AGNICO EAGLE

June 30, 2016

Ryan Barry
Executive Director
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Stephanie Autut
Executive Director
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

RE: MEADOWBANK MINE - AMENDMENT/RECONSIDERATION OF THE PROJECT CERTIFICATE (No. 004/ File No. 03MN107) AND AMENDMENT TO THE TYPE A WATER LICENCE (No. 2AM-MEA1525)

Dear Mr. Barry and Ms. Autut:

Agnico Eagle is seeking approval to extend the Meadowbank Mine to include development of resources from Whale Tail Pit (the Project). As per the letter Agnico Eagle submitted to the Nunavut Impact Review Board (NIRB) on May 25, 2016[1], and consistent with NIRB's letter dated June 20, 2016[2], Agnico Eagle is requesting a reconsideration of the current Project Certificate issued by the NIRB and an amendment to the Type A Water Licence.

Agnico Eagle believes the NIRB should complete a reconsideration of the current Project Certificate NIRB 004. Should NIRB determine that this project is a significant modification under Section 146 of NUPPA, Agnico Eagle requests that NIRB conduct an assessment by reconsideration under Part 3. Irrespective of the decision, Agnico Eagle deems this submission complete and has submitted an Final Environmental Impact Statement (FEIS) Addendum as an "amendment" to the activities previously assessed and approved by NIRB. The application has been completed consistent with the requirements of the Guidelines (NIRB 2004)[3].

As per the Project Certificate Item 29, Agnico Eagle has reported "to NIRB if and when [Agnico Eagle] develops plans for an expansion of the Meadowbank Gold Mine" and herein is submitting the FEIS Addendum application. More specifically, following the Nunavut Planning Commission (NPC) land use conformity determination, NIRB's letter on June 16, 2016[4] requested that Agnico Eagle submit the Whale Tail Pit project proposal which should contain the following information:

- *NIRB's Online Application Form (formerly the NIRB Part 1 form in English);*
- *NIRB Part 1 Summary Form in Inuktitut; and*
- *Non-technical Project Proposal summary in English and Inukitut.*

[1] Agnico Eagle (2016). Letter dated May 25th, 2016. Titled: NIRB File 03MN107 Meadowbank Mine – Amendment to Project Certificate

[2] NIRB (Nunavut Impact Review Board). June 20, 2016. Letter to Ryan Vanengen, Agnico Eagle Mines Ltd. Regarding: Comment Request on Agnico Eagle Mines Limited's Request for Reconsideration of the Meadowbank Gold Mine Project Certificate for the "Whale Tail Pit" Project Proposal.

[3] NIRB (Nunavut Impact Review Board). 2004. Environmental Impact Statement (EIS) Guidelines for the Meadowbank Project. February 2004.

[4] NIRB(Nunavut Impact Review Board). June 16, 2016. Letter to Ryan Vanengen, Agnico Eagle Mines Ltd. Regarding: NPC determination and Referral Required for Agnico Eagle Mines Limited's "Whale Tail Pit" Project Proposal.

The submission includes:

- Volume 1 – Project Description;
- Volume 2 – Environmental Overview and Type A Water Licence document; and
- Volume 3 through Volume 8 - series of complementary documents to provide a full understanding of the technical and scientific aspects of the Project, which includes:
    - Volume 3 – Assessment Methods;
    - Volume 4 – Atmospheric Environment;
    - Volume 5 – Terrestrial Environment;
    - Volume 6 – Freshwater Environment;
    - Volume 7 – Human Environment; and
    - Volume 8 – Monitoring, Mitigation, and Management Plans.

Agnico Eagle has provided the FEIS documents to guide the review of Whale Tail Pit and ensure a timely and fulsome assessment. Furthermore it has provided links to the original FEIS to reintroduce NIRB to the FEIS (Cumberland in 2005)[5], which assessed the Meadowbank Mill, Camp, Tailings Storage Facility and All Weather Access Road, which Agnico Eagle proposes to extend during the operation of Whale Tail Pit.

Concurrent with the reconsideration of the Project Certificate by the NIRB, Agnico Eagle is seeking an amendment to the Meadowbank Mine Type A Water Licence (No. 2AM-MEA1525) to include construction and operation of Whale Tail Pit and associated infrastructure from the NWB (refer to Volume 2).

The Type A Water Licence amendment has been prepared in accordance with the regulatory framework provided in the Nunavut Land Claims Agreement (NLCA) and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA or Act), Nunavut Water Regulations (Regulation) and NWB established guidelines[6]. The required Application fee will be paid by credit card upon confirmation of receipt of the application.

In lieu of separate letters from Agnico Eagle, Agnico Eagle herein confirms the following:

- A list of Agnico Eagle representatives and external representatives for the purposes of this amendment are provided in the Project Description (see Volume 1, Section 1.1.2); and
- A Statement of Financial responsibility is also provided in the Project Description (also see Volume 2, Section 2.5.1).

Agnico Eagle would like to confirm that the company's financial responsibility is adequate for completion of the undertaking, mitigating adverse impact, ongoing maintenance, reclamation and restoration of the undertaking. Agnico Eagles' in confident in assuming its position taking into account is current ongoing and past performance in the Kivalliq region, Nunavut and Canada.

---

[5] Cumberland (Cumberland Resources Ltd.). 2005. Meadowbank Gold Project, Final Environmental Impact Statement. October 2005. Cumberland Resources Ltd. Vancouver, British Columbia.

[6] Guide 7 – Completing and submitting as Water Licence Application for a New Licence (April 2010); and NWB Draft Mining and Milling Supplemental Information Guideline (SIG) for Mine Development (MM3) (February 2010).

Agnico Eagle has provided detailed concordance assessment to assist the Boards in confirming concordance of the submission. The NIRB and NWB concordance assessments are provided in Volume 2, Appendix 2-B and Appendix 2-I, respectively. We trust the above and attached information meets the NIRB and NWB requirements for reconsideration/amendment of the Project Certificate and amendment of the Type A Water Licence.

Should you have any questions or require further information, please contact Stéphane Robert or Ryan Vanengen (ryan.vanengen@agnicoeagle.com) at stephane.robert@agnicoeagle.com.

Stéphane Robert
stephane.robert@agnicoeagle.com
819-763-0229
Manager Regulatory Affairs

Ryan Vanengen, MSc.
ryan.vanengen@agnicoeagle.com
819-651-2974
Environment Superintendent- Permitting and Regulatory Affairs Nunavut

Attachments:

- A – NIRB Part 1 and Part 2 Application Forms
- B – NWB Water Licence Amendment Form
- C – NPC Conformity Determination
- D – Non-Technical Summary (English/Inuktitut)
- E – Executive Summaries

ATTACHMENT A:

NIRB PART 1 AND NIRB PART 2 APPLICATION FORMS

ᐃᓚᖓᓃᑦᑐᖅ PART 1-ᒥ
ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᓄᑦ ᑐᓴᒐᒃᓴᐅᑏᑦ ᐱᔭᐅᔪᒪᔪᑦ

ᑐᓴᒃᑲᓂᕋᖅᓴᑦ ᐱᔭᐅᔪᓐᓇᖅᑐᑦ ᐱᔾᔪᑎᓖᑦ ᓄᓇᕗᑦ ᐊᕙᑎᓕᕆᔨᑦ ᑲᑎᒪᔨᖏᓐᓂᒃ ᑕᑯᓗᒋᑦ ᐅᕝᕙᓇ ᖃᕆᑕᐅᔭᒃᑯᑦ http://ftp.nirb.ca/ ᐅᕝᕙᓗᑭᐊᖅ ᐊᖁᑎᒋᓗᒋᑦ ᓄᓇᕗᑦ ᐊᕙᑎᓕᕆᔨᑦ ᑲᑎᒪᔨᖏᑦᑕ ᐊᓪᓚᒃᓯᒪᔪᑦ, ᐱᓕᕆᐊᒃᓴᒨᖓᔪᓂᒃ ᕿᒥᕐᕈᕝᕙᑦᑕᖏᑦ, ᐊᒻᒪᓗ ᐱᓕᕆᐊᒃᓴᐅᑉ ᑐᑭᐊ ᕿᒥᕐᕈᔭᐅᖃᑦᑕᕐᓂᖓ ᑕᑯᓗᒋᑦ ᓄᓇᕗᑦ ᐊᕙᑎᓕᕆᔨᑦ ᑲᑎᒪᔨᖏᑦᑕ ᖃᕆᑕᐅᔭᒃᑯᑦ ᓴᕿᐅᒪᔪᑦ ᐅᕙᓂ http://ftp.nirb.ca/.

ᐅᔾᔨᑐᖅᑕᐅᑦᓯᐊᖅᓯᒪᒋᐊᓖᑦ

ᖃᐅᔨᒪᓂᐊᕐᑎᑦ ᑐᒃᓯᖅᑑᑎᑦ ᐱᕙᓪᓕᐊᔭᐅᔾᔭᓚᖓᖏᒻᒪᑕ ᐅᑯᑎᒍᓇ ᐊᑑᑎᓕᖅᑎᓇᒋᑦ ᐃᓚᖓᒍᖓᔪᑎᒍᑦ sections 1 - 9 ᐱᔭᕇᖅᑕᐅᖃᐊᖃᒻᒪᑕ ᖃᓪᓗᓈᑎᑐᑦ ᐊᒻᒪᓗ ᐃᓄᒃᑎᑐᑦ (ᐃᓄᐃᓐᓇᖅᑐᑦ ᕿᑎᕐᒥᐅᓃᑉᐸᑕ).

ᐃᓚᖓ 1: ᑐᒃᓯᖅᑑᑦ ᑐᓴᒐᒃᓴᖅ

1. ᐱᓕᕆᐊᒃᓴᐅᑉ ᑕᐃᒍᓯᖓ

ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᒃ - Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐅᓯᒃᑕᑦᑕᓐᓂᕐᒧᑦ ᐊᑉᕐᑯᑎ (ᐱᓕᕆᐊᖅ)

ᖃᐅᔨᒪᔭᐅᓕ: ᐱᓕᕆᐊᖕᒍᔪᒪᔪᖅ ᐅᐃᒍᒋᐊᖅᓯᓂᐅᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒥᑦ ᑕᐃᒪᓐᓇᒧᓪᓗ ᑐᒃᓯᕋᐅᓯᐅᖅᑐᑦ ᐃᓱᒪᒃᓴᖅᓯᐅᕈᑎᒋᔭᐅᑲᓐᓂᕐᑯᑉᓗᒍ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᑯᑕᖅ ᓈᓴᐅᑎ 004 ᐃᓚᓕᐅᑎᓗᓂ FEIS-ᖕᒍᖅᑲᐅᑕᐅᓚᐅᖅᑐᒧᑦ. ᐊᔾᔨᒋᓗᓂᐅᒃ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᑯᑕᕐᒥᑦ ᑎᑎᖅᑲ 29, ᐊᒻᒃᓂᑯᒃᑯᑦ "ᐅᓂᑉᑲᐅᓯᐅᖅᑐᑦ NIRB-ᑯᓐᓄᑦ [ᐊᒻᒃᓂᑯᒃᑯᑦ] ᐸᕐᓇᐅᓯᐅᖅᐸᑕ ᐊᒻᒪᓗ ᖃᑯᒍ ᐊᖏᒻᓕᒋᐊᖅᓯᓂᕐᒧᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᒎᓗᒧᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒥᑦ.

2. **ᑐᒃᓯᕋᖅᑑᑉ ᐊᑎᖓ ᐊᒻᒪᓗ ᑐᕋᕈᑖ:** **819-651-2974**
ᒥᔅᑕ ᕋᐃᔭᓐ ᕙᓂᖓᓐ

	ᐅᖃᓚᐅᑏᑦ:	
ᐊᒻᒃᓂᑯ ᐅᔭᕋᓐᓂᐊᖅᑎᒃᑯᑦ	ᓱᑲᔪᒃᑯᑦ:	819-651-2974
ᑎᑎᖅᑲᐅᓯᕝᕕᒃ 549, ᖃᒪᓂᑦᑐᐊᖅ, ᓄᓇᕗᑦ X0C 0A0	ᖃᕆᑕᐅᔭᒃᑯᑦ	ryan.vanengen@agnicoeagle.com

3. ᖃᐅᔨᒋᐊᕐᕕᐅᒋᐊᒃᑲᓂᕈᓐᓇᖅᑐᖅ ᓯᕗᓪᓕᐅᓗᓂ ᐊᑎᖓ ᑐᕋᕈᑎᖓᓗ:

145 King Street East, Suite 400	ᐅᖃᓚᐅᑏᑦ:	416-947-1212 (ᐊᑐᖅᑕᐅᔪᓐᓇᕐᒥᔪᖅ: 1-888-822-6714)
ᑐᕋᓪᓗ, ᑲᓇᑕ, M5C 2Y7, ᑲᓇᑕ	ᓱᑲᔪᒃᑯᑦ:	416-367-4681
	ᖃᕆᑕᐅᔭᒃᑯᑦ	info@agnicoeagle.com

ᐃᓚᖓ 2: ᑲᔪᓯᒃᑲᐃᔨᓄᑦ ᑲᔪᓯᒃᑲᖅᑕᐅᔭᕆᐊᓖᑦ

1. ᑕᒪᕐᒥᒃ ᓇᓗᓇᐃᖅᑕᐅᓐᓇᕆᓗᒋᑦ ᑲᔪᓯᑎᑦᓯᔨᑦ ᐊᒃᑐᐊᓂᓕᖕᓄᖓᔪᓂᒃ ᐱᓕᕆᐊᒃᓴᔪᒨᖓᔪᒥᒃ ᑐᒃᓯᕋᒧᑦ:

×	ᐊᕕᒃᑐᖅᓯᒪᔪᑦ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖃᑎᒌᑦ (RIA)		ᑲᓇᑕᒥ ᖁᖕᒍᐊᒃᑎᑕᐅᓂᐊᖅᑐᓄᑦ ᐋᓐᓂᖅᑕᐃᓕᒪᔨᑦ (CLS)
×	ᓄᓇᕗᑦ ᐃᒪᓕᕆᔨᑦ ᑲᑎᒪᔨᖏᑦ (NWB)	×	ᑲᓇᑕᒥ ᐊᕙᑎᓕᕆᔨᒃᑯᑦ (EC)
	ᓄᓇᕗᑦ ᐸᕐᓇᐃᔨᑦ ᑲᑎᒪᔨᖏᑦ (NPC)	×	ᓄᓇᕗᒥ ᒐᕙᒪᒃᑯᑦ (GN)
×	ᐃᓄᓕᕆᔨᑐᖅᑲᒃᑯᑦ (AANDC)		ᑲᓇᑕᒥ ᐅᓇᑕᖅᑐᔨᓕᕆᔨᒃᑯᑦ (DND)
×	ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᐊᒻᒪᓗ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ (DFO)		ᕼᐊᒻᒪᓚᒃᑯᑦ
	ᓄᓇᓕᖕᓂ ᒐᕙᒪᓕᕆᔨᒃᑯᑦ ᐱᔨᑦᓯᕋᖅᑎᖏᓪᓗ (CG&S)		ᑲᓇᑕᒥ ᒥᕐᖑᐃᓯᖅᕕᓕᕆᔨᒃᑯᑦ (PC)
	ᓄᓇᕗᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ (NRI)		ᑲᓇᑕᒥ ᓂᕐᔪᑎᓕᕆᔨᑦ(CWS)
×	ᐃᓕᕐᑯᓯᓕᕆᔨᒃᑯᑦ ᐱᖅᑯᓯᓕᕆᔨᒃᑯᓪᓗ ᒐᕙᒪᒃᑯᓐᓂ (CH)		ᐊᓯᖏᑦ (ᓇᓗᓇᐃᕐᓗᒋᑦ ᑭᒃᑰᖕᒪᖔᑕ):

2. **ᑎᑎᕐᓗᒋᑦ ᐊᑑᑎᔪᑦ ᐱᔪᓐᓇᐅᑏᑦ, ᓚᐃᓴᑦ, ᐊᓯᖏᓪᓘᓐᓃᑦ ᐊᑑᑕᐅᔪᓐᓇᖅᑐᓄᖕᒐᔪᑦ ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᑦ, ᐃᓱᓕᕝᕕᒃᓴᖏᓪᓗ ᐅᓪᓗᖓ:**

ᑎᑎᕋᖅᓯᒪᔪᑦ ᐃᓚᐅᔪᑦ ᐅᖃᓕᒫᒐᖅ 1-ᒥᑦ, ᐃᓚᓕᐅᑎᓯᒪᔪᖅ 1-B-ᒥᑦ

3. ᐊᓐᒧᑦ ᑎᑎᕋᑦᓗᒋᑦ ᐱᔪᓐᓇᐅᑎᑖᕈᑎᒋᔭᕆᐊᖃᖅᑕᑎᑦ, ᓚᐃᓴᓐᓴᑖᕈᑎᒋᔭᕆᐊᖃᖅᑕᑎᓪᓗ, ᐅᕝᕙᓘᓐᓃᑦ ᐊᓯᖏᓪᓗᓐᓃᑦ ᐊᑑᑕᐅᔪᓐᓇᖅᑐᓄᓐᒐᔪᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ:

ᐋᕿᒋᐊᖅᓯᔪᖅ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒋᑦ ᐃᓚᐅᔪᖅ ᐅᖃᓕᒫᒐᖅ 2-ᒥᑦ, ᐃᓚᓕᐅᑎᓯᒪᔪᖅ 2-H-ᒥᑦ

4. ᐅᓇ ᐱᓕᕆᐊᕆᔪᒪᔭᐃᑦ ᐅᕝᕙᓘᓐᓃᑦ ᓇᐅᒃᑯᑐᐃᓐᓇᖅ ᓇᓕᐊᑐᐃᓐᓇᖏᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᐃᑦ ᐃᓗᐊᓂᑦᑐᑦ ᕿᒥᕐᕈᔭᐅᓯᒪᕙᒌᖅᓯᒪᕙᑦ ᐅᕝᕙᓘᓐᓃᑦ ᖃᐅᔨᒋᐊᕈᑕᐅᒋᐊᒃᑲᓐᓂᕈᑕᐅᓯᒪᕙᓘᓐᓃᑦ ᓄᓇᕗᒥ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑲᑎᒪᔨᓄᑦ ?

× ᐃ ☐ ☐ ᐋᒻᒪ

ᐃᓐᒍᒃᐸᑦ, ᑎᑎᕋᕈᒃ ᐱᓕᕆᐊᕆᔭᐃᑦ ᑕᐃᒍᓯᕕᓂᖕᒪ ᐊᒻᒪᓗ NIRB-ᑯᑦ ᑎᑎᖃᕐᑯᑎᖏᑦᑎᒍᑦ ᓈᓴᐅᑎᖕᒪ

ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᒎᓗᒧᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧᑦ ᐱᓕᕆᐊᖅ – 03MN107; NWB 2AMEA1525
ᐊᑦᑯᑎ ᐊᒪᕈᕐᒧᖕᒐᐅᔪᖅ - NIRB 11EN010; NWB 8BC-AEA1525

ᐃᓚᖓ 3: ᐱᓕᕆᐊᒃᓴᐅᔪᒪᔫᑉ ᑐᒃᓯᕋᑉ ᖃᓄᐃᑦᑑᓂᖓᓂᒃ ᐅᓂᒃᑳᖅ

1. ᓇᓗᓇᐃᕐᓗᒍ ᑐᒃᓯᖅᑐᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᓴᐅᔪᒪᔪᖅ (ᐃᒪᐃᑦᑐᒥᒃ✓ ᓴᓂᕋᒍᑦ ᑎᑎᕐᓗᒋᑦ ᐊᑐᕐᓂᖃᖅᑐᓕᒫᑦ) (1,2): (ᑕᑯᒋᐊᕐᓗᒍ ᐊᑕᔪᖅ A ᐱᓕᕆᐊᕆᓴᐅᔪᑦ ᖃᓄᐃᑦᑑᔪᑦ ᑐᑭᓕᖅᑐᖅᑕᐅᓯᒪᓂᖏᑦ)

1	ᓯᓚ ᖃᓄᐃᑦᑐᑐᐃᓐᓇᒃᑯᑦ ᐊᕐᑯᑎᒃᓴᓕᐅᕐᓂᖅ ᐅᓴᕋᒃᓯᐅᕐᕕᓕᐅᕐᓂᖅ	✕	**9**	ᐃᓂᑐᖃᖓᓐᓂᒃ ᐊᖅᑭᒃᓱᐃᓂᖅ/ ᓄᓇᒥᒃ ᐋᖅᑭᒃᓱᐃᓂᖅ	☐
2	ᐅᑭᐅᒃᑯᑦ ᐊᑐᕆᐊᒃᓴᖅ /ᐅᓴᕋᓐᓂᒃ ᖃᐅᔨᓴᒐᒃᓴᓂᒃ	☐	**10**	ᐅᖅᓱᕐᔪᐊᖅᓯᐅᕐᓂᖅ ᓄᓇᒦᑦᑐᑐᖃᓂᒡᓗ ᒐᓴᓕᖅᓯᐅᕐᓂᖅ	☐
3	ᓴᕕᕋᔭᒃᓴᖅᓯᐅᕐᓂᖅ (ᓄᓇᐅᑉ ᖀᖓᓂᒃ ᑎᖕᒥᔪᒃᑯᑦ)	☐	**11**	ᑕᕆᐅᑐᐃᓐᓇᕐᒥ ᐱᓕᕆᐊᕆᓴᐅᔪᑦ	☐
4	ᓯᕗᒻᒧᒋᐊᒃᑲᓐᓂᖅᓯᒪᔪᑦ ᓴᕕᕋᔭᒃᓴᖅᓯᐅᕐᓂᕐᒧᑦ ᓄᓇᐅᑉ ᐃᑭᐊᖓᓐᓂᑦᑐᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ	☐	**12**	ᖃᐅᔨᓴᕐᓂᖅ/ᐅᑭᐅᖅᑕᖅᑑᑉ ᖃᐅᔨᓴᕐᓂᐅᔪᑉ ᐊᕐᕌᒍᖓ ᖃᐅᔨᓴᕈᑕᐅᓂᖓ*	☐
5	ᐅᓴᕋᒃᓯᐅᕐᕕᓕᐅᕐᓂᖅ/ᐅᓴᕋᒃᑕᒐᐅᔪᓂᒃ ᐊᒥᓱᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ	✕	**13**	ᐊᖑᓇᓱᐊᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᕆᓴᒃᓴᑦ *	☐
6	ᐃᑎᖅᓴᐃᑦ/ᑐᐊᐸᒃᑕᕕᓪᓗ	✕	**14**	>ᓚᕋᖅᑐᓕᕆᓂᕐᒧᐊᓕᖓᔪᑦ *	☐
7	ᑕᕆᐅᒥ ᓴᓇᓴᐅᓯᒪᔪᑦ (ᐅᒥᐊᕐᑯᕕᒃ, ᒪᓪᓕᓗᐊᖅᑕᐃᓕᔾᔪᑦ, ᐃᒃᓴᕐᕕᒃ)	☐	**15**	ᐊᓯᖓ (2):	☐
8	ᖃᓄᑎᒋ ᐃᑎᓂᖃᖅᑎᒋᔭᕆᐊᖏᓐᓂᒃ ᐃᓗᓕᓕᖕᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ ᐅᓴᕋᒃᑕᓖᑦ ᖃᐅᔨᓴᕈᑎᒃᑯᑦ ᐆᒃᑐᕋᐅᑎᒃᑯᑦ	☐			☐

ᖃᐅᔨᒪᔭᐅᔭᕆᐊᖃᖅᑐᖅ:

1. ᖃᓄᐃᑦᑐᑐᐃᓐᓇᐃᑦ ᐱᓕᕆᐊᕆᔭᕐᑯᓛᓂ ᑎᑎᕋᖅᓯᒪᔪᐃᓐᓇᐃᑦ, ᑭᓯᐊᓂ (*)-ᒥᒃ ᓴᓂᕋᒍᑦ ᑎᑎᖅᓯᒪᔪᑦ, ᐱᓕᕆᐊᖃᕈᒪᔪᖅ ᖃᐃᑦᓯᔭᕆᐊᖃᕐᓂᐊᕐᒥᔪᖅᑕᐅᖅ **ᐃᓚᖓ 2-ᒦᑦᑐᒥᒃᑕᐅᖅ ᐱᓕᕆᐊᕆᔪᒪᓪᓚᕆᒃᑕᖓᓐᓄᑦ ᑐᓴᒐᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᒃᓴᓂᒃ Project Specific Information Requirement (PSIR) ᑕᑕᑎᖅᓯᒪᔭᖓᓐᓂᒃ**. ᑖᓐᓇ NIRB-ᑯᓐᓄᑦ ᑐᒃᓯᖅᑑᑕᐅᓂᖓ ᐱᔭᕇᖅᓯᒪᔪᖅᑎᑐᑦ ᐃᓱᒪᖃᓯᐅᔾᔭᐅᔪᓐᓇᔾᔭᖏᑦᑐᑦ ᑖᓐᓇ ᐃᓚᖓ 2 PSIR ᑕᑕᑎᖅᑕᐅᓯᒪᔭᕇᖏᑐᐊᖅᐸᑦ.
2. ᖃᐅᔨᒪᔭᐅᑦᓯᐊᕆᐊᖃᖅᑐᖅ ᐱᔭᕇᖅᑕᐅᔪᓐᓇᕐᑯᓪᓗᒍ NIRB-ᑯᓐᓄᑦ ᐱᓕᕆᐊᕆᔭᐅᕙᓪᓕᐊᓂᕆᔭᕆᐊᖃᖅᑕᖓ,tᑖᒃᑯᐊ NIRB-ᑯᑦ ᖃᖓᑐᐃᓐᓇᑦᓯᐊᖅ ᑐᓴᒐᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᕐᓂᒃ ᑐᒃᓯᑑᑎᖃᕈᓐᓇᓚᖓᒋᐊᖏᓐᓂᒃ ᐱᓕᕆᐊᕆᔭᐅᕙᓪᓕᐊᓂᖓᓂᒃ.
3. "ᐊᓯᖏᑦ" ᓂᕈᐊᖅᑕᐅᒍᓂ, ᖃᐅᔨᒋᐊᕐᕕᒋᔭᕆᐊᖃᖅᑕᑎᑦ NIRB-ᑯᑦ ᖃᓄᖅ ᐱᓕᕆᐊᕆᔭᕆᐊᖃᕐᒪᖔᒋᑦ ᐃᓚᖓ 2 PSIR ᑕᑕᑎᖅᑕᐅᔭᕆᐊᖃᕐᓂᐊᕐᒪᖔᖅ.

2. ᐱᓕᕆᐊᒐᒃᓴᓄᑦ 3, 4 ᐅᕝᕙᓘᓐᓂᑦ 5 ᖁᓛᓃᑦᑐᓃᑦᑐᑦ ᓂᕈᐊᖅᑕᐅᓐᓂᕈᑎᒃ, ᖃᓄᐃᑦᑐᓪᓚᕆᖕᒥᒃ ᐅᔭᕋᒃᑕᕈᒪᔭᕆᐊᕕᑦ ᑎᑎᕋᕐᓗᒍ. ᑎᑎᕋᐅᓯᕆᐊᕐᔪᒡᓗᒍ.

×	ᓴᕕᕋᔭᒃᓴᐃᑦ (ᔨᖕᒃ zinc, ᑲᐳᕐ copper, ᒍᓕ gold, ᓯᐅᓪᓗᕐ silver,ᐊᓯᖕᒋᓪᓗ)_____ ᑰᓗ_____
	ᑕᐃᒪᓐ
	ᔪᕋᐃᓂᐊᒡ
	ᐊᓯᖕᒋᑦ: _____

3a. ᐱᓕᕆᐊᒐᒃᓴᐅᒍᓂ 12, 13 ᐅᕝᕙᓘᓐᓃᑦ 14 ᖁᓛᓂ ᓂᕈᐊᖅᑕᐅᓐᓂᕈᑎᒃ, ᐊᑎᑦᓯᐊᖕᒐᓐᓃᑦᑐᖅ ᐱᔭᕇᕐᓗᖕᒍ ᐊᐱᕐᑯᑕᐅᓯᒪᔪᓪᓗ ᑭᐅᓗᒋᑦ ᐊᑖᓃᑦᑐᑦ.

ᐊᑐᖕᒋᑦᑐᖅ

ᐃᖕᒋᕐᕋᔪᑕᐅᓂᐊᖅᑐᖅ (ᑦ)	ᖃᑦᓯᑦ	ᖃᓄᖅ ᐊᑐᖅᑕᐅᓂᐊᕐᒪᖔᖅ	ᖃᓄᑎᒋ
ᑰᒃᑑᑎᒋᓗᒍ: ᖁᓛᒍᓕᒃ	*1*	*ᐱᓕᕆᐊᕆ ᕝᕕᐅᔪᓄᑦ (ᔪᓂᒃ) ᐊᒡᔭᖅᑑᑕᐅᖃᑦᑕᕐᓗᓂ*	*6 -ᓂᒃ ᐅᓪᓗᓂᒃ*

3b. ᐅᖃᐅᓯᕆᓗᒋᑦ ᑐᓚᒃᑕᕐᕕᖃᖅᐸᑦ, ᐅᓯᐊᒃᑯᑯᒃᑕᖃᖅᐸᑦ, ᒥᑦᑕᕐᕕᖃᖅᐸᑦ, ᐅᕝᕙᓘᓐᓃᑦ ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᕐᓄᑦ. ᐱᔾᔪᑎᖃᖅᑐᓂᒃ. **ᖃᐅᔨᒪᔭᐅᔭᕆᐊᖃᖅᑐᖅ**: ᓄᑖᑦ ᐊᖅᑭᒃᓯᖅᑕᐅᔭᕆᐊᓖᑦ ᐃᓚᖓ 2-ᑰᖅᑐᑦ ᑕᑕᑎᕋᖅᓴᑐᐃᓐᓇᕆᐊᖃᕐᓂᖕᒋᓐᓂᒃ.

ᐊᑐᖕᒋᑦᑐᖅ

3c. ᑐᐱᕐᕕᒃᓴᖃᑲᐃᓐᓇᕆᐊᖃᕐᓂᕈᓂ, ᖃᓄᐃᑦᑐᓂᐊᕐᓂᖕᒋᓐᓂᒃ ᐅᖃᐅᓯᐅᑦᓯᐊᕆᐊᓖᑦ ᖃᓄᐃᑦᑐᓂᒡᓗ ᐊᐅᓚᐅᑎᓂᒃ ᐊᑐᕐᓂᐊᕆᐊᕕᑦ ᑐᐱᕐᕕᒋᓂᐊᖅᑕᕐᓂ ᐅᖃᐅᓯᕆᑦᓯᐊᕐᒥᓗᒋᑦᑕᐅᖅ ᑕᐃᒪᐃᓐᓂᐊᕐᓂᕈᓂ.

ᐊᑐᖕᒋᑦᑐᖅ

4. ᓴᓇᔨᑦ

ᖃᑦᓯᐅᕙᑦ ᓴᓇᖃᑕᐅᔪᑦ = (A)	475	ᖃᓄᑎᒋᒻᒪᕆᒃ ᓴᓇᓂᐊᖅᐸᑦ = (B)	7	ᖃᓄᑎᒋᐅᓂᐊᕐᓂᖕᒋᑦ ᑲᑎᓪᓗᒋᑦ **(A) × (B) =** 3325

5. ᖃᖕᒐᐅᑎᓪᓗᒍ

ᖃᖕᒐᓪᓚᕆᒃ ᓴᓇᓂᐊᖅᐸᑦ	ᔭᓄᐊᕆ 1, 2018	ᒥᑦ	ᑎᓯᐱᕆ 31, 2029	ᒧᑦ
ᖃᓄᑎᒋ ᑲᔪᓯᒃᑲᖅᑕᐅᓂᐊᕋᓱᒋᔭᐅᓂᖕᒐ:	ᔪᓚᐃ 1, 2017	ᒥᑦ	ᔪᓚᐃ 22, 2025	ᒧᑦ

ᖃᐅᔨᒪᔭᐅᓕ: ᐊᒡᓃᑯᒃᑯᑦ ᑐᒃᓯᕋᙱᑦᑐᑦ ᐋᕿᒋᐊᖅᓯᓂᕐᒥᑦ ᑐᑭᐅᔪᒧᑦ ᑕᐃᒪᐅᔪᒥᑦ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᑦ. 2AM-MEA1525 ᐃᓱᓕᓐᓂᐊᖅᑐᖅ ᔪᓚᐃ 22, 2025-ᒥᑦ.

6a. ᐊᕕᒃᑐᖅᓯᒪᐅᕐᓂᕐᒥ (ᑎᑎᕐᓗᒋᑦ ᑕᒪᐃᑕ ᐊᑐᕐᓂᖃᕐᓂᐊᖅᑐᑦ):

	ᕿᑭᖅᑖᔫᑉ ᐅᐊᖕᓇᖕᒐᓂ	×	ᑭᕙᓪᓕᖅᒥ		ᕿᑎᕐᒥᐅᓂ		ᓄᓇᑖᕐᕕᐅᔫᑉ ᑭᒡᓕᓕᖅᑐᖅᑕᐅᓯᒪᓂᐊᓂ: _____
	ᕿᑭᖅᑖᔫᑉ ᓂᒋᐊᓂ		ᒥᙳᐃᖅᓯᕐᕕᖕᒥ				

6b. ᐅᖃᐅᓯᕆᑦᓯᐊᕐᓗᒍ ᓄᓇᕗᑦ ᓇᓕᐊᖕᓂ ᐊᕕᒃᑐᖅᓯᒪᐅᕐᓂᖓᓃᓐᓂᐊᕆᐊᖕᒐᓐᓂᒃ ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᐃᑦ, ᓇᓕᐊᖕᓂᒡᓗ ᓄᓇᒋᔭᐅᔪᒥᑦ ᖃᓂᓐᓂᖅᐹᖕᒍᕙ ᓄᓇᒥ ᓴᐳᒻᒥᒃᓲᐊᕕᐅᔪᒦᑦᓴᕆᐊᖕᒐᓂᒡᓗ.

ᐊᒪᕈᖅ ᐱᒋᔭᐅᔪᖅ 408 ᑭᑉᐹᕆᒃᑐᓂᒃ ᑭᓛᒥᑕᐅᔪᖅ (km²) ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔭᖕᒐᓂᑦ ᓄᓇᒥᑦ 150 ᑭᓛᒥᑕᓪᓗᐊᑦ (km) ᐅᐊᖕᓇᖕᒐᓂᑦ ᖃᒪᓂᑦᑐᐊᑉ ᐊᒡᒪᓗ 50 ᑭᓛᒥᑕᓪᓗᐊᑦ ᐅᐊᖕᓇᖅᐸᓯᖕᒐᓂᑦ ᐱᖕᒐᖕᓇᖅᐸᓯᖕᒐᓂᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᕗᑦ ᐃᓗᐊᓂᑦ.

6c. ᑎᑎᕋᐅᓯᕆᓗᒍ ᐱᓕᕆᐊᕆᕝᕕᒋᔪᒪᔭᕕᑦ ᐃᓂᖓ ᐱᓕᕆᐊᕆᕝᕕᐅᓚᐅᖅᓯᒪᔭᕆᐊᖕᒐᓐᓂᒃ.

408 ᑭᑉᐹᕆᒃᑐᓂᒃ ᑭᓛᒥᑕᐅᔪᖅ (km²) ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᐱᒋᔭᐅᔪᖅ ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔭᖕᒐᓂᑦ ᓄᓇᒦᑦᑐᖅ (IOL), ᐊᒡᒪᓗ ᐱᔭᐅᓚᐅᖅᑐᖅ ᐊᒡᓃᑯᒃᑯᑦ ᐅᔭᕋᖕᓂᐊᖅᑐᓕᕆᔨᒃᑯᓐᓄᑦ (ᐊᒡᓃᑯᒃᑯᑦ) ᐃᐳᕆ 2013-ᒥᑦ ᒪᓕᖕᓂᐊᕐᓗᒍ ᐅᔭᖅᑲᓂᒃ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᐊᖕᒋᖃᑎᒌᒍᑎ ᓄᓇᕗᒻᒥ ᑐᙵᕕᒃᑯᓐᓄᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᕿᓂᖅᓴᐃᒋᐊᓚᐅᖅᑐᑦ 2014-ᒥᑦ ᑖᒻᓇ ᐊᖕᒋᒡᓕᒋᐊᓚᐅᖅᑐᖅ ᐅᖕᒐᑖᓄᑦ "I", "V" ᐊᒡᒪᓗ "R"-ᖕᒍᖅᑲᐅᑕᐅᓚᐅᖅᑐᓂᒃ ᒎᓗᓕᖕᓂᑦ ᐅᔭᖅᑲᓄᑦ ᐃᓂᐅᔪᓄᑦ ᖃᐅᔨᔭᐅᓚᐅᖅᑐᓂᒃ 2013-ᒥᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᒪᓕᒃᓱᒋᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᐅᓂᒃ ᐅᖃᖃᑎᖃᖃᑦᑕᕐᓂᕐᓂᑦ, ᐊᒡᓃᑯᒃᑯᑦ ᐊᓯᐊᓂᒃ ᐊᑦᑎᓚᐅᖅᑕᖕᒐᑦ ᐊᒪᕈᖅ ᐱᓕᕆᐊᕐᒥᑦ "ᐊᒪᕈᖅ, ᐃᓄᒃᑎᑐᑦ ᐅᖃᐅᓯᖅ ᑐᑭᖃᖅᑐᖅ "ᐊᒪᕈᖅ ᐊᖕᒋᔪᖅ", ᐊᑐᖅᓱᒍ ᐅᓂᑉᑳᖅ ᖃᓄᖅ ᐊᒪᖅᑯᑕᖃᓕᓚᐅᖅᓯᒪᓂᖕᒐ ᑐᒃᑐᐃᑦ ᐊᒥᕐᕋᐃᑦ ᖃᓄᐃᖕᒋᑦᑎᐊᖅᑎᓐᓂᕐᒧᑦ. ᐊᒡᒪᕈᖅ ᕿᓂᖅᓴᐃᓂᖅ ᐱᒋᔭᐅᔪᒥᑦ ᐃᓚᐅᔪᑦ ᖃᑉᓯᐊᕐᔪᐃᑦ "I", "V", "R" ᐊᒡᒪᓗ "Whale Tail" ᐊᒡᒪᓗ ᖃᑉᓯᐊᕐᔪᐃᑦ ᑕᐃᒪᐅᔪᑦ ᐱᒋᔭᐅᔪᑦ ᓄᓇᒥᑦ ᐊᖕᒋᓂᖃᖅᓱᓂ 40,000 hectares-ᓂᑦ.

6d. ᓇᖕᒥᓂᖅ ᖃᐅᔨᒪᔭᖃᕆᐊᕕᑦ ᐃᑦᓴᕐᓂᑕᖃᕐᕕᕕᓂᖅᑕᖃᐅᕆᐊᖕᒐᓐᓂᒃ /ᑐᐱᕐᕕᕕᓂᖅᑕᖃᐅᕆᐊᖕᒐᓂᒡᓗ ᐅᖃᐅᓯᕆᒍᒃ.

ᐱᖅᑯᓯᑐᖃᓂᒃ ᐱᔭᐅᔪᑦ ᖃᐅᔨᓴᖅᑕᐅᓂᖃᖅᑐᑦ ᐅᖃᓕᒫᒐᖅ 7, ᐃᓚᒋᔭᐅᔪᖅ 7.2-ᒥᑦ. ᖃᓄᐃᖕᒐᓂᐅᔪᓂᒃ ᐱᔪᒪᒍᕕᑦ ᖃᐅᔨᒋᐊᕐᓗᒍ ᐃᓚᒋᔭᐅᔪᖅ 7.2.2.2. ᓇᐃᓈᖅᓱᒍ, ᖃᓄᐃᖕᒐᓂᐅᔪᑦ ᑭᒡᓕᖕᒋᓐᓄᑦ ᖃᐅᔨᓴᐃᓂᖅᑕᖃᓚᐅᖅᑐᖅ ᐱᔾᔪᑎᖃᖅᑐᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ (Tischer 2013, 2015, 2016), ᐃᓕᑕᕆᔭᐅᔪᑦ ᑲᑎᓗᒃᑖᖅᓱᒋᑦ 19 ᐃᑦᑕᕐᓂᑕᖃᕐᕖᑦ ᑕᐃᑲᓂ ᐅᑉᐸᓗᓐᓂᑦ ᐊᑭᐊᓂᑦ LSA (ᑎᑎᖅᑲᖅ 7.2-1).

7. ᓄᓇᐅᒧᑦ ᐱᔾᔪᑎᖃᖅᑐᖅ (ᑕᒪᐃᑕ ᐊᑐᕐᓂᖃᕐᓂᐊᖅᑐᑦ ᑎᑎᕐᓗᒋᑦ):

×	ᑲᓇᑕᐅᑉ ᒐᕙᒪᖕᒐᑦᑕ ᓄᓇᕐᑯᑎᖕᒐ		ᑲᒥᓯᓇᐅᑉ ᓄᓇᕐᑯᑎᖕᒐ		ᕼᐊᒪᓚᐅᑉ ᓄᓇᕐᑯᑎᖕᒐ
×	ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔭᖕᒐᓐᓂ ᓄᓇᐅᑉ ᖀᖕᒐᓃᑦᑐᑦ	×	ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔭᖕᒐᓐᓂ ᓄᓇᐅᑉ ᐃᑭᐊᖕᒐᓃᑦᑐᑦ		

8a. ᓄᓇᖅᑐᐊᖅᑎᒍᑦ ᓯᒃᑯᑦᓯᓪᓚᕆᐊᖓᓐᓃᒻᒪᖔ:

ᐱᓕᕆᐊᑉ ᓇᒧᑦ ᑎᑭᐅᑎᓂᖓ	ᓴᓂᒧᑦ ᐅᖓᓯᒃᑎᒋᓂᖓ	ᖁᒻᒧᑦ ᐅᖓᓯᒃᑎᒋᓂᖓ
ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᖁᒃ (ᓈᒻᒪᒋᔭᐅᔪᖅ Type A 2AM-MEA1525)	65° 01' 33" N	96° 04' 01" W
ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᕿᓂᖅᓴᐃᓂᖅ (ᓈᒻᒪᒋᔭᐅᔪᖅ Type B 2BE-MEA1318)-ᒥᑦ ᐃᓚᐅᔪᑦ IVR/ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᓂᕐᒥᑦ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ (ᓈᒻᒪᒋᔭᐅᔪᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᐊᑉᖁᑎ Type B 8BC-AEA1525)	65° 30' 03" N	97° 13' 13" W
	65° 30' 07" N	95° 39' 00" W
	64° 47' 44" N	95° 36' 43" W
	64° 46' 22" N	97° 16' 36 W
ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ (ᓈᒻᒪᒋᔭᐅᔪᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᐊᑉᖁᑎ Type A 8BC-AEA1525)	65° 04' 53.3" N	96° 01' 00.8" W
	65° 23' 49.7" N	96° 40' 35.8" W
Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐱᓕᕆᐊᑉ ᐃᓂᖓ	65° 25' 22.241" N	96° 46' 6.042" W
	65° 25' 12.707" N	96° 35' 44.100" W
	65° 21' 35.740" N	96° 36' 3.944" W
	65° 21' 45.248" N	96° 46' 24.463" W

ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᖁᒃ – ᐱᓕᕆᐊᖅ straddles ᓯᑕᒪᓂᒃ NTS sheets-ᓂᒃ 66A/16, 66H/1, 56 E/4, ᐊᒻᒪᓗ 56 D/13 (ᑐᖅᑯᖅᑕᐅᓯᒫᓂᒃᑐᑦ ᐱᒋᔭᐅᖅᑲᐅᑕᐅᓚᐅᖅᑐᒥᑦ ᐊᒻᒪᓗ ᓄᑖᖅᑐᖅᑎᓐᓂᕐᒧᑦ ᑐᒃᓯᕋᐅᑏᑦ)

ᐊᑉᖁᑎ - NTS sheet 066H/Amer ᑕᓯᖅ/Scale 1:250,000 (NAD 83) UTM Zoe 14 W

(ᑐᖅᑯᖅᑕᐅᓯᒫᓂᒃᑐᑦ ᐱᒋᔭᐅᖅᑲᐅᑕᐅᓚᐅᖅᑐᒥᑦ ᑐᒃᓯᕋᐅᑎ)

Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ - NTS sheet 66H/7/Scale 1:50,000

ᓄᓇᖅᑭᐊᒥ ᐆᒥᖅᓴ
ᓈᓴᐅᑎᖃᖅᑐᒥᑦᑐᑦ: _____
(ᐱᓕᕆᐊᕆᓂᐊᖅᑕᕝᕕᑦ ᓄᓇᖅᑐᐊᑦ ᐃᓚᖃᓯᐅᑎᓂᐊᖅᐸᑎᑦ (1:50,000 **ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᕐᓂᕈᓂ**, 1:250, 000 **ᐃᓚᖃᓯᐅᑎᓪᓚᕆᐊᓖᑦ**) ᑲᓇᑕᐅᑉ ᓄᓇᒥᐅᑕᓕᕆᔨᒃᑯᖕᒋᓐᓂ ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᖅᑐᖅ)

8b. ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᐃᑦ **ᐃᒻᓗᑐᖃᕐᓂᐊᕈᓂᒍᓐᓃᑦ ᑐᐱᖅᑕᖃᐅᕐᓂᐊᕈᓂᒍᓐᓃᑦ**, ᓯᑯᑦᓯᐊᓃᓪᓚᕆᖕᓂᐊᕆᐊᖏᓐᓂᒃ ᓄᓇᖅᑐᐊᖅᑎᒍᑦ ᐊᑐᐃᓐᓇᐅᑎᑦᓯᓂᐊᖅᐳᑎᑦ

ᓄᓇᓕᐊᓛᑦ ᐃᓂᖏᑦ	ᓴᓂᒧᑦ ᐅᖓᓯᒃᑎᒋᓂᖓ	ᖁᒻᒧᑦ ᐅᖓᓯᒃᑎᒋᓂᖓ
ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᖁᒃ (ᓈᒻᒪᒋᔭᐅᔪᖅ Type A 2AM-MEA1525)	65° 01' 33" N	96° 04' 01" W
Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᓄᓇᓕᐊᓛᑦ ᐃᓂᐊ	95° 24' 36" N	96° 41' 41" W

ᖁᓛᓂᑦᑑᑉ ᐊᔾᔨᒋᖅᑭᑉᐸᐅᒃ :
ᓄᓇᖅᑭᐊᒥ ᐆᒥᖅᓴ
ᓈᓴᐅᑎᖃᖅᑐᒥᑦᑐᑦ: _____
(ᐱᓕᕆᐊᕆᓂᐊᖅᑕᕝᕕᑦ ᓄᓇᖅᑐᐊᑦ ᐃᓚᖃᓯᐅᑎᓂᐊᖅᐸᑎᑦ (1:50,000 **ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᕐᓂᕈᓂ**, 1:250, 000 **ᐃᓚᖃᓯᐅᑎᓪᓚᕆᐊᓖᑦ**) ᑲᓇᑕᐅᑉ ᓄᓇᒥᐅᑕᓕᕆᔨᒃᑯᖕᒋᓐᓂ ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᖅᑐᖅ)

ᖃᐅᔨᒪᔭᐅᓂᐊᖅᑯᖅ ᓱᒃᑯᑦᓯᓪᓚᒥᖕᒥᐊᖏᓐᓂᒃ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᑦ ᑐᓴᒐᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᕐᓂᒃ ᑐᒃᓯᖅᑐᕐᕕᐅᒃᑲᓐᑐᐃᓐᓇᕆᐊᖃᕐᓂᓐᓂᒃ ᐱᓕᕆᐊᕆᔪᒪᓪᓚᕆᒃᑕᖕᒐᓐᓄᑦ ᑐᓴᒐᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᒃᓴᓂᒃ ᑐᒃᓯᖅᑑᑕᐅᔪᕕᓂᕐᓄᑦ (PSIR). ᖃᕆᑕᐅᔭᖅᑎᒍᑦ ᓄᓇᙱᐊᓕᕕᓂᕐᓃᖕᒐᑐᐃᓐᓇᕆᐊᖃᖅᑐᖅ (GIS).

