal of non-combustible wastes
	River/ stream/ lake crossing or work/ bridge
	Drainage alteration
	Geoscientific sampling by diamond drilling
	Geoscientific sampling by soil sampling
	Geoscientific sampling by trenching
	Geoscientific sampling by borehole core
	Blasting
	Channeling
	Excavation

✓	Hydrological testing
	Abandonment and restoration
	Site restoration (fertilization/ grubbing/ scarification/ spraying/ recontouring)
✓	Research
✓	Ecological survey
	Harvesting
✓	Removal of vegetation for scientific purposes
	Other:

2. Personnel

Total No. of personnel on site = (A) **12** (approx. ½ of person days)

Total No. of days on-site = (B) **7**

Total No. of Person days (A) × (B) = 84

3. Timing

Period of operation: **March 15, 2014** *to* **March 15, 2017**

Proposed term of authorization: **March 15, 2014** *to* **March 15, 2017**

Please outline the phases of the proposed project (construction/ operation/ decommissioning) including the timing and scheduling of each phase.

The baseline environmental research described here will be based out of established on-site camps owned by Sabina Gold & Silver Corp. No construction will take place for the proposed work aside from the establishment of small hydrology and dustfall monitoring stations, and potentially wildlife DNA collection stations. These stations would be installed in 2014 and maintained for the duration of the proposed work.

4. Location(s) of data collection:

Location Name	**Region** North Baffin, South Baffin, Kivalliq, Kitikmeot	**Latitude (Northern)** (degree/minute)	**Latitude (Southern)** (degree/minute)	**Longitude (Eastern)** (degree/minute)	**Longitude (Western)** (degree/minute)	**NTS Map Sheet #**	**Land Status** Crown, Commissioners', Inuit Owned
Potential Research Study Area	Kitikmeot	67° 38.867'	64° 54.850'	-107° 36.964'	-108° 44.271'	076B, 076C, 076F, 076G, 076H, 076J, 076K, 076N, 076O	Inuit owned and Crown Land

If the project proposal includes a **camp**, please provide the coordinates of the camp location:

Goose Camp	Latitude (degree/minute): 65° 32.701' Longitude (degree/minute): -106° 25.718'	NTS Mapsheet: 076G
George Camp	Latitude (degree/minute): 65° 55.281' Longitude (degree/minute): -107° 27.547'	NTS Mapsheet: 076G

The Nunavut Impact Review Board may require additional location information in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please attach a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- Project Title
- Researcher's Name and Affiliation
- Project Location
- Timeframe
- Project Description
  - purpose
  - goals & objectives
  - method of transportation
  - any structures that will be erected (permanent / temporary)
  - restoration / abandonment plans
- Methodology
  - collection protocol
  - collection mechanisms
  - indicate why specific communities or individuals were selected for your research
- Data
  - short term & long term use of data
  - other uses of data
- Reporting
  - How will the research results be communicated to the individual participants, communities, regional and Nunavut organizations?
  - Will the research result in a publication?

****See the attached document entitled "**2014 NRI Non-Technical Summaryof Proposed Research: Back River Project Baseline Studies"

SECTION 5: MATERIAL USE

1. List equipment (including drills, pumps, aircrafts, vehicles etc.):

Equipment type and number	Size – dimensions	Proposed use
Aluminum boat with motor (~6)	12 – 16 feet long	Freshwater and marine water, sediment, fish, bathymetry sampling
Rock drill (1)	3 feet long	Installation of hydrological loggers, meteorological stations, wildlife DNA sampling stations
Ice auger (1)	2 m long	Drill holes in ice to take under ice water samples

Stream flow sampling equipment (1)	2 m long, 2 cm diameter pole	Manual measurement of stream and river flow rates
Hydrological stations (10)	2 m x 2 m x 2 m assembled	Monitor water flows
Manual water sampling equipment (1)	5 litres; 2 feet long	Collect water samples
Manual sediment and benthic invertebrate sampling equipment (1)	30 cm x 30 cm x 30 cm	Collect sediment and benthos samples
Fish sampling gear (nets, minnow traps, electrofisher)	Gillnets – 45 m x 2.4 m Minnow traps – 1 m x 0.4 m Electrofisher – backpack	Collect fish samples
Dustfall monitoring station (6)	2 m x 0.5 m x 0.5 m	Monitor dust and air quality
Noise monitoring station (2)	1.5 m x 1 m x 1m	Monitor noise
Small tent/shelter	2.5 m x 2.5 m x 2 m	Shelter during groundwater sampling
Purging equipment (motorized cable winch)	1.5 m x 1 m x 1 m	Winch setup to extract groundwater samples from the westbay well
Space heater	30 cm x 40 cm x 40 cm	Heat the westbay well shelter tent during winter weather
3000 watt generator	50 cm x 50 cm x 60 cm	Power groundwater sampling equipment and space heater
Meteorological stations (3, already on-site)	3 m x 2 m x 2 m; 10 m high assembled	Monitor ambient climate
Grizzly bear DNA or camera stations (50)	1 m x 0.8 m x 0.8 m	Collect grizzly bear hair samples for DNA genotyping-remote cameras
Wolverine DNA or camera stations (50)	5’ tall x 4” x 4”	Collect wolverine hair samples for DNA genotyping-remote cameras