ᐱᓕᕆᐊᕐᒧᑦ ᐅᔭᖅᑲᓄᑦ ᓄᓇᒧᑦ ᓈᓴᐅᓯᕆᓃᑦ ᐃᓚᔭᐅᔪᑦ ᑐᒃᓯᕋᐅᑎᒧᑦ ᓈᓴᐅᑎᓕᒃ 148297 NPC ᖃᕆᑕᐅᔭᒃᑯᑦ ᑐᒃᓯᕋᐅᑎ ᑕᑕᑎᕆᐊᓕᒃ. ID856

ᐃᓚᖕᒐ 4: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ ᖃᓄᐃᑦᑑᓂᐊᕐᓂᖕᒐᓐᓄᑦ ᐅᖃᐅᓯᐅᓂᖕᒐ

ᐃᓚᖃᓯᐅᑎᓗᒍ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ ᖃᓄᐃᑦᑑᓂᐊᕐᓂᖕᒐᓐᓄᑦ ᐅᖃᐅᓯᕆᔭᑎᑦ, ᑖᒃᑯᐊ ᑎᑎᕋᖅᑕᑎᑦ 500-ᓂᒃ ᐅᖃᐅᓯᑎᑦ ᑎᑎᖃᖃᕆᐊᖃᖅᑐᑦ ᖃᖕᒋᐅᑎᓯᒪᔭᕆᐊᖃᙱᑦᑐᑦ, ᖃᓪᓗᓈᑏᑐᓪᓗᓐᓃᑦ ᐃᓄᒃᑎᑐᓪᓗᓐᓃᑦ (+ᐃᓄᐃᓐᓇᖅᑎᑐᓪᓗᓐᓃᑦ, ᕿᑎᕐᒥᐅᓐᓃᓐᓂᐊᕐᓂᕈᓂ). ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔫᑉ ᐅᖃᐅᓯᐅᓂᖕᒐ ᐅᑯᓂᙱᒐ ᐃᓗᓕᖃᕆᐊᖃᖅᑐᖅ:

- ᐱᓕᕆᐊᒐᒃᓴᒧᑦ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᑦ, ᐱᑕᖃᕆᐊᖃᕐᓂᖕᒋᓪᓗ ᐊᒻᒪᓗ ᖃᓄᙱᒋᒋᓗ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕆᐊᖕᒐᓐᓂᒃ;
- ᐊᐅᓪᓚᖅᑕᐅᑎᐅᓂᐊᖅᑐᑦ ᐊᕙᒻᒧᒃᑕᕈᑕᐅᓂᐊᖅᑐᑦ;
- ᓱᓇᑐᐃᓐᓇᐃᑦ ᓇᐸᖅᑎᖅᑕᐅᓂᐊᖅᑐᑦ (ᓇᐸᑯᑖᖕᓂᐊᖅᑐᑦ/ ᐊᑐᖅᑕᐅᑲᐃᓐᓇᕐᓂᐊᖅᑐᓪᓗᓐᓃᑦ);
- ᐊᓯᖕᒑᖕᒋᑦ ᐊᑐᖅᑕᐅᖕᒑᕈᓐᓇᖅᑐᑦ; ᐊᒻᒪᓗ
- ᓯᕗᓂᒃᓴᑯᑖᒧᑦ ᓴᓇᔭᐅᕙᓪᓕᐊᓂᖃᕐᓂᐊᖅᑐᑦ, ᓴᓇᔭᐅᓂᐊᕋᓱᒋᔭᐅᔪᓄᓪᓗ ᓱᓇᒧᑦ ᐊᑐᖅᑕᐅᓂᐊᕆᐊᖕᒋᓐᓄᑦ ᐱᓕᕆᐊᕆᕝᕕᐅᓂᐊᖅᑐᒥ ᐊᒻᒪᓗ ᖃᓄᑎᒋᓂᐅᓂᐊᕋᓱᒋᔭᐅᓂᖕᒋᓪᓗ ᐊᑐᖅᑕᐅᓂᐊᕆᐊᖕᒋᑦᑕ.

ᓇᐃᓈᖅᓯᒪᔪᑦ (ᐃᓄᒃᑎᑑᖅᑐᑦ ᐊᒻᒪᓗ ᐅᐃ-ᐅᐃᑎᑑᕐᒥᔪᑦ) ᐃᓚᐅᔪᑦ ᐃᓚᓕᐅᑎᓯᒪᔪᖅ D-ᒥᑦ.

<u>ᖃᐅᔨᒪᔭᐅᓪᓚᕆᒋᐊᖃᖅᑐᖅ:</u> ᐱᓕᕆᐊᕆᔭᐅᓂᐊᓴᔪᑦ NIRB PART 2 PSIR-ᒧᑦ ᑕᑕᑎᕈᑕᑎᖃᕆᐊᖃᕐᓂᕈᑎᒃ ᐃᓚᖕᒐ 8-ᒦᑦᑐᖅ ᑭᓯᐊᓂ ᑕᑕᑎᖅᑕᐅᔭᕆᐊᖃᖅᑐᖅ ᑕᒪᓐᓇᑐᐊᐊᖕᒍᓗᓂ, ᐊᓯᖕᒋᓪᓕ ᐃᓚᖕᒐ 5-ᒥᒃ ᐱᒋᐊᕐᕕᒋᓗᒍ ᑕᑕᑎᖅᑕᐅᔭᕆᐊᖃᖅᑐᖅ.

ᖃᐅᔨᒋᐊᕐᓗᒍ ᑐᓂᐅᑕᐅᔪᑦ ᑎᑎᖅᑲᐃᑦ ᐊᒻᒪᓗ NIRB-ᑯᑦ ᐊᕕᒃᑐᖅᓯᒪᔪᖅ 2 PSIR ᑕᑕᑎᕆᐊᓕᒃ ᐃᓚᒋᔭᐅᔪᖅ 5-7-ᒥᑦ. ᐊᑐᙱᑦᑐᖅ

ᐃᓚᖕᒐ 5: ᐊᑐᖅᑕᐅᔪᒃᓴᑦ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖕᒋᑦ

ᐊᑐᙱᑦᑐᖅ

1. ᐱᕐᑯᑏᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᑎᑎᕋᕐᓗᒋᑦ (ᐃᓚᖃᓯᐅᑎᓗᒋᑦ ᐃᑰᑕᕈᑏᑦ, ᐅᖅᓯᖅᑐᐃᑏᑦ, ᑎᖕᒥᓱᑦ, ᓄᓇᒃᑰᑦ, ᐊᓯᕈᓗᔭᖕᒋᓪᓗ.):

ᖃᓄᐃᑐᖅ ᐱᕐᑯᑦ ᓈᓴᐅᑎᖕᒐᓗ	ᐊᖕᒋᓂᖕᒐ – ᑕᑭᓂᖕᒐ ᐳᖅᑐᓂ	ᓱᓇᒧᑦ

2a. ᐅᖅᓱᒃᓴᐃᑦ ᐊᑦᑕᓇᖅᑐᖅᑏᓪᓗ ᐊᑐᖅᑕᐅᓂᐅᓴᔪᑦ ᐅᖃᐅᓯᐅᑦᓯᐊᕆᐊᓖᑦ:

ᐅᖅᓱᒃᓴᑦ	ᐅᖅᓱᖃᐅᑏᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᐃᒪᖃᖅᑎᒋᓂᖕᒋᓪᓗ ᖃᑦᑕᐅᔭᐃᑦ	ᐅᖅᓱᒃᓴᐃᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᑲᑎᓪᓗᒋᑦ (ᓖᑕᐃᑦ ᐊᑐᕐᓗᒋᑦ)	ᖃᓄᖅ ᑐᖅᑯᖅᑕᐅᓯᒪᓂᐅᓴᕙᑦ
ᐅᖅᓱᕐᔪᐊᖅ			

ᒐᓴᓖᖅ			
ᑎᖕᒥᔪᖅᓯᐅᑏᑦ			
ᐳᓪᓚᓖᑦ			
ᐊᓯᖕᒋᑦ			
ᐊᑦᑕᓇᖅᑐᖅᑕᓖᑦ ᐃᓚᐅᖅᓱᖅᓯᒪᔪᓪᓗ		**ᑲᑎᓪᓗᒋᑦ ᐊᑦᑕᓇᖅᑐᖅᑕᓖᑦ ᐃᓚᐅᖅᓱᖅᓯᒪᔪᓪᓗ (ᓖᑕᐃᑦ ᐊᑐᕐᓗᒋᑦ)**	

2b. ᑯᕕᔪᖅᑕᖃᕐᓂᐊᓵᖅᑎᓪᓗᒍ ᖃᓄᖅ ᐸᕐᓇᐅᑎᖃᕐᓂᐊᕆᐊᕕᑦ ᑯᕕᔪᖅᑕᖃᕐᓂᖅᐸᑦ ᐅᖃᐅᓯᕆᑦᓯᐊᕈᒃ .

_____

_____

_____

_____

3a. ᖃᓄᑎᒋ ᐃᒪᕐᒥᒃ ᐊᑐᖃᑦᑕᕐᓂᐊᕋᓱᒋᖕᒪᖔᖅᐱᑦ

ᐅᓪᓗ ᑕᒪᖅ ᐱᖓᓱᐊᖅᑎᕐᓗᒍ (m³)	**ᓱᓇᒧᑦ ᖃᓄᕐᓗ ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᕆᐊᕕᑦ**	**ᓇᑭᑦ ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᕆᐊᕕᑦ**

3b. ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᕐᓂᕐᒧᑦ ᓄᓇᕗᒥ ᐃᒪᓕᕆᓂᕐᐸᒧᑦ ᑲᑎᒪᔨᓂᒃ ᓚᐃᓴᓐᓴᑕᕋᓱᐊᖅᐱᑦ ?

☐ **ᐃ** ☐ **ᐊᒡᒐ**

ᐃ-ᖕᒍᓐᓂᕈᓂ, ᖃᓄᐃᑦᑐᒃᑯᑦ ᓚᐃᓴᒡᓯᑎᒍᑦ ?

☐ **Class A ᐃᒥᖅᑕᕐᓂᕐᒧᑦ ᓚᐃᓴᓐᓴ**

☐ **Class B ᐃᒥᖅᑕᕐᓂᕐᒧᑦ ᓚᐃᓴᓐᓴ**

ᐃᓚᖓ 6: ᐊᒃᑕᑰᑦ ᐃᒋᐅᖃᖅᑕᐅᓂᐊᕐᓂᖏᓐᓄᑦ ᓴᓗᒻᒪᖅᓴᐃᓂᕐᒧᓪᓗ

ᐊᑐᖅᑭᑦᑐᖅ

1. ᑎᑎᕋᕐᓗᒋᑦ ᐊᒃᑕᖅᑕᐅᔪᒃᓴᑦ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᓂᐅᓴᔪᒧᑦ ᓴᖅᑭᐊᑎᑕᐅᓂᐊᕋᓱᒋᔭᐅᔪᑦ :

ᐊᒃᑕᑰᖅ	ᓴᖅᑭᐊᓂᐊᕋᓱᒋᔭᐅᔪᑦ	ᖃᓄᖅ ᐃᒋᐅᖃᖅᑕᐅᓂᐊᖅᐸᑦ	ᓴᓗᒻᒪᖅᓴᐅᑕᐅᒃᑲᓐᓂᕐᓂᐊᖅᑐᑦ
ᖁᖅᑕᑦ (ᐃᓄᖕᓂᙵᖅᑐᑦ)			
ᐅᐊᓴᕈᑎᕕᓃᑦ			
ᐃᑯᐊᓚᑕᐅᔫᓇᖅᑐᑦ			
ᐃᑯᐊᓚᑕᐅᔫᓇᖏᑦᑐᑦ			
ᓄᓇᒥᑦᑐᑦ (ᓄᓇ, ᐊᑐᖅᑕᐅᔫᓇᕐᓂᐊᖏᑦᑐᑦ, ᓯᖃᓕᖅᑐᖅᑕᐅᓯᒪᓂᑯᐃᑦ)			
ᐊᑦᑕᓇᖅᑐᖅᑕᓖᑦ			
ᐊᓯᖏᑦ:			

2. ᐅᖃᐅᓯᕆᓗᒍ ᖃᓄᖅ ᐊᒃᑕᑰᑦ ᐃᒋᐅᖃᖅᑕᐅᖃᑦᑕᕐᓂᐊᕆᐊᖏᓐᓄᑦ.

ᐃᓚᖓ 7: ᓄᓇᓕᒋᔭᐅᔪᑦ ᐃᓚᐅᑎᑕᐅᓂᐊᕐᓂᖏᓐᓄᑦ & ᐊᕕᒃᑐᖅᓯᒪᐅᖅᑐᒧᓪᓗ ᐃᑲᔫᑕᐅᓂᐊᖅᑐᑦ

ᐊᑐᖅᑭᑦᑐᖅ

1. ᑎᑎᕋᕐᓗᒋᑦ ᓄᓇᓕᒋᔭᐅᔪᒥ ᑭᒡᒐᖅᑐᐃᔨᑦ ᖃᐅᔨᒃᑲᖅᑎᑕᐅᔪᕕᓃᑦ ᐊᒻᒪᓗ ᑲᑎᒪᔾᔪᑎᕕᓂᖅᑕᖃᕐᓂᕈᓂᓗ ᐊᑐᐃᓐᓇᐅᑎᓪᓗᒋᑦ:

ᓄᓇᓕᒋᔭᖅ	ᐊᑎᖓ	ᑲᑐᔾᔨᖃᑎᒌᑦ	ᐅᓪᓗᖓ ᖃᐅᔨᒃᑲᖅᑕᐅᓂᕕᓂᖓ

ᐃᓚᖓ8: ᑭᓯᑐᐃᓐᓇᕐᒧᑦ ᐊᐱᖅᑯᑏᑦ

1. ᖃᐅᔨᒪᔭᐅᔪᓂᒃ ᐃᑦᓴᕐᓂᑕᖃᕐᕕᕕᓂᕐᓂᒃ ᐊᒃᑐᐃᓂᐊᖅᐲᑦ ?

× ᐃ̇
☐ ᐊᒡᒐ

ᖃᐅᔨᒋᐊᕐᓗᒍ ᐅᖃᓕᒫᒐᖅ 7, ᐃᓚᒋᔭᐅᔪᖅ 7.2.3
ᐱᓕᕆᐊᕐᒨᖓᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓄᑦ
ᖃᐅᔨᓴᐃᓂᖅ ᐊᒡᒪᓗ ᑎᑎᖅᑲᖅ 7.2.2 ᐱᖅᑯᓯᑐᖃᓂᒃ
ᐱᕝᕕᐅᔪᑦ ᐃᓗᐊᓂᑦ LSA-ᒥᑦ
ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᐅᔪᒪᔪᖅ

ᐃᓚᖓ9: ᐊᑎᓕᐅᖅᓱᑦ

ᑐᒃᓯᖅᑏᑦ ᐊᑎᓕᐅᕐᓗᒍ ᐅᓪᓗᖓᓗ ᑎᑎᕋᕐᓗᒍ :

ᕿᐃᔭᓐ ᐹᓂᖓᓐ

ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐊᖓᔪᖅᑳᖅ
ᐱᔪᓐᓇᖅᑎᑦᑎᓃᑦ ᐊᒻᒪᓗ ᒪᓕᒐᓕᕆᔨᒃᑯᑦ ᔫᓂ 30, 2016

ᐊᑎᓕᐅᖅᓱᑦ ᑭᓯᓕᕆᔨᐅᓂᑦ ᐅᓪᓗᒥ

PART 1 FORM
PROJECT PROPOSAL INFORMATION REQUIREMENTS

To access NIRB documents, project screenings, and project reviews please visit the Nunavut Impact Review Board's ftp site http://ftp.nirb.ca/. The NIRB's website (www.nirb.ca) is currently under construction. Please contact info@nirb.ca should you have any questions or require further information.

IMPORTANT!
Please be advised that your application will not be processed until the Sections 1 - 9 are completed in their entirety, in both English and Inuktitut (+ Inuinnaqtun, if in the Kitikmeot).

SECTION 1: APPLICANT INFORMATION

1. **Project Name** Meadowbank Mine – Whale Tail Pit and Haul Road (Project)

   Note: The proposed project is an extension of the Meadowbank Mine and therefore a request for reconsideration of Project Certificate No. 004 as an addendum to the original FEIS. Consistent with the Project Certificate Item 29, Agnico Eagle is herein "reporting to NIRB if and when [Agnico Eagle] develops plans for an expansion of the Meadowbank Gold Mine."

2. **Applicant's full name and mailing address:**

Mr. Ryan Vanengen	Phone:	819-651-2974
Agnico Eagle Mines	Fax:	819-651-2974
PO Box 549, Baker Lake, NU X0C 0A0	Email:	ryan.vanengen@agnicoeagle.com

3. **Primary contact's full name and mailing address:**

145 King Street East, Suite 400	Phone:	416-947-1212 (Alternate: 1-888-822-6714)
Toronto, Ontario, M5C 2Y7, Canada	Fax:	416-367-4681
	Email:	info@agnicoeagle.com

SECTION 2: AUTHORIZATION NEEDED

1. **Indicate all authorizations associated with the project proposal:**

X	Regional Inuit Association (RIA)		Canadian Launch Safety (CLS)
X	Nunavut Water Board (NWB)		Canadian Wildlife Service (CWS)
	Nunavut Planning Commission (NPC)		Department of National Defense (DND)
X	Government of Nunavut (GN)	X	Environment Canada (EC)
	Community Government & Services (CG&S)	X	Fisheries and Oceans Canada (DFO)
X	Culture and Heritage (CH)		Parks Canada (PC)
	Nunavut Research Institute (NRI)		Hamlet
X	Aboriginal Affairs and Northern Development Canada (AANDC)		Other (please specify):

2. **List the <u>active</u> permits, licenses, or other authorizations related to the project proposal, and their expiry date(s):**

A list is provided in Volume 1, Appendix 1-B

3. **List the <u>pending</u>* permits, licenses, or other authorizations related to the project proposal:**

The Amendment to the Type A Water Licence is provided in Volume 2, Appendix 2-H

*Please provide a copy of all applications to the NIRB.

4. **Has this project or <u>any components of this project</u> been previously screened or reviewed by NIRB?**

☒ **YES** ☐ **NO**

If YES, indicate the previous project name and NIRB File No.

<u>Meadowbank Gold Project – 03MN107; NWB 2AM MEA1525</u>
<u>Amaruq Exploration Access Road – NIRB 11EN010; NWB 8BC-AEA1525</u>

SECTION 3: PROJECT PROPOSAL DESCRIPTION

1. **Indicate the type of project proposal (check all that apply)[1,2]:**
(See Appendix A for Project Type Definitions)

1	All-Weather Road/Access Trail	☒	**9**	Site Cleanup/Remediation	☐
2	Winter Road/ Winter Trail	☐	**10**	Oil and Natural Gas Exploration/Activities	☐
3	Mineral Exploration	☐	**11**	Marine Based Activities	☐
4	Advanced Mineral Exploration	☐	**12**	Scientific/International Polar Year Research*	☐
5	Mine Development /Bulk Sampling	☒	**13**	Harvesting Activities*	☐
6	Pits and quarries	☒	**14**	Tourism Activities*	☐
7	Offshore Infrastructure (port, break water, dock)	☐	**15**	Other[2]:	☐
8	Seismic Survey	☐			☐

<u>Please note:</u>

4. All project types listed above, except those marked with an asterisk (*), will also require the Proponent to submit a **Part 2 Project Specific Information Requirement (PSIR) Form**. The NIRB application process will not be considered complete without the Part 2 PSIR Form.
5. Please be advised that in order to complete the NIRB process, the NIRB may request additional information at any time during the process.
6. If "Other" is selected, contact NIRB for direction on whether a Part 2 PSIR Form is required.

2. If Project Type 3, 4 or 5 was selected in previous question, please indicate the mineral of interest that is being extracted. Include a brief description.

✕	Base Metals (zinc, copper, gold, silver, etc) Gold
	Diamonds
	Uranium
	Other:

3a. If Project Type 12, 13 or 14 was selected above, complete the table and questions below.

Not Applicable

Transportation Type	Quantity	Proposed Use	Length of Use
E.g. Helicopter	*1*	*Site to site pick ups and drop offs*	*6 days*

3b. Describe any docks, piers, air strips or related structures that are to be used in conjunction with the proposed project activities. **Please note**: *the building of new structures may require a Part 2 Form.*

Not Applicable

3c. If a temporary camp site is to be established, describe the proposed structures in detail and indicate the type and source of power for the camp site if applicable.

Not Applicable

4. Personnel

Total No. of personnel on site = (A) **475** Total No. of days on-site = (B) **7** **Total No. of Person days (A) × (B) = 3325**

5. Timing

Period of operation: from **January 1, 2018** to **December 31, 2029**

Proposed term of authorization: from **July 1, 2017** to **July 22, 2025**

Note: Agnico Eagle is not requesting an amendment to the term of the existing Type A Water Licence. 2AM-MEA1525 that expires on July 22, 2025

6a. Region (check all that apply):

	North Baffin	✕	Kivalliq		Kitikmeot		Transboundary:
	South Baffin		National Park				

6b. Describe the location of the proposed project activities in a regional context, noting the proximity to the nearest communities and any protected areas.

The Amaruq property is a 408 square kilometre (km^2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine in the Kivalliq Region of Nunavut.

6c. Discuss the history of the site if it has been used for any project activities in the past.

The 408 square kilometres (km2) Amaruq Exploration Property is located on Inuit Owned Land (IOL), and was acquired by Agnico Eagle Mines (Agnico Eagle) in April 2013 subject to a mineral exploration agreement with Nunavut Tunngavik Incorporated. Agnico Eagle began exploration in 2014 the program expanded beyond the initial "I", "V" and "R" gold-bearing mineralized zones discovered in 2013. Agnico Eagle following local consultation in Baker Lake, Agnico Eagle renamed the property "Amaruq", an Inuktitut word meaning "large wolf", after the legend of how wolves were created to keep the caribou herds healthy. The Amaruq Exploration Property includes several distinct zones of mineralization identified as "I", "V", "R" and "Whale Tail" and several other targets on a property covering 40,800 hectares.

6d. Indicate if there are any known archaeological/palaeontological historical sites in the area.

Heritage resources are assessed in Volume 7, Section 7.2. For results refer to Section 7.2.2.2. In summary, result of baseline studies carried out in relation to the Project (Tischer 2013, 2015, 2016), identified a total of 19 archaeological sites within or adjacent to the LSA (Table 7.2-1).

7. Land Status (check all that applies):

- [x] Crown
- [x] Inuit Owned Surface Lands
- [ ] Commissioners'
- [x] Inuit Owned Sub-Surface Lands
- [ ] Municipal

8a. Co-ordinates:

Project Extents	Latitude	Longitude
Meadowbank Mine (Approved Type A 2AM-MEA1525)	65° 01' 33" N	96° 04' 01" W
Meadowbank Exploration (Approved Type B 2BE-MEA1318) includes IVR/Amaruq Exploration	65° 30' 03" N	97° 13' 13" W
	65° 30' 07" N	95° 39' 00" W
	64° 47' 44" N	95° 36' 43" W
	64° 46' 22" N	97° 16' 36 W
Haul Road (Approved as Exploration Access Road Type B 8BC-AEA1525)	65° 04' 53.3" N	96° 01' 00.8" W
	65° 23' 49.7" N	96° 40' 35.8" W
Whale Tail Pit Project Area	65° 25' 22.241" N	96° 46' 6.042" W
	65° 25' 12.707" N	96° 35' 44.100" W
	65° 21' 35.740" N	96° 36' 3.944" W
	65° 21' 45.248" N	96° 46' 24.463" W

NTS Map Sheet No:

Meadowbank Mine - Project straddles four NTS sheets 66A/16, 66H/1, 56 E/4, and 56 D/13 (already on file from original and renewal applications)

Road – NTS sheet 066H/Amer Lake/Scale 1:250,000 (NAD 83) UTM Zoe 14 W (Already on file from original application)

Whale Tail Pit - NTS sheet 66H/7/Scale 1:50,000

(Please ensure that maps of the project are attached (1:50,000 **if available**, 1:250, 000 **Mandatory**) available from Natural Resources Canada)

8b. If the project proposal includes a **camp**, please provide the coordinates of the camp location

Camp Locations	Latitude	Longitude
Meadowbank Mine Site (Approved Type A 2AM-MEA1525)	65° 01' 33" N	96° 04' 01" W
Whale Tail Pit Camp Site	95° 24' 36" N	96° 41' 41" W

If different from above for the camp:

NTS Map Sheet No: _____

Please ensure that maps of the project are attached (1:50,000 **if available**, 1:250, 000 **Mandatory**) available from Natural Resources Canada

Please note that additional location information may be required in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

Project geometries added to Application No 148297 NPC on-line application form. ID856

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please include 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:

- The project activities, their necessity and duration;
- Method of transportation;
- Any structures that will be erected (permanent/ temporary);
- Alternatives considered; and
- Long-term developments, the projected outcome of the development for the area and its timeline.

Non-Technical summary (also provided in Inuktitut and French) provided in Attachment D.

IMPORTANT: IF THE PROPOSED ACTIVITIES REQUIRE SUBMISSION OF A NIRB PART 2 PSIR FORM, PLEASE COMPLETE SECTION 8 ONLY, OTHERWISE CONTINUE ON WITH SECTION 5.

Refer to submission documents and NIRB Part 2 PSIR Form Section 5-7- Not Applicable

SECTION 5: MATERIAL USE

NOT APPLICABLE

1. List equipment to be used (including drills, pumps, aircraft, vehicles, etc.):

Equipment type and number	Size – dimensions	Proposed use

2a. 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			
Hazardous Materials and Chemicals		**Total Amount of Hazardous Materials and Chemicals (in Litres)**	

2b. Describe the proposed Spill Prevention Plan.

_____

_____

_____

_____

3a. Detail the anticipated daily water consumption rates

Daily amount (m^3)	Proposed water retrieval methods	Proposed water retrieval location

3b. Have you applied for a water License* with the Nunavut Water Board?

☐ **YES** ☐ **NO**

If yes, what class of licence?

☐ **Class A Water Licence** ☐ **Class B Water Licence**

*Please provide a copy of the application or licence to the NIRB.

SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

NOT APPLICABLE

1. List the types of waste associated with the proposed project activities:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)			
Greywater			
Combustible wastes			
Non-Combustible wastes			
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Other:			

2. Describe the proposed Waste Management Plan.

SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

NOT APPLICABLE

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

Community	Name	Organization	Date Contacted

SECTION 8: GENERAL QUESTIONS

1. Will you be disturbing any known archaeological sites?

× **YES**
☐ **NO**

Refer to Volume 7, Section 7.2.3 for Potential Project Related Effects Assessment and Table 7.2-2 Heritage Resources within the LSA proposed mitigation.

SECTION 9: APPLICANT SIGNATURE

Please sign and date your application:

Signature	Title	Date
Ryan Vanengen	Environment Superintendent Permitting and Regulatory Affairs	June 30, 2016

SCREENING PART 2 FORM
PROJECT SPECIFIC INFORMATION REQUIREMENTS (PSIR)

SUBMISSIONS

The Proponent must submit all information pertaining to the Project as a whole. The information requirements below are designed for the purpose of environmental assessment and are not limited to the scope of a single permit or license application.

IMPORTANT: Please be advised of the following:

1. NIRB does not accept references to an ftp or web sites as a submission.

2. The Proponent must provide NIRB with 1 (one) electronic copy and 1 (one) hardcopy of the required information in English.

3. All maps should be shapefiles, be legible, and should include grids, be of appropriate scale, indicate the scale, include latitude and longitude references, NTS Maps numbers, title, legend and a north arrow. To the extent possible, avoid hand-drawn demarcations and faxed maps; and,

4. Please complete all required information in each section below. If the required information is not applicable to the project proposal, please indicate this in the response with "n/a". If the request has been provided in a different section or report, please note the section or report where the response can be found.

GENERAL PROJECT INFORMATION REQUIREMENTS

Project Coordinates and Maps

1. The preferred method for submitting project coordinates information is through the use of a Geographic Information System (GIS) compatible digital file. Although an ESRI ArcView 3.x shape file (in decimal degrees) is the preferred interchange format, the NIRB has the capacity to receive over 100 GIS and CAD related formats, including MapInfo and AutoCAD, provided proper format and projection metadata is also submitted. The NIRB requires coordinates for the project proposal which reflect the entire project area as defined by:

   - Area/sites of investigation;
   - Boundaries of the foreseen land use permit/right-of-way area(s) to be applied for;
   - Location of any proposed infrastructure or activity(s); and,
   - Boundaries of the mineral claim block(s) where proposed activities will be undertaken.

   GIS compatible digital files will provided on-line.

2. Map of the project site within a regional context indicating the distance to the closest communities.
   Figure 1.1-1 Project Location and Claim Boundaries

3. Map of any camp site including locations of camp facilities.
   Figure 1.2-1 Site Layout and Infrastructure

4. Map of the project site indicating existing and/or proposed infrastructure, proximity to water bodies and proximity to wildlife and wildlife habitat.
   Existing and/or proposed infrastructure – Figure 1.2-1 Site Layout and Infrastructure.
   Proximity to waterbodies – Also shown on Figure 1.2-1 Site Layout and Infrastructure.
   Proximity to wildlife and wildlife habitat – Refer to Volume 5, Appendix 5-C Terrestrial Baseline Characterization Report for various maps.

Project General Information

5. Discuss the need and purpose of the proposed project.
   Refer to Volume 1, Section 1.2.1 Project Justification, Section 1.2.1.1 Project Purpose and Rationale, and Section 1.2.1.2 Project Need.

6. Discuss alternatives to the project and alternative methods of carrying out the project, including the no-go alternative. Provide justification for the chosen option(s).
   Refer to Volume 1, Section 1.10 Alternatives to the Project and its various subsections 1.10.1 to 1.10.6)

7. Provide a schedule for all project activities.
   Refer to Volume 1, Section 1.4 Pace, Scale and Timing of Project, Figure 1.4-1 - Key Phases of Whale Tail Pit and Meadowbank Mine, and Table 1.4-1 Mine Development Sequence and Key Activities

8. List the acts, regulations and guidelines that apply to project activities.
   Refer to Volume 2, Appendix 2-A, Table 2-A-3- List of Acts, Regulations, and Guidelines that apply to mine development.

9. List the approvals, permits and licenses required to conduct the project.
   Refer to Volume 1, Appendix 1-B List of Permits, Licenses, and Authorizations.

DFO Operational Statement (OS) Conformity

10. Indicate whether any of the following Department of Fisheries and Oceans (DFO) Operational Statement (OS) activities apply to the project proposal:
    - Bridge Maintenance
    - Clear Span Bridge
    - Culvert Maintenance
    - Ice Bridge
    - Routine Maintenance Dredging
    - Installation of Moorings

Please see DFO's OS for specific definitions of these activities available from DFO's web-site at http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/index-eng.htm

DFO operational statements are no longer in use. However, Agnico Eagle committed to meeting and incorporating the DFO criteria for "Projects Near Water" (PNW). The criteria established by DFO for PNW for activities where a DFO review is not required still requires that project meet criteria and follow the best management practices described in *measures to avoid causing harm to fish and fish habitat.*

Criteria and best management practices have be established for:

- **Project Planning: Timing; Site Selection; Contaminant and Spill Management;**
- **Erosion and Sediment Control;**
- **Shoreline/Bank Re-vegetation and Stabilization;**
- **Fisheries Protection; and**
- **Operation of Machinery.**
- **Refer to http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html**

Specific criteria also which may apply to the Project exists for:

- **Bridges, Causeways and Culverts;**
- **Drainage, Flooding and Erosion Control, Stormwater and Wastewater Management;**
- **Water Level and Flow Management; and**
- **Other Activities (i.e., habitat restoration, riparian vegetation removal, and water intakes).**
- **Refer to http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html**

11. If any of the DFO's OS apply to the project proposal, does the Proponent agree to meet the conditions and incorporate the measures to protect fish and fish habitat as outlined in the applicable OS? If yes, provide a signed statement of confirmation.
Agnico Eagle agrees to the meet the conditions and incorporate the current measures to avoid causing harm to fish and fish habitat.

Transportation

12. Describe how the project site will be accessed and how supplies will be brought to site. Provide a map showing access route(s).
Refer to Volume 1, Project Description:
    - **Executive Summary page 1-I;**
    - **Meadowbank Mine – Whale Tail Pit Fact Sheet;**
    - **Table 1.1-1 Definition of Project Scope – Site Access;**
    - **Section 1.2.6 Marine Area; and**
    - **Section 1.10.2 Infrastructure, Transportation Access and Quarry (Alternatives).**

Map showing access routes refer to Figure 1.1-1 Project Location and Claim Boundaries, and Refer to Volume 8, Appendix 8-C-1 for the Whale Tail Pit Haul Road Management Plan.

13. If a previous airstrip is being used, provide a description of the type of airstrip (ice-strip/all-weather), including its location. Describe dust management procedures (if applicable) and provide a map showing location of airstrip.
    The Meadowbank airstrip is a gravel base that can accommodate a 737 combo jet that delivers freight and passengers. Refer to Volume 1, Project Description:
    - **Table 1.1-1 Definition of Project Scope – Site Access**
    - **Section 1.2.9 Airport Facilities**

    The Meadowbank existing approved/authorized Airstrip will continue to be used. Refer to Appendix 1-B List of Permits and Authorizations – Permit 2AM-MEA0815 renewed to 2AM-MEA1525. During the summer period, the airstrip is watered prior to landing and taking off.

14. If an airstrip is being constructed, provide the following information:
    a. Discuss design considerations for permafrost
    b. Discuss construction techniques
    c. Describe the construction materials, type and sources, and the acid rock drainage (ARD) and metal leaching (ML) characteristics (if rock material is required for airstrip bed).
    d. Describe dust management procedures.
    e. Provide a map showing location of proposed airstrip.

    Not Applicable – No airstrip is being constructed.

15. Describe expected flight altitudes, frequency of flights and anticipated flight routes.
    Meadowbank existing approved/authorized Airstrip to be used. Refer to Volume 8, Section 8.3.3.1 Air Traffic Management Plan.

Camp Site

16. Describe all existing and proposed camp structures and infrastructure
    Agnico Eagle will continue to use the Meadowbank Camp to house Mill, powerhouse and maintenance shop employees; furthermore Agnico Eagle is proposing another satellite camp at Whale Tail Pit for pit operations. Refer to Volume 1, Project Description:
    - **Executive Summary page 1-I;**
    - **Table 1.1-1 Definition of Project Scope; and**
    - **Section 1.2.2 Project Components and Activities.**

17. Describe the type of camp:
    a. Mobile
    b. Temporary
    c. Seasonal
    d. Permanent
    e. Other

    Permanent Camp – Life of Mine

18. Describe the maximum number of personnel expected on site, including the timing for those personnel involved with the project.
    Operational employment on average up to 931 persons per year over three to four year period (rotational work basis with approximately 50% on site at any given point in time).

    Refer to Volume 1, Project Description, Meadowbank Mine – Whale Tail Pit Fact Sheet; and Volume 7, Human Environment, Section 7.4, Table 7.4-4 Project Construction Employment (positions) by location, and Table 7.4-5 Project Operations Employment (positions) by location.

Equipment

19. Provide a list of equipment required for the project and discuss the uses for the equipment.
    Agnico Eagle will use the same equipment already on-site that is currently in use for the Meadowbank operations, with the addition of specialized long-distance haul trucks. Project design considerations are discussed in Section 1.2.14 and detailed Volume 2.

20. If possible, provide digital photos of equipment.

Water

21. Describe the location of water source(s), the water intake methods, and all methods employed to prevent fish entrapment. Provide a map showing the water intake locations.
    Refer to Volume 1, Project Description:
    - **Executive Summary, page 1-ii;**
    - **Table 1.1-1 Definition of Project Scope;**
    - **Figure 1.2-1 Site Layout;**
    - **Section 1.2.4 Freshwater Supply and its subsections; and**
    - **Section 1.2.5 Water Management and its subsections.**

    For information related to Intakes refer to Volume 1, Section 1.2.4.3 Freshwater Infrastructure Intakes and Appendix 1-C Design Drawings and Conceptual Layouts.

22. Describe the estimated rate of water consumption (m^3/day).
    Refer to Volume 1, Project Description, Section 1.2.4.1 Freshwater Requirements. Freshwater consumption also detailed in the Type A Water Licence Application Form Table 1, and Volume 2, Section 2.4.2.4 Type A Amendment - Freshwater Use, Table 2.4-2.

23. Describe how waste water will be managed. If relevant, provide detail regarding location of sumps, including capacity of sumps and monitoring.
    Water Management is described in Volume 1, Section 1.2.5 and its subsections, Table 1.1-1 Definition of Project Scope, and in the Water Management Plan Addendum found in Volume 8, Appendix 8-B.2. For waste water specifically

associated with domestic waste refer to Table 1.1-1. Monitoring of sumps is presented in the Water Quality and Flow Monitoring Plan Addendum, Volume 8, Appendix 8-B.3.

24. If applicable, discuss how surface water and underground water will be managed and monitored.
    Water Management is described in Volume 1, Section 1.2.5 and its subsections. For detailed information on surface water and groundwater management and monitoring refer to Volume 8, Appendix 8.B-2 Water Management Plan Addendum and the Groundwater Monitoring Plan Addendum Appendix 8.E-3.

Waste Water (Grey water, Sewage, Other)

25. Describe the quantities, treatment, storage, transportation, and disposal methods for the following (where relevant):
    - Sewage
    - Camp grey water
    - Combustible solid waste
    - Non-combustible solid waste, including bulky items/scrap metal
    - Hazardous waste or oil
    - Contaminated soils/snow
    - Empty barrels/ fuel drums
    - Any other waste produced

    Waste Disposal is summarized in Table 2 attached to the Type A Water Licence Application Form.

    Refer to Volume 1, Section 1.2.12 Waste (Domestic and Hazardous) Management. For details refer to the Plan revisions/addendums outlined in Volume 8, specifically Appendix 8- B.1 Landfill Design and Management.

26. If the project proposal includes a landfill or landfarm, indicate the locations on a map, provide the conceptual design parameters, and discuss waste management and contact-water management procedures.
    No new landfarms are proposed as part of the extension of this project nor required for the extension of the Meadowbank Mine; the approved Meadowbank Landfarm will continue to be used as part of this proposal.

    Refer to Volume 8, Section 8.3.2.3 Whale Tail Pit Landfill Design and Management Plan. For Waste (Domestic and Hazardous) Management refer to Volume 1, Section 1.2.12.
    Refer to Volume 1, Figure 1.2-1 Site Layout for Landfill location.

Fuel

27. Describe the types of fuel, quantities (number of containers, type of containers and capacity of containers), method of storage and containment. Indicate the location on a map where fuel is to be stored, and method of transportation of fuel to project site.

    Refer to Volume 1, Project Description:
    - **Table 1.1-1 Definition of Project Scope – Fuel and Hazardous Wastes;**
    - **Section 1.2.6 Marine Area – Transportation to Project;**

- **Section 1.2.11 Fuel Storage Sites;**
- **Section 1.2.10 Explosives Production and Storage Sites;**
- **Figure 1.2-1 – Site Layout and Infrastructure; and**
- **Appendix 1-C – Design Drawings/Conceptual Layouts.**

Refer to Volume 8, Hazardous Material Management Plan (Appendix 8-D.4) Section 5 – Petroleum Products and Table 2 for quantity, location, type and current use.

Meadowbank existing approved/authorized Fuel storage to be used. Refer to Appendix 1-B List of Permits and Authorizations – Permit 2AM-MEA0815 renewed to 2AM-MEA1525.

28. Describe any secondary containment measures to be employed, including the type of material or system used. If no secondary containment is to be employed, please provide justification.
    Refer to Volume 1, Project Description, Section 1.2.11 Fuel Storage Sites, and Volume 8, Appendix 8-D.2 Meadowbank and Whale Tail Pit Bulk Fuel Storage Facility Environmental Performance Monitoring Plan.

29. Describe the method of fuel transfer and the method of refuelling.
    Refer to Volume 1, Project Description:
    - **Section 1.2.6 Marine Area – Transportation to Project (i.e., fuel transfer); and**
    - **Section 1.2.11 Fuel Storage Sites.**

    Refer to Volume 8, Hazardous Material Management Plan (Appendix 8-D.4) Section 5 – Petroleum Products.

30. Describe spill control measures in place.
    Refer to the full list of Material Management and Emergency Response Management Plans provided in Volume 8, Section 8.3.4.
    - **Ammonia Management Plan; Refer to Appendix 8-D.1.**
    - **Meadowbank Bulk Fuel Storage Facility Environmental Performance and Monitoring Plan; Refer to Appendix 8-D.2.**
    - **Baker Lake Bulk Fuel Storage Facility Environmental Performance and Monitoring Plan;**
    - **Emergency Response Plan; Refer to Appendix 8-D.3.**
    - **Hazardous Material Management Plan; Refer to Appendix 8-D.4.**
    - **Oil Pollution Emergency Plan;**
    - **Shipping Management Plan; Refer to Appendix 8-D.5.**
    - **Spill Contingency Plan; Refer to Appendix 8-D.6.**
    - **Freshet Action and Incident Response Plan refer to addendum to the Water Management Plan (Section 8.3.2.5).**

Please refer to Environment Canada's fuel storage tank system regulations (*Storage Tank System for Petroleum and Allied Petroleum Products*) website at http://www.ec.gc.ca/st-rs/ for details on fuel storage requirements.
Refer to Volume 1, Project Description, Section 1.2.11 for Agnico Eagle statement regarding Environment Climate Change Canada Regulations, and Volume 8, Appendix 8-D.2 Meadowbank Fuel Storage Facility Environmental Performance Monitoring Plan.

Chemicals and Hazardous Materials*

**included but not limited to oils, greases, drill mud, antifreeze, calcium or sodium chloride salt, lead acid batteries and cleaners*

31. Describe the types, quantities (number of containers, the type of container and capacity of containers), method of storage and containment. Indicate the location on a map where material is to be stored, and method of transportation of materials to project site.
    Refer to Volume 8, Appendix 8-D-4 Hazardous Material Management Plan:
    - **Section 5 and subsection for Petroleum Products;**
    - **Section 6 and subsections for explosives;**
    - **Section 7 for Process plant and treatment plant reagents and consumables;**
    - **Section 8 for additional hazardous and toxic materials;**
    - **Figure 6, Whale Tail Camp site layout; and**
    - **Section 5.2 Delivery to Site.**

    Refer to Volume 8, Hazardous Material Management Plan (Appendix 8-D.4) Table 2 and Table 5 for quantity, location, type and current use.

32. Describe any secondary containment measures to be employed, including the type of material or system used.
    Depending upon type of material refer to appropriate section of the Hazardous Material Management Plan (Appendix 8-D-4).

33. Describe the method of chemical transfer.
    Depending upon type of material refer to appropriate section of the Hazardous Material Management Plan (Appendix 8-D-4).

34. Describe spill control measures in place.
    Depending upon type of material refer to appropriate section of the Hazardous Material Management Plan (Appendix 8-D-4) Safe Handling measures are identified. For specific spill contingency measures refer to plans identified under Q.30 (above) and the Spill Contingency Plan Volume 8, Appendix 8-D.6.

Workforce and Human Resources/Socio-Economic Impacts

35. Discuss opportunities for training and employment of local Inuit beneficiaries.
    Refer to Volume 1, Section 1.2.1.2 Project Need; and
    Refer to Volume 7 Human Environment:
    - **Section 7.4 Socio Economics**
        - **Section 7.4.2.3 Employment**
        - **Section 7.4.2.4 Education and Training**
        - **Section 7.4.3.3 Employment and Education**

36. Discuss workforce mobilization and schedule, including the duration of work and rotation length, and the transportation of workers to site.
    Refer to Volume 1, Project Description:
    - **Meadowbank Mine – Whale Tail Pit Fact Sheet; Socio-Economics; and**
    - **Table 1.1-1 Definition of Project Scope – Employment.**

37. Discuss, where relevant, any specific hiring policies for Inuit beneficiaries.

Refer to Volume 1, Project Description, Section 1.2.1.2 Project Need, and the Socio Economic Management and Monitoring Plan in Volume 8, Appendix 8-E.6.

Public Involvement/ Traditional Knowledge

38. Indicate which communities, groups, or organizations would be affected by this project proposal.
    Since operation of the Meadowbank Mine began, Agnico Eagle has continued public consultation by meeting with employees local employees that live throughout the Kivalliq, meeting in the community and local stakeholders, and regulatory agencies routinely which has allowed a better general understanding of the rights, interests, values, aspirations, and concerns of the potentially affected stakeholders, with particular reference to the local population (Baker Lake). A detailed list of consultation are presented in previous annual reports and specific consultation and IQ/TK workshops for the extension of the Meadowbank Mine through the operation of Whale Tail Pit are presented in Volume 2, Section 2.3, Table 2-H.

39. Describe any consultation with interested Parties which has occurred regarding the development of the project proposal.
    Refer to Volume 1, Executive Summary, and Section 1.1.11 Consultation
    Refer to Volume 2, Section 2.3 Public Consultation, Government Engagement and Inuit Qaujimajatuqangit (and its subsections)

    A record of consultation including government engagement is provided in Volume 2, Table 2-H.

40. Provide a summary of public involvement measures, a summary of concerns expressed, and strategies employed to address any concerns.
    Refer to Volume 1, Project Description, Section 1.1.3 Sustainable Development and Precautionary Principle. Outlines Agnico Eagle involvement in regional SEMC. Annual Reports on file with NIRB under the current Project Certificate.

41. Describe how traditional knowledge was obtained, and how it has been integrated into the project.
    Traditional Knowledge and Inuit Qaujimajatuqangit incorporation detailed in Volume 7, Human Environment, specifically Section 7.3 and its subsections.

    Baseline Inuit Qaujimajatuqangit report is provided in Appendix 7-A.

    For each environmental component TK/IQ was incorporated as follows:
    - **Assessment methods refer to Volume 3**
    - **Atmospheric Environment:**
        - **Climate and meteorology - Refer to Section 4.2.1 and its subsection.**
        - **Air Quality - Refer to Section 4.3.1 and its subsection.**
        - **Noise and Vibration - Refer to Section 4.4.1 and its subsection.**
    - **Terrestrial Environment**
        - **Terrain, Permafrost, and Soils - Refer to Section 5.3.1 and its subsection.**

- **Vegetation - Refer to Section 5.4.1 and its subsection.**
- **Wildlife and Wildlife Habitat - Refer to Section 5.5.1 and its subsection.**

- **Freshwater Environment**
  - **Hydrogeology and Groundwater Quantity and Quality - Refer to Section 6.2.1 and its subsection.**
  - **Surface Water Hydrology - Refer to Section 6.3.1 and its subsection.**
  - **Surface Water Quality - Refer to Section 6.4.1 and its subsection.**
  - **Fish and Fish Habitat - Refer to Section 6.5.1 and its subsection.**
- **Human Environment**
  - **Heritage Resources - Refer to Section 7.2.1 and its subsection.**
  - **Socio-Economics - Refer to Section 7.4.1 and its subsection.**

Summary is provided in Section 2.2.4.2.

42. Discuss future consultation plans.
    Refer to Volume 1, Section 1.1.11 for summary of consultation. A record of consultation including government engagement is provided in Volume 2, Appendix 2-H, Table 2-H. Agnico Eagle has and will continue to engage with the KIA and other stakeholders. In addition to routine public meetings in Baker Lake, Agnico Eagle hosted public meetings, presenting Whale Tail Pit in various Kivalliq communities (Baker Lake, Rankin Inlet, Chesterfield Inlet) in June 2016 and will host open house sessions throughout the Kivalliq in September 2016.

PROJECT SPECIFIC INFORMATION

The following table identifies the project types identified in Section 3 of the NIRB, Part 1 Form. Please complete all relevant sections.

It is the proponent's responsibility to review all sections in addition to the required sections to ensure a complete application form.

Table 1: Project Type and Information Required

Project Type	Type of Project Proposal	Information Request
1	**All-Weather Road/Access Trail**	**Section A-1 and Section A-2**
2	Winter Road/Winter Trail	Section A-1 and Section A-3
3	Mineral Exploration	Section B-1 through Section B-4
4	Advanced Mineral Exploration	Section B-1 through Section B-8
5	**Mine Development/Bulk Sampling**	**Section B-1 through Section B-12**
6	**Pits and Quarries**	**Section C**
7	Offshore Infrastructure(port, break water, dock)	Section D
8	Seismic Survey	Section E
9	Site Cleanup/Remediation	Section F
10	Oil and Natural Gas Exploration/Activities	Section B-3 and Section G
11	Marine Based Activities	Section H
12	Municipal and Industrial Development	Section I

Roads/Trails

A-1. Project Information

1. Describe any field investigations and the results of field investigations used in selecting the proposed route (e.g. geotechnical, snow pack).
   Exploration Access Road screened and approved by NIRB in November 2015, followed by issuance of a Type B licence and letter of advice from DFO by March 2016. The Amaruq Exploration Access Road Main Application Document provides a detailed description of the route selection. Field investigations referenced in the Exploration access road application were carried forward into this assessment. The construction of the Exploration Access road is ongoing. Updated field information provided in the baseline reports appended to the FEIS.

   In addition a summary of baseline data collection reports is provided in Volume 2, Appendix 2-D.

   Routing figures are provided in Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan. In addition refer to Section 1 – Project Description.

   The exploration and haul road alignment was altered based on community feedback and the construction schedule for the haul road was altered to focus on winter construction to reduce permafrost degradation. Where applicable, an adaptive management strategy or approach will be used (Vol 1. S, 1.6)

2. Provide a conceptual plan of the road, including example road cross-sections and water crossings.

Information provided for original screening and with Type B application for construction, operations, and closure of the Amaruq Exploration Access Road (which is the same alignment as the proposed Whale Tail Pit Haul Road). NWB issued water licence 8BC-AEA1525.

Figures provided in Volume 8 Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan

3. Discuss the type and volume of traffic using the road/trail (i.e. type of vehicles and cargo and number of trips annually).
   Agnico Eagle is proposing to expand the width of the approved exploration access road to a haul road to accommodate increased traffic rates and haul trucks.

   Refer to Volume 4, Appendix 4-B, Section 4.B-8.

   Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan Section 7.7 (and its subsections)

4. Discuss public access to the road.
   For public safety and security, the haul road will be used as a private road and therefore not accessible to the public. Traditional land use crossings will be constructed to ensure hunters and traditional land users can safely cross the haul road. Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan, Section 5.1

5. Describe maintenance procedures.
   Refer to Section 8.3.3.3 Whale Tail Pit Haul Road Management Plan for summary.

6. Describe whether any portion of the road will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA).
   Not Applicable.

A-2. All-Weather Road/Access Trail

7. Discuss road design considerations for permafrost.
   Agnico Eagle proposes to extend the use of the current Baker Lake to Meadowbank AWAR for an additional 3 to 4 years during the operation of Whale Tail Pit. For details on the proposed expansion of the Amaruq Exploration Access road to the Whale Tail Pit Haul Road, refer to Volume 1, Project Description, Section 1.3 and Appendix 1-C for Project design considerations.

   Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan:
   - **Section 6 Measures to prevent permafrost degradation; and**
   - **Section 7.6 Ground ice and permafrost protection.**

   Refer to Volume 2, Appendix 2J Project Design considerations; Permafrost in 2-J-2.2

8. Describe the construction materials (type and sources for materials), and the acid rock drainage (ARD) and metal leaching characteristics of the construction materials.
   Refer to Volume 1, Project Description:
   - **Executive Summary, Table 1.1-1 Definition of Scope; and**
   - **Section 1.2.2.1 re: Material sources and ARD/ML potential.**

   Summary of Geochemical properties is provided in Volume 8, Appendix 8-A.1 and detailed geochemical properties in Volume 5, Appendix 5-E.

   Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan, Section 1.1 Project Description.

9. Discuss construction techniques, including timing for construction activities.
   Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan. Engineering for the road expansion has been completed for permitting purposes, but detailed construction engineering is ongoing. Final construction drawings will be submitted to the NWB prior to construction.

   Furthermore, refer to Volume 1, Project Description:
   - **Section 1.4 Pace, Scale and Timing of Project; and**
   - **Table 1.4-1 Mine Development Sequence and Key Activities.**

10. Indicate on a map the locations of designated refuelling areas, water crossings, culverts, and quarries/borrow sources.
    Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan, Figure 1.2 (pg 11). All of the approved Amaruq Exploration Access Road refuelling areas, water crossings, culverts and quarries/ borrow sources are proposed for use along the Whale Tail Haul Road.

11. Identify the proposed traffic speed and measures employed to ensure public safety.
    Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan, Section 7.7 and for full details refer to Section 9-Road Safety.

12. Describe dust management procedures.
    Refer to Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan, Section 8.3-Dust Suppression.

Mineral Exploration /Advanced Exploration /Development

B-1. Project Information

1. Describe the type of mineral resource under exploration.
   Gold

B-2. Exploration Activity

NOTE: Agnico Eagle seeking reconsideration of Project Certificate for Mine Development. Section responses relate to activities already permitted or permit

(pending) under separate application. Exploration has been screened and authorized under existing permits, authorization and licences. Refer to Appendix 1-B. Advanced exploration associated with future potential underground are currently under review by NIRB and regulators.

Ongoing exploration activities associated with this property are highlighted (bold and blue). Technical details associated with exploration are previously reviewed and authorized indicated as such below.

2. Indicate the type of exploration activity: **Only those activities highlighted apply**
   - **Bulk Sampling (underground or other)**
   - Stripping (mining shallow bedded mineral deposits in which the overlying material is stripped off, the mineral removed and the overburden replaced)
   - Trenching
   - Pitting
   - **Delineation drilling**
   - Preliminary Delineation drilling
   - **Exploration drilling**
   - **Geophysical work (indicate ground and/or air)**
   - Other

3. Describe the exploration activities associated with this project: **Only those activities highlighted apply**
   - Satellite remote sensing
   - Aircraft remote sensing
   - **Soil sampling**
   - **Sediment sampling**
   - **On land drilling (indicate drill type)**
   - On ice drilling (indicate drill type)
   - Water based drilling (indicate drill type)
   - **Overburden removal**
   - Explosives transportation and storage
   - Work within navigable waters
   - On site sample processing
   - **Off-site sample processing**
   - **Waste rock storage (pending)**
   - **Ore storage (pending)**
   - Tailings disposal
   - **Portal and underground ramp construction**
   - **Landfilling (shipped to Meadowbank)**
   - **Landfarming (shipped to Meadowbank)**
   - Other

B-3. Geosciences

4. Indicate the geophysical operation type:
   a. Seismic (please complete Section E)
   b. Magnetic
   c. Gravimetric

d. **Electromagnetic**
e. Other (specify)

5. Indicate the geological operation type:
   a. **Geological Mapping**
   b. **Aerial Photography**
   c. **Geotechnical Survey**
   d. **Ground Penetrating Survey**
   e. Other (specify)
6. Indicate on a map the boundary subject to air and/or ground geophysical work.

7. Provide flight altitudes and locations where flight altitudes will be below 610m.
   Refer to approved Air Traffic Management Plan referenced in Volume 8, Section 8.3.3.1.

B-4. Drilling

Activities (No. 8-13) in this section currently authorized under existing permits licences and authorization refer to Appendix 1-B

8. Provide the number of drill holes and depths (provide estimates and maximums where possible).
9. Discuss any drill additives to be used.
10. Describe method for dealing with drill cuttings.
11. Describe method for dealing with drill water.
12. Describe how drill equipment will be mobilized.
13. Describe how drill holes will be abandoned.
14. If project proposal involves uranium exploration drilling, discuss the potential for radiation exposure and radiation protection measures. Please refer to the *Canadian Guidelines for Naturally Occurring Radioactive Materials* for more information.
    Not Applicable

B-5. Stripping/ Trenching/ Pit Excavation

15. Discuss methods employed. (i.e. mechanical, manual, hydraulic, blasting, other)
    Refer to Volume 1, Project Description, Section 1.2.2.1 Deposit, mining methods and production of Whale Tail Pit.
    Refer to Section 1.2.14 Borrow Pits and Quarry sites.

16. Describe expected dimensions of excavation(s) including depth(s).
    Refer to Appendix 1-D Scoping level Open Pit Slope design.

17. Indicate the locations on a map.
    Refer to Figure 1.2-1 Site Layout and Infrastructure.
    Quarry site location plan provided in Appendix 1-C.

18. Discuss the expected volume material to be removed.
    Refer to Volume 1, Table 1.2-1 Summary of Mine Life Materials balance.

19. Discuss methods used to determine acid rock drainage (ARD) and metal leaching potential and results.
    Refer to Volume 1, Section 1.2.2.1 re: Material sources and ARD/ML potential. Summary of Geochemical properties is provided in Volume 8, Appendix 8-A.1 and detailed geochemical properties in Volume 5, Appendix 5-E.

B-6. Underground Activities

Not Applicable.
No underground Activities proposed as part of this application. Advanced underground exploration still under consideration by NIRB and NWB under a separate amendment to the Type B Exploration Licence.

20. Describe underground access.
21. Describe underground workings and provide a conceptual plan.
22. Show location of underground workings on a map.
23. Describe ventilation system.
24. Describe the method for dealing with ground ice, groundwater and mine water when encountered.
25. Provide a Mine Rescue Plan.

B-7. Waste Rock Storage and Tailings Disposal

26. Indicate on a map the location and conceptual design of waste rock storage piles and tailings disposal facility.
    Refer to Figure 1.2-1 Site Layout and Infrastructure
    Refer to Volume 1, Appendix 1C Design Drawing/Conceptual Layouts

    Tailings disposal facility already approved project component Refer to Appendix 1-B.

    For summary of existing Plans refer to Volume 8, Section 8.3.1.2 Mine Waste Rock and Tailings Management Plan and Section 8.3.1.3 Mine Tailings Storage Facility Operation, Maintenance, and Surveillance Manual.

    Addendum to the Mine Waste Rock and Tailings Management Plan is provided in Appendix 8-A.1.

27. Discuss the anticipated volumes of waste rock and tailings.
    Refer to Volume 1, Table 1.2-1 Summary of Mine Life Materials balance and refer to the Waste Rock and Tailings Management Plan Addendum in Volume 8 Appendix 8-A.1.

28. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.
    See response to No. 19 (above).

B-8. Stockpiles

29. Indicate on a map the location and conceptual design of all stockpiles.

Refer to Figure 1.2-1 Site Layout and Infrastructure.

30. Describe the types of material to be stockpiled. (i.e. ore, overburden)
    Refer to Volume 1, Project Description:
    - **Section 1.2.2.2 Processed Ore Containment (and Tailings Storage Facility);**
    - **Section 1.2.3 Overburden and waste rock disposal; and**
    - **Table 1.2-1 Summary of Mine Life Materials balance.**

    Refer to the Waste Rock and Tailings Management Plan Addendum in Volume 8 Appendix 8-A.1.

31. Describe the anticipated volumes of each type of material to be stockpiled.
    Refer to Volume 1, Table 1.2-1 Summary of Mine Life Materials balance.

32. Describe any containment measures for stockpiled materials as well as treatment measures for runoff from the stockpile.
    Refer to Volume 1, Project Description, Section 1.2.5 and its subsection for detailed summary on water management associated with the Project.

    For details refer to Volume 8 Appendices:
    - **Appendix 8-A.1 Waste Rock and Tailings Management Plan Addendum.**
    - **Appendix 8-A.2 Mine Water Quality Monitoring and Management Plan for Dike Construction and Dewatering.**
    - **Appendix 8-B.2 Water Management Plan.**
    - **Appendix 8-B.3 Water Quality and Flow Monitoring Plan.**

33. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.
    See response to No. 19 (above).

B-9. Mine Development Activities

34. Indicate the type(s) of mine development activity(s): **Only those activities highlighted apply**
    - Underground
    - **Open Pit Mining**
    - Strip Mining
    - Other

35. Describe mine activities.
    Refer to Volume 1, Project Description (unless otherwise noted)
    For all Refer to Table 1.1-1 Definition of Project Scope
    Figure 1.2-1 Layout and Site Infrastructure
    For detailed description of mine activities refer to the applicable management, mitigation, monitoring plan provided in Volume 8.

    - Mining development plan and methods **Section 1.2.2.1.**
    - Site access **Section 1.2.7 and Section 1.2.9.**

- Site infrastructure (e.g. airstrip, accommodations, offshore infrastructures, mill facilities, fuel storage facilities, site service roads) **Table 1.1-1 Definition of Project Scope, Section 1.2 and its subsections.**
- Milling process **Section 1.2.2.2.**
- Water source(s) for domestic and industrial uses, required volumes, distribution and management. **Section 1.2.4 and its subsections.**
- Solid waste, wastewater and sewage management **Section 1.2.12.**
- Water treatment systems **Section 1.2.5.5.**
- Hazardous waste management **Section 1.2.12.**
- Ore stockpile management Section **1.2.2.2.**
- Tailings containment and management **Section 1.2.2.2.**
- Waste rock management **Section 1.3.**
- Site surface water management **Section 1.2.5 and its subsections.**
- Mine water management **Section 1.2.5 and its subsections.**
- Pitting and quarrying activities (please complete Section C) **Section 1.2.14.**
- Explosive use, supply and storage (including on site manufacturing if required) **Section 1.2.10.**
- Power generation, fuel requirements and storage **Section 1.2.11 and Section 1.2.13.**
- Continuing exploration **Section 1.8.**
- Other

36. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.
    Refer to Volume 1, Project Description:
    - **Section 1.2.10 Explosives Production and Storage Sites; and**
    - **Figure 1.2-1 Site Layout and Infrastructure.**

    For additional information refer to Ammonia Management Plan addendum in Appendix 8-D.1 and Hazardous Material Management Appendix 8-D.4.

B-10. Geology and Mineralogy

For No. 37-41 Refer to:
- **Volume 5, Section 5.2 Geology and Geochemistry**
- **Appendix 5-E Geochemistry Baseline Report**
- **Volume 1, Appendix 1-D Scoping Level Open pit Slope Design**

37. Describe the physical nature of the ore body, including known dimensions and approximate shape.
38. Describe the geology/ mineralogy of the ore deposit
39. Describe the host rock in the general vicinity of the ore body.
40. Discuss the predicted rate of production.
41. Describe mine rock geochemical test programs which have been or will be performed on the ore, host rock, waste rock and tailings to determine acid generation and contaminant leaching potential. Outline methods and provide results if possible.

B-11. Mine

42. Discuss the expected life of the mine.

Refer to Volume 1, Project Description:

- **Executive Summary;**
- **Fact Sheet;**
- **Section 1.1.1 Project Definition; and**
- **Table 1.1-1 Definition Project Scope.**

43. Describe mine equipment to be used.
44. Does the project proposal involve lake and/or pit dewatering? If so, describe the activity as well as the construction of water retention facilities if necessary.
    Refer to Volume 1, Project Description:
    - **Section 1.2.5.4 Whale Tail lake (North Basin) Dewatering;**
    - **Section 1.2.5.5 Water Treatment, Contact Water Ponds and Attenuation Pond; and**
    - **Section 1.2.5.6 Re-Filling.**

45. Discuss the possibility of operational changes occurring during the mine life with consideration for timing. (e.g. open pit to underground)
    Refer to Volume 1, Section 1.8 Potential Future Developments.

46. If project proposal involves uranium mining, consider the potential for radiation exposure and radiation protection measures. Particular attention should be paid to *The Nuclear Safety and Control Act*.
    Not Applicable.

B-12. Mill

In response to NO. 47 – 50.
All milling will be done at Meadowbank Mine at a mill rate consistent with the current mill rate (9,000 to 12,000 tonnes per day). Currently authorized under Type A Water Licence 2AM-MEA1525.

47. If a mill will be operating on the property in conjunction with mining, indicate whether mine-water may be directed to the mill for reuse.
48. Describe the proposed capacity of the mill.
49. Describe the physical and chemical characteristics of mill waste as best as possible.
50. Will or does the mill handle custom lots of ore from other properties or mine sites?

Pits and Quarries

In response to No. 1- 17 Refer to the following unless otherwise noted:

- **Refer to Volume 1, Project Description, Section 1.2.14 Borrow Pits and Quarry Sites.**
- **Refer to Appendix 8-C.1 Whale Tail Pit Road Management Plan:**
    - **Section 7 Borrow pit management;**
    - **Figure 1.2 for borrow pit locations; and**
    - **Table 7.1 Haul Road Borrow pits and Waste Rock sources for road construction.**

- **Initial field investigation completed for the Amaruq Exploration Access Road refer to Type B water licence application 8BC-AEA1525. Refer to answers provided for NIRB A-1 above.**
- **Refer to responses provided for NIRB B-5 re: Pit excavation.**
- **For description of existing or potential effects and mitigation refer to the FEIS volumes of the submission (Volume 4 to Volume 7) a summary of pathway analysis and linkage matrix is provided in Appendix 3-C.**

1. Describe all activities included in this project.
   - Pitting **Not Applicable.**
   - Quarrying Refer **to NIRB section B-5 above.**
   - Overburden removal **Refer to Section 1.2.14 Borrow Pits and Quarry sites and Section 1.2.3 Overburden and waste rock disposal.**
   - Road use and/or construction (please complete Section A) **Refer to Section NIRB section A-1, A-2 above.**
   - Explosives transportation and storage **the Hazardous Material Management Plan (Appendix 8-D.4), Appendix 8-D.1 Ammonia Management Plan, and Volume 1, Section, and Appendix 8-C.1 for the Whale Tail Pit Haul Road Management Plan.**
   - Work within navigable waters **Refer to Volume 1, Section 1.1.10.2 Transport Canada.**
   - Blasting **Refer to Volume 1, Section 1.2.10 Explosives Production and Storage Sites and to Appendix 8-D.1 Ammonia Management Plan.**
   - Stockpiling **Refer to NIRB section B-8 above.**
   - Crushing **Refer to Volume 1 Section 1.2.2.2 and Appendix 1-C for conceptual layout of crushing facility.**
   - Washing
   - Other

2. Describe any field investigations and the results of field investigations used in determining new extraction sites.
   Refer to Section 1.2.14 Borrow Pits and Quarry sites, Volume 5, Appendix 5-E related to the geological setting, and Volume 1, Project Description, Section 1.8 Potential Future Developments.

3. Identify any carving stone deposits. **If any, identified in IQ baseline report Volume 7 Appendix 7-A.**
4. Provide a conceptual design including footprint. **Refer to Figure 1.1-2 Site Layout and Infrastructure.**
   Describe the type and volume of material to be extracted. **Refer to Volume 1, Table 1.2-1 Summary of Mine Life Materials balance.**
5. Describe the depth of overburden. **Refer to Appendix 5-A Terrain, Permafrost, and Soils Baseline, section 2.1.5 and Section 3.1.1.**
6. Describe any existing and potential for thermokarst development and any thermokarst prevention measures. **Refer to Appendix 5-A Terrain, Permafrost, and Soils Baseline, section 2.1.5. Mitigation measures provided in Appendix 3-C pathway analysis and matrix tables.**
7. Describe any existing or potential for flooding and any flood control measures.
8. Describe any existing or potential for erosion and any erosion control measures.

9. Describe any existing or potential for sedimentation and any sedimentation control measures.
10. Describe any existing or potential for slumping and any slump control measures.
11. Describe the moisture content of the ground. . **Refer to Appendix 5-A Terrain, Permafrost, and Soils Baseline, section 2.1.5.**
12. Describe any evidence of ice lenses. **Refer to Appendix 5-A Terrain, Permafrost, and Soils Baseline, section 2.1.5, and Section 2.3.**
13. If blasting, describe methods employed. **Refer to Volume 1, Section 1.2.10.**
14. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage. **Refer to response No. 36 above.**
15. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results. **Refer to NIRB section B-10 above.**
16. Discuss safety measures for the workforce and the public. **Safety measures identified in various management plans. Refer to Plans found in Appendix 8-C and 8-D.**

DESCRIPTION OF THE EXISTING ENVIRONMENT

Describe the existing environment, including physical, biological and socioeconomic aspects. Where appropriate, identify local study areas (LSA) and regional study areas (RSA).

Refer to Volumes 4 to 7. For Existing Environment refer to:

- **Climate and Meteorology Section 4.2.2;**
- **Air Quality Section 4.3.2;**
- **Noise and Vibration Section 4.4.2;**
- **Geology and Geochemistry Section 5.2 and its subsections;**
- **Terrain Permafrost and Soils Section 5.3.2 and its subsections.**
- **Vegetation Section 5.4.2 and its subsections;**
- **Wildlife and Wildlife Habitat Section 5.5.1.4 and Section 5.5.2 and its subsections;**
- **Hydrogeology and Groundwater Quantity and Quality Section 6.2.2 and its subsections;**
- **Surface Water Hydrology Section 6.3.2 and its subsections;**
- **Surface Water Quality Section 6.4.2 and its subsections;**
- **Fish and fish Habitat Section 6.5.2 and its subsections;**
- **Heritage resources Section 7.2.2 and its subsections;**
- **Traditional Land and Resource Use/Inuit Qaujimajatuqangit Section 7.3.1 and its subsections; and**
- **Socio-Economics Section 7.4.2 and its subsections.**

Please note that the detail provided in the description of the existing environment should be appropriate for the type of project proposal and its scope.

The following is intended as a guide only.

Physical Environment

Please note that a description of the physical environment is intended to cover all components of a project, including roads/trails, marine routes, etc. that are in existence at present time.

Refer to Volumes 4 to 7

- Proximity to protected areas, including:
  i. designated environmental areas, including parks; **no federal, territorial or regional LUP designated areas identified**
  ii. heritage sites; **Refer to Volume 7, Section 7.2.2**
  iii. sensitive areas, including all sensitive marine habitat areas; **Refer Volume 7 Appendix 7-A, Figure 3-2**
  iv. recreational areas; ; **Refer Volume 7 Appendix 7-A, Figure 3-2, and section 3.5 cultural sites and trails**
  v. sport and commercial fishing areas; **Refer Volume 7, Appendix 7-A, Figure 3-1 and 3-2, and section 3.1 Regional land use; Section 3.3 Fish and Water**

vi. breeding, spawning and nursery areas; **Refer to Volume 5, Appendix 5-C for breeding bird transects. Refer to Volume 6, Appendix 6-D for Arctic Grayling spawning surveys.**
vii. known migration routes of terrestrial and marine species; **Refer to Volume 5, Appendix 5-C**
viii. marine resources; **Refer to Volume 3, Appendix 3-A**
ix. areas of natural beauty, cultural or historical history; **Refer to Volume 7, Section 7.3.1**
x. protected wildlife areas; and **Refer to Volume 5, Appendix 5-C**
xi. other protected areas.

- Eskers and other unique landscapes (e.g. sand hills, marshes, wetlands, floodplains). **Refer to Volume 5, Appendix 5-A**
- Evidence of ground, slope or rock instability, seismicity. **Refer to Volume 1, Appendix 1-D**
- Evidence of thermokarsts. **Refer to Volume 5, Appendix 5-A**
- Evidence of ice lenses. **Refer to Volume 5, Appendix 5-A**
- Surface and bedrock geology. **Refer to Volume 5, Section 5.2.1**
- Topography. **Refer to Volume 5, Appendix 5-A**
- Permafrost (e.g. stability, depth, thickness, continuity, taliks). **Refer to Volume 5, Section 5.3.2**
- Sediment and soil quality. Sediment – **Refer to Volume 6, Section 6.4.2.2 of sediment quality; Volume 5, Section 5.3.2.4 for soil quality**
- Hydrology/ limnology (e.g. watershed boundaries, lakes, streams, sediment geochemistry, surface water flow, groundwater flow, flood zones). **Refer to Volume 6, Sections 6.2.2 and 6.3.2**
- Tidal processes and bathymetry in the project area (if applicable). **Refer to Volume 6, Appendix 6-M for bathymetry.**
- Water quality and quantity. **Refer to Volume 6, Section 6.4.2**
- Air quality. **Refer to Volume 4, Section 4.3.2**
- Climate conditions and predicted future climate trends. **Refer to Volume 4, Section 4.2.2**
- Noise levels. **Refer to Volume 4, Section 4.4.2**
- Other physical Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review. **Refer to Volume 3, Section 3.2 and its subsections.**

Biological Environment

Refer to Volumes 5 and 6

- Vegetation (terrestrial as well as freshwater and marine where applicable). **Refer to Volume 5, Section 5.4.2; Volume 3, Appendix 3-A**
- Wildlife, including habitat and migration patterns. **Refer to Volume 5, Section 5.5.2.1 to 5.5.2.4, and 5.5.2.8**
- Birds, including habitat and migration patterns. **Refer to Volume 5, Section 5.5.2.5 to 5.5.2.7**
- Species of concern as identified by federal or territorial agencies, including any wildlife species listed under the *Species at Risk Act (SARA)*, its critical habitat or the residences of individuals of the species. **Refer to Volume 5, Section 5.5.2.1**

- Aquatic (freshwater and marine) species, including habitat and migration/spawning patterns. **Refer to Volume 6, Section 6.5.2; Volume 3, Appendix 3-A**
- Other biological Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review. **Refer to Volume 3, Section 3.2 and its subsections.**

Socioeconomic Environment

Refer to Volume to 7

- Proximity to communities. **Refer to response to 6b and 8a above**
- Archaeological and culturally significant sites (e.g. pingos, soap stone quarries) in the project (Local Study Area) and adjacent area (Regional Study Area). **Refer to Volume 7, Section 7.2.2**
- Palaeontological component of surface and bedrock geology. **Refer to Volume 7, Table 7.1-1.**
- Land and resource use in the area, including subsistence harvesting, tourism, trapping and guiding operations. **Refer to Volume 7 Appendix 7-A,**
- Local and regional traffic patterns. **Refer to Volume 7, Appendix 7-A, Section 3.5**
- Human Health, broadly defined as a complete state of wellbeing (including physical, social, psychological, and spiritual aspects). **Volume 7, Section 7.4.2. Refer to Volume 7, Appendix 7-A, Section 3.7**
- Other Valued Socioeconomic Components (VSEC) as determined through community consultation and/or literature review. **Refer to Volume 3, Section 3.2 and its subsections.**

IDENTIFICATION OF IMPACTS AND PROPOSED MITIGATION MEASURES

Refer to Volume 3, Appendix 3-C for all potential impacts and mitigation measures.

1. Please complete the attached Table 1 – Identification of Environmental Impacts, taking into consideration the components/activities and project phase(s) identified in Section 4 of this document. Identify impacts in Table 1 as either positive (P), negative and mitigable (M), negative and non- mitigable (N), or unknown (U). **Refer to Volume 3, Appendix 3-C, Tables 3-C-11 to 3-C-13**
2. Discuss the impacts identified in the above table. **Information presented in summary table attached is discussed in detail for each environmental component in Volume 4 through 7**.
3. Discuss potential socioeconomic impacts, including human health. **Socio-Economic impacts refer to Volume 7, Section 7.4 and its subsections. A human health and ecological risk assessment summary is provided in Volume 3, Appendix 3-B.**
4. Discuss potential for transboundary effects related to the project. **Refer to Volume 1, Section 1.1.5.1 the project is entirely within the Kivalliq (Keewatin LUP) region of Nunavut west of the border between NWT and north of the Manitoba border.**
5. Identify any potentially adverse effects of the project proposal on species listed under the *Species at Risk Act (SARA)* and their critical habitats or residences, what measures will be taken to avoid or lessen those effects and how the effects will be monitored. **Volume 5, Section 5.5.2.1**
6. Discuss proposed measures to mitigate all identified negative impacts.
   Mitigation, monitoring and follow-up of identified effects is provided within the FEIS volumes of the submission for each VEC. Refer to:
   - **Climate and Meteorology Section 4.2.1.4 and Section 4.2.4;**
   - **Air Quality Section 4.3.1.4 and Section 4.3.7 and its subsections;**
   - **Noise and Vibration Section 4.4.1.4 and Section 4.4.7;**
   - **Terrain Permafrost and Soils Section 5.3.1.4 and Section 5.3.7;**
   - **Vegetation Section 5.4.1.4 and Section 5.4.7;**
   - **Wildlife and Wildlife Habitat Section 5.5.1.4 and Section 5.5.5.2 and its subsections;**
   - **Hydrogeology and Groundwater Quantity and Quality Section 6.2.1.3 and Section 6.2.5;**
   - **Surface Water Hydrology Section 6.3.1.4 and Section 6.3.7;**
   - **Surface Water Quality Section 6.4.1.4 and Section 6.4.7;**
   - **Fish and fish Habitat Section 6.5.1.3 and Section 6.5.8;**
   - **Heritage resources Section 7.2.1.4 and Section 7.2.7;**
   - **Traditional Land and Resource Use/Inuit Qaujimajatuqangit Section 7.3.6; and**
   - **Socio-Economics Section 7.4.7.**

   A summary of pathways and linkage matrix including mitigation is provided in Volume 3, Appendix 3-C.
   Summary of environmental management, mitigation and monitoring also provided in Volume 2, Section 2.2.6.

CUMULATIVE EFFECTS

Approach to cumulative effects discussed in Volume 3, Section 3.5.2

Refer to Volume 3, Appendix 3-D Cumulative Effects Study Area and Reasonably Foreseeable Future Developments.

For each environmental component cumulative effects assessment was completed. Refer to:

- **Air Quality Section 4.3.5;**
- **Noise and Vibration Section 4.4.5;**
- **Terrain Permafrost and Soils Section 5.3.5;**
- **Vegetation Section 5.4.5;**
- **Wildlife and Wildlife Habitat Section 5.5.4.2;**
- **Surface Water Hydrology Section 6.3.5;**
- **Surface Water Quality Section 6.4.5;**
- **Fish and fish Habitat Section 6.5.5;**
- **Heritage resources Section 7.2.5;**
- **Traditional Land and Resource Use/Inuit Qaujimajatuqangit Section 7.3.4; and**
- **Socio-Economics Section 7.4.5.**

A cumulative impact (or effect) can be defined as the impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time.

Discuss how the effects of this project interact with the effects of relevant past, present and reasonably foreseeable projects in a regional context.

SUPPORTING DOCUMENTS

Where relevant, provide the following supporting documents:

- Abandonment and Decommissioning Plan
- Existing site photos with descriptions
- Emergency Response Plan
- Comprehensive Spill Prevention/Plan (must consider hazardous waste and fuel handling, storage, disposal, spill prevention measures, staff training and emergency contacts)
- Waste Management Plan/Program
- Monitoring and Management Plans (e.g. water quality, air pollution, noise control and wildlife protection etc.)

- If project activities are located within Caribou Protection Areas or Schedule 1 Species at Risk known locations, please provide a Wildlife Mitigation and Monitoring Plan

Revised supporting documents provided in Volume 8 Management, Mitigation, and Monitoring Plans. Refer to Table 8.2-1: List of Monitoring, Mitigation, and Management Plans

In addition, for Project Type 9 (Site Cleanup/Remediation), please provide the following additional supporting documents:

- Remediation Plan including cleanup criteria and how the criteria were derived.
- Human Health Risk Assessment of the contaminants at the site.

Not Applicable

TABLE 1 - IDENTIFICATION OF ENVIRONMENTAL IMPACTS

Note: Please indicate in the matrix cell whether the interaction causes an impact and whether the impact is

P = Positive
N = Negative and non-mitigatable
M = Negative and mitigatable
U = Unknown

If no impact is expected please leave the cell blank

Refer to Volume 3, Appendix 3-C, Tables 3-C-11 to 3-C-13

ATTACHMENT B:

NWB AMENDMENT APPLICATION FORM

MEADOWBANK MINE: WHALE TAIL PIT PROJECT

Application for Water Licence Amendment

Document Date: April 2013

Application Submission Date: June/30/2016
Month/Day/Year

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

kNK5 wmoEp5 vtmpq
NUNAVUT IMALIRIYIN KATIMAYIT
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

P.O. BOX 119
GJOA HAVEN, NU X0B 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

kNK5 wmoEp5 vtmp5
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYIT
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.

Where possible, provide background information regarding the original licence application or attach previously submitted information.

EXISTING LICENCE NO: **No. 2AM-MEA1525**

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. **An amendment 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: **Agnico Eagle Mines Limited - Meadowbank Division**

Address: **145 King Street East, Suite 400**
Toronto, Ontario, M5C 2Y7, Canada

Phone: **416-947-1212 (Alternate: 1-888-822-6714)**
Fax: **416-367-4681**
e-mail: **info@agnicoeagle.com**

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

Name: **Ryan Vanengen, Environment Superintendent**

Address: **Baker Lake, NU X0C 0A0**

Phone: **T: 819.759.3555 x6838**
M:819.651.2974
Fax: **n/a**
e-mail: ryan.vanengen@agnicoeagle.com

(Attach authorization letter.)

Not applicable R.Vanengen is employee of Agnico Eagle.
List of consultants is provided in Volume1, Section 1.1.2 (refer to cover letter for authorization)

3. NAME OF PROJECT

Meadowbank Mine

Has the name of the project changed?

☐ Yes ☒ No

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

NA

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

Project Extents	Latitude	Longitude
Meadowbank Mine (Approved Type A 2AM-MEA1525)	65° 01' 33" N	96° 04' 01" W
Meadowbank Exploration (Approved Type B 2BE-MEA1318) includes IVR/Amaruq Exploration	65° 30' 03" N	97° 13' 13" W
	65° 30' 07" N	95° 39' 00" W
	64° 47' 44" N	95° 36' 43" W
	64° 46' 22" N	97° 16' 36 W
Haul Road (Approved as Exploration Access Road Type B 8BC-AEA1525)	65° 04' 53.3" N	96° 01' 00.8" W
	65° 23' 49.7" N	96° 40' 35.8" W
Whale Tail Pit Project Area	65° 25' 22.241" N	96° 46' 6.042" W
	65° 25' 12.707" N	96° 35' 44.100" W
	65° 21' 35.740" N	96° 36' 3.944" W
	65° 21' 45.248" N	96° 46' 24.463" W

Camp Location(s)

Camp Locations	Latitude	Longitude
Meadowbank Mine Site (Approved Type A 2AM-MEA1525)	65° 01' 33" N	96° 04' 01" W
Whale Tail Pit Camp Site	95° 24' 36" N	96° 41' 41" W

Refer to Volume 1, Figures 1.1-1 and 1.1-2 for general layout/location figures for the Project.

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.

Refer to Volume 1, Figure 1.1-1.

NTS Map Sheet No.: _____ Map Name: _____ Map Scale: _1:50,000_____

Meadowbank Mine - Project straddles four NTS sheets 66A/16, 66H/1, 56 E/4, and 56 D/13 (already on file from original and renewal applications)

All Weather Access Road – NTS sheet 066H/Amer Lake/Scale 1:250,000 (NAD 83) UTM Zoe 14 W (Already on file from original application)

Whale Tail Pit - NTS sheet 66H/7/Scale 1:50,000

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).

Agnico Eagle Mines Limited holds a number of land use permits, leases and authorizations for the Project, with the Kivalliq Inuit Association (KIA), Indian and Northern Affairs (INAC), and the Government of Nunavut (GN), a full list of land use permits, leases and authorizations for the Project is provided in Volume 1, Appendix 1-B. This list includes dates of issuance and dates of expiry.

The 'X" below denotes where leases or authorization are required. Refer to volume 1, Table 1.1-4 for Land Tenure Summary, Appendix 1-B for list of permits licenses and Authorizations and Figure 1.1-1 Project location and claim boundaries.

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: _____ Date of expiry: _____

✕ 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: _____ Date of expiry: _____

☐ 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 GN Department of Government and Community Services
_____

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: **Agnico Eagle Mines Limited**

7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

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

☐ North Baffin
☐ South Baffin
☐ Akunniq
✕ Keewatin
☐ Sanikiluaq
☐ 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.

☐ North Baffin
☐ South Baffin
☐ Akunniq
☐ Keewatin
☐ Sanikiluaq
☐ 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. June 8, 2011

Project related positive conformity determination include:

- **Meadowbank Gold Mine on December 30, 2006**
- **winter road determination (NIRB 11 EN010) on March 9, 2011;**
- **exploration camp and associated activities (i.e., drilling) renewal on multiple permits on October 21, 2015; and**
- **exploration access road for multiple permits on July 17, 2015.**

On May 17, 2016 Agnico Eagle filed application with NPC requesting conformity determination.
NPC File No. 148297. On June 17, 2016 NPC determined the Whale Tail Pit and haul road proposal conforms to the Keewatin Regional Land Use Plan and that the proposal requires screening by NIRB.

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.

See attached letter from NPC (Attachment C).

8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

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

x Yes ☐ No

If Yes, indicate date issued and attach copy.

The Meadowbank Mine was subject to the environmental review established by Article 12, Part 5 of the NLCA. In November 2006 the Minister of Indian and Northern Affairs Canada (now Indigenous and Northern Affairs Canada) approved the NIRB decision that the project proceed subject to terms and conditions. On December 30, 2006 the NIRB issued a Project Certificate for the development of Meadowbank Mine. NIRB File No. 03MN107

Concurrent with this submission for Amendment to the Type A water licence, Agnico Eagle is also seeking re-consideration/amendment to the Project Certificate No. 004.

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.

The review of the Project is pending with NIRB. NIRB File 03MN107.

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.

Agnico Eagle Mines Limited – Meadowbank Division (the Mine Division) is proposing to develop Whale Tail Pit, a satellite deposit located on the Amaruq property, to continue mine operations and milling at Meadowbank Mine. The Amaruq property is a 408 square kilometre (km2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine in the Kivalliq Region of Nunavut. Meadowbank Mine is an approved mining operation and Agnico Eagle is looking to extend the life of the mine by constructing and operating Whale Tail Pit and haul road (Project).