2. Detail fuel and hazardous material use:

Fuel	**Number of Containers and Capacity of Containers**	**Total Amount of Fuel (in Litres)**	**Proposed Storage Methods**
Diesel Gasoline Aviation fuel Propane Other	All fuel will be provided by Sabina and storage will comply with their existing permits and licences		
Hazardous Materials and Chemicals		**Total Amount of Hazardous Materials and Chemicals (in Litres)**	
Diluted Buffered Formalin	10 x 1L	10 L	Stored indoors, in sealed containers, inside cooler boxes
Nitric Acid	200 very small vials (~1 ml) for water preservation	< 1 L	Stored indoors, in sealed containers, inside cooler boxes

Hydrochloric Acid	200 very small vials (~1 ml) for water preservation	< 1 L	Stored indoors, in sealed containers, inside cooler boxes
Sulphuric Acid	200 very small vials (~1 ml) for water preservation	< 1 L	Stored indoors, in sealed containers, inside cooler boxes
Lugol's Iodine	1 x 500 ml (used to preserve phytoplankton)	500 ml	Stored indoors, in sealed containers, inside cooler boxes

3. Detail daily water consumption rates

Daily amount (in Litres)	Proposed water retrieval methods	Proposed water retrieval location

Water withdrawal will comply with Sabina's existing permits and licences.

4. Have you applied for a Class A License with the Nunavut Water Board?

☐ **YES** ☑ **NO**

SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

1. List the types of waste:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)	Unknown – part of Sabina's licences and permits	Part of Sabina's licences and permits	Part of Sabina's licences and permits
Greywater	Unknown – part of Sabina's licences and permits	Part of Sabina's licences and permits	Part of Sabina's licences and permits
Combustible wastes	Unknown – part of Sabina's licences and permits	Part of Sabina's licences and permits	Part of Sabina's licences and permits
Non-combustible wastes	Unknown – part of Sabina's licences and permits	Part of Sabina's licences and permits	Part of Sabina's licences and permits
Overburden (organic soil, waste material, tailings)	-	n/a	n/a
Hazardous waste	-	n/a	n/a
Other:			

2. Will you be incinerating combustible waste, removing all solid waste, and removing the ash generated from incineration?

Sabina will handle all wastes as part of their current licences and permits.

SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

1. List the community representatives that have been contacted and provide the minutes of the meetings if available:

Rescan-ERM has not been directly involved in community engagement. Sabina Gold and Silver Corp. continues with community engagement and consultation as part of the Back River Project. Please refer to the DEIS for a complete list of community representatives contacted and engaged in 2013 (Volume 3 of the Back River Project DEIS).

Community	Name	Organization	Date Contacted

2. How will the proposed project benefit Nunavut?
The majority of environmental field staff provided by Sabina will be residents of Nunavut. Rescan-ERM will encourage and assist Sabina in the hiring of local residents to participate in aspects of the field program. Field staff will learn valuable skills in standardized environmental survey methodology

4. Describe and attach documentation regarding community support or concerns for the proposed project:

Rescan-ERM has not been directly involved in community engagement. Sabina Gold and Silver Corp. continues with community engagement and consultation as part of the Back River Project. Please refer to the DEIS for a complete list of community representatives contacted and engaged in 2013 (Volume 3 of the Back River Project DEIS).

5. Is there a traditional knowledge component to this research project? If yes, please explain:

Traditional knowledge provided to Sabina by the KIA has played a major role in identifying areas of importance and focus, and has been considered and incorporated into baseline methodology and scope.

SECTION 8: GENERAL QUESTIONS

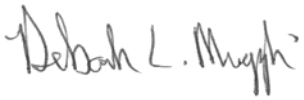
1. Do you give NRI permission to publish project information in the Nunavut Research Institute Annual Compendium of Research Undertaken in Nunavut?

☐ **YES** ☑ **NO**

3. In addition to the application form, applicants are required to submit additional information in an electronic format to the Manager, Research Liaison, cfilion@nac.nu.ca. Please check that the following have been submitted to NRI:

☑ **Project Summary** -in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot)
☑ **NTS Maps** of the project

Applicant:



	VP Environment, Partner	January 7, 2013
Signature	**Title**	**Date**

P.O. Box 1720 Iqaluit, NU, X0A 0H0 • PHONE: 867-979-7279 • FAX: 867-979-7109 • email mosha.cote@arcticcollege.ca