Meadowbank Mine is an approved mining operation and Agnico Eagle is looking to extend the life of the mine by constructing and operating Whale Tail Pit and haul road (the Project). The Mine Division's priority in recent years has been to optimize mine operations, specifically engineers have been considering the feasibility of expanding operations to extend the life of mine (LOM) at Meadowbank. Extending the life of a mine through development of additional ore deposits is a continuous process. Consistent with the Project Certificate Item 29, Agnico Eagle is herein "reporting to NIRB if and when [Agnico Eagle] develops plans for an expansion of the Meadowbank Gold Mine." Exploration is on-going with the objective of identifying additional deposits or ore bodies feasible for development, such as Whale Tail.

The proposed extension of Meadowbank will require some new Project facilities which will consist of a personnel camp (i.e., Main Camp), power plant, heli-pad, maintenance shop, tank farm, a waste rock storage facility (WRSF), an ore stockpiling facility, an attenuation pond, a water and sewage collection and treatment system, haul roads, access roads, water management infrastructure (e.g., collection ponds, channels, dikes, dams, and culverts), and the Whale Tail Pit. As a result of development, Agnico Eagle is also proposing to expand the width of the existing exploration access road to a haul road to accommodate increased traffic rates and haul trucks. No new infrastructure is required at the existing Meadowbank Mine to support the development of the Project.

Agnico Eagle proposes to process the Whale Tail ore and dispose of the tailings slurry at the

existing Meadowbank Mine tailing storage facility (TSF), which is authorized under the current Project Certificate and Type A Water Licence. The mine operation will generate approximately 8.3 Mt of tailings, 46.7 Mt of mine waste rock, and 5.8 Mt of overburden soil, with very limited organic material. Tailings produced from processing of Whale Tail ore will be accommodated within the existing footprint of the TSF. More specifically, tailings will be stored within the current footprint of the south cell TSF and by building an internal structure in the north cell TSF. Neither the footprint of the facility nor the chemical nature of the tailings and process water are expected to significantly change from current operations. Whale Tail tailings will require the same long-term environmental control mechanisms as are currently approved for Meadowbank.

Approximately 2.5 Mt of waste rock will be used for construction activities such as roads, pads, and water management facilities (i.e., dike, berm, rip rap, etc.). The remaining waste rock and overburden material will be hauled to the Whale Tail WRSF, which is located northwest of the Whale Tail Pit. A second, temporary overburden storage pad for staging purposes is located west of the Whale Tail Lake. Waste rock and overburden will be co-disposed together in one of the two piles constituting the storage facility.

The Project will be supported using the existing transportation requirements, relying on marine transportation for most supplies, aircraft for supplies and transportation of employees, and the gold doré produced at the Meadowbank Mill. The Meadowbank All Weather Access Road (AWAR) will continue to provide supplies transported from the existing Baker Lake marshalling facilities to the Meadowbank Mine. The current operational components include marshalling facilities in Baker Lake and the 110 km AWAR between Baker Lake and Meadowbank Mine. Agnico Eagle is proposing to upgrade the previously permitted Amaruq exploration access road to a haul road to support the development of Whale Tail Pit and to enable hauling needed between the Whale Tail Pit and the Meadowbank Mill. No changes are proposed for the Meadowbank AWAR to Baker Lake.

Construction of the Whale Tail Pit site will begin as soon as approval and permits are received (anticipated for early 2018) and ultimately have full production in 2019. The operational phase will span three to four years, from Year 1 (2019) to Year 4 (2022). Mining activities are currently expected to end in Year 3 (2021) and ore processing is expected to end during Year 4 (2022). Closure will occur from Year 4 (2022) to Year 11 (2029) after the completion of mining and will include removal of the non-essential site infrastructure and flooding of the mined-out open pit, as well as reestablishment of the natural Whale Tail Lake water level. By extending the life of mine at Meadowbank, Agnico Eagle will progressively close portions of Meadowbank Mine while operating.

Further details can be found in the June 2016 submission includes:

- **Volume 1 - Project Description**;
- **Volume 2 – Environmental Overview and Type A Water Licence document;**
- **Volume 3 through Volume 8 - series of complementary documents to provide a full understanding of the technical and scientific aspects of the Project, which includes:**
  - **Volume 3 – Assessment Methods;**
  - **Volume 4 – Atmospheric Environment;**
  - **Volume 5 – Terrestrial Environment;**
  - **Volume 6 – Freshwater Environment;**
  - **Volume 7 – Human Environment; and**
  - **Volume 8 – Monitoring, Mitigation and Management Plans.**

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.
Refer to Volume 1, Section 1.10 for detailed information on alternatives considered for the Project.

In summary, Project alternatives were considered during all stages of Project design. Consultation and regulatory engagement discussions have been considered as part of the alternatives assessment. In general, Project alternatives were evaluated according to the following criteria:

- **Environmental - potential impacts to the environment, project footprint, reclamation;**
- **Engineering and Viability – best engineering practices, technology, permitting, risk, and flexibility;**
- **Economy – cost implications, construction capital, operating costs, maintenance cost for reclamation; and**
- **Society – community acceptance or preference, traditional knowledge, health and safety, quality of life, employment, and socio economic effects.**

The alternatives that shaped the overall Project include the following:

- **Project Go/No-Go decision;**
- **Deposit, Mining Method, and Production;**
- **Processed Ore Containment and Tailing Storage;**
- **Overburden and Waste Rock Disposal;**
- **Water Management;**
- **Transportation, Access, and Quarry Development; and**
- **Infrastructure Support.**

11. CLASSIFICATION OF PRIMARY UNDERTAKING

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

☐ Industrial
☐ Agricultural
☒ Mining and Milling (includes exploration/drilling/exploration camps)
☐ Conservation
☐ Municipal (includes camps/lodges)
☐ Recreational
☐ Power
☐ Miscellaneous (describe below): _____

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

Refer to the modified concordance assessment provided in Volume 2, Appendix 2-I.

12. WATER USE

Indicate, using the boxes below, the types of water use(s) approved in the existing licence.
Based on 2015 licence renewal

- ☒ To obtain water for camp/ municipal purposes
- ☒ To obtain water for industrial purposes
- ☐ To cross a watercourse
- ☒ To alter the flow of, or store water
- ☒ Other: discharge of lake water seepage
- ☒ To divert a watercourse
- ☒ To modify the bed or bank of a watercourse
- ☒ Flood control

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.

- ☒ To obtain water for camp/ municipal purposes
- ☒ To obtain water for industrial purposes
- ☒ To cross a watercourse
- ☒ To alter the flow of, or store water
- ☒ Other: **Dewatering Lakes; Impacted Ponds**
- ☒ To divert a watercourse
- ☒ To modify the bed or bank of a watercourse
- ☒ Flood control

13. QUANTITY OF WATER INVOLVED

Does the proposed amendment change the source of water? ☒ Yes ☐ No

Agnico is requesting to continue to take water from Third Portage Lake for Milling and reflooding, Wally Lake for reflooding. In addition, Nemo Lake is proposed for freshwater supply to the Whale Tail Camp and Whale Tail Lake (South Basin) for reflooding. The information stipulated below for each water use identified in Block 12 is provided in Table 1 - Quantity and Quality of Water Involved (Block 13), attached to this application form.

For additional information, please refer to the Water Management Plan (Appendix 8.B-2).

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

Location of Nemo Lake, the water source for Whale Tail Camp, is provided on Figure 1.2-1 Site Layout and Infrastructure; Intake shown in Appendix 1-C design drawings and concept layouts.

(show location(s) on map)

Refer to Table 1 Quantity and Quality of Water involved (Block 13) for all subsequent question in this Block.

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. : _____ m^3/day
Refer to Volume 2 Type A Amendment - Freshwater use, Table 2.4 -2.

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. _____

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^3/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.
Based on 2015 licence renewal

- ☒ Sewage
- ☒ Solid Waste
- ☒ Hazardous
- ☒ Bulky Items/Scrap Metal
- ☐ Animal Waste
- ☒ Other (describe): _____
- ☒ Waste oil
- ☒ Greywater
- ☒ Sludges
- ☒ Contaminated soil and/or water

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).

- ☒ Sewage
- ☒ Solid Waste
- ☒ Hazardous
- ☒ Bulky Items/Scrap Metal
- ☐ Animal Waste
- ☒ Other (describe): **Tailings, Waste Rock, Overburden, Ash**
- ☒ Waste oil
- ☒ Greywater
- ☒ Sludges
- ☒ Contaminated soil and/or water

15. QUANTITY AND QUALITY OF WASTE INVOLVED

The information stipulated below for each waste deposit identified in Block 14 is provided in Table 2 - Quantity and Quality of Waste Involved (Block 15), attached to this application form.

For additional information, please refer to the Table 8.2-1: List of Monitoring, Mitigation, and Management Plans

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.

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.
Refer to Appendix 1-B for complete list of permits, licenses and authorizations (includes dates of issuance and expiry)

Refer to Volume 1, Section 1.1.5, Section 1.1.6 and Section 1.1.10 which provides overview of regulatory regime, land tenure and other authorizations which may be required, respectively.

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 or the mitigation measures?

☒ Yes ☐ No

Describe direct, indirect, and cumulative impacts related to water and waste. Identify any changes.
The existing Meadowbank Mine impacts (direct, indirect, cumulative) were evaluated in the Cumberland 2005 FEIS can be found at the following link:

ftp://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/03MN107-MEADOWBANK%20GOLD%20MINE/02-REVIEW/09-FINAL%20EIS/02-FEIS/

Likewise mitigation and monitoring was proposed and implemented consistent with the Project Certificate and various permits, authorization and licenses including the Type A Water Licence.

In support of the environmental review, baseline data have been collected to document existing conditions and to provide the foundation for a qualitative and quantitative assessment of the Project operations and the extension of the mine. Results have been provided in the joint submission to the NIRB/NWB.

A summary of the FEIS for the Project is provided in Volume 2, Section 2.2.

A detailed summary of impact in form of pathway analysis for each environmental component are provided in Appendix 3-C. The pathway tables describe the direct (Primary), indirect (Secondary) and no linkage pathways associated with Project activities and impacts. Full evaluation of direct impacts including mitigation measures are provided in Volume 4 through Volume 7.

- **Volume 3 – Assessment Methods;**
- **Volume 4 – Atmospheric Environment;**
- **Volume 5 – Terrestrial Environment;**
- **Volume 6 – Freshwater Environment;**
- **Volume 7 – Human Environment; and**
- **Volume 8 – Monitoring, Mitigation and Management Plans.**

Volume 3 highlights the assessment methods used and includes Agnico Eagles approach to assessment of cumulative effects (Refer to Section 3.5.2). The cumulative effects assessment is provided in Appendix 3-D.

For description of the physical environment and summary of impacts related to surface water quantity and surface water quality refer to Section 2.2.2.2.4 and Section 2.2.2.5, respectively. For detailed assessment results related to Water and Waste refer to Volume 4 through 7.

The results of the environmental assessment found that with mitigation, the Project will not cause long-term significant negative effects as a result of proposed construction, operations, and closure.

Agnico Eagle has developed monitoring and management programs required to mitigate, monitor, and report on its environmental performance against the regulatory requirements contained within its Meadowbank operating authorizations, permits, licenses, and leases consistent with the legal requirements of applicable Acts and Regulations in Nunavut. Existing Meadowbank Mine management and monitoring plans have been updated or addendums have been added to reflect the Project. Refer to Volume 8 of the submission.

The pathway analysis tables (Appendix 3-C) developed for each environmental component includes environmental design features and mitigation as well as rationale for classification of impact.

For water related components refer to:

- **Table 3-C-4 hydrogeology**
- **Table 3-C-5 hydrology**
- **Table 3-C-6 surface water quality**

Waste related components have been integrated into all pathway analysis tables.

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.

Water compensation agreement in place between Agnico Eagle and the Kivalliq Inuit Association. (See block 19 below). Agnico Eagle knows of no other water rights that must be secured for the proposed Project.

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.

(See block 19 below)

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): **Kivalliq Inuit Association (KIA)**

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.

Agnico Eagle signed a Water Compensation Agreement for the Meadowbank Mine with the KIA in accordance with the requirements of Article 20 of the NLCA. It is expected that these agreements (i.e., wildlife agreement and water compensation agreement) will be revised during the regulatory process to cover the development of the proposed Project.

Agnico Eagle is aware that the NWB is precluded from issuing a water licence for the Project if a water compensation agreement has not been reached with the KIA. Because it lies on IOL, the Project can only proceed with the full consent of the Inuit as provided by the KIA.

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.

Public consultation and engagement is a legal requirement in Nunavut, an industry best practice, and an important corporate commitment. Effective public consultation and engagement helps ensure that community members are informed and knowledgeable about

proposed projects, that community support for those projects is more readily obtained, and sustainable development goals are achieved. A key goal of Agnico Eagle's public consultation and engagement program has been to ensure the Company obtains a "social licence to operate", by securing the support of a majority of residents from potentially impacted local communities.

To obtain this goal, a number of process goals have been followed:

- **identification and prioritization of communities and community stakeholder groups;**
- **developing an understanding of key community and stakeholder views regarding the Project;**
- **addressing community and stakeholder issues and expectations;**
- **identifying current and historical patterns of land- and resource-use;**
- **identifying VCs and VSECs;**
- **determining criteria for evaluating the significance of potential impacts;**
- **deciding upon mitigating measures;**
- **formulating compensation packages;**
- **identifying and implementing monitoring measures, including post-project audits; and**
- **continuous improvement.**

Since operation of the Meadowbank Mine began, Agnico Eagle has continued public consultation by meeting with employees local employees that live throughout the Kivalliq, meeting in the community and local stakeholders, and regulatory agencies routinely which has allowed a better general understanding of the rights, interests, values, aspirations, and concerns of the potentially affected stakeholders, with particular reference to the local population. Through this continued consultation Agnico Eagle has developed an operational culture that recognizes and respects these relevant interests in the planning and executing processes.

A record of consultation including government engagement is provided in Volume 2, Table 2-H. Agnico Eagle has and will continue to engage with the KIA and other stakeholders.

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

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.

Agnico Eagle has prepared an Interim Closure and Reclamation Plan for the Whale Tail Pit as an addendum to the Meadowbank Mine ICRP. An estimate for total security of Whale Tail operations consistent with INAC policy and guidelines is attached as Appendix to the ICRP for Whale Tail. (Refer to Volume 8, Appendix 8-F.1).

The total estimated financial security for the Project is $ 19,831,405.

Consistent with the recent amendments to the NWNSRTA (In force on June 18, 2016) Agnico Eagle as entered into a security agreement with the KIA and INAC. Final approval of the agreement is still pending.

Refer to Volume 2, Section 2.5.2 for additional information on security.

22. FINANCIAL INFORMATION

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

☒ Yes ☐ No

Provide an updated statement of financial security.
A statement of financial responsibility is provided in Volume 2, Section 2.5.1

A copy of Agnico Eagle's most recent audited financial statements are provided in Volume 1, Appendix 1-A.

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

Provide a list of the officers of the company.
Current list of officers for Agnico Eagle (as of 18 May 2016):

CEO – Sean Boyd
President – Ammar Al-Joundi

Directors: James D. Nasso; Sean Boyd, Dr. Leanne M. Baker, Martine A. Celej; Robert J. Gemmell, Bernard Kraft; Mel Leiderman, Deborah McCombe, Dr. Sean Riley, J. Merfyn Roberts, Howard Stockford, and Pertti Voutilainen.

Senior Vice-Presidents: David Smith, Donald G. Allan, Alain Blackburn, Picklu Datta, Louise Grondin, Tim Haldane, R. Gregory Laing, Marc Legault, Jean Robitaille, and Yvon Sylvestre.

Vice Presidents: Luis Felipe Medina Aguirre, Lino Cafazzo, Paul Cousin, Mathew Cook, Brian Christie, Patrice Gilbert, Dominique Girard, Guy Gosselin, Ingmar E. Haga, Michel Julien, Michel Leclerc, Christain Provencher, Michael Timmins and Carol Plummer.

Source: http://www.agnicoeagle.com/en/About-Us/Pages/Management.aspx

Refer to Volume 1, Section 1.1.2, Table 1.1-2 for a list of Agnico Eagle key contacts and Table 1.1-3 for a list of consultants and contractors who have provided assistance and support in

preparation of the Application.

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

☒ Yes ☐ No

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

A Certificate of Incorporation is on file with the NWB.

Certificate of Amalgamation dated August 1, 2007 can be obtained on the NWB public registry at: http://www.nwb-oen.ca/public/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MEA1525%20Agnico/1%20APPLICATION/070801%202AM-MEA----%20Certificate%20of%20Articles%20of%20Amalgamation-ILAE.pdf

- **STUDIES UNDERTAKEN TO DATE**

List and attach updated studies, reports, research etc.
The list of key studies, reports and research undertaken for the Project relating to the use of water and disposal of waste is provided below. A full list of studies, reports and research completed for the Project as referenced within the Amendment and supporting documents can be provided upon request.

Baseline studies are provided as supporting documents to Volume 3 through Volume 7. Agnico Eagle has contributed to various research projects since 2008, which are presented in the annual reports and have included but are not limited to research and studies on:

- **Caribou migration;**
- **Falcons and raptors;**
- **Socio Economics in the Kivalliq;**
- **Hunter Harvest Studies;**
- **Acid Rock drainage and Freeze Back of tailings;**
- **Vegetation regrowth in northern climates;**
- **Fisheries disturbance and food chain studies;**
- **Wind power in northern climates; and**
- **Climate Change.**

Volumes 3 to 7 are a series of complementary documents to provide a full understanding of the technical and scientific aspects of the Project, and have leveraged the data collected at Meadowbank to bolster the assessment of the Project:

- **Volume 3 – Assessment Methods;**
- **Volume 4 – Atmospheric Environment;**
- **Volume 5 – Terrestrial Environment;**
- **Volume 6 – Freshwater Environment; and**
- **Volume 7 – Human Environment.**

Furthermore these documents have supported the development of management and mitigation strategies in the:

- **Project Description – Volume 1; and**
- **Final Environmental Impact Statement Amendment;**
- **and in the series of management plans:**
- **Mine Waste Rock and Tailing Management Plan**
- **Water Quality Monitoring and Management Plan for Dike Construction Dewatering**

- **Landfill Design and Management Plan**
- **Water Management Plan**
- **Water Quality and Flow Monitoring Plan**
- **Whale Tail Pit Haul Road Management Plan**
- **Ammonia Management Plan**
- **Meadowbank Bulk Fuel Storage Facility Environmental Performance Monitoring Plan**
- **Emergency Response Plan**
- **Hazardous Materials Management Plan**
- **Shipping Management Plan**
- **Spill Contingency Plan**
- **Air Quality Monitoring Plan**
- **Core Receiving Environment Monitoring Program**
- **Groundwater Monitoring Plan**
- **Conceptual Whale Tail Pit Offsetting Plan**
- **Operational ARD-ML Sampling and Testing Plan**
- **Socio-economics Management and Monitoring Plan**
- **Terrestrial Ecosystem Management Plan**
- **Archaeology Management Plan**
- **Interim Whale Tail Closure and Reclamation Plan**

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.

A record of compliance to the existing water licence has been provided in Volume 2 Appendix 2-K which include a response to any inspector reports.

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.

23. PROPOSED TIME SCHEDULE

When are proposed amendments scheduled to be undertaken:
The amendment is to extend Meadowbank mining operations past Q3 2018 to include Whale Tail Pit. Agnico Eagle proposes to begin construction as soon as permits are received (as early as July 1, 2017), for operations to begin in 2019 and closure until 2029.

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

☒ Yes ☐ No

The Project will extend the operational phase and closure/post closure phases of the Meadowbank Mine.

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

Construction
Proposed Start Date: July/ 2017 (month/year) Proposed Completion Date: April/2019 (month/year)

Operation
Proposed Start Date: April/2019 (month/year) Proposed Completion Date: Dec/2022 (month/year)

Closure
Proposed Start Date: Dec/2022 (month/year) Proposed Completion Date: Dec/2029 (month/year)

Post - Closure
Proposed Start Date: Dec/2029 (month/year) Proposed Completion Date: to be determined (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

24. PROPOSED TERM OF LICENCE

On what date does the existing licence expire? July 22, 2025

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: July 1, 2017 (month/year) Requested Expiry Date: July 22, 2025 (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)

25. ANNUAL REPORTING

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

☒ Yes ☐ No

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

Agnico Eagle acknowledges that annual reporting requirements may change as a result of the reconsideration of the Project Certificate and approval of an amended Type A Water Licence. As such Agnico Eagle will comply with the reporting format stipulated in the amended Type A Water Licence. The Existing Annual Reporting requirements and format will also be considered.

26. 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 Amendment Application.

☒ Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun Summary of Amendment 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

As per *Nunavut Water* Regulations water use fees payable to the Crown or Receiver General for Canada are not required given the Project is on Inuit Owned Land.

27. SIGNATURE

Name (Print)	Title (Print)	Signature	Date
Ryan Vanengen	Environment Superintendent		June 30, 2016

TABLE 1: QUANTITY AND QUALITY OF WATER INVOLVED (BLOCK 13)

The information below is a basic summary of the requirements of Block 13; for full details please refer to the Water Management Plan (Appendix 8-B.2) and the Volume 1, Project Description submitted in support of the this application.

	Camp and Industrial	**To cross a watercourse**	**To modify the bed or bank of a watercourse**	**To alter the flow of or store water; to divert a watercourse; flood control**	**Dewatering Lakes; Impacting Ponds**	**Groundwater**
Name of Water Source	• Nemo Lake • Whale Tail Lake		Banks and beds may be altered at road crossings	3 diversions channels, 4 berms, and 7 water passage culverts will be constructed to manage water on site (see Section 3.1.2 of Water Management Plan)	• 1 lake will be partly dewatered: A17 -Whale Tail Lake (North Basin) • Whale Tail Lake (South Basin) is diverted in Mammoth Lake • 4 ponds will be incorporated into collection ponds (see Table 3.1 in Water Management Plan)	Groundwater
Quality of the water source and the available capacity	Freshwater	N/A	N/A	N/A	N/A	Saline
Estimated quantity of water to be used from each source for each purpose (m^3/day)	• Potable water: the design flow rate for the camp water is 84 m^3/day. • The remaining water would be used for industrial purposes such as drilling, freshwater make up in the processing plant, explosives manufacture, concrete production and dust suppression. • 8,760 m^3/year (24 m^3/day) will be required during construction phase, • 118,625 m^3/year (325 m^3/day) will be required during operation phase. • 17,520 m^3/year (48 m^3/day) will be required during closure phase • approximately 3,000,000 m^3/year (assumed pumping rate is 30,0000 m^3/day) to fill the mined-out open pits at closure. Water will only be pumped during open water season.	N/A	N/A	N/A	• An estimated volume of 3,400,000 m^3 will be dewatered from the A17	N/A
Method of Extraction	Freshwater will be sourced from Whale Tail and Nemo Lakes through a freshwater intake and pump system.	N/A	N/A	N/A	Pumping	Pumping
Quantity (m^3/day) and quality of water returned to each source	• The average discharge volume to Mammoth Lake is predicted to be 420,000 m^3/year. Water will be discharged in the open water season only (mid-June to September). • During operations contact water will be treated to meet effluent water quality criteria before discharge as per conditions Part F Item 3 in the Type A water licence 2AM MEA1525.	N/A	N/A	N/A	N/A	Passive inflow in open-pit is currently estimated at 195 m^3/day starting in Year 1 (2019) and decreasing to 65 m^3/day at the end of operations. Groundwater will be mixed with contact water in Whale Tail Attenuation Pond.

[a] Refer to Volume 6, Appendix 6-N.

TABLE 2: QUANTITY AND QUALITY OF WASTE INVOLVED (BLOCK 15)

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
Tailings	Potentially Acid Generating (PAG) and low potential for metal leaching in the long-term	8.3 million tonnes (Mt)	None	Meadowbank Tailing Storage Facility (TSF)
Waste Rock	Variable potential for acid generating and for metal leaching. Construction material will be NPAG.	46.1Mt	None	Waste Rock Storage Facilities (WRSF)
		2.1 Mt		Used for construction
Overburden	No potential acid generating, low potential for metal leaching	5.6 Mt	None	Temporary storage in overburden stockpile and co-disposed within WRSF; may be used for closure and site reclamation
Domestic Solid Waste / Bulky Items	Non-salvageable, non-hazardous, non-putrescible solid wastes	Construction and Operations: 8,226 m^3 Closure and Decommissioning: 50,774 m^3	None	Landfill
Ash From The Incinerator	N/A	N/A	N/A	N/A
	N/A			N/A
Putrescible Solid Waste / Medical Wastes / Other Wastes	Organic matter including food, food containers and wrappings; Medical waste from the Health Care Station; Paper and cardboard; Hydrocarbon spill absorbents; Plastics (without chlorine) and Styrofoam	Construction and Operations: 2,980 m^3 Closure: 294 m^3	Modern, controlled-air, batch, dual chamber incinerator. The batch cycle will be approximately 6-10 hours for the burn cycle and 6-8 hours for the cool-down. Located at Meadowbank Mine Camp.	Transported to Meadowbank Mine for Incineration
Animal Waste	Deceased animals	Accidental death of animals on site or along the AWAR	Incineration	Transported to Baker Lake GN officer or as directed sent to Meadowbank Mine for Incineration
Used Oil and Waste Fuel	Waste oil meeting regulatory criteria	365,000 L/year – Same as Meadowbank for 2015	Incineration or consumed in waste oil furnaces	Transported to Meadowbank Mine for Incineration or consumed in waste oil furnaces; excess oil may be sent south for disposal at a certified disposal facility.
	Waste oil not meeting impurity limits or having a flash point less than 37.7°C		None	Shipped off-site to a certified waste disposal facility
Recycling Materials/ Scrap Metal	Alkaline and rechargeable batteries; obsolete computer equipment; fluorescent light bulbs; scrap metal	N/A	None	Shipped off-site to a recycling facility
Contaminated Soil/Snow	Soils, rock, ice, and snow contaminated by light hydrocarbons	Construction and Operations: 1,156 m^3 Closure and Decommissioning: 289 m^3	Bioremediation	Transported to Meadowbank Mine Landfarm
Hazardous Wastes	Acids, emulsifiers, ammonium nitrate, gas wastes, solvents, water/effluent treatment chemicals, various additives	Total of 1,510 m^3 and 91 seacans over the Project life	None (on-site)	Shipped off-site to a licensed hazardous waste management facility for treatment and disposal
Sewage and Greywater	From camp and change room facilities	72 m^3/day	Biological reactor or equivalent treatment system	Discharge to Whale Tail Attenuation Pond.
Sewage Sludge	From sewage treatment plant	Total of 72 m^3	Sewage sludge will continue or used for nutrient enrichment at the existing landfarm, with excess disposed of in the Meadowbank Tailings Storage Facility.	Will be disposed of in the Meadowbank Mine Landfarm or TSF
Contaminated Water	Effluent discharge	The average annual discharge volume to Mammoth Lake is predicted to be 420,000 m^3/year.	If required, the water will be treated prior to discharge.	Discharge to Mammoth Lake via the diffuser

ATTACHMENT C:

NPC CONFORMITY DETERMINATION

ᓄᓇᕗᑦ ᐸᕐᓇᐃᓐᑦ
Nunavunmi Parnaiyiit
Nunavut Planning Commission
Commission d'Aménagement du Nunavut

June 17, 2016

Jaida Ohokannoak
Manager, Technical Administration
Nunavut Impact Review Board (NIRB)
Box 1360, Cambridge Bay, NU X0B 0C0
By email: info@nirb.ca

Karén Kharatyan
Manager of Licensing
Nunavut Water Board (NWB)
P.O. Box 119, Gjoa Haven, NU X0B 1J0
By email: licensing@nwb-oen.ca

LeeAnn Pugh
Land Administrator, Nunavut Regional Office
Indigenous and Northern Development Canada
Box 100, Iqaluit NU X0A 0H0
By email: LeeAnn.Pugh@aandc-aadnc.gc.ca

Brenda Osmond
Lands Administrator
Kivalliq Inuit Association (KivIA)
Box 340, Rankin Inlet, NU X0C 0G0
By email: bosmond@kivalliqinuit.ca

Elizabeth Patreau
Senior Fisheries Protection Biologist
Fisheries and Oceans Canada Central and Arctic Region
501 University Crescent, Winnipeg, MB R3T 2N6
By email: Elizabeth.Patreau@dfo-mpo.gc.ca

Shelly Boss
A/Senior Environmental Effects Monitoring Program Coordinator
Environmental Stewardship Branch
Environment & Climate Change Canada (ECCC)
By email: shelly.boss@ec.gc.ca

Sylvie LeBlanc
Territorial Archaeologist
Department of Culture, Language, Elders and Youth, Culture and Heritage Division
Gov't of Nunavut
Box 310 Igloolik, NU X0A 0H0
By email: Sleblanc1@gov.nu.ca

Carson Gillis
Director, Department of Lands and Resources
Nunavut Tunngavik Incorporated
Box 1269 Iqaluit, NU X0H 0H0
By email: cgillis@tunngavik.com, cgillis@ntilands.com

Mr. Ryan Vanengen
Agnico Eagle Mines
PO Box 549
Baker Lake Nunavut X0C0A0 Canada
By email: ryan.vanengen@agnicoeagle.com

Dear Ms. Ohokannoak, Mr. Kharatyan, Ms. Pugh, Ms. Osmond, Ms. Pelletier, Ms. Patreau, Ms. Boss, Ms. LeBlanc, Mr. Gillis, Mr.Vanengen:

RE: NPC File # 148297 Whale Tail Pit Project - Meadowbank Division

The following works and activities have been proposed in the above-noted project proposal:

1. Mine development – development of an open pit mine on the Amaruq Exploration property, located approximately 50 km from the existing Meadowbank mine.

2. All-weather road access – ore would be hauled by truck to Meadowbank mine for milling. This would entail widening the existing exploration access road.

The Nunavut Planning Commission (NPC) has completed its review of the above noted project proposal. The NPC previously reviewed works and activities associated with the current proposal, including the Meadowbank mine (conformity determination issued July 12, 2002 and July 21, 2003), Amaruq exploration (conformity determination issued March 10, 2011 and October 21, 2015) and an access road (conformity determination issued July 16, 2015). All of these conformity determinations still apply. In addition, associated activities were previously reviewed by the Nunavut Impact Review Board (NIRB File No.: 03MN107, 11EN010).

The NPC has determined that the above-noted project proposal is a significant modification to the project, as its purpose is to establish a mining operation in a previously unconsidered location, as well as an access road to this new site. The project proposal conforms to the Keewatin Regional Land Use Plan (KRLUP), subject to the attached conformity requirements from the KRLUP that are applicable to the project proposal.

The project proposal requires screening by the Nunavut Impact Review Board (NIRB) because it does not belong to a class of exempt works or activities set out in Schedule 12-1 of the Nunavut Land Claims Agreement. By this letter and additional enclosures, the NPC is forwarding the project proposal with this determination to the Nunavut Impact Review Board (NIRB) for screening. Project materials are available at the following address:

http://npc.strata360.com/portal/project-dashboard.php?appid=148297&sessionid=

The applicant has undertaken to comply with the attached conformity requirements. The regulatory authorities to which this letter is addressed are responsible under the Nunavut Planning and Project Assessment Act (NUPPAA) to implement any of the attached requirements by incorporating the requirements directly, or otherwise ensuring that they must be met, in the terms and conditions of any authorizations issued.

This conformity determination applies only to the above noted project proposal as submitted. Proponents may not carry out projects and regulatory authorities may not issue licences, permits and other authorizations in respect of projects if a review by the NPC is required. Regulatory authorities may consult with the NPC to obtain recommendations on their duties to implement the existing land use plans prior to issuing licences, permits and other authorizations under subsection 69(6) of the NUPPAA.

My office would be pleased to discuss how best to implement the attached requirements and to review any draft authorizations that regulatory authorities wish to provide for that purpose. If you have any questions, please do not hesitate to contact me at (867) 857-2242.

Sincerely,

Peter Scholz
Senior Planner,
Nunavut Planning Commission

ᑎᑎᖃᐅᓯᕕᖓ 2101
ᐃᖃᓗᒃᑑᑎᐊᖅ, ᓄᓇᕗᑦ ᐸᔾᕼ ᔭᕋᔭ
ᐅᖃᑦᑐᑎᖓ 867-983-4625
ᓱᒃᑲᔪᒃᑯᑦ 867-983-4626

P.O. Box 2101
Cambridge Bay, NU X0B 0C0
867-983-4625
867-983-4626

P.O. Box 2101
Ikaluktutiak, NU X0B 0C0
867-983-4625
867-983-4626

ATTACHMENT D:

NON-TECHNICAL SUMMARY

NON-TECHNICAL SUMMARY - *Project Description Summary as provided through NPC on-line application portal Application NO. 148297*

Agnico Eagle Mines Limited – Meadowbank Division (Agnico Eagle) is proposing to develop Whale Tail Pit (Project), a satellite deposit located on the Amaruq Exploration property. Agnico Eagle is proposing to continue mine operations and milling at the Meadowbank Mine and gain approval to extend the Meadowbank Mine to include development of resources from Whale Tail Pit. Agnico Eagle is seeking a Nunavut Planning Commission conformity determination, and will be requesting the Nunavut Impact Review Board (NIRB) reconsider the terms and conditions set out in Project Certificate (No. 004) issued for Meadowbank Mine. Concurrent with the reconsideration of the Project Certificate by the NIRB, Agnico Eagle is seeking an amendment to the Meadowbank Mine Type A Water Licence (No. 2AM-MEA1525) to include mining of Whale Tail Pit and the construction and operations of associated infrastructure from the Nunavut Water Board (NWB).

The Amaruq property is a 408 square kilometre (km^2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine in the Kivalliq Region of Nunavut. The deposit will be mined as an open pit (i.e., Whale Tail Pit), and ore will be hauled by truck to the approved infrastructure at Meadowbank Mine for milling. Refer to Volume 1, Figure 1.1-1.

The Project facilities will consist of a personnel camp (i.e., Main Camp), power plant, heli-pad, maintenance shop, tank farm, a waste rock storage facility (WRSF), an ore stockpiling facility, an attenuation pond, a water and sewage collection and treatment system, haul roads, access roads, water management infrastructure (e.g., collection ponds, channels, dikes, dams, and culverts), and the Whale Tail Pit. Refer to Volume 1, Figure1.2-1. As a result of development, Agnico Eagle is also proposing to expand the width of the existing exploration access road to a haul road to accommodate increased traffic rates and haul trucks. No new infrastructure is required at the existing Meadowbank Mine to support the development of the Project.

An initial amount of approximately 8.3 million tonnes (Mt) of ore will be mined from one open pit (i.e., Whale Tail Pit) and processed over a three to four year mine life. Ore from Whale Tail Pit will be segregated by grade then crushed on-site after which it will be transported to Meadowbank Mine for milling. The mill rate will be approximately 9,000 to 12,000 tonnes per day.

Agnico Eagle proposes to process the Whale Tail ore and dispose of the tailings slurry at the existing Meadowbank Mine tailing storage facility (TSF), which is authorized under the current Project Certificate and Type A Water Licence. The mine operation will generate approximately 8.3 Mt of tailings, 46.7 Mt of mine waste rock, and 5.8 Mt of overburden soil, with very limited organic material. Tailings produced from processing of Whale Tail ore will be accommodated within the existing footprint of the TSF. More specifically, tailings will be stored within the current footprint of the south cell TSF and by building an internal structure in the north cell TSF. Neither the footprint of the facility nor the chemical nature of the tailings and process water are expected to significantly change from current operations. Whale Tail tailings will require the same long-term environmental control mechanisms as are currently approved for Meadowbank.

Approximately 2.5 Mt of waste rock will be used for construction activities such as roads, pads, and water management facilities (i.e., dike, berm, rip rap, etc.). The remaining waste rock and overburden material

will be hauled to the Whale Tail WRSF, which is located northwest of the Whale Tail Pit. A second, temporary overburden storage pad for staging purposes is located west of the Whale Tail Lake. Waste rock and overburden will be co-disposed together in one of the two piles constituting the storage facility.

The Project will be supported using the existing transportation requirements, relying on marine transportation for most supplies, aircraft for supplies and transportation of employees, and the gold dore produced at the Meadowbank Mill. The Meadowbank All Weather Access Road (AWAR) will continue to provide supplies transported from the existing Baker Lake marshalling facilities to the Meadowbank Mine. The current operational components include marshalling facilities in Baker Lake and the 110 km AWAR between Baker Lake and Meadowbank Mine. Agnico Eagle is proposing to upgrade the previously permitted Amaruq exploration access road to a haul road to support the development of Whale Tail Pit and to enable hauling needed between the Whale Tail Pit and the Meadowbank Mill. No changes are proposed for the Meadowbank AWAR to Baker Lake.

Construction of the Whale Tail Pit site will begin as soon as approval and permits are received (anticipated for early 2018) and ultimately have full production in 2019. The operational phase will span three to four years, from Year 1 (2019) to Year 4 (2022). Mining activities are currently expected to end in Year 3 (2021) and ore processing is expected to end during Year 4 (2022). Closure will occur from Year 4 (2022) to Year 11 (2029) after the completion of mining and will include removal of the non-essential site infrastructure and flooding of the mined-out open pit, as well as reestablishment of the natural Whale Tail Lake water level. By extending the life of mine at Meadowbank, Agnico Eagle will progressively close portions of Meadowbank Mine while operating.

The main objectives pertaining to water management are to limit and/or stop the flow of surface water runoff in the pit and to limit the impact on the local environment. Refer to Figure 1.2-1. In developing the water management plan, the following principles were followed:

- keep the different water types separated as much as possible;
- control and minimize contact water through diversion and containment;
- minimize fresh water consumption by recycling and reusing the contact and process water wherever feasible; and
- meet discharge criteria before any site contact water is released to the downstream environment.

Water management infrastructure includes contact water collection ponds, freshwater collection ponds, diversion channels, retention dikes, dams, culverts, water treatment plant for effluent, potable water treatment plant, sewage treatment plant, and a discharge diffuser. All contact water on-site will be directed to an attenuation pond. Contact water will be treated and then released to Mammoth Lake through a discharge diffuser.

To allow the mining of the Whale Tail Pit, Whale Tail Lake will be partly dewatered once the Whale Tail Dike is constructed. Following the completion of mining, the open pit will be filled with natural runoff and water pumped from Whale Tail Lake (South Basin) into Whale Tail Pit. The north and south basins of Whale Tail Lake are expected to reach the same elevation within eight years (2029). The Whale Tail Dike and the Mammoth Dike will be breached when the water quality monitoring results meet discharge criteria as per NWB Type A Licence conditions to allow water to return to the natural flow patterns downstream.

The Project was designed to minimize the areas of surface disturbance, stabilize disturbed land surfaces against erosion, and return the land to a post-mining land use to re-establish traditional pursuits and wildlife habitat. This will mainly be achieved by rapidly dewatering during the open water season, mining the pit as efficiently as possible, and then refilling as early as possible during closure. Post-closure environmental monitoring will continue until it has been verified that reclamation has successfully met closure and reclamation objectives.

Baseline programs have been completed for the Project and have included data collection for the physical environment (e.g., terrain and soils, permafrost, geochemistry, noise, and surface water quantity and quality), biological environment (e.g., vegetation, terrestrial wildlife and birds, and fish and other aquatic organisms), and the cultural environment (e.g., IQ, archaeology, and socio-economics) in support of the environmental assessment and Type A Water Licence Amendment Application. Agnico Eagle has completed an environmental assessment to identify and assess potential environmental and social effects resulting from the Project. It is anticipated that the Final Environmental Impact Statement (FEIS) Amendment and Type A Water Licence Amendment will be submitted to the NWB and NIRB in June 2016, at the time of the NPC conformity determination decision. The results of the environmental assessment found that with mitigation, the Whale tail Pit, Whale Tail haul road, and the extension of the Meadowbank Mine, will not cause long-term significant negative effects as a result of proposed construction, operations, and closure.

Agnico Eagle has developed monitoring and management programs required to mitigate, monitor, and report on its environmental performance against the regulatory requirements contained within its Meadowbank operating authorizations, permits, licenses, and leases consistent with the legal requirements of applicable Acts and Regulations in Nunavut. Existing Meadowbank Mine management and monitoring plans have been updated or addendums have been added to reflect the Project and will be submitted as part of the FEIS and Water Licence Amendments in June 2016. The performance of the management plans will be monitored periodically and the results communicated. Independent subject matter experts or consultants may be engaged to review performance where necessary. The accuracy of the environmental impact predictions and the effectiveness of the mitigation measures will be verified through monitoring and annual reporting. If unusual or unforeseen adverse environmental impacts are noticed, corrective action will be put in place. Through the adaptive management process, the existing mitigation measures will be adjusted or new mitigation measures implemented if necessary. External reporting will be completed, as required.

A key goal of Agnico Eagle's public consultation and engagement program has been to ensure the Company obtains a "social licence to operate", by securing the support of a majority of residents from potentially impacted local communities. Since operations of Meadowbank Mine began, Agnico Eagle has continued public consultation by annually meeting with the community and local stakeholders within the Kivalliq Region, regulatory agencies and local employees routinely which has allowed a better general understanding of the rights, interests, values, aspirations, and concerns of the potentially affected stakeholders, with particular reference to the local community of interest, Baker Lake. Through this continued consultation Agnico Eagle has developed an operational culture that recognizes and respects these relevant interests in the planning and executing processes. Agnico Eagle has consulted with local stakeholders and regulators regarding the current Amaruq exploration activities and the proposed Whale Tail Pit, as an extension to the Meadowbank Mine.

Consultation and regulatory engagement discussions were also considered as part of the alternatives assessment. The alternatives that shaped the overall Project includes the Project Go/No-Go decision, deposit, mining method, and production rate, processed ore containment and tailing storage, overburden and waste rock disposal, water management, transportation access and quarry development, and infrastructure support.

Agnico Eagle is a senior mining company with a proven reputation for sustainability and economic success in Nunavut. Its' success is based on grass roots exploration and recognizing the potential in the areas it explores. Agnico Eagle is committed to creating value for their shareholders by operating in a safe, socially, and environmentally responsible manner while contributing to the prosperity of their employees, their families, and the communities in which they operate. These commitments based on Agnico Eagle's Sustainable Development Policy, are published in the Annual Sustainable Development Report, and are reported annually to the Kivalliq Inuit Association, NWB, and NIRB.

ᓇᐃᓈᖅᓯᒪᔪᖅ - *ᐱᓕᕆᐊᖅ ᖃᓄᐃᑦᑑᓂᖓᓄᑦ ᓇᐃᓈᖅᓯᒪᔪᖅ ᑐᓂᔭᐅᔪᖅ ᐸᕐᓇᐃᔨᒃᑯᓐᓄᑦ ᖃᕆᑕᐅᔭᒃᑯᑦ ᑐᒃᓯᕋᐅᓯᐅᕈᑎᖓᕐᑎᒍᑦ ᑐᒃᓯᕋᐅᑎᐅᑉᓈᓴᐅᑎᖓ 148297*

ᐊᒡᓃᑯ ᐃᒍ ᐅᔭᕋᖕᓂᐊᖅᑐᓕᕆᔨᒃᑯᑦ ᓕᒥᑎᑦ - ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ (ᐊᒡᓃᑯᒃᑯᑦ) ᐱᕙᓕᐊᔪᒪᔪᑦ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ-ᒥᑦ (ᐱᓕᕆᐊᖅ), ᐃᖕᒥᒃᑰᖓᔪᖅ ᐱᑕᖃᖅᑐᖅ ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᕝᕕᖕᒥᑦ ᐱᒋᔭᐅᔪᒥᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᑲᔪᓯᑎᑦᑎᔪᒪᔪᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒥᒃ ᐊᐅᓛᕐᓂᐅᔪᒥᒃ ᐊᒻᒪᓗ ᓯᖃᓪᓕᑎᕆᕝᕕᖕᒥᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐊᒻᒪᓗ ᓈᒻᒪᒋᔭᐅᔪᒪᔪᑦ ᐅᐃᒍᒋᐊᕐᓗᒍ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ ᐃᓚᐅᑎᓪᓗᒍ ᐱᕙᓪᓕᐊᓂᖓ ᐱᕝᕕᐅᔪᖕᓇᖅᑐᑦ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᓄᓇᕗᒻ ᐸᕐᓇᐃᔨᒃᑯᓐᓂᑦ ᒪᓕᖕᓂᕐᒧᑦ ᕿᒥᕐᕈᔭᐅᕐᑯᔨᔪᑦ, ᐊᒻᒪᓗ ᑐᒃᓯᕋᖅᑐᑦ ᓄᓇᕗᒻᒥ ᐊᕙᑕᓕᕆᔨᒃᑯᓐᓂ (NIRB) ᐃᓱᒪᒃᓴᖅᓯᐅᕈᑎᖃᒃᑲᓐᓂᕐᑯᐸᓗᒋᑦ ᑐᑭᐅᔪᓂᒃ ᐊᒻᒪᓗ ᖃᓄᐃᖓᔭᕆᐊᖃᕐᓂᐅᔪᓂᒃ ᑎᑎᕋᖅᓯᒪᔪᑦ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᑯᑕᕐᒥᑦ (ᓈᓴᐅᑎ 004) ᑐᓂᔭᐅᓚᐅᖅᑐᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒧᑦ. ᐃᓚᒋᐸᓗᒍ ᐃᓱᒪᒃᓴᖅᓯᐅᕈᑎᕆᔭᐅᑲᓐᓂᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᑯᑎ NIRB-ᑯᓐᓄᑦ, ᐊᒡᓃᑯᒃᑯᑦ ᐋᕿᒋᐊᖅᓯᔪᒪᔪᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᒃ (ᓈᓴᐅᑎ 2AM-MEA1525) ᐃᓚᐅᑎᓪᓗᒍ ᐅᔭᕋᖕᓂᐊᖅᑕᐅᓂᖓ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᓴᓇᔭᐅᓂᖓᓄᑦ ᐊᒻᒪᓗ ᐊᐅᓛᕐᓂᖓᓄᑦ ᐃᓚᒋᔭᐅᔪᑦ ᐱᕐᑯᑏᑦ ᓄᓇᕗᒻᒥ ᐃᒥᒪᓕᕆᔨᒃᑯᓐᓂᑦ (NWB).

ᐊᒪᕈᖅ ᐱᒋᔭᐅᔪᖅ 408 ᑭᐸᐹᕆᒃᑐᑦ ᑭᓛᒥᑕᐅᔪᖅ ᐃᓂᐅᔪᐸ ᐊᖏᓂᖓ ᐃᓅᔪᓄᑦ ᓄᓇᒥᑦ ᓇᖕᒥᓂᕆᔭᐅᔪᒦᓗᓂ 150 ᑭᓛᒥᑕᓪᓗᐊᓂᒃ ᐅᖓᓯᒃᑎᒋᔪᖅ ᖃᒪᓂᑦᑐᐊᐸ ᐅᐊᖕᓇᖓᓂᑦ ᐊᒻᒪᓗ 50 ᑭᓛᒥᑕᓪᓗᐊᖑᐸᓗᓂ ᐊᐳᖅᑎᓐᓈᖅᑑᐸ ᐅᐊᖕᓇᖅᐸᓯᖓᓂᑦ ᐱᖓᖕᓇᖅᐸᓯᖓᓂᑦ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᕗᒻᒥᑦ. ᐱᑕᖃᖅᑐᖅ ᐅᔭᕋᖕᓂᐊᖅᑕᐅᓂᐊᖅᑐᖅ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ (ᓱᕐᓗ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ), ᐊᒻᒪᓗ ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᑦ ᐊᒡᔭᖅᑕᐅᖃᑦᑕᕐᓗᑎᒃ ᓄᓇᒃᑰᕈᑎᒃᑯᑦ ᓈᒻᒪᒋᔭᐅᔪᒧᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒦᑦᑐᒥᑦ ᓯᖃᓪᓕᑎᖅᑕᐅᓂᐊᕐᓗᓂ. ᑕᑯᓗᒍ ᐅᖃᓕᒫᒐᖅ 1, ᐊᔾᔨ 1.1-1.

ᐱᓕᕆᐊᖅ ᐱᓕᕆᔨᓄᑦ ᓄᓇᓕᐊᓛᖃᕐᓂᐊᖅᑐᖅ (ᓱᕐᓗ ᓄᓇᓕᐊᓛᖅ), ᐆᒪᖅᑯᑕᐅᓯᕝᕕᒃ, ᕐᑯᓕᒥᒍᓕᖕᒧᑦ ᑐᙵᕕᒃ, ᐋᕿᒃᓱᐃᕝᕕᒃ, ᐅᖅᓱᐊᓘᓯᕝᕕᒃ, ᐅᔭᖅᑲᓄᑦ ᐊᒃᑕᑰᖅᑕᐅᔪᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᒃ (WRSF), ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᓂᒃ ᑲᑎᖅᓱᐃᕝᕕᒃ, ᓴᙵᑏᓕᐊᖅᑎᑦᑎᕝᕕᒃ ᑕᓯᕋᔭᒃ, ᐃᒪᕐᒥᒃ ᐊᒻᒪᓗ ᕐᑯᕝᕕᖕᒥᙱᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᕝᕕᒃ ᐊᒻᒪᓗ ᐱᓕᕆᐊᕆᓂᕐᒧᑦ ᐋᕿᒃᓯᒪᔪᖅ, ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎ, ᐊᑉᕐᑯᑏᑦ, ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᕝᕕᑦ (ᓱᕐᓗ ᑲᑎᖅᓱᐃᕝᕕᑦ ᑕᓯᕋᔭᐃᑦ, ᓱᑉᓗᐃᑦ, ᐊᕙᓗᐃᑦ, ᐊᒻᒪᓗ ᓄᓇᐅᑉ ᐃᓗᐊᒎᖅᑐᑦ ᓱᑉᓗᐃᑦ), ᐊᒻᒪᓗ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ. ᑕᑯᓗᒍ ᐅᖃᓕᒫᒐᖅ 1, ᐊᔾᔨ 1.2-1. ᐱᕙᓪᓕᐊᓂᖅ ᐱᔾᔪᑎᒋᑉᓗᒍ, ᐊᒡᓃᑯᒃᑯᑦ ᐊᖏᒡᓕᒋᐊᖅᓯᔪᒪᖕᒥᔪᑦ ᓯᓕᖕᓂᖓᑕ ᑕᐃᒪᐅᔪᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᐊᑉᕐᑯᑎ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒧᑦ ᐊᖏᒡᓕᒋᐊᕐᓂᖏᓐᓄᑦ ᐃᖏᕐᕋᔭᒃᑐᐃᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᒃᑐᑦ ᓄᓇᒃᑰᕈᑎᑦ. ᓄᑖᓂᒃ ᐱᕐᑯᑎᑕᖃᐊᖃᙱᑦᑐᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐱᕙᓪᓕᐊᓂᕆᔭᖓ ᐱᓕᕆᐊᖅ ᐱᔾᔪᑎᒋᑉᓗᒍ.

8.3 ᒥᓕᔭᓐ ᑕᓐᓗᐊᓂᑦ (Mt) ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᑦ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᐅᓂᐊᖅᑐᖅ (ᓱᕐᓗ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ) ᐊᒻᒪᓗ ᐱᕙᓪᓕᐊᔭᐅᓗᑎᒃ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ. ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᑦ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᑉᑎᖅᑕᐅᓂᐊᖅᑐᑦ ᖃᓄᐃᓐᓂᖅᓴᐅᓂᖏᓐᓄᑦ ᓯᖃᓪᓕᑎᖅᑕᐅᓕᕐᓗᑎᒃ ᐃᓂᐅᔪᒥᑦ ᐊᒡᔭᖅᑕᐅᓂᐊᖅᓗᑎᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᓯᖃᓪᓕᑎᖅᑕᐅᓂᐊᕐᓗᑎᒃ. ᓯᖃᓪᓕᑎᖅᑕᐅᓂᖏᑦ 9,000-ᒥᑦ 12,000-ᒧᑦ ᑕᓐᓗᐊᖑᓂᐊᖅᑐᑦ ᐅᑉᓗᑕᒫᑦ.

ᐊᒡᓃᑯᒃᑯᑦ ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᓂᒃ ᐱᕙᓪᓕᐊᓂᖃᕈᒪᔪᑦ Whole Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᒻᒪᓗ ᐃᒋᓪᓗᒋᑦ ᕿᒪᒃᑎᑦᑐᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᕿᒪᒃᑎᑦᑑᓯᕝᕕᖓᓐᓂᑦ (TSF), ᓈᒻᒪᒋᔭᐅᓯᒪᔪᖅ ᒪᓕᒃᓱᒋᑦ ᒫᓐᓇᐅᔪᖅ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᑯᑎᒧᑦ ᐊᒻᒪᓗ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒧᑦ. ᐅᔭᕋᖕᓂᐊᕋᔭᖅᑐᑦ 8.3 Mt-ᓂᒃ ᕿᒪᒃᑎᑦᑐᓂᑦ, 46.7 Mt-ᓂᒃ ᐊᒃᑕᑰᖅᑕᐅᔪᓂᒃ ᐅᔭᖅᑲᓂᒃ, ᐊᒻᒪᓗ 5.8 Mt ᐃᑉᔪᐃᑦ, ᒥᑭᑦᑐᒥᒃ ᓄᓇᒥᑦ ᐱᔪᓂᒃ. ᕿᒪᒃᑎᑦᑐᑦ ᐱᓕᕆᐊᖑᓂᖏᓐᓄᑦ Whole Tail ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᑦ TSF-ᒧᑦ ᐊᑐᖅᑕᐅᔪᒦᓐᓂᐊᖅᑐᑦ. ᕿᒪᒃᑎᑦᑐᑦ ᑐᖅᑯᖅᑕᐅᖃᑦᑕᕐᓂᐅᖅᑐᑦ ᐃᓂᐅᔪᒥᑦ ᓂᒋᐊᓂᑦ TSF ᐊᒻᒪᓗ ᓴᓇᓗᓂ ᐃᓗᐊᓂᑦ ᐅᐊᖕᓇᖓᓂᑦ TSF. ᐃᓂᐅᔪᖅ ᐱᐅᖏᑦᑐᓪᓗᓃᑦ ᕿᒪᒃᑎᑦᑐᓂᑦ ᐊᒻᒪᓗ ᐱᕙᓪᓕᐊᔭᐅᓂᖓ ᐃᒪᐅᑉ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᑦ ᐊᓯᔾᔨᕐᔪᐊᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᒫᓐᓇᐅᔪᖅ ᐊᐅᓛᖅᑎᑦᑎᓂᐅᔪᓂᒃ. Whale

Tail-ᒥᑦ ᕿᒪᒃᑎᑦᑐᑦ ᐊᔾᔨᖓᓂᒃ ᐊᑯᓂᐅᔪᑦ ᑕᑭᑎᒋᓂᖓᓂᒃ ᐊᕙᑎᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐱᑕᖃᕆᐊᖃᕐᓂᐊᖅᑐᖅ ᒫᓐᓇᐅᔪᖅ ᑕᐃᒪᓐᓇᐃᓐᓂᖓᓄᑦ ᓈᒻᒪᒋᔭᐅᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ.

2.5 Mt-ᓗᐊᑦ ᐊᒃᑕᑰᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᓴᓇᕙᓪᓕᐊᓂᕐᒧᑦ ᓱᕐᓗ ᐊᑉᖁᑏᑦ, ᑐᙵᕕᑦ, ᐊᒻᒪᓗ ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᔪᑦ (ᓱᑉᓗᐃᑦ, ᓴᓂᕋᐃᑦ, ᑕᒪᒃᑯᐊᕋᓗᐃᑦ). ᐊᒥᐊᒃᑯᐃᑦ ᐊᒃᑕᑰᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐅᖓᑕᐅᑦᑎᔪᓪᓗ ᐊᒡᔭᖅᑕᐅᓂᐊᖅᑐᑦ Whale Tail WRSF-ᒧᑦ, ᐅᐊᖕᓇᖅᐸᓱᖓᓂᑦ ᐱᖓᖕᓇᖅᐸᓱᖓᓃᑦᑐᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔫᑉ. ᑐᒡᓕᐊᖑᔪᖅ, ᐅᖓᑕᐅᑦᑎᔪᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᐅᓚᐅᐱᓪᓚᒃᑐᑦ ᑐᙵᕕᒃ ᐱᖓᖕᓇᖓᓃᑦᑐᖅ Whale Tail ᑕᓯᐅᑉ. ᐊᒃᑕᑰᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐊᒻᒪᓗ ᐅᖓᑕᐅᑦᑎᓯᒪᔪᑦ ᐊᑕᐅᑦᑎᒃᑯᑦ ᐃᒋᑕᐅᓂᐊᖅᑐᑦ ᐊᑕᐅᓯᕐᒧᑦ ᒪᕐᕉᔫᖕᓂᑦ ᑲᑎᓯᒪᔪᓂᑦ ᑐᖅᑯᖅᓯᓯᕝᕕᙳᖅᓯᒪᔪᕐᒧᑦ.

ᐱᓕᕆᐊᖅ ᐃᑲᔪᖅᑕᐅᓂᐊᖅᑐᖅ ᐊᑐᕐᓗᓂ ᐊᑐᖅᑕᐅᔪᑦ ᐊᒡᔭᖅᑐᐃᓂᕐᒧᑦ, ᐊᑐᕐᓗᑎᒃ ᐃᒪᒃᑯᑦ ᐊᒡᔭᖅᑐᐃᓂᒃᑯᑦ ᐱᕐᑯᑎᓗᒃᑖᕐᓚᖕᓄᑦ, ᑎᖕᒥᓱᒃᑯᑦ ᐱᕐᑯᑎᓂᒃ ᐊᒻᒪᓗ ᐱᓕᕆᔨᓂᒃ ᐊᒡᔭᖅᑐᐃᓗᑎᒃ, ᐊᒻᒪᓗ ᒨᓗᓂᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ. ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᑭᐅᓗᒃᑖᖅ ᐊᑉᖁᑎ (AWAR) ᑲᔪᓯᓂᐊᖅᑐᖅ ᐊᒡᔭᖅᑐᐃᓂᕐᒧᑦ ᑕᐃᒪᐅᔪᒥᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᑦ ᐊᑐᖅᑕᐅᔪᒥᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ. ᒫᓐᓇᐅᔪᖅ ᐊᐅᓛᕐᓂᕐᒧᑦ ᐃᓚᒋᔭᐅᔪᑦ ᐃᓚᐅᔪᑦ ᐅᓯᖕᒋᔭᐃᕝᕕᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᑦ ᐊᒻᒪᓗ 110 ᑭᓛᒥᑕᖑᔪᖅ AWAR ᐊᑯᓐᓂᖕᒋᓐᓂᑦ ᖃᒪᓂᑦᑐᐊᑉ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑑᑉ. ᐊᒡᓃᑯᒃᑯᑦ ᓄᑖᖑᖅᓯᒋᐊᕈᒪᔪᑦ ᐱᑎᑕᐅᔪᖕᓇᐅᑎᐅᓚᐅᖅᑐᖅ ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᐊᑉᖁᑎ ᐊᒡᔭᖅᑐᐃᓂᕐᒧᑦ ᐱᕙᓪᓕᐊᓂᐊᕐᓂᖓᓄᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᓂᒃ ᐊᒻᒪᓗ ᐊᒡᔭᖅᑐᐃᓂᕐᒥᒃ ᐱᒋᐊᖅᑎᑦᑎᓗᑎᒃ ᐊᑯᓐᓂᖕᒋᓐᓂᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔫᑉ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᓯᖃᓪᓕᑎᕆᕝᕕᖕᒧᑦ. ᐊᓯᐊᖑᖅᑐᖃᙱᑦᑐᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ AWAR-ᒧᑦ ᖃᒪᓂᑦᑐᐊᕐᒧᑦ.

ᓴᓇᔭᐅᓂᖓ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐱᒋᐊᕐᓂᐊᖅᑐᖅ ᓈᒻᒪᒋᔭᐅᑐᐊᖅᐸᑦ ᐊᒻᒪᓗ ᐱᔪᖕᓇᖅᑎᑦᑎᓃᑦ ᐱᔭᐅᒃᐸᑕ (ᓂᕆᐅᒋᔭᐅᔪᖅ 2018 ᐱᒋᐊᓛᖅᑎᓪᓗᒍᒧᑦ) ᐊᒻᒪᓗ ᐱᒋᐊᖅᐸᓪᓕᐊᓂᓗᒃᑖᖃᕐᓗᑎᒃ 2019-ᒥᑦ. ᐊᐅᓛᖅᑎᑦᑎᓂᖅ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᓂᐊᖅᑐᖅ ᐅᑭᐅᖅ 1-ᒥᑦ (2019) ᐅᑭᐅᖅᑐ 4-ᒧᑦ (2022). ᐅᔭᕋᖕᓂᐊᕐᓃᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐃᓱᓕᓐᓂᐊᕐᓂᖓᓄᑦ ᐅᑭᐅᖅ 3-ᒥᑦ (2021) ᐊᒻᒪᓗ ᐱᓕᐅᕆᕙᓪᓕᐊᓂᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐃᓱᓕᓐᓂᐊᕐᓂᖓᓄᑦ ᐅᑭᐅᖅ 4-ᒥᑦ (2022). ᐅᒃᑯᐊᕐᓂᖅ ᐅᑭᐅᖅ 4-ᒥᑦ (2022) ᐅᑭᐅᖅ 11-ᒧᑦ (2029) ᐱᐊᓂᒃᐸᑉ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ ᐊᒻᒪᓗ ᐃᓚᐅᓂᐊᖅᑐᑦ ᐄᔭᐃᓂᖅ ᐊᑐᙱᑦᑐᓂᒃ ᐱᕐᑯᑎᓂᒃ ᐊᒻᒪᓗ ᐃᒻᒥᖅᑐᕐᓗᒍ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᓯᒪᔪᖅ ᐅᒃᑯᐃᖓᔪᖅ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ, ᐊᒻᒪᓗ ᐅᑎᖅᑎᑎᓇᓂᖅ Whale Tail ᑕᓯᕐᒥᑦ ᐊᖏᓂᓇᓚᐅᖅᑕᖓᓄᑦ. ᐅᐃᒍᒋᐊᕐᓗᒍ ᐅᔭᕋᖕᓂᐊᕐᓂᐅᑉ ᐊᐅᓛᕐᓂᖓ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ, ᐊᒡᓃᑯᒃᑯᑦ ᐅᒃᑯᐊᖅᑎᓇᕙᓪᓕᐊᓂᖃᕐᓂᐊᖅᑐᑦ ᐃᓚᖏᓐᓂᒃ ᐊᐳᖅᑎᓈᖅᑐᒦᑦᑐᓂᒃ ᐊᐅᓛᕐᓂᖃᖅᑎᓪᓗᒋᑦ.

ᐱᔭᒃᓴᓗᐊᖑᔪᒪᔪᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᑭᒡᓕᖃᖅᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ/ᐅᕝᕙᓘᓐᓃᑦ ᓄᖅᑲᖅᑎᓪᓗᒋᑦ ᑯᕕᔪᑦ ᐃᒪᕐᒧᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᒻᒪᓗ ᑭᒡᓕᖃᖅᑎᓪᓗᒍ ᐊᒃᑐᖅᓯᓂᖅ ᓄᓇᒧᑦ. ᑕᑯᓗᒍ ᐊᔾᔨ 1.2-1. ᐱᕙᓪᓕᐊᓂᖅ ᐃᒪᕐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒥᒃ ᐸᕐᓇᐅᑎᒥᑦ, ᐅᑯᐊ ᒪᓕᒐᐃᑦ ᒪᓕᒃᑕᐅᓚᐅᖅᑐᑦ:

- ᐊᔾᔨᒌᖕᒋᑦᑐᑦ ᐃᒪᐃᑦ ᐊᑉᓯᒪᐅᕐᓗᒋᑦ ᐱᔪᖕᓇᕌᖓᑕ;

- ᐊᐅᓚᓪᓗᒋᑦ ᐊᒻᒪᓗ ᒥᑭᓛᒃᑰᖅᑎᓪᓗᒋᑦ ᐊᑐᖅᑕᐅᔪᖅ ᐃᒪᖅ ᓴᖑᑎᓐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᓄᖅᑲᖅᓯᒪᑎᓐᓂᒃᑯᑦ;

- ᒥᑭᓛᒃᑰᖅᑎᓪᓗᒍ ᐃᒪᑦᑎᐊᕙᒃᑐᕐᓂᖅ ᐊᑐᒃᑲᓐᓂᖃᑦᑕᕐᓂᒃᑯᑦ ᐊᑐᖅᑕᐅᓚᐅᖅᑐᖅ ᐊᒻᒪᓗ ᐱᕙᓪᓕᐊᔭᐅᓯᒪᔪᖅ ᐃᒪᖅ ᐃᓗᐊᕋᖓᑦ; ᐊᒻᒪᓗ

- ᑎᑭᐅᑎᓗᒋᑦ ᑯᕕᓂᕐᒧᑦ ᐋᕿᐅᒪᔪᖅ ᐃᓂᐅᔪᒥᑦ ᐃᒪᖅ ᓴᐸᑯᑕᐅᓂᐊᓛᖅᑎᓪᓗᒍ ᑰᒃᑐᒧᑦ.

ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐱᕐᑯᑎᓂᑦ ᐃᓚᐅᔪᑦ ᐃᒪᖅ ᐊᑐᖅᑕᐅᓂᕐᒧᑦ ᑲᑎᖅᓱᐃᔾᔪᑎ ᑕᓯᕋᔭᐃᑦ, ᐃᒪᑦᑎᐊᕙᖕᒥᑦ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ ᑕᓯᕋᔭᐃᑦ, ᓴᖑᑎᑦᑎᓂᕐᒧᑦ ᓱᑉᓗᐃᑦ, ᐸᐸᑦᑎᔾᔪᑏᑦ, ᐊᕙᓗᐃᑦ, ᓱᑉᓗᐃᑦ, ᐃᒪᓕᕆᕝᕕᒃ

ᐊᓇᕐᕕᖕᒥᙱᖅᑐᓂᒃ, ᐃᒪᓕᕆᕝᕕᒃ, ᖁᕐᕕᖕᒥᙱᖅᑐᓕᕆᕝᕕᒃ, ᐊᒻᒪᓗ ᑯᕕᓯᔾᔪᑎ. ᐊᒃᑐᖅᑕᐅᓯᒪᔪᓗᒃᑖᑦ ᐃᒪᐃᑦ ᐃᓂᐅᔪᒥᑦ ᓴᙱᑦᓕᒋᐊᖅᑎᑦᑎᕝᕕᒃ ᑕᓯᕋᔭᒃ. ᐊᒃᑐᖅᑕᐅᔪᖅ ᐃᒪᖅ ᐱᓕᕆᐊᖑᖃᑦᑕᕐᓂᐊᖅᑐᖅ ᐊᒻᒪᓗ ᓴᐸᑯᑕᐅᓗᓂ Mammoth ᑕᓯᕐᒧᑦ ᓴᖑᑎᑦᑎᔾᔪᑎᒃᑯᑦ.

ᐅᔭᕋᖕᓂᐊᕈᖕᓇᕐᓂᐊᕐᓗᒍ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ, Whale Tail ᑕᓯᖅ ᐃᓚᖓᒍᑦ ᐃᒪᐃᔭᖅᑕᐅᓂᐊᖅᑐᖅ Whale Tail ᓱᐸᓗ ᓴᓇᔭᐅᕋᓂᒃᐸᑦ. ᐱᐊᓂᒃᑎᓪᓗᒍ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ, ᐅᒃᑯᐃᖓᔪᖅ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐃᓗᓪᓕᖅᑕᐅᓂᐊᖅᑐᖅ ᐃᒪᕐᒥᒃ ᑯᕕᑎᑕᐅᔪᒥᑦ Whale Tail ᑕᓯᕐᒥᑦ (ᓂᒋᐊᓂᑦ) Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ. ᐅᐊᖕᓇᖓᓂᑦ ᐊᒻᒪᓗ ᓂᒋᐊᓂᑦ ᐃᒪᐃᑦ Whale Tail ᑕᓯᕐᒥᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᑎᑭᐅᑎᓂᐊᕐᓂᖏᓐᓂᑦ ᐊᖏᓂᕆᓚᐅᖅᑕᖏᓐᓄᑦ 8 ᐅᑭᐅᑦ ᐱᐊᓂᒃᐸᑕ (2029). Whale Tail ᓱᐸᓗ ᐊᒻᒪᓗ Mammoth-ᒥᑦ ᓱᐸᓗ ᐲᖅᑕᐅᓂᐊᖅᑐᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖓᓄᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᖃᓄᐃᖓᓂᐅᔪᑦ ᑎᑭᐅᑎᒃᐸᑕ ᖁᕕᓂᕐᒧᑦ ᒪᓕᒃᑕᐅᔭᕆᐊᓕᖏᓄᑦ ᒪᓕᒃᑐᒋᑦ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᖓᓐᓂᑦ ᖃᓄᐃᖓᔭᕆᐊᖃᕐᓂᐅᔪᑦ ᐃᒪᖅ ᐅᑎᖅᑎᓐᓂᕐᒧᑦ ᐃᖏᓂᒃ ᖁᕕᓂᕐᒧᑦ ᑕᐅᓄᖓ.

ᐱᓕᕆᐊᖅ ᐋᕿᒃᓱᖅᑕᐅᓚᐅᖅᑐᖅ ᒥᑭᓛᒃᑰᖅᑎᓐᓂᕐᒧ ᐃᒪᕐᒥᒃ ᐊᒃᑐᖅᓯᓃᑦ, ᖃᓄᐃᖏᑎᓪᓗᒍ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ ᓄᓇ ᓱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐅᑎᖅᑎᓪᓗᒍ ᓄᓇ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ ᐊᓂᒍᖅᑎᓪᓗᒍ ᓄᓇᒥᒃ ᐊᑐᕐᓂᕐᒧᑦ ᐃᓕᖅᑯᓯᕆᔭᐅᓚᐅᖅᑐᒧᑦ ᐊᒻᒪᓗ ᓂᕐᔪᑎᓄᑦ ᐃᓂᐅᔪᖅ. ᑕᐃᒪᓐᓇᐃᓐᓂᐊᖅᑐᑦ ᐃᒪᐃᔭᐃᕋᓚᓴᕐᓂᒃᑯᑦ ᐊᐅᔭᐅᑎᓪᓗᒍ, ᐅᔭᕋᖕᓂᐊᕐᓂᖅ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᐊᖅᑐᒃᑰᕐᓂᒃᑯᑦ, ᐊᒻᒪᓗ ᐃᓗᓪᓕᒃᑲᓐᓂᕐᓗᒍ ᐱᒋᐊᕈᖕᓇᖅᓯᑐᐊᖅᐸᑕ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒥᑦ. ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ ᐊᕙᑎᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᑲᔪᓯᓂᐊᖅᑐᑦ ᑭᓯᐊᓂ ᓇᓗᓇᐃᖅᐸᑦ ᐅᑎᖅᑎᑎᓇᓂᖅ ᐱᐊᓂᑦᑎᐊᕐᒪᑦ ᑎᑭᐅᑎᐸᓗᓂ ᐅᒃᑯᐊᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᑎᓇᓂᕐᒧᑦ ᐱᔭᒃᓴᐅᑎᓄᑦ.

ᑭᒡᓕᐅᔪᓄᑦ ᑐᕌᖓᔪᑦ ᐱᐊᓂᒃᑕᐅᓚᐅᖅᑐᑦ ᐱᓕᕆᐊᕐᒧᑦ ᐊᒻᒪᓗ ᐃᓚᐅᔪᑦ ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ ᑲᑎᑕᐅᔪᑦ ᐊᕙᑎᒧᑦ (ᓲᕐᓗ ᓄᓇ ᐊᒻᒪᓗ ᐃᐸᔪᐃᑦ, ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᑦ, ᐅᔭᖅᑲᓕᕆᓂᖅ, ᓂᐱᖃᕐᓂᖅ ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᖃᐸᓯᐅᓂᖏᑦ ᐊᒻᒪᓗ ᖃᓄᐃᓐᓂᖓ), ᐆᒪᓂᖃᖅᑐᐃᑦ ᐊᕙᑎᖓ (ᓲᕐᓗ, ᐱᕈᖅᑐᐃᑦ, ᓄᓇᒥᑦ ᓂᕐᔪᑏᑦ ᐊᒻᒪᓗ ᑎᖕᒥᐊᑦ, ᐃᖃᓗᐃᓪᓗ ᐊᒻᒪᓗ ᐊᓯᖏᑦ ᐃᒪᕐᒥᑦ ᐆᒪᔪᐃᑦ), ᐊᒻᒪᓗ ᐱᖅᑯᓯᒃᑯᑦ ᐊᕙᑎ (ᓲᕐᓗ, ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ, ᐊᒻᒪᓗ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᔪᑦ) ᐃᑲᔪᐃᓂᕐᒧᑦ ᐊᕙᑎᒥᒃ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐊᒻᒪᓗ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᒃ ᐋᕿᒋᐊᖅᓯᓂᕐᒧᑦ ᑐᒃᓯᕋᐅᑎ. ᐊᒡᓃᑯᒃᑯᑦ ᐱᐊᓂᒃᓯᓚᐅᖅᑐᑦ ᐊᕙᑎᒥᒃ ᖃᐅᔨᓴᐃᓂᕐᒥᒃ ᐃᓕᑕᖅᓯᓂᕐᒥᒃ ᐊᒻᒪᓗ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐊᕙᑎᒥᒃ ᐊᒻᒪᓗ ᐃᓅᖃᑎᒌᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᓂᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ. ᓂᕆᐅᕆᔭᐅᔪᖅ ᑭᖑᓪᓕᖅᐹᖅ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᒥᒃ (FEIS) ᐋᕿᒋᐊᖅᓯᓂᖅ ᐊᒻᒪᓗ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᒃ ᐋᕿᒋᐊᖅᓯᓂᖅ ᑐᓂᐅᑕᐅᓂᐊᕐᓂᖓᓄᑦ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᓐᓄᑦ ᐊᒻᒪᓗ ᐊᕙᑎᓕᕆᔨᒃᑯᓐᓄᑦ ᐋᓂ 2016-ᒥᑦ, ᑕᐃᑲᓂ ᐸᕐᓇᐃᔨᒃᑯᓐᓂ ᒪᓕᖕᓂᕐᒧᑦ ᖃᐅᔨᓂᐊᖅᑐᑦ ᐃᓱᒪᓕᐅᕐᓗᑎᒃ. ᖃᓄᐃᖓᓂᐅᔪᑦ ᐊᕙᑎᒥᒃ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᓇᓂᓯᔪᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖅ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ, Whale Tail-ᒥᑦ ᐅᓯᑲᑦᑲᖕᓂᕐᒧᑦ ᐊᐸᕐᑯᑎ, ᐊᒻᒪᓗ ᐅᐃᒍᒋᐊᕐᓂᖓ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ, ᐊᑯᓂᐅᔪᒥᑦ ᑕᑭᑎᒋᓂᖓᓂᒃ ᐱᐅᖏᑦᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᔾᔭᖏᑦᑐᖅ ᓴᓇᔭᐅᔪᒪᔪᓂᑦ, ᐊᐅᓛᕐᓂᐅᔪᓂᑦ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒥᑦ.

ᐊᒡᓃᑯᒃᑯᑦ ᐱᓕᕆᐊᖃᓚᐅᖅᑐᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᑐᕌᖓᔪᓂᒃ ᐱᔭᕆᐊᖃᖅᑐᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ, ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐅᓂᑉᑲᓕᐅᕆᓂᕐᒧᑦ ᐊᕙᑎᐅᑉ ᖃᓄᐃᓕᐅᕐᓂᕆᔭᖓᓄᑦ ᒪᓕᒐᓕᕆᓂᒃᑯᑦ ᐱᔭᕆᐊᖃᕐᓂᐅᔪᓄᑦ ᐃᓗᐊᓃᑦᑐᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐊᐅᓛᕐᓂᕐᒧᑦ ᓈᒻᒪᒋᔭᐅᔪᓂᑦ, ᐱᔪᓐᓇᖅᑎᑕᐅᓃᑦ, ᓚᐃᓴᓐᓯᑦ, ᐊᒻᒪᓗ ᐊᑐᖅᑐᐊᕐᓃᑦ ᐊᔾᔨᖅᑐᑦ ᒪᓕᒐᒃᑯᑦ ᐱᔭᕆᐊᖃᖅᑐᓂᒃ ᐊᑐᖅᑐᓂᒃ ᐱᕐᑯᔭᕐᓂᑦ ᐊᒻᒪᓗ ᒪᓕᒐᕋᓛᓂᑦ ᓄᓇᕗᒻᒥᑦ. ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒧᑦ ᐊᐅᓚᑦᑎᓂᖅ ᐊᒻᒪᓗ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑏᑦ ᐅᐸᓗᒥᓕᖅᑐᖅᑕᐅᓚᐅᖅᑐᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐃᓚᓯᓃᑦ ᐃᓚᔭᐅᐸᓗᑎᒃ ᐊᔾᔨᒋᓂᐊᕐᓗᒍ ᐱᓕᕆᐊᖅ ᐊᒻᒪᓗ ᑐᓂᐅᑕᐅᓂᐊᖅᑐᑦ ᐃᓚᒋᔭᐅᓗᑎᒃ FEIS-ᒧᑦ ᐊᒻᒪᓗ ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᒃ ᐋᕿᒋᐊᖅᓯᓂᕐᒧᑦ ᓲᓂ 2016-ᒥᑦ. ᖃᓄᐃᓐᓂᖏᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑏᑦ ᖃᐅᔨᒋᐊᖅᑕᐅᖃᑦᑕᕐᓂᐊᖅᑐᑦ ᖃᑯᑎᒃᑯᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓂᐅᔪᑦ ᑐᓴᖅᑎᑦᑎᔾᔪᑕᐅᓗᑎᒃ. ᐊᑕᐅᓯᕐᒧᑦ ᐱᔾᔪᑕᐅᔪᓄᑦ ᐊᔪᙱᓐᓂᖃᖅᑐᑦ ᐅᕝᕙᓘᓐᓃᑦ ᖃᐅᔨᒋᐊᕐᕕᐅᖃᑦᑕᖅᑐᑦ ᐃᓚᐅᖃᑕᐅᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ ᕿᒥᕐᕈᓂᕐᒧᑦ ᖃᓄᐃᓐᓂᐅᔪᓂᒃ ᐱᔭᕆᐊᖃᕋᖓᑕ. ᓇᓚᐅᑦᑎᓂᖏᑦ ᐊᕙᑎᒥᒃ

ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐊᒻᒪᓗ ᐊᑑᑎᖃᕐᓂᐅᔪᖅ ᐊᖏᓗᐊᖏᒋᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᓇᓗᓇᐃᖅᑕᐅᓂᐊᖅᑐᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᐊᕐᕋᒍᑕᒫᖅ ᐅᓂᑉᑳᓕᐅᕆᓂᒃᑯᑦ.ᐊᔾᔨᐅᖏᑦᑐᒥᒃ ᐅᕝᕙᓘᓐᓃᑦ ᓂᕆᐅᓇᙱᑦᑐᒥᒃ ᐊᖏᔪᒥᒃ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᖅᑕᖃᕐᓂᖓᓂᒃ ᖃᐅᔨᒃᐸᑕ, ᐋᕿᒋᐊᖅᓯᓂᖃᕐᓂᐊᖅᑐᑦ. ᐊᑐᖅᑎᓐᓂᕐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐱᕙᓪᓕᐊᓂᒃᑯᑦ, ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᐋᕿᒋᐊᖅᑕᐅᓂᐊᖅᑐᑦ ᐅᕝᕙᓘᓐᓃᑦ ᓄᑖᓂᒃ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᓂᒃ ᐊᑐᓕᖅᑎᑦᑎᓗᑎᒃ ᐱᔭᕇᐊᖃᖅᐸᑦ. ᓯᓚᑖᓂᑦ ᐅᓂᑉᑳᓕᐅᕆᓂᖅ ᐱᐊᓂᒃᑕᐅᓂᐊᖅᑐᖅ, ᐱᔭᕇᐊᖃᕐᓂᒃᑯᑦ.

ᑐᕌᖓᑦ ᐊᒡᓃᑯᒃᑯᑦ ᐃᓄᓗᒃᑖᓂᒃ ᐅᖃᖃᑎᖃᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐃᓚᐅᖃᑕᐅᓂᕐᒧᑦ ᑐᕋᖓᔪᖅ ᑲᒻᐸᓂᐅᔪᖅ ᐱᖃᕐᓂᕐᒧᑦ "ᐃᓅᖃᑎᒌᓄᑦ ᓚᐃᓴᓐᓯᖃᕐᓂᖅ ᐊᐅᓛᕐᓂᕐᒧᑦ", ᐃᑲᔪᐃᓂᖃᕐᓗᑎᒃ ᐃᓄᓗᒃᑖᖅᑲᔭᓂᒃ ᐊᒃᑐᖅᑕᐅᓯᒪᑐᐃᓐᓇᕆᐊᖃᖅᑐᓂᒃ ᓄᓇᓕᖕᒥᐅᑕᐃᑦ. ᑕᐃᒪᙱᑦ ᐊᐅᓪᓛᓕᕐᒪᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᖅ, ᐊᒡᓃᑯᒃᑯᑦ ᑲᔪᓯᓂᖃᖅᑐᑦ ᐃᓄᓗᒃᑖᓂᒃ ᐅᖃᖃᑎᖃᕐᓂᕐᒥᒃ ᐊᕐᕋᒍᑕᒫᖅ ᑲᑎᓐᓂᒃᑯᑦ ᓄᓇᓕᖕᒥᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ ᑭᕙᓪᓕᐅᑉ ᐃᓗᐊᓂᑦ, ᒪᓕᒐᓕᕆᓂᕐᒧᑦ ᑲᒪᔨᑦ, ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᑦ ᐱᓕᕆᔨᑦ ᐱᐅᓂᖅᓴᒥᒃ ᑐᑭᓯᐊᓂᖃᖅᑎᑦᑎᔪᖅ ᐱᔪᖕᓇᐅᑎᓂᒃ, ᐱᔪᒪᓂᖕᒋᓐᓂᒃ, ᐃᒃᐱᒋᓂᖕᒋᓐᓂᒃ, ᓂᕆᐅᒋᔭᖕᒋᓐᓂᒃ, ᐊᒻᒪᓗ ᐃᓱᒪᔨᑎᖕᒋᓐᓂᒃ ᐊᒃᑐᖅᑕᐅᓯᒪᑐᐃᓐᓇᕆᐊᖃᖅᑐᓂᒃ, ᐱᓗᐊᖅᑐᒥᑦ ᐱᔾᔪᑎᒋᐸᓗᒍ ᓄᓇᓕᐅᑉ ᐱᔪᒪᔭᖓ, ᖃᒪᓂᑦᑐᐊᖅ. ᑕᐃᒪᓐᓇᐃᓕᐅᕐᓗᓂ ᑲᔪᓯᔪᒥᒃ ᐅᖃᖃᑎᖃᕐᓂᖅ ᐊᒡᓃᑯᒃᑯᑦ ᐱᓕᕆᐊᖃᓚᐅᖅᑐᑦ ᐊᐅᓛᕐᓂᕐᒧᑦ ᐃᓕᖅᑯᓯᕐᒥᒃ ᐃᓕᑕᖅᓯᔪᖅ ᐊᒻᒪᓗ ᐃᒃᐱᒋᓂᖃᖅᑐᖅ ᑕᒪᒃᑯᓂᙱᑦ ᐱᔭᐅᔪᒪᔪᓂᒃ ᐸᕐᓇᐃᓂᕐᒥᑦ ᐊᒻᒪᓗ ᐱᓕᕆᐊᖃᖅᐸᓪᓕᐊᓂᕐᒥᒃ. ᐊᒡᓃᑯᒃᑯᑦ ᐅᖃᖃᑎᖃᓚᐅᖅᑐᑦ ᓄᓇᓕᖕᒥᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ ᐊᒻᒪᓗ ᒪᓕᒐᓕᕆᓂᕐᒥᒃ ᑲᒪᖃᑦᑕᖅᑐᓂᒃ ᐱᔾᔪᑎᖃᖅᑐᒥᒃ ᒫᓐᓇᐅᔪᖅ ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓂᒃ ᐊᒻᒪᓗ Whale Tail ᐃᓗᑦᑐᖅᑎᖅᑕᐅᔪᒪᔪᕐᒥᑦ, ᐅᐃᒍᒋᐊᖅᓯᓂᐅᓪᓗᓂ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ.

ᐅᖃᖃᑎᖃᕐᓂᖅ ᐊᒻᒪᓗ ᒪᓕᒐᓕᕆᓂᕐᒧᑦ ᐅᖃᓪᓗᕆᒃᓴᕐᓂᐅᔪᑦ ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᐃᓚᒋᔭᐅᓂᖕᒋᓐᓄᑦ ᐊᓯᐊᒍᖕᒐᖅ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ. ᐊᓯᐊᒍᖕᒐᖅ ᐋᕿᒃᓯᔪᑦ ᑕᒪᐃᓐᓄᓗᒃᑖᖅ ᐱᓕᕆᐊᕐᒥᑦ ᐃᓚᐅᔪᑦ ᐱᓕᕆᐊᑉ ᐱᒋᐊᕐᓗᓂ/ᐱᒋᐊᖕᒋᓪᓗᓂ ᐃᓱᒪᓕᐅᕆᓂᖅ, ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᑦ, ᐊᑐᖅᑕᐅᔪᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐱᓕᕆᕙᓪᓕᐊᓂᕐᒧᑦ ᓈᓴᐅᑏᑦ, ᐅᔭᕋᖕᓂᐊᖅᑕᐅᔪᓂᒃ ᐱᕙᓪᓕᐊᓯᒪᔪᓂᒃ ᑐᖅᑯᖅᓯᓂᖅ ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᓂᑦ ᑐᖅᑯᖅᓯᓯᒪᓂᖅ, ᐅᖓᑕᐅᑦᑎᔪᑦ ᐊᒻᒪᓗ ᐊᒃᑕᑰᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ, ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᖅ, ᐊᒡᔭᖅᑐᐃᓂᖅ ᐊᒻᒪᓗ ᐃᓗᑦᑐᖅᓯᒪᔪᓕᐅᕐᓂᖅ, ᐊᒻᒪᓗ ᐱᕐᑯᑎᒋᔭᐅᔪᓂᒃ ᐃᑲᔪᐃᓂᖅ.

ᐊᒡᓃᑯᒃᑯᑦ ᐊᑯᓂᐅᓛᖅ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒧᑦ ᑲᒻᐸᓂᐅᔪᖅ ᖃᐅᔨᒪᓐᓇᖅᑐᖃᖅᓗᑎᒃ ᐱᓕᕆᓂᑯᖕᒋᓐᓂᒃ ᓱᕐᑯᓯᐊᖕᒋᓐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒥᒃ ᐱᐊᓂᖕᓂᕐᒧᑦ ᓄᓇᕗᒻᒥᑦ. ᐱᐊᓂᒃᓯᒪᓂᖕᒐᑦ ᐊᑐᖅᓗᓂ ᕿᓂᖅᓴᐃᖃᑦᑕᕐᓂᖕᒐᓐᓄᑦ ᐊᒻᒪᓗ ᐃᓕᑕᖅᓯᐸᓗᑎᒃ ᐱᑕᖃᕈᖕᓇᕐᓂᐅᔪᑦ ᕿᓂᖅᓴᕐᕕᒋᔭᖕᒋᓐᓂᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᐱᓂᐊᕐᓂᖃᖅᑐᑦ ᓴᖅᑭᑦᑎᓂᕐᒧᑦ ᐃᒃᐱᒋᓂᖃᕐᓂᕐᒥᒃ ᐱᖃᖃᑎᒋᔭᖕᒋᓐᓂᒃ ᐊᐅᓛᖅᑎᑦᑎᓂᒃᑯᑦ ᐊᑦᑕᓇᖅᑐᖃᖕᒋᑦᑐᓂᒃ, ᐃᓅᖃᑎᒌᓅᖓᔪᒥᒃ, ᐊᒻᒪᓗ ᐊᕙᑎᒥᒃ ᐱᔭᒃᓴᐅᑎᖃᕐᓂᒃᑯᑦ ᑐᓂᕐᕈᑎᖃᖅᓗᑎᒃ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐱᓕᕆᔨᖕᒋᑦ, ᖃᑕᙱᑎᖕᒋᑦ, ᐊᒻᒪᓗ ᓄᓇᓖᑦ ᐊᐅᓛᕐᓂᖃᕐᕕᒋᔭᖕᒋᓐᓂᑦ. ᐱᓂᐊᕐᓂᐅᔪᑦ ᐊᑐᖅᓗᑎᒃ ᐊᒡᓃᑯᒃᑯᑦ ᓱᕐᑯᓯᐊᖕᒋᑦᑐᒥᒃ ᐱᕙᓪᓕᐊᓂᕐᒧᑦ ᐊᑐᐊᒐᒥᒃ, ᐅᖃᓕᒫᒐᙱᖅᑎᑕᐅᔪᑦ ᐊᕐᕋᒍᑕᒫᑦ ᓱᕐᑯᓯᐊᖕᒋᑦᑐᒥᒃ ᐱᕙᓪᓕᐊᓂᖅ ᐅᓂᑉᑳᒥᑦ, ᐊᒻᒪᓗ ᐅᓂᑉᑳᐅᑕᐅᖃᑦᑕᖅᑐᖅ ᐊᕐᕋᒍᑕᒫᖅ ᑭᕙᓪᓕᖅ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖃᑎᒌᓄᑦ, ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᓐᓄᑦ, ᐊᒻᒪᓗ ᐊᕙᑎᓕᕆᔨᒃᑯᓐᓄᑦ.

SOMMAIRE NON-TECHNIQUE - *Sommaire descriptif du Projet tel que fourni par le portail de demande en ligne de la CAN Demande NO. 148297*

La division Meadowbank d'Agnico Eagle Mines Limited (Agnico Eagle) propose de développer la fosse Whale Tail (le Projet), un gisement satellite situé sur la propriété du projet d'exploration Amaruq. Agnico Eagle propose de poursuivre les activités d'exploitation et de l'usine à la mine Meadowbank et d'obtenir l'approbation pour étendre Meadowbank afin d'inclure le développement des ressources provenant du gisement Whale Tail. Agnico Eagle recherche une détermination de conformité de la part de la Commission de l'aménagement du Nunavut et demandera à la Commission du Nunavut chargée de l'examen des répercussions (CNER) de reconsidérer les modalités stipules dans le certificat de projet (No. 004) émis pour la mine Meadowbank. Simultanément avec la reconsidération du certificat de projet par la CNER, Agnico Eagle souhaite obtenir un amendement à la licence d'eau de type A (No. 2AM-MEA1525) de la mine Meadowbank afin d'inclure l'exploitation minière du gisement Whale Tail, ainsi que la construction et les opérations des infrastructures associées de la part de l'Office des Eaux du Nunavut (OEN).

La propriété Amaruq est un site de 408 kilomètres carrés (km^2) localisé sur des terres appartenant aux Inuits environ 150 kilomètres (km) au nord du hameau de Baker Lake et environ 50 km au nord-ouest de la mine Meadowbank dans la région de Kivalliq, au Nunavut. Le gisement sera exploité à ciel ouvert (la fosse Whale Tail) et le minerai sera transporté par camion aux infrastructures approuvées de la mine Meadowbank pour être broyé. Se référer au Volume 1, Figure 1.1-1.

Les installations du Projet consisteront en un campement pour le personnel (c.-à.d. le camp principal), une centrale électrique, un héliport, un atelier d'entretien, un parc de stockage , une halde de stériles, une aire de stockage du minerai, un bassin d'atténuation, un système de traitement de l'eau et d'élimination des eaux usées, des routes de transport, des routes d'accès, une infrastructure de gestion des eaux (c.-à-d. des bassins de stockage, des canaux, des digues, des barrages et des ponceaux), ainsi que la fosse Whale Tail. Se référer au Volume 1, Figure 1.2-1. Dans le cadre de ce développement, Agnico Eagle propose également d'élargir la route d'accès existante destinée à l'exploration pour en faire une route de transport permettant de faire face à l'augmentation de la circulation et au passage des camions de transport. Aucune nouvelle infrastructure n'est requise sur le site actuel de la mine Meadowbank pour appuyer le développement du Projet.

Un montant initial d'environ 8,3 millions de tonnes (Mt) de minerai sera extraites d'une seule fosse à ciel ouvert (la fosse Whale Tail) et traitées sur une période de trois à quatre ans de vie de la mine. Le minerai du gisement Whale Tail sera séparé par teneur, puis concassé à même le site. Après quoi il sera transporté vers la mine Meadowbank pour être broyé. Le taux de broyage sera d'environ 9 000 à 12 000 tonnes par jour.

Agnico Eagle propose de traiter le minerai de Whale Tail et de disposer de la boue des rejets miniers à l'installation d'entreposage des rejets (IER) actuelle de la mine Meadowbank, ce qui est autorisé en vertu du certificat de projet actuel et du permis d'utilisation des eaux de Classe A. Les activités de la mine généreront approximativement 8,3 Mt de rejets miniers, 46,7 Mt de stériles miniers et 5,8 Mt de morts-terrains, avec très peu de matières organiques. Les rejets produits par le traitement du minerai de Whale Tail seront répartis sur l'empreinte actuelle de l'IER. De manière plus spécifique, les rejets miniers seront stockés à l'intérieur de l'empreinte actuelle d'IGR de la cellule sud et en construisant une structure interne dans l'IGR de la cellule nord. Ni l'empreinte des installations, ni la nature chimique des rejets et de l'eau

de procédé ne devraient subir de changements importants par rapport aux opérations actuelles. Les rejets miniers de Whale Tail nécessiteront les mêmes mécanismes de contrôle environnemental à long terme que ceux actuellement approuvés pour Meadowbank.

Approximativement 2,5 Mt de roche stérile seront utilisés pour les activités de construction telles les routes, les aires de stockage et les installations de gestion des eaux (ex. : digue, berme, enrochement, etc.). La balance de la roche stérile et du matériel de morts-terrains sera transportée à la halde de stériles de Whale Tail, laquelle est située au nord-ouest de la fosse Whale Tail. Une seconde aire de stockage pour les morts-terrains, temporaire, à des fins d'étagement, est située à l'ouest du lac Whale Tail. La roche stérile et le morts-terrains seront disposés ensemble dans l'une des deux piles constituant l'installation de stockage.

Le Projet sera soutenu en utilisant les exigences en transport déjà existantes, en se remettant au transport maritime pour la majorité des approvisionnements nécessaires, les aéronefs pour certaines fournitures et le transport des employés, ainsi que l'or doré produit par l'usine de Meadowbank. La route d'accès praticable par tous les temps (AWAR) de Meadowbank continuera de fourniture l'approvisionnement transporté à partir des installations actuelles de triage de Baker Lake vers la mine de Meadowbank. Les composantes opérationnelles actuelles incluent les installations de triage à Baker Lake et l'AWAR de 110 km entre Baker Lake et la mine de Meadowbank. Agnico Eagle propose d'améliorer la route d'accès à l'exploration précédemment permise pour Amaruq et d'en faire une route de transport qui soutiendra le développement de la fosse Whale Tail et qui permettra le transport nécessaire entre la fosse Whale Tail et l'usine de Meadowbank. Aucun changement n'est proposé pour l'AWAR de Meadowbank jusqu'à Baker Lake.

La construction du site du gisement Whale Tail débutera aussitôt que les approbations et les permis seront reçus (probablement au début 2018) et ultimement, la pleine production sera atteinte en 2019. La phase opérationnelle s'étalera sur trois à quatre ans, de l'An 1 (2019) à l'An 4 (2022). Les activités d'extraction sont présentement prévues pour se terminer durant l'An 3 (2021) et le traitement du minerai devrait se terminer durant l'An 4 (2022). La fermeture aura lieu de l'An 4 (2022) à l'An 11 (2029) après la complétion de l'extraction et inclura le retrait des infrastructures non-essentielles sur le site et l'inondation de la fosse à ciel ouvert épuisée, ainsi que le rétablissement du niveau d'eau naturel du lac Whale Tail. En prolongeant la durée de vie de la mine de Meadowbank, Agnico Eagle fermera progressivement des portions de la mine de Meadowbank tout en poursuivant ses activités.

Les objectifs principaux pertinents à la gestion de l'eau sont de limiter et/ou d'arrêter le débit du ruissellement des eaux de surface dans la fosse et de limiter l'impact sur l'environnement local. Se référer à la Figure 1.2-1. En développant le Plan de gestion de l'eau, les principes suivants ont été suivis :

- conserver les différents types d'eau séparés les uns des autres le plus possible;
- contrôler et atténuer les eaux de contact par le biais de la dérivation et du confinement;
- réduire la consommation d'eau potable en recyclant et en réutilisant l'eau de procédé et l'eau de contact chaque fois que cela est possible; et
- satisfaire aux critères de déversement avant que toute eau de contact ne soit évacuée dans l'environnement en aval.

Les infrastructures de gestion des eaux incluent des bassins de stockage des eaux de contact, des bassins de stockage de l'eau potable, des canaux de dérivation, des digues de retenue, des barrages, des ponceaux, une usine de traitement de l'eau pour l'effluent, une usine de traitement de l'eau potable, une usine de traitement des eaux usées et un diffuseur des rejets. Toutes les eaux de contact présentes sur le site seront redirigées vers un bassin d'atténuation. Les eaux de contact seront traitées puis déversées dans le lac Mammoth à travers un diffuseur des rejets.

Afin de permettre l'extraction minière du gisement Whale Tail, le lac Whale Tail sera partiellement asséché une fois que la digue Whale Tail aura été construite. À la suite de la complétion des activités d'extraction, la fosse à ciel ouvert sera remplie grâce au ruissellement naturel et l'eau sera pompée à partir du lac Whale Tail (bassin sud) vers la fosse Whale Tail. Les bassins nord et sud du lac Whale Tail devraient atteindre le même niveau d'élévation en huit ans (2029). La digue Whale Tail et la digue Mammoth seront percées lorsque les résultats de surveillance de la qualité de l'eau satisferont aux critères de déversement en vertu des conditions du permis d'utilisation des eaux de Type A de l'OEN, afin de permettre à l'eau de revenir à ses modèles de débit naturel en aval.

Le Projet a été conçu pour minimiser les zones de perturbation en surface, stabiliser les surfaces de terre perturbées contre l'érosion et retourner la terre à une utilisation post-extraction minière afin de rétablir les activités traditionnelles et l'habitat faunique. Cela sera principalement atteint en asséchant rapidement au cours de la saison des eaux libres, en effectuant les activités d'extraction minière dans la fosse le plus efficacement possible, puis en remplissant le plus tôt possible la fosse au cours de la fermeture. La surveillance environnementale post-fermeture se poursuivra jusqu'à ce qu'il soit vérifié que la remise en état convient adéquatement aux objectifs de fermeture et de remise en état.

Les programmes de référence de base ont été complétés pour le Projet et ont inclus la collecte de données concernant l'environnement physique (c.-à-d. le terrain et les sols, le pergélisol, la géochimie, le bruit, et la quantité et la qualité des eaux de surface), l'environnement biologique (c.-à-d. la végétation, la faune terrestre et les oiseaux, ainsi que les poissons et autres organismes aquatiques), et l'environnement culturel (c.-à-d. IQ, archéologie et paramètres socio-économiques) en soutien de l'évaluation environnementale et de la demande d'amendement au permis d'utilisation des eaux de Type A. Agnico Eagle a procédé à une évaluation environnementale afin d'identifier et d'évaluer les impacts environnementaux et sociaux résultant du Projet. Il est prévu que l'amendement à l'Énoncé des incidences environnementales (EIE) et l'amendement au permis d'utilisation des eaux de Type A seront soumis à l'OEN et à la CNER en juin 2016, au moment de la décision sur la détermination de la conformité de la part de la Commission d'aménagement du Nunavut (CAN). Les résultats de l'évaluation environnementale ont démontré qu'avec une atténuation, la fosse Whale Tail, la route de transport de Whale Tail et le prolongement de la mine de Meadowbank n'occasionneront pas d'effets négatifs importants à long terme en raison de la construction, des opérations et de la fermeture envisagées.

Agnico Eagle a développé les programmes de surveillance et de gestion requis pour atténuer, surveiller et signaler sa performance environnementale par rapport aux exigences réglementaires stipulées par les autorisations d'opérations, permis, licences et baux de Meadowbank conformes aux exigences légales des lois et règlements applicables au Nunavut. Les plans actuels de gestion et de surveillance la mine de Meadowbank ont été mis à jour ou des addenda ont été ajoutés pour refléter le Projet et ils seront soumis dans le cadre de l'EIE et des amendements au permis d'utilisation des eaux en juin 2016. Le rendement des plans de gestion sera surveillé périodiquement et les résultats seront communiqués. Des experts en

la matière ou des consultants indépendants pourraient être embauchés afin de réviser la performance, si nécessaire. L'exactitude des prédictions des impacts environnementaux et de l'efficacité des mesures d'atténuation sera vérifiée par la surveillance et le dépôt des rapports annuels. Si des impacts environnementaux négatifs inhabituels ou inattendus sont remarqués, une action corrective sera mise en place. Grâce au processus de gestion adaptative, les mesures d'atténuation actuelles seront ajustées ou de nouvelles mesures d'atténuation seront mises en œuvre, au besoin. Des rapports externes seront achevés, tel que requis.

Un objectif clé du programme d'implication et de consultation publique d'Agnico Eagle fut de garantir que la Compagnie obtienne un « permis social d'exploitation », en assurant le soutien d'une majorité de résidents des collectivités locales potentiellement touchées. Depuis que les activités de la mine de Meadowbank ont débuté, Agnico Eagle a poursuivi la consultation publique en rencontrant annuellement les collectivités et les parties prenantes locales dans la région de Kivalliq, ainsi que régulièrement les organismes de réglementation et les employés locaux, ce qui a permis une meilleure compréhension générale des droits, intérêts, valeurs, aspirations et inquiétudes des parties prenantes potentiellement touchées, avec une référence particulière à la collectivité locale la plus concernée, soit Baker Lake. À travers cette consultation continue, Agnico Eagle a développé une culture opérationnelle qui reconnaît et respect ces intérêts pertinents dans les processus de planification et d'opération. Agnico Eagle a consulté les parties prenantes locales et les organismes de réglementation en ce qui concerne les activités d'exploration actuelles à Amaruq et la fosse Whale Tail proposée, en tant que prolongement de la mine Meadowbank.

La consultation et les discussions sur l'engagement réglementaire furent également considérées dans le cadre de l'évaluation des solutions de rechange. Les solutions de rechange qui forment le Projet global incluent la décision pour/contre, le gisement, la méthode d'extraction et le taux de production, le confinement du minerai traité et le stockage des rejets miniers, l'élimination des morts-terrains et de la roche stérile, la gestion de l'eau, le développement des carrières et de l'accès aux transports, ainsi que le soutien des infrastructures.

Agnico Eagle est une grande société minière avec une réputation établie en matière de durabilité et de succès économique au Nunavut. Son succès est basé sur l'exploration au niveau de la base et la reconnaissance du potentiel dans les secteurs qu'elle explore. Agnico Eagle est déterminé à créer de la valeur pour ses actionnaires en menant ses activités de manière sécuritaire et responsable aux niveaux social et environnemental, tout en contribuant à la prospérité de ses employés, de leurs familles, et des collectivités au sein desquelles ils travaillent. Ces engagements basés sur la Politique de développement durable d'Agnico Eagle, sont publiés dans le Rapport de développement durable annuel, et sont rapportés annuellement à l'Association inuite de Kivalliq, l'OEN et la CNER.

ATTACHMENT E:

EXECUTIVE SUMMARIES

INTRODUCTION

Agnico Eagle Mines Limited – Meadowbank Division (Agnico Eagle) would like to mine and mill for three to four more years by developing an open pit mine called the Whale Tail Pit, located on the Amaruq Exploration property, 50 km from the Meadowbank Mine. Agnico Eagle would truck the ore from Whale Tail Pit to the Meadowbank Mine to mill the ore so that the mine can stay running and keep jobs at the Meadowbank Mine. Therefore, Agnico Eagle is asking Nunavut Impact Review Board (NIRB) to reconsider the Project Certificate. Agnico Eagle would also like amend the existing Water Type A Licence to include mining of Whale Tail Pit and the construction and operations the supporting infrastructure from the Nunavut Water Board (NWB).

PROJECT DESCRIPTION

At the Whale Tail Pit, there will be an open pit, camp for people, power plant, heli-pad, maintenance shop, tank farm, a place to store the waste rock and a place to store the ore, a pond for mine site water (i.e., the water that comes into contact with various parts of the mine), a system to treat water and sewage, haul roads, access roads, and collection ponds, channels, dikes, dams, and culverts to control all the water on the site. There is one long haul road between the Whale Tail Pit and Meadowbank Mine that will take the ore from the open pit to the mill so it can be milled and turned into gold.

Agnico Eagle plans to mine 8.3 million tonnes (Mt) of ore, rock containing gold, from one open pit for three to four years. Agnico Eagle will process the rock at the existing Meadowbank mill and put the tailings slurry at the existing tailing storage facility. The mine operation will generate approximately 8.3 Mt of tailings, 46.7 Mt of mine waste rock, and 5.8 Mt of soil. The rock and soil will be kept at the Whale Tail site. The tailings storage facility at Meadowbank Mine will not be larger than it is now, but part of it will get higher. The tailings will be almost the same as the tailings are now.

The goal to managing water is to limit and/or stop the flow of water in the pit or piles of mined rock to limit the impact on the local environment. In developing the plan for water management Agnico Eagle considered the following:

- keep the different water types separated as much as possible;
- control and reduce mine site water by keeping clean water away from the mine and containing the site water;
- reduce the amount of fresh water needed by recycling and reusing water as much as possible; and
- make sure the mine site water is safe before it is released to the natural environment.

To develop the Project some water will be moved around to allow for mining of the open pit. Water will be removed from a part of Whale Tail Lake and Mammoth Lake. When the mine closes all the dikes and water diversions will be removed and the Whale Tail Lake and Mammoth Lake will have similar amounts of water as they do now. The open pit will also be flooded.

Agnico Eagle strongly believes that taking into account its past performance and the current design of the Project, the company is financially able to complete the mining of the Whale Tail Pit, to lessen any negative impacts, and to maintain and restore the site in the event of closure.

CONSULTATION

A key goal of Agnico Eagle's public consultation and engagement program has been to ensure that Agnico Eagle has the support of many people who could be affected by the mine. Since operations of Meadowbank Mine began, Agnico Eagle has met with the community and with local stakeholders within the Kivalliq Region regularly. Agnico Eagle has documented when, where, how, why, and with whom it conducted consultation. In addition, Agnico Eagle has documented how the information collected from participants was used. Agnico Eagle has consulted with local stakeholders and regulators regarding the current Amaruq exploration activities and the proposed extension to the Meadowbank Mine by operating at Whale Tail Pit.

INUIT QAUJIMAJATUQANGIT

The Inuit Qaujimajatuqangit (IQ) collected included knowledge on the existing condition, concerns on the various project impacts, and recommendations for the Whale Tail Pit and Haul Road. Knowledge of the existing conditions is included in baseline reports or environmental setting portions of this FEIS Amendment. Concerns on the various impacts are included as part of the effects assessments and recommendations are considered when developing mitigation and monitoring plans.

Much of the IQ collected for the Project has been collected over time through consultation on the Meadowbank Mine, in formal IQ workshops, in consultation meetings, through informal acquisition of IQ by working with local field staff and are generally focused on wildlife and fish species, as well as access to the land and cultural areas.

BASELINE STUDIES

Baseline studies at the Whale Tail Pit and Haul Road have been completed for noise, terrain, soils and permafrost, wildlife and vegetation, geochemistry (describes the metals that are inside the rocks), groundwater (the water that is underground), surface water quantity, water quality, IQ, fish, and archeology (the study of old artifacts on the landscape and also known as heritage resources). Baseline studies were completed at the Meadowbank Mine prior to construction. Monitoring has been ongoing for 20 years through Meadowbank Mine operations; this information has been used to inform the Whale Tail Pit environmental assessment.

IMPACT ASSESSMENT METHODS

Valued components (VCs) are the most important parts of the environment to a particular region, community, or to society as a whole. The VCs for the assessment included climate, air quality, noise, permafrost, vegetation, terrestrial wildlife and birds (musk ox, grizzly bear, wolverine, and wolves, raptors, waterbirds, upland birds), surface water quality, surface water quantity, fish and fish habitat (Arctic Char, Lake Trout, Round Whitefish, and Arctic Grayling), archaeology, traditional land use, employment, training, business opportunities, community wellness, and infrastructure and social services.

The assessment of potential Project effects looked at the potential effects over time and space. It looked at the potential effects near to the Project, in a larger area around the Project and even larger area within the region including potentially all of Nunavut.

The effects assessment was based on data and professional judgement. Available IQ and community information was also used. The following were used to assess environmental significance of a potential Project effect:

- how big, how far, and how long an effect will last;

- project design or mitigations to limit or avoid potential effects;
- environmental or socio-economic context/value, including the current “state of health” of ecosystems;
- historical, cultural, and archaeological significance of the geographic area likely to be affected by the Project; and
- value attached to the individual VC, based on consultation with potentially affected communities and relevant individuals and organizations.

KEY PROJECT ELEMENTS AND FINDINGS OF ENVIRONMENTAL IMPACT STATEMENT

Climate

Climate change is a concern for Elders and land users because the unpredictability of weather conditions has resulted in a lack of confidence in using traditional knowledge to predict weather. Inuit are also concerned about the potential effects of climate change to vegetation, wildlife, fish, and other traditional resources.

Gases that cause climate change (i.e., greenhouse gasses) from Nunavut are low because there is not many people and not many cities or industries compared to the rest of Canada. Development of the Whale Tail Pit and emissions from traffic along the Haul Road to Meadowbank Mine are predicted to result in a 56% increase in emissions in Nunavut from gases that cause climate change. When compared to Canada’s national emissions the Project does not increases the emissions from gasses that cause climate change by very little (<1%). This means that the operation of the Whale Tail Pit won’t affect climate change much because it is only operating for a few years.

Air Quality

There will be some emissions from the processing plant at the Meadowbank Mine, from traffic along the Haul Road and from vehicles at the Whale Tail Pit. The air quality is not expected to be much different than it is now and while there will be some emissions on most days they will be below the guidelines. There will be some dust from the Haul Road and will be similar to the effects from dust on the existing All-Weather Access Road. When the mine closes the effects from dust and effects from emissions will stop.

Noise

During construction, operation, and closure there will be noise from the Whale Tail Pit, Haul Road, and the existing Meadowbank Mine. The noise will be similar to what it is now along the All-Weather Access Road and at the Meadowbank Mine. Agnico Eagle will follow the guidelines when blasting so that noise and vibration from the open pit will not affect fish.

Permafrost

Permafrost, or permanently frozen land, is expected to retreat into the edges of the open pit. The temporary flooding of Whale Tail Lake (South Basin), and of some of the lakes that flow into Whale Tail Lake during construction and operations, is not expected to change the amount of permafrost much from current conditions near these lakes.

Soil and Terrain

Site clearing and construction, through soil stripping and storage, will result in changes to soil quantity, distribution, and structure and changes to terrain. Erosion will occur during construction due to removal of the vegetation cover. Most soils in the area are rated as having moderate erosion potential. Erosion may occur but will be confined to the area of the Whale Tail Pit and Haul Road.

Vegetation

Vegetation will be removed in all construction areas of the Whale Tail Pit and Haul Road. Some of the vegetation around Whale Tail Lake (South Basin) and of some of the lakes that flow into Whale Tail Lake, will be flooded during construction and operations. Dust may also fall on vegetation areas near roads during operations when roads are not covered in snow.

While there will be some permanent loss of some vegetation where Whale Tail Pit is, once the mine is closed other vegetation will grow back, but it might not be the same. However, because the Whale Tail Pit is taking up a small area the amount of vegetation that is lost is low. Keeping the mine infrastructure as close together as possible, and controlling dust and emissions, will reduce possible change on vegetation.

Terrestrial Wildlife and Birds

Possible effects to wildlife include going around the Whale Tail Pit and Haul Road because of noise and traffic, loss of habitat from construction, difficulty cross it, and eating vegetation covered by dust. Some bird nesting habitat will be lost near the shoreline of Whale Tail Lake (South Basin) due to flooding. Eskers are important for denning and some eskers will be used to build the road, but to protect wildlife, before the esker is used it build the road it will be checked for wildlife dens. The population of wildlife who den is eskers is low and the landscape around the Whale Tail Pit and Haul Road has lots of other eskers that can be used.

While some caribou habitat will be lost, it is a small part of their large range. The total preferred habitat for caribou that is predicted to be lost by the footprint of Whale Tail Pit and the Haul Road is 2% of the available habitat in the local study area and less than 0.2% for the regional study area. Some caribou may change where they were walking to a different place to avoid a part of the Haul Road or they may stop and take some time to cross it. It is expected that caribou will act similar to how they do now around the Meadowbank Mine and along the all-weather access road. Once the mine closes, there will be no remaining traffic and the Haul Road will be removed. It is anticipated that caribou will cross the road freely following closure (i.e., medium-term) and that the impact will be reversed at this time.

Overall, while some individual animals will be effected by the Whale Tail Pit and Haul Road, the populations are expected to continue to remain healthy.

Surface Water Quantity

The Project can change the water level of nearby lakes by adding dikes to redirect the direction of flow and pumping water from one lake to another.

Whale Tail Lake will be separated into two sections by the Whale Tail Dike that will include Whale Tail Lake (North Basin), and Whale Tail Lake (South Basin). The water from Whale Tail Lake (North Basin) will be pumped out to Whale Tail Lake (South Basin) and Mammoth Lake, during construction. Pumping to Mammoth Lake will only happen during open water to prevent erosion of its channel. Water from Whale Tail Lake (South Basin) will

be pumped into Whale Tail Lake (North Basin) and the water level of Whale Tail Lake (South Basin) will return to normal when the mine is closed.

Whale Tail Lake and Mammoth Lake will be separated by the Mammoth Dike during the life of the mine. During construction and closure, there will be less water flowing into Mammoth Lake and the water levels of Mammoth Lake will lower. But while the mine is operating, the water levels of Mammoth Lake will be close to normal. At the end of closure the Mammoth Dike will be removed to bring the water levels of all lakes back to normal.

Surface Water Quality

The Project can change the water quality of local lakes from air emissions (for example, operations of diesel powered equipment, blasting, and transportation along the haul roads), flooding that adds mercury in the water, and the discharge of wastewater into lakes.

Based on the air quality assessment the effects to water quality from dust and emissions will be so small that they will be hard to measure. Whale Tail Lake (South Basin) will be flooded during construction and operations which will decompose vegetation and temporarily reduce water quality in Whale Tail Lake but because it is for a short period of time, the increase in mercury in the water should be low. However it will be monitored. Wastewater will be discharged into Mammoth Lake during operations, which will change the water quality of lakes receiving water from Mammoth Lake until post-closure by mostly increasing the nutrients in the water (i.e., phosphorus), which typically means that the lake gets more algae in it.

Lakes that have been identified as culturally important (e.g., Innugugayualik and Pipedream lakes) will not be affected by discharge of treated mine water.

Fish and Fish Habitat

The Project can change fish habitat by pumping water out of Whale Tail Lake (North Basin), the construction of dikes (which prevent fish passage between lakes and streams), flooding of lakes and streams, changes in lake water levels, and changes in water quality.

During construction, dikes will be constructed to remove water from Whale Tail Lake (North Basin). Fish will be removed from Whale Tail Lake (North Basin) before it is pumped out. The Whale Tail and Mammoth dikes will be constructed in water. The North East dike will be partially constructed in water. The open pit in Whale Tail Lake (North Basin) will permanently reduce fish habitat. Dikes will also prevent fish passage until they are breached at the end of closure. Whale Tail Lake (South Basin) will be flooded during construction and operations, reducing stream habitat. Lower water levels are expected in Mammoth Lake and other lakes downstream during construction and closure, reducing available area for fish to eat and for young fish to live. Nutrient levels are expected to increase in Mammoth Lake and downstream lakes which could result in an increase in plankton (i.e., algae) during operations and closure. Oxygen levels could be reduced in the water during closure, which can affect egg survival, and the amount suitable habitat for Arctic Char, Lake Trout, and Round Whitefish spawning and for their young fish to live. These effects are expected until the dikes are breached and water quality conditions return to normal at post-closure.

Most of the effects are regional, and while measurable effects are expected to individual fish populations, the risk to the overall fishery is low. Agnico Eagle will create a plan that offsets habitat loss with the goal of maintaining or improving the fishery.

Heritage Resources

During the planning process for the road, Agnico Eagle learned of heritage resource sites that were of value to the Inuit and re-routed the road to avoid as many sites as possible. Therefore 15 of 19 archaeological sites in the area of Whale Tail Pit and the Haul Road are not impacted. The remaining four sites (two campsites, a blind and a marker) are within the approved Amaruq Exploration Access Road or borrow source boundaries.

Agnico Eagle will document the sites and mitigate them as told to by the Nunavut Department of Culture and Heritage. At the campsites and blind three sites data will be recovered by using as detailed site mapping, mapping of individual stone features, collection of artifacts, shovel testing, archaeological excavation, and/or community consultation, as appropriate. Therefore heritage resources and the knowledge from heritage resources will be maintained.

Traditional Land Use

The Traditional Land and Resource Use Assessment identifies the importance of caribou, fur bearers, birds, fish, and plants and berries in the traditional way of life of the Inuit. The importance of cultural and spiritual areas (trails, camps, cabins, caches, and graves) in the preservation of traditional values, and the transfer of traditional knowledge and IQ between generations, is also highlighted.

The assessment determined that Project activities could affect people's access to wildlife harvesting, fishing, plant harvest, and using culturally important sites by disturbing area that people use, by reducing the populations that people fish and hunt and through economic factors limiting people's ability to go out on the land.

The Project is not expected to change opportunities for harvesting furbearers, because Arctic wolf, wolverine, or grizzly bear, and preferred Arctic fox trapping areas are typically in close to Baker Lake and not affected by the Whale Tail Pit. People will also be able to continue to harvest birds and fish for preferred fish because preferred harvesting areas and fishing spots will not be impacted by the Whale Tail Pit.

Hunting caribou is an important part of the way of life for the Inuit. While, the Whale Tail Pit and Haul Road may change caribou how caribou move in the area and have an effect for some individuals on where they hunt. Jobs and change in economics also affect the ability to hunt because it can make it more difficult to go out on the land but it can provide resources to help pass hunting knowledge to youth. It is expected there will still be lots of caribou to hunt.

Socio-Economics

The expansion of the Meadowbank Mine to Whale Tail Pit will provide jobs at the Meadowbank Mine by three to four years more years to the local population of Baker Lake and other Kivalliq communities, and indirect employment opportunities to others in Nunavut. For most people in communities, health status will improve, families may have more resources, and households will have more opportunities to save; however, people will need to manage their money carefully, and new workers will need to adjust to spending less regular time with their families and traditional activities. Increasing the life of mine can have both positive and negative effects on worker and community health and safety. It has the potential to result in negative impacts on family and community cohesion from a wage economy that has some members working rotations and families or individuals in families have different economic statuses.

The Project is anticipated to have a number of positive effects, specifically a positive effect on the GDP, tax revenues, local business development, jobs and training, incomes, and well-being related to income to spend as

people choose, community contributions, and the continuation of agreements between Agnico Eagle and the communities that are designed to help the communities. The most important income effect will be three to four more years of high paying wage employment from Meadowbank Mine.

Changes to socio-economics in the Project area are mainly expected to be positive and to last until the mine is closed.

MITIGATION MEASURES

Agnico Eagle will continue to have management plans and monitoring plans and a system to manage effects that is similar to what is done at Meadowbank Mine. The system consists of three key parts: environmental management plan that links to all aspects of the mine, a formal environmental awareness program, on-going environmental monitoring and the sharing of monitoring results through thorough annual reporting. Examples of monitoring programs planned for Whale Tail Pit include:

- Monitoring air quality, dustfall, and noise.
- Monitoring programs for permafrost, soils, and vegetation and wildlife will include permafrost and soil condition, esker surveys to identify dens, dust monitoring along the Haul Road, and wildlife monitoring.
- Monitoring water quantity, quality, and fish.
- Continuing to engage with individuals in the communities to incorporate IQ.

CLOSURE

Agnico Eagle plans to leave the Whale Tail Pit in a physically and chemically stable project footprint for the long-term protection of the environment and people of Nunavut. Most closure activities will occur over a three year period with passive closure to be maintained until all water management infrastructure is breached/removed after which a period of post-closure will be observed to confirm physical and chemical stability. Monitoring will occur until it is confirmed that the water is safe for release to the natural environment and to ensure that the natural environment is protected.

ᑐᑭᓯᑎᑦᑎᓂᖅ

ᐊᒡᓃᑯ ᐃᒍ ᐅᔭᕋᓐᓂᐊᖅᑏᑦ ᓕᒥᑎᑦ - ᐊᐳᖅᑎᓐᓇᖅᑐᒥᑦ (ᐊᒡᓃᑯᒃᑯᑦ) ᐅᔭᕋᓐᓂᐊᕈᒪᔪᑦ ᐊᒻᒪᓗ ᓯᖃᓪᓕᑎᕐᓗᒋᑦ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ ᓄᓇᒥᑦ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᓗᑎᒃ ᑕᐃᔭᐅᔪᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ, ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᕝᕕᒃ ᐱᒋᔭᐅᔪᒦᑦᑐᖅ, 50 ᑭᓛᒥᑕᓂᒃ ᐅᖓᓯᒃᑎᒋᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᓄᓇᒃᑰᕈᑎᒃᑯᑦ ᐊᒡᔭᖅᑐᖃᑦᑕᕋᔭᖅᑕᖏᑦ ᐅᔭᕋᓐᓂᐊᖅᑕᖏᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᖅ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒧᑦ ᓯᖃᓪᓕᑎᕐᓗᒋᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᒃ ᐊᐅᓛᖏᓐᓇᕈᓐᓇᕐᓂᐊᕐᒪᑦ ᐊᒻᒪᓗ ᐱᓕᕆᔨᖃᐃᓐᓇᕐᓗᑎᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ. ᑕᐃᒪᓐᓇᒧᑦ, ᐊᒡᓃᒃᑯᑦ ᐊᐱᕆᔪᑦ ᓄᓇᕗᒻᒥ ᐊᕙᑕᓕᕆᔨᒃᑯᓐᓄᑦ (NIRB) ᐃᓱᒪᒃᓴᖅᓯᐅᕈᑎᖃᒃᑲᓐᓂᕐᑯᐸᓗᒋᑦ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᑯᑕᕐᒥᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᐋᕿᒋᐊᖅᓯᔪᒪᖕᒥᔪᑦ ᑕᐃᒪᐅᔪᒥᑦ ᐃᒪᕐᒧᑦ Type A ᓚᐃᓴᓐᓯᒥᒃ ᐃᓚᐅᑎᓪᓗᒍ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᓴᓇᔭᐅᓂᖓ ᐊᐅᓛᖅᑎᓐᓂᖓᓗ ᐱᕐᑯᑎᒋᔭᐅᔪᓂᒃ ᓄᓇᕗᒻᒥ ᐃᒪᓕᕆᔨᒃᑯᓐᓂᑦ (NWB).

ᐱᓕᕆᐊᖅ ᖃᓄᐃᑦᑏᓂᖓ

Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ, ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᖃᕐᓂᐊᖅᑐᖅ, ᓄᓇᓕᐊᓛᒥᒃ ᐃᓄᖕᓄᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᒥᒃ, ᕐᑯᓕᒥᒍᓕᖕᒧᑦ ᑐᙵᕕᖕᒥᑦ, ᐋᕿᒃᓱᐃᕝᕕᖕᒥᑦ, ᐅᖅᓱᐊᓗᖃᐅᓯᕝᕕᖕᒥᑦ, ᑐᖅᑯᖅᓯᕝᕕᖕᒥᑦ ᐊᒃᑕᑰᖅᑕᐅᔪᓂᒃ ᐅᔭᖅᑲᓂᒃ ᐊᒻᒪᓗ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᖕᒥᑦ ᐅᔭᕋᓐᓂᐊᖅᑕᐅᔪᓂᒃ, ᑕᓯᕋᔭᖕᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᐅᑉ ᐃᒪᖓᓄᑦ (ᓲᕐᓗ ᐃᒪᖅ ᐱᔭᐅᔪᑦ ᐊᑐᖅᑕᐅᑉᓗᓂ ᐊᔾᔨᒌᖏᑦᑐᓄᑦ ᐃᓚᒋᔭᐅᔪᓄᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒧᑦ), ᐋᕿᐅᒪᔪᖅ ᐱᓕᕆᐊᕆᓂᕐᒧᑦ ᐃᒪᖅ ᐊᒻᒪᓗ ᖁᕐᕕᖕᒥᙱᖅᑐᑦ, ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᓂᒃ, ᐊᑉᖁᑎ ᐊᑐᖅᑕᐅᓲᖅ ᓯᐅᕋᖅᑕᖅᑎᓄᑦ, ᐊᒻᒪᓗ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ ᑕᓯᕋᔭᖕᓂᑦ, ᓱᑉᓗᓂᒃ, ᐃᒪᕐᓄᑦ ᓴᖑᑎᑦᑎᔾᔪᑎᓂᒃ, ᓱᑉᓗᓂᒃ ᐊᑐᕐᓂᐊᖅᑐᓂᒃ ᐃᒪᓗᒃᑖᓂᒃ ᐃᓂᐅᔪᒥᑦ. ᐊᑕᐅᓯᕐᒥᑦ ᑕᑭᔪᒥᒃ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᑕᖃᕐᓂᐊᖅᑐᖅ ᐊᑐᖅᑕᐅᔪᒥᒃ ᐊᑯᓐᓂᖏᓐᓂᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑑᑉ ᐅᔭᕋᓐᓂᐊᖅᑕᐅᔪᑦ ᐱᔭᐅᓗᑎᒃ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᓯᖃᓪᓕᑎᕆᕝᕕᖕᒧᑦ ᐊᒻᒪᓗ ᒎᓗᙳᖅᑎᑕᐅᓗᑎᒃ.

ᐊᒡᓃᑯᒃᑯᑦ ᐅᔭᕋᑦᑕᕈᒪᔪᑦ 8.3 ᒥᓕᔭᓐ ᑕᓐᓂᒃ (Mt), ᐅᔭᖅᑲᐃᑦ ᒎᓗᖅᑐᑦ, ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᐱᓕᕆᐊᕆᓂᐊᖅᑕᖓᑦ ᐅᔭᖅᑲᐃᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᓯᖃᓪᓕᑎᕆᕝᕕᖕᒥᑦ ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᑦ ᐃᓕᓗᒋᑦ ᕿᒪᒃᑎᑦᑐᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᖕᒧᑦ. ᐅᔭᕋᓐᓂᐊᕐᕕᒃ 8.3 Mt-ᓗᐊᓂᒃ ᕿᒪᒃᑎᑦᑐᓕᐅᕐᓂᐊᖅᑐᖅ, 46.7 Mt-ᓂᒃ ᐊᒃᑕᑰᖅᑕᐅᔪᓂᒃ ᐅᔭᕋᓐᓂᐊᖅᑕᐅᔪᓂᒃ, ᐊᒻᒪᓗ 5.8 Mt-ᓂᒃ ᐃᑉᔪᓂᒃ. ᐅᔭᖅᑲᐃᑦ ᐊᒻᒪᓗ ᐃᑉᔪᐃᑦ Whale Tail ᐃᓂᖓᓃᑎᑕᐅᓂᐊᖅᑐᑦ. ᕿᒪᒃᑎᑦᑎᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒦᑦᑐᖅ ᐊᖏᓂᖅᓴᐅᓕᔾᔭᖏᑦᑐᖅ ᒫᓐᓇᐅᔪᖅ ᐊᖏᓂᕆᔭᖓᓂᑦ, ᑭᓯᐊᓂ ᐃᓚᒋᔭᖓ ᖁᑦᑎᖕᓂᖅᓴᐅᓕᕐᓂᐊᖅᑐᖅ. ᕿᒪᒃᑎᑦᑐᑦ ᐊᔾᔨᕐᓚᑦᑎᐊᕆᓂᐊᖅᑕᖓ ᒫᓐᓇᐅᔪᖅ ᕿᒪᒃᑎᑦᑐᓂᑦ.

ᑐᕌᒐᐅᔪᖅ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐃᒪᕐᒥᒃ ᑭᒡᓕᖃᖅᑎᓪᓗᒍ ᐊᒻᒪᓗ/ᐅᕝᕙᓘᓐᓃᑦ ᓄᖅᑲᖅᑎᓪᓗᒋᑦ ᑯᕕᔪᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐅᕝᕙᓘᓐᓃᑦ ᑲᑎᓯᒪᔪᑦ ᐊᒃᑕᑰᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐅᔭᕋᓐᓂᐊᖅᑕᐅᑉᓗᑎᒃ ᑭᒡᓕᖃᖅᑎᓐᓂᕐᒧᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᖅ ᖃᓂᑦᑐᒥᑦ ᐊᕙᑎ. ᐱᕙᓪᓕᐊᑉᓗᒍ ᐸᕐᓇᐅᑎ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐃᒪᕐᒥᑦ ᐊᒡᓃᑯᒃᑯᑦ ᐃᒪᓐᓇᐃᑦᑐᒪᔪᑦ:

- ᐊᑉᓯᒪᑎᓐᓇᓱᐃᓐᓇᕐᓗᒋᑦ ᐋᔾᔨᒌᖏᑦᑐᑦ ᐃᒪᐃᑦ;
- ᐊᐅᓚᓪᓗᒍ ᐊᒻᒪᓗ ᒥᒃᓵᒋᐊᕐᓗᒍ ᐅᔭᕋᓐᓂᐊᕐᕕᐅᑉ ᐃᓂᖓᓂᑦ ᐃᒪᖅ ᓴᓗᒪᔪᕐᒥᑦ ᐃᒪᖅᑕᖅᑕᐃᓕᑎᓪᓗᒍ ᐅᔭᕋᓐᓂᐊᕐᕕᒃ ᐊᒻᒪᓗ ᑐᖅᑯᖅᓯᒪᓗᒍ ᐃᓂᐅᔪᒥᑦ ᐃᒪᖅ;
- ᒥᒃᓵᒋᐊᕐᓗᒋᑦ ᐃᒪᑦᑎᐊᕙᐃᑦ ᐊᑐᖅᑕᐅᔭᕆᐊᖃᖅᑐᑦ ᐊᑐᒃᑲᓐᓂᖅᓯᑏᓐᓇᕆᐊᕐᓗᒍ ᐃᒪᖅ; ᐊᒻᒪᓗ
- ᐅᓗᕆᐊᓇᖅᑐᖃᙱᒋᐊᕐᓗᒍ ᐃᒪᖅ ᐃᓂᐅᔪᒥᑦ ᓴᑉᑯᑕᐅᓂᐊᓛᖅᑎᓪᓗᒍ ᓄᓇᒧᑦ.

ᐊᒡᓃᑯᒃᑯᑦ ᐅᒃᐱᕈᓱᑦᑎᐊᖅᑐᑦ ᖃᓄᐃᓕᐅᕐᓂᕆᓯᒪᔭᖓᑦ ᐊᒻᒪᓗ ᒫᓐᓇᐅᔪᖅ ᐋᕿᐅᒪᓂᖓᑕ ᐱᓕᕆᐊᑉ, ᑲᒻᐸᓂᒃᑯᑦ ᑮᓇᐅᔭᖃᕐᓂᒃᑯᑦ ᐱᐊᓂᒍᖕᓇᖅᑕᖓᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ, ᒥᑭᒡᓕᒋᐊᖅᑎᓪᓗᒋᑦ ᓱᓇᑐᐃᓐᓇᐃᑦ ᐱᐅᖏᑦᑐᑦ ᐊᒃᑐᖅᓯᓃᑦ, ᐊᒻᒪᓗ ᐱᓕᕆᐊᕆᓗᒋᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᓪᓗᒍ ᐃᓂᐅᔪᖅ ᖃᓄᐃᓐᓂᕆᕙᓚᐅᖅᑕᖓᓄᑦ ᐅᒃᑯᐊᕋᓂᒃᓯᒪᓕᖅᐸᑦ.

ᐅᖃᖃᑎᖃᖃᑦᑕᕐᓂᖅ

ᑐᕌᖓᑦ ᐊᒡᓃᑯᒃᑯᑦ ᐃᓄᓗᒃᑖᓂᒃ ᐅᖃᖃᑎᖃᕐᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐃᓚᐅᑎᑦᑎᓂᕐᒧᑦ ᑐᕌᖓᔪᖅ ᐊᒡᓃᑯᒃᑯᑦ ᐃᑲᔪᐃᓂᖏᓐᓄᑦ ᐊᒥᓱᓂᒃ ᐃᓄᖕᓂᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᖕᓇᖅᑐᓂᒃ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧ. ᑕᐃᒪᙱᑦ ᐊᐅᓛᕐᓂᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐱᒋᐊᕐᒪᑦ, ᐊᒡᓃᑯᒃᑯᑦ ᑲᑎᖃᑎᖃᖃᑦᑕᖅᓯᒪᔪᑦ ᓄᓇᓕᖕᒥᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᐅᓂᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ ᑭᕙᓪᓕᕐᒥᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᑎᑎᕋᐃᓯᒪᔪᑦ ᖃᖕᒐ, ᓇᓂ, ᖃᓄᖅ, ᓱᖅ, ᐊᒻᒪᓗ ᑭᓇᒥᒃ ᐅᖃᖃᑎᖃᖃᑦᑕᖅᓯᒪᖕᒪᖔᑕ. ᐊᒻᒪᓗ, ᐊᒡᓃᑯᒃᑯᑦ ᑎᑎᕋᐃᖃᑦᑕᖅᑐᑦ ᑲᑎᑕᖏᓐᓂᒃ ᖃᓄᖅ ᑐᑭᓯᐅᒪᔾᔪᑏᑦ ᑲᑎᑕᐅᖃᑦᑕᕐᒪᖔᑕ ᐃᓚᐅᖃᑕᐅᔪᑦ ᒥᒃᓵᓄᑦ. ᐊᒡᓃᑯᒃᑯᑦ ᐅᖃᖃᑎᖃᖅᓯᒪᔪᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ ᒪᓕᒐᓕᕆᔨᐅᔪᓂᒡᓗ ᐱᔾᔪᑎᒋᑉᓗᒍ ᒫᓐᓇᐅᔪᖅ ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐅᐃᒍᒋᐊᖅᓯᓂᐅᔪᒪᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧᑦ ᐊᐅᓛᖅᑎᓐᓂᐊᕐᓗᒍ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ.

ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ

ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ (IQ) ᑲᑎᑕᐅᔪᓂᑦ ᐃᓚᐅᔪᑦ ᖃᐅᔨᒪᓂᖅ ᑕᐃᒪᐅᔪᒥᑦ ᖃᓄᐃᓐᓂᐅᔪᓂᒃ, ᐃᓱᒪᒍᑕᐅᔪᑦ ᐊᔾᔨᒌᖕᒋᑦᑐᐃᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᓂᒃ, ᐊᒻᒪᓗ ᐃᒪᓐᓈᖅᑑᑕᐅᔪᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎ. ᖃᐅᔨᒪᔭᖃᕐᓂᖅ ᑕᐃᒪᐅᔪᓂᒃ ᖃᓄᐃᓐᓂᐅᔪᓂᑦ ᐃᓚᐅᔪᖅ ᑭᒡᓕᕆᔭᐅᔪᓄᑦ ᐅᓂᑉᑳᓂᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐋᕿᒃᓯᒪᔪᓂᑦ ᑕᒡᕙᓂ FEIS-ᒧᑦ ᐋᕿᒋᐊᖅᓯᓂᕐᒥᑦ. ᐃᓱᒪᒍᑏᑦ ᐊᔾᔨᒌᖕᒋᑦᑐᓄᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᓄᑦ ᐃᓚᐅᔪᑦ ᐃᓚᒋᔭᐅᑉᓗᑎᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓄᑦ ᖃᐅᔨᓴᐃᓂᕐᓂᑦ ᐊᒻᒪᓗ ᐃᒪᓐᓈᖅᑑᑕᐅᔪᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᐱᕙᓪᓕᐊᑎᓪᓗᒋᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᓂᑦ.

ᐊᒥᓱᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᓐᓄᑦ ᑲᑎᑕᐅᔪᑦ ᐱᓕᕆᐊᕐᒧᑦ ᑲᑎᑕᐅᓯᒪᔪᑦ ᐅᖃᖃᑎᖃᖃᑦᑕᕐᓂᒃᑯᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᒥᒃᓵᓄᑦ, ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ ᒥᒃᓵᓄᑦ ᑲᑎᒪᓂᕐᓂᑦ, ᐅᖃᖃᑎᖃᕐᓂᕐᒧᑦ ᑲᑎᒪᑎᑦᑎᓂᕐᓂᑦ, ᐱᔭᐅᑉᓗᑎᒃ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ ᐱᓕᕆᖃᑎᖃᖅᓱᓗᑕ ᓄᓇᓕᖕᒥᑦ ᐱᓕᕆᔨᒃ ᐊᒻᒪᓗ ᑕᐅᑐᒐᖃᕋᔪᓗᐊᖅᑐᑦ ᓂᕐᔪᑎᓂᒃ ᐊᒻᒪᓗ ᐃᖃᓗᖕᓂᑦ ᐊᔾᔨᒌᖕᒋᑦᑐᓂᒃ, ᐊᒻᒪᓗ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᓄᓇᒥᒃ ᐊᒻᒪᓗ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐃᓂᐅᔪᓂᒃ.

ᑭᒡᓕᕆᔭᐅᔪᓄᑦ ᖃᐅᔨᓴᐃᓃᑦ

ᑭᒡᓕᕆᔭᐅᔪᓄᑦ ᖃᐅᔨᓴᐃᓃᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒥᑦ ᐱᐊᓂᒃᑕᐅᓚᐅᖅᑐᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ, ᓄᓇᒧᑦ, ᐃᑉᔪᓄᑦ ᐊᒻᒪᓗ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᓄᑦ, ᓂᕐᔪᑎᓄᑦ ᐊᒻᒪᓗ ᐱᕈᖅᑐᓄᑦ, ᐅᔭᖅᑲᓕᕆᓂᕐᒧᑦ (ᓴᕕᕋᔪᐃᑦ ᐅᔭᖅᑲᐃᑦ ᐃᓗᐊᓃᑦᑐᑦ), ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐃᒪᕐᒥᑦ, ᐃᒪᖅ ᖃᑉᓯᐅᑎᒋᖕᒪᖔᑦ, ᐊᒻᒪᓗ ᖃᓄᐃᑎᒋᖕᒪᖔᑦ, ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ, ᐃᖃᓗᐃᑦ, ᐊᒻᒪᓗ ᐃᑦᑕᕐᓂᑕᓕᕆᓂᖅ (ᖃᐅᔨᓴᐃᓂᖅ ᓄᑕᐅᖕᒋᑦᑐᓂᒃ ᐱᖁᑎᓂᒃ ᓄᓇᒦᑦᑐᓂᒃ ᐊᒻᒪᓗ ᖃᐅᔨᒪᔭᐅᖕᒥᔪᖅ ᐱᖅᑯᓯᑐᖃᓂᒃ ᐱᕝᕕᐅᕝᕕᑦ). ᑭᒡᓕᕆᔭᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓃᑦ ᐱᐊᓂᒃᑕᐅᓚᐅᖅᑐᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧᑦ ᓴᓇᔭᐅᓂᐊᓵᖅᑎᓪᓗᒍ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅᑕᖃᐃᓐᓇᖅᑐᖅ ᐅᑭᐅᓄᑦ 20-ᓄᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦᐊᐅᓛᖅᑎᑦᑎᓂᒃᑯᑦ; ᑖᒻᓇ ᑐᑭᓯᐅᒪᔾᔪᑎ ᐊᑐᖅᑕᐅᓯᒪᔪᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ.

ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᕐᓄᑦ ᐊᑐᖅᑕᐅᔪᑦ

ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ (VC) ᐱᒻᒪᕆᐅᓂᖅᐹᖑᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ ᐊᕙᑎᖓᑕ ᐃᓂᐅᔪᒌᑉ, ᓄᓇᓕᖕᒧᑦ, ᐅᕝᕙᓘᓐᓃᑦ ᐃᓅᖃᑎᒌᒃᑐᓄᑦ ᐃᓗᐃᑦᑑᑉᓗᓂ. VC-ᖑᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐃᓚᐅᔪᑦ ᓯᓚ, ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖕᒐ, ᓂᐱᖃᕐᓂᖅ, ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᑦ, ᐱᕈᖅᑐᐃᑦ, ᓄᓇᒥᐅᑕᐃᑦ ᓂᕐᔪᑎᑦ ᐊᒻᒪᓗ ᑎᖕᒥᐊᑦ (ᐅᒥᖕᒪᐃᑦ, ᐊᒃᓚᐃᑦ, ᖃᕝᕕᑦ, ᐊᒻᒪᓗ ᐊᒪᖅᑯᐃᑦ), ᐃᒪᐅᑉ ᖄᖓᑕ ᖃᓄᐃᓐᓂᖕᒐ, ᐃᒪᖅ ᖄᖓᓃᑦᑐᖅ ᖃᑉᓯᐅᓂᖕᒐ, ᐃᖃᓗᐃᑦ ᐊᒻᒪᓗ ᐃᓂᒋᔭᖕᒋᑦ (ᐃᖃᓗᒃᐲᑦ, ᐃᓘᕋᐃᑦ, ᐊᒥᕋᕐᓗᒃᑐᐃᑦ), ᐃᑦᑕᕐᓂᑕᐃᑦ, ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᕐᓂᖅ, ᐱᓕᕆᐊᖃᕐᓂᖅ, ᐊᔪᕈᖕᓃᖅᓴᐃᓂᖅ, ᓇᖕᒥᓂᖃᕐᓂᕐᒧᑦ ᐱᕕᖃᕐᓂᐅᔪᑦ, ᓄᓇᓕᒃ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖓ, ᐊᒻᒪᓗ ᐱᕐᑯᑏᑦ ᐊᒻᒪᓗ ᐃᓄᓕᕆᓂᕐᒧᑦ ᐱᔨᑦᑎᕋᐅᑏᑦ.

ᖃᐅᔨᓴᐃᓂᖅ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓂᒃ ᑕᐅᑐᓚᐅᖅᑐᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓂᒃ ᐅᐸᓗᓂᒃ ᖀᖏᖅᑐᓂᑦ ᐊᒻᒪᓗ ᐃᓂᖃᕐᓂᕐᒥᑦ. ᑕᐅᑐᓚᐅᖅᑐᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓂᒃ ᐱᓕᕆᐊᑉ ᖃᓂᑕᖓᓂᑦ, ᐊᖏᓂᖅᓴᐅᔪᒥᑦ ᐱᓕᕆᐊᑉ ᖃᓂᑕᖓᓂᑦ ᐊᒻᒪᓗ ᐊᖏᓂᖅᓴᒃᑲᓐᓂᕐᒥᑦ ᐅᖓᓯᓐᓂᖅᓴᐅᔪᒥᑦ ᐃᓚᐅᑉᐳᓂ ᓄᓇᕗᓗᒃᑖᖑᔪᓐᓇᖅᑐᖅ.

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ ᐊᑐᖅᑐᓂᐅᓚᐅᖅᑐᖅ ᓈᓴᐅᑎᓂᒃ/ᑎᑎᖅᑲᓂᒃ ᐊᒻᒪᓗ ᐊᔪᖕᒋᓐᓂᖃᕐᓂᒃᑯᑦ ᖃᐅᔨᓴᕐᓂᒃᑯᑦ. ᒪᓂᒪᔪᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᑦ ᑐᑭᓯᐅᒪᔾᔪᑏᑦ ᐊᑐᖅᑕᐅᓚᐅᕐᒥᔪᑦ. ᐅᑯᐊ ᐊᑐᖅᑕᐅᓚᐅᖅᑐᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐊᕙᑎᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓄᑦ:

- ᖃᓄᖅ ᐊᖏᑎᒋᓂᖓ, ᖃᓄᖅ ᐅᖓᓯᒃᑎᒋᓂᖓ, ᐊᒻᒪᓗ ᖃᓄᖅ ᐊᑯᓂᐅᑎᒋᓂᖓ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᑉ ᑕᐃᒪᐅᓂᐊᕐᒪᖔᑦ;
- ᐱᓕᕆᐊᑉ ᖃᓄᐃᑦᑑᓂᖓ ᐅᕝᕙᓘᓐᓃᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓃᑦ ᑭᒡᓕᖅᖅᑎᓐᓂᕐᒧᑦ ᐱᑦᑕᐃᓕᑎᓐᓂᕐᒧᓪᓗᓃᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᑦ;
- ᐊᕙᑎᓕᕆᓂᖅ ᐅᕝᕙᓘᓐᓃᑦ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᐅᑉ ᐃᓗᐊᓂᑦ/ᐃᒃᐱᒋᔭᐅᔪᖅ, ᐃᓚᐅᑉᐳᓂ ᒫᓐᓇᐅᔪᖅ "ᐋᓐᓂᐊᖃᖅᑕᐃᓕᓂᐅᑉ ᓇᓃᓐᓂᖓ" ᐅᒪᓂᖃᑎᒌᖕᓂᓕᖕᓄᑦ;
- ᑕᐃᑉᓯᒪᓂ ᐱᔪᑦ, ᐱᖅᑯᓯᕆᔭᐅᔪᖅ, ᐊᒻᒪᓗ ᐃᑦᑕᕐᓂᑕᐃᑦ ᓄᓇᐅᔪᒥᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᐱᓕᕆᐊᕐᒧᑦ; ᐊᒻᒪᓗ
- ᐃᒃᐱᒋᔭᐅᓂᖅ ᐊᑕᔪᖅ ᐊᑐᓂ VC-ᓄᑦ, ᐅᖃᖃᑎᖃᕐᓂᒃᑯᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᓄᑦ ᓄᓇᓕᖕᓄᑦ ᐊᒻᒪᓗ ᐊᑕᐅᓯᐅᔪᓄᑦ ᐊᒻᒪᓗ ᑲᑐᔾᔨᖃᑎᒌᓄᑦ.

ᐱᓕᕆᐊᕐᒧᑦ ᐃᓚᒋᔭᐅᔪᑦ ᐊᒻᒪᓗ ᓇᓂᔭᐅᔪᑦ ᐊᕙᑎᒥᑦ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᒥᑦ ᓯᓚ

ᓯᓚᐅᑉ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᓂᖓ ᐃᓱᒪᓗᑎᒋᔭᐅᔪᖅ ᐃᓐᓇᕆᔭᐅᔪᓄᑦ ᐊᒻᒪᓗ ᓄᓇᒥᒃ ᐊᑐᖃᑦᑕᖅᑐᓄᑦ ᓇᓗᓇᕐᓂᖓᓄᑦ ᓯᓚᐅᑉ ᖃᓄᐃᓐᓂᖏᑦ ᓇᓗᓇᖅᓯᔾᔪᑎᖃᓕᕐᒪᑕ ᐊᑐᖅᑕᐅᓂᕐᒧᑦ ᐱᖅᑯᓯᒃᑯᑦ ᖃᐅᔨᒪᓂᖅ ᓇᓚᐅᑦᑖᕐᓂᕐᒧᑦ ᓯᓚᒥᒃ. ᐃᓅᔪᑦ ᐃᓱᒪᓗᑎᖃᕐᒥᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓂᒃ ᓯᓚ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᓂᖓᓄᑦ ᐱᕈᖅᑐᓄᑦ, ᓂᕐᔪᑎᓄᑦ, ᐃᖃᓗᖕᓄᑦ, ᐊᒻᒪᓗ ᐊᓯᖏᓐᓄᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᑦ.

ᐅᖅᓱᐃᑦ ᐊᓯᐊᖑᖅᑎᑦᑎᔪᑦ ᓯᓚᒥᒃ (ᓲᕐᓗ ᓯᓚᒧᑦ ᐊᓂᐊᔪᑦ ᐅᖅᓱᐃᑦ) ᓄᓇᕗᒻᒥᑦ ᐊᑦᑎᒃᑑᔪᖅ ᐊᒥᓲᓗᐊᖏᓐᓂᖏᓐᓄᑦ ᐃᓄᖏᑦ ᐊᒻᒪᓗ ᐊᒥᓱᑦ ᓄᓇᓕᐸᐅᔭᐃᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐱᓕᕆᕝᕕᒡᔪᐊᑦ ᑕᐅᑐᖕᒫᖅᓱᒋᑦ ᐊᓯᖏᑦ ᑲᓇᑕᒥᑦ. ᐱᕙᓪᓕᐊᓂᖓ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐊᓂᐊᔪᑦ ᐃᖏᕐᕋᔭᖕᓂᕐᒧᑦ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᙱᒐᔪᖅ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ 56%-ᓂᒃ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᐊᓂᐊᔪᓄᑦ ᐅᖅᓱᓄᑦ ᓄᓇᕗᒻᒥ ᐊᓯᙱᖅᑎᑦᑎᔪᑦ ᓯᓚᐅᑉ ᐊᓯᔾᔨᕐᓂᖓᓂᑦ. ᑕᐅᑐᖕᒫᖅᓱᒋᑦ ᐊᓯᖏᑦ ᑲᓇᑕᒥᑦ ᐊᓂᐊᔪᑦ ᐱᓕᕆᐊᖅ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᙱᑦᑐᖅ ᐊᓂᐊᔪᓂᒃ ᐅᖅᓱᓂᒃ ᓯᓚᒥᒃ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᑎᑦᑎᔪᓂᒃ ᒥᑭᑦᑐᒻᒪᕆᐅᔪᖅ (<1%). ᑕᒪᓐᓇ ᑐᑭᖃᖅᑐᖅ ᐊᐅᓛᕐᓂᖓ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒃᑐᖅᓯᓂᖃᓗᐊᔾᔭᖏᑦᑐᖅ ᓯᓚᐅᑉ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᓂᖓᓂᑦ ᐊᐅᓛᕐᓂᐊᕐᒪᑦ ᐊᒥᓲᖏᑦᑐᓄᑦ ᐅᑭᐅᓄᑦ.

ᐊᓂᖅᓵᖅᑐᖅᑕᐸᑕ ᖃᓄᐃᓐᓂᖓ

ᐅᖅᓱᓂᒃ ᐊᓂᐊᔪᖃᕐᓂᐊᖅᑐᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒦᑦᑐᒥᑦ ᐱᓕᐅᕆᕙᓪᓕᐊᕝᕕᖕᒥᑦ, ᐃᖏᕐᕋᔭᒃᑐᓂᒃ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᐸᕐᑯᑎᒃᑯᑦ ᐊᒻᒪᓗ ᓄᓇᒃᑰᑭᑎᓂᒃ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ. ᐊᓂᖅᓵᖅᑐᖅᑕᐸᑕ ᖃᓄᐃᓐᓂᖓ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᔾᔨᐅᖏᑦᑑᓂᐊᕐᓂᖓᓄᑦ ᒫᓐᓇᐅᔪᒥᑦ ᐊᒻᒪᓗ ᐊᓂᐊᔪᖃᕐᓂᐊᕋᓗᐊᖅᑎᓪᓗᒍ ᐊᒥᓲᓂᖅᓴᓂᑦ ᐅᐸᓗᓂᑦ ᐊᑦᑎᖕᓂᖅᓴᐅᓂᐊᖅᑐᑦ ᒪᓕᒃᑕᐅᔭᕆᐊᖃᖅᑐᓂᑦ. ᐳᔪᖃᑖᒃᑕᖃᕐᓂᐊᖅᑐᖅ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑦᑎᒥᑦ ᐊᒻᒪᓗ ᐊᔾᔨᕐᓚᒋᓂᐊᖅᑕᖓ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐳᔪᖃᑖᖕᒥᑦ ᑕᐃᒪᐅᔪᒥᑦ ᐅᑭᐅᓗᒃᑖᖅ ᐊᑦᑎᒥᑦ. ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐅᒃᑯᐊᖅᐸᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐳᔪᖃᑖᖕᒥᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐅᖅᓱᓂᒃ ᐊᓂᐊᔪᓂᑦ ᓄᖅᑲᕐᓂᐊᖅᑐᑦ.

ᓂᐱᖃᕐᓂᖅ

ᓴᓇᔭᐅᑎᓪᓗᒍ, ᐊᐅᓛᖅᑎᓪᓗᒍ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᑎᓪᓗᒍ ᓂᐱᑕᖃᕐᓂᐊᖅᑐᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ, ᐅᓯᑲᑦᑕᓐᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ, ᐊᒻᒪᓗ ᑕᐃᒪᐅᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒥᑦ. ᓂᐱᖃᕐᓂᖅ ᐊᔾᔨᕐᓚᖓ ᒫᓐᓇᐅᔪᖅ ᐅᑭᐅᓗᒃᑖᖅ ᐊᑉᖁᑎᒧᑦ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒧᑦ. ᐊᒃᓃᑯᒃᑯᑦ ᒪᓕᓐᓂᐊᖅᑐᑦ ᒪᓕᒃᑕᐅᔪᒃᓴᓂᒃ ᖃᖅᑎᕆᑎᓪᓗᒋᑦ ᓂᐱᖃᕐᓂᖅ ᐊᒻᒪᓗ ᓴᔪᕋᓛᖅᓂᖅ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᐊᒃᑐᖅᓯᓂᖃᔾᔭᖕᒋᒻᒪᑦ ᐃᖃᓗᖕᓂᑦ.

ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᖅ

ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᖅ, ᐅᕝᕙᓘᓐᓃᑦ ᓄᓇ ᐊᐅᓚᐅᖅᓯᒪᙱᑦᑐᖅ, ᓂᕆᐅᒋᔭᐅᔪᖅ ᑕᐃᒪᙱᖑᓂᐊᕐᓂᖕᒋᓐᓄᑦ ᐃᓱᖕᒋᓐᓂᑦ ᐅᒃᑯᐃᖓᔪᖅ ᐃᓗᑦᑕᖅᓯᒪᔪᒥᑦ. ᐃᒻᒥᖅᑐᐃᓚᐅᐱᓪᓚᖕᓂᖅ Whale Tail ᑕᓯᕐᒥᑦ (ᓂᒋᐊᓂᑦ), ᐊᒻᒪᓗ ᐃᓚᖕᒋᓐᓂᒃ ᑕᓯᕐᓂᑦ ᑰᒃᑐᑦ Whale Tail ᑕᓯᕐᒧᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ, ᓂᕆᐅᒋᔭᐅᖕᒋᑦᑐᖅ ᐊᓯᐊᖑᕐᓂᐊᕐᓂᖓᓄᑦ ᖃᓄᑎᒋᐅᓂᖕᒋᓐᓄᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᐃᑦ ᒫᓐᓇᐅᔪᖅ ᖃᓄᐃᓐᓂᐅᔪᓂᒃ ᖃᓂᑕᖕᒋᓐᓂᑦ ᑕᒡᑦ.

ᐃᑉᔪ ᐊᒻᒪᓗ ᓄᓇ

ᐃᓂᐅᔪᒥᑦ ᐄᔭᐃᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᓴᓇᔭᐅᑎᓪᓗᒍ, ᐃᑉᔪᐃᔭᐃᓂᒃᑯᑦ ᐊᒻᒪᓗ ᑐᖅᑯᖅᑎᓇᓂᒃᑯᑦ, ᐊᓯᐊᖑᖅᓯᓂᖃᕐᓂᐊᖅᑐᖅ ᐃᑉᔪᐃᑦ ᖃᑉᓯᐅᓂᖕᒋᓐᓄᑦ, ᓇᒧᖕᒐᐅᓂᖕᒋᓐᓄᑦ ᐊᒻᒪᓗ ᐋᕿᒃᓯᒪᓂᖕᒋᓐᓄᑦ ᐊᒻᒪᓗ ᐊᓯᐊᖑᖅᑎᑦᑎᓗᓂ ᓄᓇᒥᑦ. ᓱᕈᖅᐸᓪᓕᐊᓂᖅᑕᖃᕐᓂᐊᖅᑐᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐄᔭᖅᑕᐅᓂᖕᒋᓐᓄᑦ ᖀᖑᔪᖅ ᐱᕈᖅᑐᓂᒃ. ᐃᑉᔪᓗᒃᑖᖅᑲᔭᐃᑦ ᐃᓂᐅᔪᒥᑦ ᓈᓴᐅᓯᖅᑕᐅᓯᒪᔪᑦ ᕿᑎᐊᓖᓐᓂᖕᒋᓐᓄᑦ ᓱᕈᕈᖕᓇᕐᓂᕐᒧᑦ. ᓱᕈᕐᓂᖃᕈᖕᓇᖅᑐᖅ ᑭᓯᐊᓂ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ.

ᐱᕈᖅᑐᐃᑦ

ᐱᕈᖅᑐᐃᑦ ᐄᖅᑕᐅᓂᐊᖅᑐᑦ ᓴᓇᔭᐅᔪᓗᒃᑖᓂᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ. ᐃᓚᖕᒋᑦ ᐱᕈᖅᑐᐃᑦ ᖃᓂᑕᖕᒐᓂᑦ Whale Tail ᑕᓯᐅᑉ (ᓂᒋᐊᓂᑦ) ᐊᒻᒪᓗ ᐃᓚᖕᒋᑦ ᑕᓯᑦ ᑰᒃᑐᑦ Whale Tail ᑕᓯᕐᒧᑦ, ᐃᒻᒥᖅᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ. ᐳᔪᖃᑖᒃᑕᖃᑐᐃᓐᓇᕆᐊᖃᕐᒥᔪᖅ ᐱᕈᖅᑐᓄᑦ ᑕᐃᑲᓂ ᐊᑉᖁᑏᑦ ᖃᓂᑕᖕᒋᓐᓂᑦ ᐊᐅᓛᖅᑎᓪᓗᒍ ᐊᐱᓯᒪᙱᑎᓪᓗᒍ.

ᐅᑎᒃᑲᓐᓂᓚᐃᖅᑐᓂᒃ ᐊᓯᐅᔾᔨᓂᖅᑕᖃᑐᐃᓐᓇᕆᐊᖃᖅᑐᖅ ᐱᕈᖅᑐᓄᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ, ᐅᔭᕋᓐᓂᐊᕐᕕᒃ ᐅᒃᑯᐊᖅᐸᑦ ᐊᓯᖕᒋᑦ ᐱᕈᖅᑐᐃᑦ ᐱᕈᒃᑲᓐᓂᕐᓂᐊᖅᑐᑦ, ᑭᓯᐊᓂ ᐊᔾᔨᙱᑐᐃᓐᓇᕆᐊᖃᖅᑕᖓ ᖃᓄᐃᓐᓂᕆᓚᐅᖅᑕᖓᓄᑦ. ᑭᓯᐊᓂ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᒥᑭᔪᒥᒃ ᐱᕈᖅᑐᓂᒃ ᐊᑐᕐᓂᐊᕐᓂᖓᓄᑦ ᐊᓯᐅᔾᔨᓂᖅ ᐊᑦᑎᒃᑑᔪᖅ. ᐅᔭᕋᓐᓂᐊᕐᕕᐅᑉ ᐱᖁᑎᖕᒋᑦ ᖃᓂᑦᑑᑎᐅᑎᒋᐊᑦᑎᐊᕐᓗᒋᑦ, ᐊᒻᒪᓗ ᐊᐅᓚᓪᓗᒋᑦ ᐳᔪᖃᑖᑦ ᐊᒻᒪᓗ ᐅᖅᓱᐃᑦ ᐊᓂᐊᔪᑦ, ᒥᒃᓱᒋᐊᖅᑎᑦᑎᓂᐊᖅᑐᖅ ᐊᓯᐊᖑᖅᓯᓂᐅᔪᓂᒃ ᐱᕈᖅᑐᓄᑦ.

ᓄᓇᒥᐅᑕᐃᑦ ᓂᕐᔪᑏᑦ ᐊᒻᒪᓗ ᑎᖕᒥᐊᑦ

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᑦ ᓂᕐᔪᑎᓄᑦ ᐃᓚᐅᔪᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᒃᑰᕐᓂᖅ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒃᑯᑦ ᐱᔾᔪᑎᒋᑉᓗᒍ ᓂᐱᖃᕐᓂᖅ ᐊᒻᒪᓗ ᐃᖏᕐᕋᔭᖕᓂᖅ, ᐊᓯᐅᔾᔨᓂᖅ ᐃᓂᒋᔭᐅᔪᓂᒃ ᓴᓇᔭᐅᓂᕐᒧᑦ, ᐃᑳᕐᕕᒋᓂᖅ ᐊᔪᕐᓗᑎᒃ, ᐊᒻᒪᓗ ᓂᕆᓂᖅ ᐱᕈᖅᑐᓂᒃ ᖃᓪᓕᖅᑕᐅᔪᓂᒃ ᐳᔪᖃᑖᖕᒧᑦ. ᐃᓚᖕᒋᑦ ᐅᑉᓗᓕᐅᕐᕕᖕᒋᑦ ᑎᖕᒥᐊᑦ ᐊᓯᐅᔾᔨᔭᐅᓂᐊᖅᑐᑦ ᓯᒡᔭᒧᑦ ᖃᓂᑦᑐᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ (ᓂᒋᐊᓂᑦ) ᐃᒻᒥᖅᑎᖅᑕᐅᓂᖓᓄᑦ. ᓄᓇ ᒪᓂᕋᐅᔪᑦ ᐱᒻᒪᕆᐅᔪᑦ ᓯᑎᖃᕐᕕᐅᓂᖕᒋᓐᓄᑦ ᐊᒻᒪᓗ ᑕᒪᒃᑯᐊ ᐃᓚᖕᒋᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᓗᑎᒃ ᐊᑉᖁᓯᐅᕐᓂᕐᒧᑦ, ᑭᓯᐊᓂ ᒥᐊᓂᕆᓂᐊᕐᓗᒋᑦ ᓂᕐᔪᑏᑦ, ᓄᓇ ᐊᑐᖅᑕᐅᓂᐊᓵᖅᑎᓪᓗᒍ ᖃᐅᔾᔨᐊᖅᑕᐅᓂᐊᖅᑐᑦ ᓂᕐᔪᑎᓄᑦ ᓯᑎᖃᕐᕕᐅᔪᑦ. ᖃᑉᓯᐅᓂᖕᒋᑦ ᓂᕐᔪᑏᑦ ᓯᑎᖃᖃᑦᑕᖅᑐᑦ ᑕᒫᓂ ᐊᑦᑎᒃᑑᔪᖅ ᐊᒻᒪᓗ ᓄᓇ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔫᑉ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᐅᑉ ᖃᓂᑕᖕᒐᓃᑦᑐᑦ ᐊᓯᖕᒋᓐᓂᒃ ᓄᓇᒥᒃ ᒪᓂᕋᐅᔪᖅᑕᖃᐅᖅᑐᖅ ᐊᑐᖅᑕᐅᔪᖕᓇᖅᑐᓂᒃ.

ᐃᓚᖕᒋᑦ ᑐᒃᑐᐃᑦ ᐃᓂᖕᒋᑦ ᐊᓯᐅᔾᔨᔭᐅᓂᐊᖅᑎᓪᓗᒋᑦ, ᒥᑭᑦᑑᔪᖅ ᐊᖕᒋᔪᒥᒃ ᐃᓂᖃᕐᕕᒋᔭᖕᒐᓐᓄᑦ. ᑲᑎᓗᒃᑖᖅᓗᒋᑦ ᑐᒃᑐᓄᑦ ᐃᓂᒋᔭᐅᓂᕐᒧᑦ ᖃᐅᔾᔨᒪᔭᐅᓂᖅᓴᐃᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐊᓯᐅᔾᔨᔭᐅᓂᐊᕐᓂᕐᒧᑦ ᐃᓂᖓᓄᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒧᑦ 2%-ᖑᔪᖅ ᒪᓂᒪᔪᓂᑦ ᐃᓂᐅᔪᓂᑦ ᖃᓂᑦᑐᒥᑦ ᖃᐅᔾᔨᐃᓂᕐᒥᑦ ᐊᒻᒪᓗ ᒥᑭᓂᖅᓴᐅᑉᓗᓂ 2%-ᒥᑦ ᐅᖓᓯᖕᓂᖅᓴᒧᑦ ᖃᐃᔾᔨᐃᓂᕐᒥᑦ. ᐃᓚᖕᒋᑦ ᑐᒃᑐᐃᑦ ᐊᓯᐊᓄᖕᒑᖅ ᐱᓯᒋᐊᕈᖕᓇᖅᑐᑦ ᐊᑉᖁᑎᒧᐊᖅᑕᐃᓕᓂᕐᒧᑦ ᐅᕝᕙᓘᓐᓃᑦ ᓄᖅᑲᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ ᐊᒻᒪᓗ ᑕᒪᐅᓇ ᐃᑳᕐᓗᑎᒃ. ᓂᕆᐅᒋᔭᐅᔪᖅ ᑐᒃᑐᐃᑦ ᓱᕐᑯᓯᔾᔭᖕᒋᓐᓂᖕᒋᓐᓄᑦ ᒫᓐᓇᐅᔪᖅ ᐃᓕᖅᑯᓯᕆᔭᖕᒋᓐᓄᑦ ᐊᐳᖅᑎᓐᓈᖅᑑᑉ ᖃᓂᑕᖕᒐᓂᑦ ᐊᒻᒪᓗ ᐅᑭᐅᓗᒃᑖᖅ ᐊᑉᖁᑎᐅᑉ. ᐅᔭᕋᓐᓂᐊᕐᕕᒃ ᐅᒃᑯᐊᖅᑎᓪᓗᒍ, ᐃᖏᕐᕋᔭᒃᑐᖅᑕᖃᔾᔭᖕᒋᑦᑐᖅ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ ᐄᖅᑕᐅᓗᓂ. ᓂᕆᐅᒋᔭᐅᔪᖅ

ᑐᒃᑐᐃᑦ ᐃᑳᖃᑦᑕᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᐊᑉᑯᑎ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ (ᓱᕐᓗ, ᕿᑎᐊᓂᑦ ᑕᑭᑎᒋᓂᖓ) ᐊᒻᒪᓗ ᐊᒃᑐᖅᓯᓂᖅ ᐅᑎᖅᑎᑕᐅᔪᓐᓇᕐᓂᐊᖅᓱᓂ ᑕᐃᑲᓂ.

ᑕᒪᐃᓐᓄᓗᒃᑖᖅ, ᐃᓚᖏᑦ ᓂᕐᔪᑏᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᓂᐊᖅᓱᑎᒃ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒧᑦ, ᖃᑉᓯᐅᓃᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᓱᕐᑯᓯᐊᓂᐊᖏᓐᓂᖏᓐᓄᑦ.

ᐃᒪᖅ ᖃᑉᓯᐅᓂᖓ

ᐱᓕᕆᐊᖅ ᐊᓯᐊᖑᖅᑎᑦᑎᔪᖕᓇᖅᑐᖅ ᐃᒪᐃᑦ ᓇᓃᓐᓂᕆᔭᖏᓐᓂᑦ ᖃᓂᑦᑐᓃᑦᑐᑦ ᑕᓯᕐᓂᑦ ᐃᓚᓯᓗᑎᒃ ᓱᑉᓗᓕᖕᓂᑦ ᓴᖑᑎᓐᓂᕐᒧᑦ ᑰᖕᓂᖅ ᐃᒪᓗ ᐃᒪᐃᔭᐃᓂᕐᒧᑦ ᑕᓯᐅᑉ ᐱᖃᑖᓂᑦ.

Whale Tail ᑕᓯᖅ ᒪᕿᐃᓕᖓᓕᖅᓯᒪᓕᕐᓂᐊᖅᑐᖅ Whale Tail ᓱᑉᓗᒧᑦ ᐃᓚᐅᓗᓂ Whale Tail ᑕᓯᖅ (ᐅᐊᖕᓇᖓᓂᑦ), ᐊᒻᒪᓗ Whale Tail ᑕᓯᖅ (ᓂᒋᐊᓂᑦ). ᐅᒪᖅ Whale Tail ᑕᓯᕐᒥᑦ (ᐅᐊᖕᓇᖓᓂᑦ) ᐃᒪᐃᔭᖅᑕᐅᓂᐊᖅᑐᖅ Whale Tail ᑕᓯᕐᒧᑦ (ᓂᒋᐊᓂᑦ) ᐊᒻᒪᓗ Mammoth ᑕᓯᕐᒧᑦ, ᓴᓇᔭᐅᑎᓪᓗᒍ. ᐃᒻᒥᖅᑐᐃᓂᖅ Mammoth ᑕᓯᕐᒧᑦ ᐊᐅᔭᐅᑎᓪᓗᒍᑐᐃᓐᓇᐅᓂᐊᖅᑐᖅ ᓱᕋᒃᐸᓪᓕᐊᕐᑯᓇᒍ ᓱᑉᓗᖓ. ᐃᒪᖅ Whale Tail ᑕᓯᕐᒥᑦ (ᓂᒋᐊᓂᑦ) ᑯᕕᖅᑕᖅᑕᐅᓂᐊᖅᑐᖅ Whale Tail ᑕᓯᕐᒧᑦ (ᐅᐊᖕᓇᖓᓂᑦ) ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᓇᓃᓐᓂᕆᔭᖓ Whale Tail ᑕᓯᐅᑉ (ᓂᒋᐊᓂᑦ) ᐅᑎᖅᑎᑕᐅᓗᓂ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ ᓄᖅᑲᖅᐸᑦ.

Whale Tail ᑕᓯᖅ ᐊᒻᒪᓗ Mammoth ᑕᓯᖅ ᐊᑉᓯᒪᓂᐊᖅᑐᑦ Mammoth-ᒥᑦ ᓱᑉᓗᒧᑦ ᐊᐅᓛᕐᓂᕆᔭᖓᓂᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᐅᑉ. ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᑎᓪᓗᒍ, ᒥᑭᓂᖅᓴᒥᒃ ᐃᒪᕐᒥᒃ ᑯᕕᔪᖃᕐᓂᐊᖅᑐᖅ Mammoth ᑕᓯᕐᒧᑦ ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᓇᓃᓐᓂᕆᔭᖓ Mammoth ᑕᓯᐅᑉ ᐊᑦᑎᖕᓂᖅᓴᐅᓂᐊᖅᑐᖅ. ᑭᓯᐊᓂ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐊᐅᓛᖅᑎᓪᓗᒍ, ᐃᒪᐅᑉ ᓇᓃᓐᓂᕆᔭᖓ Mammoth ᑕᓯᕐᒧᑦ ᐃᓕᖅᑯᓯᕆᓚᐅᖅᑕᖕᒐᓄᑦ ᖃᓂᓐᓂᐊᖅᑐᖅ. ᐅᒃᑯᐊᕐᓂᖅ ᐃᓱᓕᑎᓪᓗᒍ Mammoth-ᒥᑦ ᓱᑉᓗ ᐲᖅᑕᐅᓂᐊᖅᑐᖅ ᑕᓯᓗᒃᑖᓂᑦ ᐃᒪᐅᑉ ᓇᓃᓐᓂᕆᔭᖓ ᓇᓃᓐᓂᕆᓚᐅᖅᑕᖕᒐᓄᑦ ᐅᑎᖅᑎᑕᐅᓂᕐᒧᑦ.

ᐃᒪᖅ ᖃᓄᐃᓐᓂᕆᔭᖓ

ᐱᓕᕆᐊᖅ ᐊᓯᐊᖑᖅᑎᑦᑎᔪᖕᓇᖅᑐᖅ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᑦ ᖃᓂᑦᑐᓂᑦ ᑕᓯᕐᓂᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑎᖕᓄᑦ ᐊᓂᐊᔪᓄᑦ (ᓱᕐᓗ, ᐊᐅᓛᕐᓂᖏᑦ ᐅᖅᓯᐊᓗᖕᒥᑦ ᐊᑐᖅᑐᑦ, ᖄᖅᑎᕆᓂᖅ, ᐊᒻᒪᓗ ᐊᒡᔭᖅᑐᐃᓂᕐᒧᑦ ᐅᓯᑲᑦᑕᖕᓂᒃᑯᑦ ᐊᑉᕐᑯᑎᒃᑯᑦ), ᐃᒻᒥᖅᑐᐃᓂᖅ ᐃᓚᓯᔪᖅ ᐃᒪᕐᒧᑦ ᓄᖑᓯᐃᑦᑐᒥᒃ, ᐊᒻᒪᓗ ᑯᕕᑎᑕᐅᓂᖏᑦ ᐊᒃᑕᑰᖅᑕᐅᔪᑦ ᐃᒪᐃᑦ ᑕᓯᕐᓄᑦ.

ᐊᑐᖅᓱᒍ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖓᓂᒃ ᖃᐅᔨᓴᐃᓂᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖓᓄᑦ ᐳᔪᖃᑖᖕᒥᑦ ᐊᒻᒪᓗ ᐅᖅᓯᓂᒃ ᐊᓂᐊᔪᓄᑦ ᒥᑭᑦᑑᓂᐊᒧᑦ ᐆᒃᑐᕋᕐᓂᕐᔫᓃᑦ ᐊᔪᕐᓇᕐᓂᐊᖅᑐᑦ. Whale Tail ᑕᓯᖅ (ᓂᒋᐊᓂᑦ) ᐃᒻᒥᖅᑐᖅᑕᐅᓂᐊᖅᑐᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ ᓱᕋᐃᓗᓂ ᐱᕈᖅᑐᓂᒃ ᐊᒻᒪᓗ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓚᐅᐱᓪᓚᒡᓗᓂ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᑦ Whale Tail ᑕᓯᕐᒥᑦ ᓇᐃᑦᑑᓂᐊᕐᒪᑦ ᑕᐃᒪᓐᓇᐃᓐᓂᖅ, ᐊᖏᒡᓕᒋᐊᕐᓂᖓ ᓄᖑᓯᐃᑦᑐᖅ ᐃᒪᕐᒥᑦ ᒥᑭᑦᑑᓇᔭᖅᑐᖅ. ᑭᓯᐊᓂ ᖃᐅᔨᒋᐊᖅᑕᐅᖃᑦᑕᕐᓂᐊᖅᑐᖅ. ᐊᒃᑕᑰᖅᑕᐅᔪᖅ ᐃᒪᖅ ᑯᕕᔭᐅᓂᐊᖅᑐᖅ Mammoth ᑕᓯᕐᒧᑦ ᐊᐅᓛᖅᑎᓪᓗᒍ, ᐊᓯᐊᖑᖅᓯᓂᐊᖅᑐᖅ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓂᑦ ᑕᓲᑦ ᐱᔪᑦ Mammoth ᑕᓯᕐᒥᑦ ᐊᒃᑯᐊᖅᓯᒫᓂᓕᖅᑎᓪᓗᒍ ᐊᖏᒡᓕᒋᐊᕐᓂᖃᓗᐊᕐᓗᓂ ᓂᕿᑦᑎᐊᕙᓐᓂᑦ ᐃᒪᕐᒥᑦ (ᓱᕐᓗ phosphorus), ᑐᑭᖃᖅᑐᖅ ᑕᓯᖅ ᐱᑖᕐᓂᖅᓴᐅᓗᓂ ᑐᖑᔪᖅᑐᓂᑦ ᐃᒪᕐᒦᖃᑦᑕᖅᑐᓂᒃ.

ᑕᓲᑦ ᐃᓕᑕᕆᔭᐅᓯᒪᔪᑦ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐱᒻᒪᕆᐅᓂᖏᓐᓄᑦ (ᓱᕐᓗ ᐃᓐᓄᒍᒐᔪᐊᓕᒃ ᐊᒻᒪᓗ Pipedream ᑕᓲᑦ) ᐊᒃᑐᖅᑕᐅᔾᔮᖏᑦᑐᑦ ᑯᕕᑎᑦᑎᓂᒃᑯᑦ ᐱᓕᕆᐊᖑᓯᒪᔪᒥᒃ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᙱᖅᑐᒥᒃ ᐃᒪᕐᒧᑦ.

ᐃᖃᓗᐃᑦ ᐃᓂᖏᓪᓗ

ᐱᓕᕆᐊᖅ ᐊᓯᐊᖑᖅᓯᔪᖕᓇᖅᑐᖅ ᐃᖃᓗᐃᑦ ᐃᓂᒋᔭᖏᓐᓂᒃ ᐃᒪᐃᔭᐃᓂᒃᑯᑦ Whale Tail ᑕᓯᕐᒥᑦ (ᐅᐊᖕᓇᖓᓂᑦ), ᓴᓇᔭᐅᓂᖏᑦ ᓱᑉᓗᐃᑦ (ᐃᑳᖅᑎᑦᑎᓂᖅ ᐊᔪᖅᑐᑦ ᐃᖃᓗᖏᓐᓂᑦ ᐊᓯᖏᓐᓄᑦ ᑕᓯᕐᓄᑦ ᐊᒻᒪᓗ ᑰᒐᓛᒃᑯᑦ), ᐃᒻᒥᖅᑐᐃᓂᖅ ᑕᓯᕐᓂᑦ ᐊᒻᒪᓗ ᑰᒐᓛᓂᑦ, ᐊᓯᐊᖑᖅᓯᓃᑦ ᑕᓯᐅᑉ ᐃᒪᖓᑕ ᓇᓃᓐᓂᕆᔭᖓᓂᑦ, ᐊᒻᒪᓗ ᐊᓯᐊᖑᖅᓯᓃᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᑦ.

ᓴᓇᔭᐅᑎᓪᓗᒍ, ᓱᑉᓗᓖᑦ ᓴᓇᔭᐅᓂᐊᖅᑐᑦ ᐃᒪᐃᔭᕐᓂᐊᕐᓗᒍ Whale Tail ᑕᓯᖅ (ᐅᐊᖕᓇᖓᓂᑦ). ᐃᖃᓗᐃᔭᐃᓂᐊᖅᑐᑦ Whale Tail ᑕᓯᕐᒥᑦ (ᐅᐊᖕᓇᖓᓂᑦ) ᐃᒪᐃᔭᖅᑕᐅᖅᑳᖅᑎᓪᓇᒍ. Whale Tail-ᒥᑦ ᐊᒻᒪᓗ Mammoth-ᒥᑦ ᓱᑉᓗᓖᑦ ᓴᓇᔭᐅᓂᐊᖅᑐᑦ ᐃᒪᐅᑉ ᐃᓗᐊᓂᑦ.

ᐅᐊᖕᓇᖕᒐᓂᑦ ᑲᓇᖕᓇᖕᒐᓃᑦᑐᖅ ᓱᐸᓗᓕᒃ ᐃᓚᖕᒐᒍᑦ ᓴᓇᔭᐅᓂᐊᖅᑐᖅ ᐃᒪᐅᑉ ᐃᓗᐊᓂᑦ. ᐅᒃᑯᐃᖕᒐᔪᖅ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ Whale Tail ᑕᓯᕐᒥᑦ (ᐅᐊᖕᓇᖕᒐᓂᑦ) ᐃᖃᓗᐃᑦ ᐃᓂᖕᒋᓐᓂᒃ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓂᐊᖅᑐᖅ ᑕᐃᒪᓐᓇᐃᖕᒋᓐᓇᓕᕐᓗᓂᓗ. ᓱᐸᓗᓖᑦ ᐃᖃᓗᖕᓂᑦ ᑕᐃᑯᙵᖅᑎᑦᑎᓂᖅ ᐊᔪᕐᓂᐊᖅᑐᑦ ᑭᓯᐊᓂ ᓄᖅᑲᖅᑎᑕᐅᒃᐸᑦ ᐅᒃᑯᐊᕐᓂᐅᑉ ᐃᓱᐊᓂᑦ. Whale Tail ᑕᓯᖅ (ᓂᒋᐊᓂᑦ) ᐃᒻᒥᖅᑐᖅᑕᐅᓂᐊᖅᑐᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ, ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓗᓂ ᑰᒐᓛᓂᑦ ᐃᓂᐅᔪᓂᑦ. ᐊᑦᑎᖕᓂᖅᓴᐃᑦ ᐃᒪᐅᑉ ᓇᓃᓐᓂᓇᔭᖕᒋᑦ Mammoth ᑕᓯᕐᒥᑦ ᐊᓯᖕᒋᓐᓂᒡᓗ ᑕᓯᕐᓂᑦ ᑕᐅᓄᖕᒐ ᑰᒃᑐᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐅᒃᑯᐊᕐᓂᕐᒥᑦ, ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓗᓂ ᒪᓂᒪᔪᓂᒃ ᐃᓂᐅᔪᓂᒃ ᐃᖃᓗᐃᑦ ᓂᓇᓂᐊᕐᓗᑎᒃ ᐊᒻᒪᓗ ᐃᖃᓗᙳᓛᖅᑐᑦ ᐊᓐᓇᖕᓂᕐᒧᑦ. ᓂᕿᑦᑎᐊᕙᐃᑦ ᓇᓃᓐᓂᖕᒋᑦ ᓂᓇᐅᒋᔭᐅᔪᑦ ᐊᖕᒋᒡᓕᒋᐊᕐᓂᐊᕐᓂᖕᒋᓐᓄᑦ Mammoth ᑕᓯᕐᒥᑦ ᐊᒻᒪᓗ ᑕᐅᓄᖕᒐ ᑰᒃᑐᓄᑦ ᑕᓯᕐᓄᑦ ᐊᖕᒋᒡᓕᒋᐊᖅᑎᑦᑎᔪᖕᓇᖅᑐᖅ ᑐᖑᔪᖅᑐᓂᑦ ᐃᒪᕐᒥᖃᑦᑕᖅᑐᓂᒃ ᐊᐅᓛᖅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᑎᓪᓗᒍ. ᐋᒃᓯᔾᔨᓐ ᓇᓃᓐᓂᖕᒋᑦ ᒥᒃᓵᒋᐊᐅᖕᓇᖅᑐᑦ ᐃᒪᕐᒥᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ, ᐊᒃᑐᖅᓯᓂᖃᐅᖕᓇᖅᑐᖅ ᒪᓐᓃᑦ ᐱᐊᓂᒍᖕᓇᕐᓂᖕᒋᓐᓂᒃ, ᐊᒻᒪᓗ ᖃᓄᑎᒋᐅᓂᖕᒐ ᐃᓂᐅᔪᑦ ᐃᖃᓗᒃᐲᑦ, ᐃᓗᕋᐃᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᑦ ᒪᓐᓂᓕᐅᕐᕕᖕᒋᓐᓄᑦ ᐊᒻᒪᓗ ᐃᖃᓗᙳᓛᖅᑐᑦ ᐊᓐᓇᒍᖕᓇᕐᓂᖕᒋᓐᓄᑦ. ᑕᒪᒃᑯᐊ ᖃᓄᐃᖕᒐᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᓇᐅᒋᔭᐅᔪᑦ ᑭᓯᐊᓂ ᓱᐸᓗᐃᑦ ᐲᖅᑕᐅᒃᐸᑕ ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖕᒋᑦ ᐅᑎᖅᐸᑕ ᐃᓕᖅᑯᓯᓇᓚᐅᖅᑕᖕᒋᓐᓄᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᐊᓵᖅᑎᓪᓗᒍ.

ᖃᓄᐃᖕᒐᓕᖅᑎᑦᑎᓂᓗᒃᑖᖅᑲᔭᐃᑦ ᐅᖕᒐᓯᖕᓂᖅᓴᒨᖕᒐᔪᒥᑦ, ᐊᒻᒪᓗ ᐆᒃᑐᕋᖅᑕᐅᔪᖕᓇᖅᑐᑦ ᖃᓄᐃᖕᒐᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᓇᐅᒋᔭᐅᔪᑦ ᐃᖃᓗᐃᑦ ᖃᓄᐃᑦᑑᓂᖕᒋᓐᓄᑦ ᐊᒥᓲᓂᖕᒋᓐᓄᑦ, ᐅᓗᓇᐊᓇᕐᓂᐅᔪᖅ ᑕᒪᐃᓐᓄᑦ ᐃᖃᓗᖕᓄᑦ ᐊᑦᑎᒃᑑᔪᖅ. ᐊᒃᓃᑯᒃᑯᑦ ᓴᖅᑭᑦᑎᓂᐊᖅᑐᑦ ᐸᕐᓇᐅᑎᒥᒃ ᐃᑲᔪᐃᔪᒥᒃ ᐃᓂᐅᔪᓂᒃ ᐊᓯᐅᔾᔨᓂᕐᒧᑦ ᑐᕋᒐᖃᕐᓗᑎᒃ ᐱᓕᕆᐊᖃᕐᓂᕐᒧᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐱᐅᓯᕙᓪᓕᖅᑎᓐᓂᕐᒧᑦ ᐃᖃᓗᓕᕆᓂᖅ.

ᐱᖅᑯᓯᑐᖃᕆᔭᐅᔪᓂᒃ ᐱᕝᕙᐅᔪᑦ

ᐸᕐᓇᐃᕙᓪᓕᐊᓂᐅᑎᓪᓗᒍ ᐊᐸᕐᑯᑎᒧᑦ, ᐊᒃᓃᑯᒃᑯᑦ ᖃᐅᔨᓚᐅᖅᑐᑦ ᐱᖅᑯᓯᑐᖃᕆᔭᐅᔪᓂᒃ ᐱᕝᕙᐅᔪᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᒋᔭᐅᓚᐅᖅᑐᑦ ᐃᓅᔪᓄᑦ ᐊᒻᒪᓗ ᐊᓯᐊᒎᖅᑎᑕᐅᖕᒐᕐᓗᓂ ᐊᐸᕐᑯᑎ ᐃᓂᐅᔪᓄᐊᖅᑕᐃᓕᓂᕐᒧᑦ. ᑕᐃᒪᓐᓇᒧᑦ 15-ᖑᔪᑦ 19-ᖑᔪᓂᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᐊᒻᒪᓗ ᐅᓯᒃᑕᖕᓂᕐᒧᑦ ᐊᐸᕐᑯᑎᒥᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᙱᑦᑐᑦ. ᐊᒥᐊᒃᑯᐃᑦ ᓯᑕᒪᐃᑦ ᐃᓂᐅᔪᑦ (ᒪᕐᕉᒃ ᓄᓇᓕᐊᓛᖃᕐᕕᒃ, ᑕᓗᖃᕐᕕᒃ ᐊᒻᒪᓗ ᓇᓗᓇᐃᑯᑕᖅ) ᐃᓗᐊᓃᑦᑐᑦ ᓈᒻᒪᒋᔭᐅᓯᒪᔪᒥᑦ ᐊᒪᕈᖅ ᕿᓂᖅᓴᐃᕝᕕᖕᒥᑦ ᐊᐸᕐᑯᑎᒧᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐃᓗᑦᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᑭᒡᓕᖕᒋᓐᓂᑦ.

ᐊᒃᓃᑯᒃᑯᑦ ᑎᑎᕋᐅᓯᕆᓂᐊᖅᑕᖕᒋᑦ ᐃᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐊᖕᒋᓗᐊᖕᒋᒋᐊᖅᑎᓪᓗᒋᑦ ᐅᖃᐅᔾᔭᐅᓂᖕᒐᑐᑦ ᓄᓇᕗᒻᒥᑦ ᐱᖅᑯᓯᓕᕆᔨᒃᑯᓐᓄᑦ. ᓄᓇᓕᐊᓛᓂᑦ ᐊᒻᒪᓗ ᑕᓗᖃᖅᑐᒥᑦ ᐱᖕᒐᓯᓄᑦ ᐃᓂᐅᔪᓄᑦ ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ ᐅᑎᖅᑎᑕᐅᓚᐅᖅᑐᑦ ᐊᑐᖅᓗᑎᒃ ᓇᓗᓇᐃᔭᖅᓯᒪᔪᒥᒃ ᐃᓂᐅᔪᒧᑦ ᓄᓇᙳᐊᕐᒥᒃ, ᓄᓇᙳᐊᒥᑦ ᓇᓗᓇᐃᒃᑯᑦᑎᖅᓗᒋᑦ ᐅᔭᖅᑲᐃᑦ ᖃᓄᐃᖕᒐᓂᖕᒋᑦ, ᑲᑎᑕᐅᓂᖕᒋᑦ ᐱᕐᑯᑎᕕᓃᑦ, ᐳᐊᓇᔭᖅᓗᑎᒃ ᐆᒃᑐᕋᐃᑉᓗᑎᒃ, ᐃᑦᑕᕐᓂᑕᓂᒃ ᐋᔭᐃᑉᓗᑎᒃ, ᐊᒻᒪᓗ/ᐅᕝᕙᓘᓐᓃᑦ ᓄᓇᓕᖕᒥᐅᓂᑦ ᐅᖃᖃᑦᑕᖃᖅᓗᑎᒃ, ᐃᓗᐊᑖᖕᒐᑦ. ᑕᐃᒪᓐᓇᒧᑦ ᐱᕐᑯᑎᖃᕆᔭᐅᔪᓂᒃ ᐱᕝᕙᐅᔪᑦ ᐊᒻᒪᓗ ᖃᐅᔨᒪᓂᖃᕐᓂᖅ ᐱᖅᑯᓯᑐᖃᕆᔭᐅᔪᓂᒃ ᐱᕝᕙᐅᔪᓂᒃ ᐱᓕᕆᐊᖑᐃᓐᓇᕐᓂᐊᖅᑐᖅ.

ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᕐᓂᖅ

ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᕐᓂᖅ ᐊᒻᒪᓗ ᐱᕝᕙᐅᔪᓂᒃ ᐊᑐᕐᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ ᐃᓕᑕᖅᓯᔪᖅ ᐱᒻᒪᕆᐅᓂᖕᒋᑦ ᑐᒃᑐᐃᑦ, ᒥᖅᑯᓛᑦ, ᑎᖕᒥᐊᑦ, ᐃᖃᓗᐃᑦ, ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᐊᐅᕐᖅᓴᐃᑦ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐃᓅᔪᓄᑦ. ᐱᒻᒪᕆᐅᓂᖕᒐ ᐱᖅᑯᓯᕆᔭᐅᔪᖅ ᐊᒻᒪᓗ ᐅᒃᐱᕐᓂᖃᕐᓂᒃᑯᑦ ᐃᓂᐅᔪᑦ (ᐊᐸᕐᑯᑏᑦ, ᑕᖕᒫᕐᕕᑦ, ᐃᒡᓗᕐᔪᐊᕋᓛᑦ, ᐱᕈᕐᕕᑦ, ᐊᒻᒪᓗ ᐃᓗᕕᑦ) ᐊᓯᐅᔾᔨᑦᑕᐃᓕᓂᕐᒧᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ, ᐊᒻᒪᓗ ᑐᓂᓯᓂᖅ ᐱᖅᑯᓯᒥᒃ ᖃᐅᔨᒪᓂᖃᕐᓂᖅ ᐊᒻᒪᓗ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ ᑭᖑᕙᓄᑦ, ᓇᓗᓇᐃᖅᑕᐅᓯᒪᖕᒥᔪᖅ.

ᖃᐅᔨᓴᐃᓂᖅ ᖃᐅᔨᓚᐅᖅᑐᖅ ᐱᓕᕆᐊᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᐊᒃᑐᖅᓯᓂᖃᕐᓇᕐᓂᖕᒋᓐᓄᑦ ᐃᓄᐃᑦ ᑎᑭᖅᑲᐅᒪᓂᖕᒋᑦ ᓂᕐᔪᑎᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ, ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ, ᐸᐅᖅᓴᓯᐅᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐊᑐᕐᓂᖅ ᐱᖅᑯᓯᒃᑯᑦ ᐱᒻᒪᕆᐅᓂᖕᒋᑦ ᐃᓂᐅᔪᑦ ᐃᓗᐃᓵᕐᓗᒍ ᐃᓂᐅᔪᖅ ᐃᓅᔪᓄᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᖅ, ᒥᒃᓵᒋᐊᖅᑎᓪᓗᒋᑦ ᖃᐸᓯᐅᓂᖕᒋᑦ ᐃᖃᓗᒃᓯᐅᖅᑕᐅᖃᑦᑕᖅᑐᑦ ᐊᒻᒪᓗ ᒪᖃᐃᑦᑕᐅᖃᑦᑐᖅᑐᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᖃᕐᓂᖅ ᑭᒡᓕᖃᓕᖅᑎᓪᓗᒍ ᐃᓄᐃᑦ ᓄᓇᒧᙱᐅᔪᖕᓇᕐᓂᖕᒐᑦ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖕᒋᑦᑐᑦ ᐊᓯᐊᖑᖅᓯᑎᑦᑎᓂᐊᕐᓂᖕᒐᓄᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᒥᖅᑯᓕᖕᓂᑦ, ᐊᒪᖅᑯᐃᑦ, ᖃᕝᕕᑦ, ᐅᕝᕙᓘᓐᓃᑦ ᐊᒃᓱᐃᑦ, ᐊᒻᒪᓗ ᑎᓇᒐᓂᐊᑦ ᐱᔭᐅᔪᒪᓂᖅᓴᐃᑦ ᑮᔭᖃᑦᑎᐊᕐᓂᕐᒧᑦ ᐃᓂᐅᔪᓂᑦ ᖃᓂᑦᑑᖕᒪᑕ ᖃᒪᓂᑦᑐᐊᕐᒧᑦ ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓯᒪᙱᑦᓗᑎᒃ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ. ᐃᓄᐃᑦ ᒪᖃᐃᑦᑐᖕᓇᐃᓐᓇᕐᓂᐊᕐᒥᔪᑦ ᑎᖕᒥᐊᓂᒃ ᐊᒻᒪᓗ ᐃᖃᓗᖕᓂᑦ ᐃᖃᓗᒃᓯᐅᖕᒐᕈᒪᔭᖕᒋᓐᓂᒃ ᐃᓂᐅᔪᓂᑦ ᐊᒻᒪᓗ ᐃᖃᓗᖃᖅᑐᐃᑦ ᐊᒃᑐᖅᑕᐅᔾᔭᖕᒋᑦᑐᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ.

ᒪᖃᐃᓐᓂᖅ ᑐᒃᑐᓂᒃ ᐱᒻᒪᕆᐅᒋᔭᐅᔪᖅ ᐃᓅᓯᖕᒋᓐᓄᑦ ᐃᓄᐃᑦ. Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐅᓯᒃᑕᖕᓂᕐᒧᑦ ᐊᑉᐋᑎᑦ ᐊᓯᐊᖑᖅᓯᑐᐃᓐᓇᕆᐊᖃᖅᑎᓪᓗᒍ ᑐᒃᑐᐃᑦ ᓅᖃᑦᑕᕐᓂᖕᒋᓐᓂᒃ ᐃᓂᐅᔪᒥᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓗᓂ ᐃᓚᖕᒋᓐᓄᑦ ᐃᓄᖕᓄᑦ ᒪᖃᐃᖃᑦᑕᖅᑐᕐᕕᒋᖃᑦᑕᖅᑕᖕᒋᓐᓂᑦ. ᐱᓕᕆᐊᑦ ᐊᒻᒪᓗ ᐊᓯᐊᖑᕐᓂᖓ ᐱᕈᖅᐸᓪᓕᐊᓃᑦ ᐊᒃᑐᖅᓯᓂᖃᕐᒥᔪᑦ ᒪᖃᐃᑦᑐᖕᓇᕐᓂᕐᒥᒃ ᒪᖃᐃᓐᓂᖅ ᐊᔪᕐᓇᖅᓯᑎᑦᑎᓂᖅᓴᐅᔪᖕᓇᕐᒪᑦ ᑭᓯᐊᓂ ᑐᓂᓯᔪᖕᓇᖅᑐᖅ ᒪᒃᑯᒃᑐᓄᑦ ᐱᕝᕕᐅᔪᓂᒃ ᐃᑲᔪᐃᓂᕐᒧᑦ ᖃᐅᔨᒪᓂᖃᕐᓂᕐᒥᒃ ᒪᖃᐃᓐᓂᕐᒥᑦ. ᓂᕆᐅᒋᔭᐅᔪᖅ ᑐᒃᑐᑕᓕᐊᔫᓂᐊᕐᓂᖓᓄᑦ ᒪᖃᐃᑦᑕᐅᔪᖕᓇᖅᑐᓂᒃ.

ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᔪᑦ

ᐊᕐᒋᒡᓕᒋᐊᕐᓂᖓ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᑐᓂᓯᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᒃᓴᓂᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᒃᑲᓐᓂᕐᓄᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᐅᓄᑦ ᐊᒻᒪᓗ ᐊᓯᖕᒋᓐᓄᑦ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᓕᖕᒥᐅᓄᑦ, ᐊᒻᒪᓗ ᑕᐃᑲᖕᖓᐅᖕᒋᑦᑐᖅ ᐱᓕᕆᐊᒃᓴᓂᒃ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐊᓯᖕᒋᓐᓄᑦ ᓄᓇᕗᒻᒥᐅᓄᑦ. ᐊᒥᓲᓂᖅᓴᓄᑦ ᐃᓄᖕᓄᑦ ᓄᓇᓕᖕᓂᑦ, ᐋᓐᓂᐊᖃᖅᑕᐃᓕᒪᓂᐅᑉ ᓇᓃᓐᓂᖓ ᐱᐅᓯᕙᓪᓕᕐᓗᓂ, ᖃᑕᖑᑎᑦ ᐊᒥᓲᓂᖅᓴᓂᒃ ᐱᕝᕕᐅᔪᖕᓇᖅᑐᖅᑕᖃᓕᕐᓗᑎᒃ, ᐊᒻᒪᓗ ᐃᒡᓗᒥᐅᖃᑎᑦ ᐊᒥᓲᓂᖅᓴᓂᒃ ᐱᕝᕕᖃᕐᓗᑎᒃ ᑮᓇᐅᔭᓂᒃ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ; ᑭᓯᐊᓂ, ᐃᓄᐃᑦ ᐊᐅᓚᑦᑎᔭᕆᐊᖃᕐᓂᐊᖅᑐᑦ ᑮᓇᐅᔭᕐᒋᓐᓂᒃ ᐅᔾᔨᖅᑐᕐᓂᖅᓴᐅᓗᑎᒃ, ᐊᒻᒪᓗ ᓄᑖᑦ ᐱᓕᕆᔨᑦ ᐋᕿᒋᐊᕆᐊᖃᕐᓂᐊᖅᑐᑦ ᖃᑕᖑᑎᕐᒋᓐᓂᒃ ᐱᖅᑯᓯᒃᑯᑦ ᖃᓄᐃᓕᐅᕐᓂᕐᒋᓐᓂᒡᓗ. ᐊᕐᒋᒡᓕᒋᐊᕐᓂᖓ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᐊᐅᓛᕐᓂᖓ ᑕᒪᐃᓐᓂᒃ ᐱᐅᔪᒥᒃ ᐊᒻᒪᓗ ᐱᐅᕐᒋᑦᑐᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᖅᑐᖅ ᐱᓕᕆᔨᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᐅᑉ ᐋᓐᓂᐊᖃᖅᑕᐃᓕᒪᓂᖓᓂᑦ ᐊᒻᒪᓗ ᐊᑦᑕᓇᖅᑐᖃᖕᒋᓐᓂᕐᒦᓐᓂᕐᒥᒃ. ᐱᐅᕐᒋᑦᑐᓂᒃ ᐊᒃᑐᖅᓯᓂᖃᖅᑎᑦᑎᔪᖕᓇᖅᑐᖅ ᖃᑕᖑᑎᕐᒋᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒧᑦ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒧᑦ ᐃᓚᖕᒋᓐᓂᒃ ᐱᓕᕆᑎᑦᑎᓂᖃᖅᑐᖅ ᐅᑎᖅᑕᕐᓂᕐᒥᒃ ᐊᒻᒪᓗ ᖃᑕᖑᑎᕐᒋᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐃᓄᒃ ᖃᑕᖑᑎᕐᒋᓂᑦ ᐊᔾᔨᕐᒋᑦᑐᓂᒃ ᐱᕈᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᖃᖅᓱᑎᒃ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᖃᐸᓯᐊᕐᔪᖕᓂᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᖓᓄᑦ, ᐱᓗᐊᖅᑐᒥᒃ ᐱᐅᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ GDP-ᒥᒃ, ᑖᒃᓱᔭᐃᔭᕐᓂᕐᒧᑦ ᑮᓇᐅᔭᓕᐊᓂᒃ, ᓇᖕᒥᓂᓖᑦ ᐱᕙᓪᓕᐊᓂᕐᒥᒃ, ᓴᓇᔭᒃᓴᐃᑦ ᐊᒻᒪᓗ ᐊᔪᕈᖕᓃᖅᓴᓂᕐᒧᑦ, ᑮᓇᐅᔭᓕᐊᑦ, ᐊᒻᒪᓗ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖓ ᐱᔾᔪᑎᖃᖅᑐᑦ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒥᒃ ᐊᑐᕈᖕᓇᕐᓂᕐᒥᒃ ᐃᓄᐃᑦ ᐊᑐᕈᒪᔭᖓᓐᓂᑦ, ᓄᓇᓕᒃ ᑐᓂᕈᓯᐊᖃᑦᑕᕐᓂᖓ, ᐊᒻᒪᓗ ᑲᔪᓯᓂᖓ ᐊᕐᒋᖃᑎᒌᒍᑎᑦ ᐊᒡᓃᑯᒃᑯᓐᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᓄᑦ ᐋᕿᐅᒪᔪᑦ ᐃᑲᔪᐃᓂᕐᒧᑦ ᓄᓇᓕᖕᓂᑦ. ᐱᒻᒪᕆᐅᓂᖅᐸᖅ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ ᑮᓇᐅᔭᓕᐅᑦᑎᐊᕐᓂᖅ ᐱᓕᕆᐊᖃᕐᓂᕐᒧᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ.

ᐊᓯᐊᖑᕐᓂᖕᒋᑦ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᔪᑦ ᐱᓕᕆᐊᑉ ᐃᓂᖓᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐱᐅᔫᓂᐊᕐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᑎᑭᒃᓴᓗᓂ ᑭᓯᐊᓂ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐅᒃᑯᐊᖅᐸᑦ.

ᐊᖕᒋᓗᐊᖕᒋᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ

ᐊᒡᓃᑯᒃᑯᑦ ᑲᔪᓯᓂᐊᖅᑐᑦ ᐊᐅᓚᑦᑎᑦᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᓂᒃ ᐊᒻᒪᓗ ᐋᕿᐅᒪᔪᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐊᔾᔨᕐᓚᖕᒋᑦ ᐱᓕᕆᐊᖑᓯᒪᔪᓄᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧᑦ. ᐋᕿᐅᒪᔪᕐᒥᑦ ᐱᖓᓱᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ: ᐊᕙᑎᓕᕆᓂᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ ᐊᒃᑐᐊᓂᖃᖅᑐᖅ ᑕᒪᐃᓐᓄᓗᒃᑖᖅ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᐱᖕᒋᓐᓄᑦ, ᐊᕙᑎᒥᒃ ᐅᔾᔨᕈᓯᖕᓂᕐᒧᑦ ᑐᕌᖓᔪᖅ, ᑲᔪᓯᔪᒥᒃ ᐊᕙᑎᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᑐᓂᐅᑎᖃᖃᑦᑕᕐᓂᖅ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᖃᓄᐃᖓᓂᐅᔪᓂᒃ ᐊᕐᕌᒍᑕᒫᖅ ᐅᓂᑉᑲᓕᐅᓇᓂᒃᑯᑦ. ᐆᒃᑑᑏᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᑦ ᐸᕐᓇᐅᑕᐅᔪᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐃᓚᐅᔪᑦ:

- ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐊᓂᖅᓵᖅᑐᐸᑕ ᖃᓄᐃᓐᓂᓇᔭᖓᓂᑦ, ᐳᔪᖃᑖᒃ, ᐊᒻᒪᓗ ᓂᐱᖃᕐᓂᖅ.
- ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᓄᑦ, ᐃᐸᔪᓄᑦ, ᐊᒻᒪᓗ ᐱᕈᖅᑐᓄᑦ ᓂᕐᔪᑎᓄᓪᓗ ᐃᓚᐅᓂᐊᖅᑐᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑑᐸ ᐊᒻᒪᓗ ᐃᐸᔪᑉ ᖃᓄᐃᓐᓂᖓ, ᒪᓂᕋᐅᔪᒥᒃ ᓄᓇᒥᒃ ᖃᐅᔨᓴᐃᓃᑦ ᐃᓕᑕᖅᓯᓂᕐᒧᑦ ᓯᑎᖃᕐᕕᐅᔪᓂᒃ, ᐳᔪᖃᑖᖕᒥᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐅᓯᒃᑕᖕᓂᕐᒧᑦ ᐊᐸᖁᑎᒥᑦ, ᐊᒻᒪᓗ ᓂᕐᔪᑎᓂᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ.
- ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐃᒪᐃᑦ ᖃᓄᑎᒋᐅᓂᖕᒋᑦ, ᖃᓄᐃᓐᓂᖕᒋᑦ, ᐊᒻᒪᓗ ᐃᖃᓗᐃᑦ.
- ᐱᓕᕆᖃᑎᖃᐃᓐᓇᕐᓗᓂ ᐃᓄᖕᓂᒃ ᓄᓇᓕᖕᒥᐅᓂᑦ ᐃᓚᑎᓐᓂᐊᕐᓗᒋᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ.

ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᖅᑕ

ᐊᒡᓃᑯᒃᑯᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᕿᒪᒍᒪᔭᖓᑦ ᐊᔪᙱᑦᑎᐊᕐᓂᖃᕐᓗᓂ ᐊᒻᒪᓗ ᐱᐅᖏᑦᑐᖃᙱᓗᓂ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓᑦ ᐊᑯᓂᐅᔪᒧᑦ ᑕᑭᑎᒋᓂᖓᓄᑦ ᒥᐊᓂᖅᓯᓂᕐᒧᑦ ᐊᕙᑎ ᐊᒻᒪᓗ ᐃᓄᖏᑦ ᓄᓇᕗᑦᒥ. ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᓗᒃᑖᖅᑲᔭᐃᑦ ᑕᐃᒪᐅᓂᐊᖅᑐᑦ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐱᓕᕆᐊᖑᓗᑎᒃ ᑭᓯᐊᓂ ᐃᒪᓗᒃᑖᓄᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐱᕐᑯᑏᑦ ᓄᖅᑲᖅᑎᑕᐅᐸᓗᑎᒃ/ᐲᖅᑕᐅᓗᑎᒃ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑳᖅᑎᓪᓗᒍ ᐅᐸᓗᕆᔭᐅᔪᓂᑦ ᖃᐅᔨᓴᖅᑕᐅᓗᓂ ᓇᓗᓇᐃᖅᓯᓂᕐᒧᑦ ᐃᓕᖅᑯᓯᖓᓄᑦ ᐊᒻᒪᓗ ᐱᐅᖏᑦᑐᖃᕐᓂᖓᓄᑦ ᖃᓄᐃᒻᒪᖔᑦ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅᑕᖃᕐᓂᐊᖅᑐᖅ ᑭᓯᐊᓂ ᓇᓗᓇᐃᖅᑕᐅᒃᐸᑦ ᐃᒪᖅ ᓈᒻᒪᓕᕐᒥᑦ ᓴᐸᑯᑕᐅᓂᕐᒧᑦ ᓄᓇᒧᑦ ᐊᒻᒪᓗ ᓄᓇ ᒥᐊᓂᕆᔭᐅᓂᖓᓄᑦ.

INTRODUCTION

La division Meadowbank d'Agnico Eagle Mines Limited (Agnico Eagle) souhaiterait procéder à l'extraction minière et au broyage pendant trois à quatre années supplémentaires en développant une fosse à ciel ouvert du nom de gisement Whale Tail, située sur la propriété d'Amaruq Exploration, à 50 km de la mine Meadowbank. Agnico Eagle amènerait le minerai par camion de la fosse Whale Tail jusqu'à la mine Meadowbank afin de broyer le minerai et que le mine puisse poursuivre ses activités et conserver des emplois à la mine Meadowbank. Par conséquent, Agnico Eagle demande à la Commission du Nunavut chargée de l'examen des répercussions (CNER) de reconsidérer le certificat de projet. Agnico Eagle souhaiterait également amender le permis d'utilisation des eaux de Type A actuel afin d'y inclure l'extraction du gisement Whale Tail et la construction et les opérations des infrastructures de soutien, le tout auprès de l'Office des eaux du Nunavut (OEN).

DESCRIPTION DU PROJET

Sur le gisement Whale Tail, il y aura une fosse à ciel ouvert, un campement pour les gens, une centrale électrique, un héliport, un atelier d'entretien, un parc de stockage, un endroit pour stocker la roche stérile et un autre pour stocker le minerai, un bassin pour l'eau du site minier (c.-à-d. l'eau qui entre en contact avec les diverses parties de la mine), un système de traitement de l'eau potable et des eaux usées, des routes de transport, des routes d'accès, ainsi que des bassins de stockages, des canaux/chenaux, des digues, des barrages et des ponceaux pour contrôler toutes les eaux présentes sur le site. Il y a une longue route de transport entre le gisement Whale Tail et la mine Meadowbank qui sera le chemin que prendra le minerai de la fosse à ciel ouvert jusqu'à l'usine afin qu'il puisse être traité et changé en or.

Agnico Eagle prévoit d'extraire 8,3 millions de tonnes (Mt) de minerai, de la roche contenant de l'or, à partir d'une seule fosse à ciel ouvert, et ce, pendant trois à quatre années. Agnico Eagle traitera la roche à l'usine actuelle de Meadowbank et disposera de la boue de rejets miniers à l'installation d'entreposage des rejets actuelle. Les activités de la mine généreront approximativement 8,3 Mt de rejets miniers, 46,7 Mt de stériles miniers et 5,8 Mt de morts-terrains. La roche et le morts-terrains seront conservés sur le site de Whale Tail. L'installation d'entreposage des rejets de la mine Meadowbank ne sera pas plus large que ce qu'elle est présentement, mais une section de l'installation deviendra plus élevée. Les rejets miniers seront pratiquement les mêmes que les rejets miniers actuels.

L'objectif de la gestion de l'eau est de limiter et/ou arrêter le débit de l'eau dans la fosse ou les piles de roches extraites afin de limiter l'impact sur l'environnement local. Lors de l'élaboration de son plan de gestion des eaux, Agnico Eagle a considéré ce qui suit :

- conserver les différents types d'eau séparés les uns des autres le plus possible;
- contrôler et réduire l'eau du site minier en conservant l'eau propre loin de la mine et en contenant l'eau du site;
- réduite la quantité d'eau fraîche nécessaire en recyclant et réutilisant l'eau le plus possible; et
- s'assurer que l'eau du site minier est sécuritaire avant de la laisser se déverser dans la nature.

Afin de développer le Projet, une certaine partie de l'eau sera déplacée afin de permettre l'extraction de la fosse à ciel ouvert. De l'eau sera retirée d'une partie du lac Whale Tail et du lac Mammoth. À la fermeture de la mine,

toutes les digues et les ouvrages de dérivation de l'eau seront retirés et les lacs Whale Tail et Mammoth reviendront à la même quantité d'eau qu'ils possèdent présentement. La fosse à ciel ouvert sera également inondée.

Agnico Eagle croit fermement que si l'on prend en considération ses performances passées et la conception actuelle du Projet, la compagnie est financièrement en mesure d'achever l'extraction minière du gisement Whale Tail, de diminuer tous les effets négatifs et de maintenir et restaurer le site lors d'une fermeture éventuelle.

CONSULTATION

Un objectif clé du programme d'implication et de consultation publique d'Agnico Eagle fut de s'assurer que Agnico Eagle obtienne le soutien d'une majorité de gens pouvant être potentiellement touchés par la mine. Depuis que les opérations de la mine Meadowbank ont débuté, Agnico Eagle a rencontré de manière régulière la collectivité, ainsi que les parties prenantes locales de la région de Kivalliq. Agnico Eagle a documenté quand, où, comment, pourquoi et avec qui elle a effectué des consultations. De plus, Agnico Eagle a documenté comment l'information recueillie auprès des participants a été utilisée. Agnico Eagle a consulté les parties prenantes locales et les organismes de réglementation en ce qui concerne les activités d'exploration actuelles à Amaruq et le prolongement de la mine Meadowbank proposé en opérant la fosse Whale Tail.

INUIT QAUJIMAJATUQANGIT

Les Inuit Qaujimajatuqangit (IQ) recueillies incluant la connaissance des conditions existantes, les préoccupations concernant les divers impacts du Projet et les recommandations pour la gisement Whale Tail et la route de transport. La connaissance des conditions existantes est incluse dans les rapports de base ou les portions sur les paramètres environnementaux de cet amendement à l'EIE. Les préoccupations concernant les divers impacts sont incluses dans le cadre des évaluations des effets et les recommandations sont considérées lors de l'élaboration des plans d'atténuation et de surveillance.

La majorité des IQ recueillies pour le Projet ont été recueillies avec le temps par le biais des consultations sur la mine Meadowbank, lors d'ateliers formels sur les IQ, lors de rencontres de consultation, par le biais d'acquisition informelle d'IQ en travaillant avec le personnel local sur le terrain. Toutes ces IQ mettent généralement l'accent sur les espèces fauniques et les poissons, ainsi que sur l'accès aux terres et aux secteurs d'importance culturelle.

ÉTUDES DE RÉFÉRENCE

Des études de référence portant sur le gisement Whale Tail et la route de transport ont été complétées sur le bruit, le terrain, les sols et le pergélisol, la faune et la végétation, la géochimie (décrit les métaux contenus dans les roches), les eaux souterraines (l'eau dans le sous-sol), la quantité des eaux de surface, la qualité de l'eau, les IQ, les poissons et l'archéologie (l'étude des artéfacts anciens sur le terrain, également connue sous le nom de ressources patrimoniales). Des études de référence ont été effectuées sur le site de la mine Meadowbank avant la construction. La surveillance a été continue durant les 20 années des opérations de la mine Meadowbank; cette information a été utilisée dans le cadre de l'évaluation environnementale du gisement Whale Tail.

LES MÉTHODES D'ÉVALUATION DES IMPACTS

Les composantes valorisées (CV) sont les aspects les plus importants de l'environnement dans une région, une communauté ou une collectivité particulière, ou encore pour la société dans son ensemble. Les CV de cette évaluation incluent le climat, la qualité de l'air, le bruit, le pergélisol, la végétation, la faune terrestre et les oiseaux (le bœuf musqué, l'ours grizzly, le carcajou, les loups, les rapaces, les oiseaux d'eau, les oiseaux terrestres), la qualité des eaux de surface, la quantité des eaux de surface, les poissons et l'habitat des poissons (l'omble chevalier, la truite de lac, le ménomini rond et l'ombre de l'Arctique), l'archéologie, l'utilisation traditionnelle de la terre, les emplois, la formation, les occasions d'affaires, le mieux-être de la collectivité, ainsi que les infrastructures et les services sociaux.

L'évaluation des effets potentiels du Projet examine les effets potentiels dans le temps et dans l'espace. Elle s'attarde aux effets potentiels à proximité du Projet, dans un plus large espace autour du Projet et même dans une zone plus large au sein de la région, incluant potentiellement tout le Nunavut.

L'évaluation des effets s'est basée sur les données et le jugement professionnel. Les IQ disponibles et l'information fournie par les collectivités ont également été utilisées. Les aspects qui suivent ont été utilisée pour évaluer l'importance environnementale de chaque effet potentiel du Projet :

- l'ampleur, l'étendue et la durée d'un effet;
- la conception du Projet ou les mesures d'atténuation visant à limiter ou éviter les effets potentiels;
- le contexte/la valeur environnemental ou socio-économique, incluant « l'état de santé » actuel des écosystèmes;
- l'importance historique, culturelle et archéologique de la zone géographique qui sera touchée par le Projet; et
- la valeur liée à la VC individuelle, basée sur la consultation avec les collectivités potentiellement touchées et les individus et organisations pertinents.

ÉLÉMENTS CLÉS DU PROJET ET RÉSULTATS DE L'ÉNONCÉ DES INCIDENCES ENVIRONNEMENTALES

Le climat

Les changements climatiques sont une source d'inquiétude pour les aînés et les utilisateurs des terres puisque l'imprévisibilité des conditions climatiques a mené à un manque de confiance envers l'usage des connaissances traditionnelles pour prévoir la température. Les Inuits sont également concernés par les effets potentiels des changements climatiques sur la végétation, la faune, le poisson et les autres ressources traditionnelles.

Les gaz qui causent les changements climatiques (c.-à-d. les gaz à effet de serre) sont produits en faible quantité au Nunavut, puisqu'il y a peu de résidents et peu de villes et d'industries en comparaison avec le reste du Canada. Le développement du gisement Whale Tail et des émissions engendrées par la circulation le long de la route de transport vers la mine Meadowbank devrait mener à une augmentation de 56 % des émissions de GES pour le Nunavut, soir les gaz qui causent les changements climatiques. En comparaison avec les émissions totales du Canada, le Projet n'augmente pas les émissions de gaz causant le changement climatique

de manière significative (<1 %). Cela signifie que les opérations du gisement Whale Tail n'affecteront tellement les changements climatiques puisqu'elles ne dureront que quelques années.

La qualité de l'air

Il y aura quelques émissions provenant de l'usine de traitement de la mine de Meadowbank, ainsi que de la circulation sur la route de transport et des véhicules du gisement Whale Tail. La qualité de l'air ne devrait pas être très différente qu'elle est présentement et bien qu'il y aura quelques émissions presque tous les jours, elles seront en deçà des directives. Il y aura un peu de poussière provenant de la route de transport et les effets seront similaires à ceux de la poussière provenant de la route d'accès praticable par tous les temps actuelle. À la fermeture de la mine, les effets de la poussière et ceux ces émissions de gaz cesseront.

Le bruit

Lors de la construction, des opérations et de la fermeture, il y aura du bruit provenant de la fosse Whale Tail, de la route de transport et de la mine Meadowbank actuelle. Le bruit sera semblable à celui produit présentement le long de la route d'accès praticable par tous les temps et sur le site de la mine Meadowbank. Agnico Eagle suivra les directives lors de l'abattage par explosion afin que le bruit et les vibrations provenant de la fosse à ciel ouvert n'affectent pas les poissons.

Le pergélisol

Le pergélisol, soit la terre gelée en permanence, devrait reculer vers les bordures de la fosse à ciel ouvert. L'inondation temporaire du lac Whale Tail (bassin sud), et de certains lacs qui s'écoulent dans le lac Whale Tail, au cours de la construction et des opérations, ne devrait pas modifier grandement la quantité de pergélisol par rapport aux conditions actuelles près de ces lacs.

Les sols et le terrain

Le déblaiement du site et la construction du Projet, par le biais du décapage et du stockage, entraîneront des modifications de la quantité, de la répartition et de la structure des sols, ainsi que des modifications du terrain. De l'érosion se produira durant la construction en raison du retrait du couvert végétal. La majeure partie des sols dans cette zone est classée comme ayant un potentiel modéré d'érosion. De l'érosion peut se produit, mais elle sera confinée à la zone de la fosse Whale Tail et de la route de transport.

La végétation

La végétation sera éliminée dans toutes les zones de construction de la fosse Whale Tail et de la route de transport. Certaines parties de la végétation autour du lac Whale Tail (bassin sud), et de certains lacs qui s'écoulent dans le lac Whale Tail, seront inondées au cours de la construction et des opérations. De la poussière pourrait également retomber sur les zones de végétation près des routes au cours des opérations, lorsque les routes ne sont pas recouvertes de neige.

Bien qu'il y aura une perte permanente de certaines végétations à l'emplacement de la fosse Whale Tail, une fois que la mine sera fermée, d'autres végétations repousseront, mais pas nécessairement les mêmes. Cependant, étant donné que la fosse Whale Tail ne prend qu'une petite zone, la quantité de végétation perdue demeure faible. Conserver les infrastructures minières le plus près possible les unes des autres et contrôler la poussière et les émissions réduiront les changements possibles occasionnés sur la végétation.

La faune terrestre et les oiseaux

Les effets possibles sur la faune incluent le contournement de la fosse Whale Tail et la route de transport en raison du bruit et de la circulation, une perte d'habitat en raison de la construction, une certaine difficulté à traverser et la consommation de végétation recouverte de poussière. Certains habitats de nidification des oiseaux seront perdus près de la berge du lac Whale Tail (bassin sud) en raison de l'inondation. Les eskers sont importants pour la mise bas et certains eskers seront utilisés pour construire la route. Mais afin de protéger la faune, il y a aura inspection des eskers avant qu'ils soient utilisés pour construire la route. La population faunique utilisant les eskers pour mettre bas est peu nombreuse et le paysage autour de la fosse Whale Tail et de la route de transport renferme plusieurs autres eskers pouvant être utilisés.

Alors que certains habitats du caribou seront perdus, il s'agit tout de même d'une minime partie de son large habitat. L'habitat de prédilection total du caribou qui devrait être perdu par l'empreinte du gisement Whale Tail et de la route de transport est de 2 % de l'habitat disponible dans la zone d'étude locale et de moins de 0,2 % de la zone d'étude régionale. Certains caribous pourraient modifier l'endroit où ils aiment se déplacer pour un emplacement différent afin d'éviter une partie de la route de transport, ou encore, ils pourraient s'arrêter et prendre un certain temps avant de la traverser. Il est prévu que le caribou agisse de manière similaire à sa façon actuelle d'agir autour de la mine Meadowbank et le long de la route d'accès praticable par tous les temps. À la fermeture de la mine, il n'y aura plus de circulation et la route de transport sera retirée. Il est anticipé que les caribous traverseront la route librement à la suite de la fermeture (c.-à-d. à moyen terme) et que les impacts seront renversés à ce moment.

Globalement, alors que certains animaux isolés seront touchés par la fosse Whale Tail et la route de transport, les populations devraient demeurer en santé.

Quantité des eaux de surface

Le Projet peut modifier le niveau de l'eau des lacs à proximité en ajoutant des digues afin de rediriger la direction du début et en pompant de l'eau d'un lac à un autre.

Le lac Whale Tail sera séparé en deux sections par la digue Whale Tail, soit le bassin nord et le bassin sud du lac Whale Tail. L'eau provenant du bassin nord du lac Whale Tail sera pompée dans le bassin sud du lac Whale Tail et dans le lac Mammoth au cours de la construction. Le pompage vers le lac Mammoth se produira seulement au cours de la saison des eaux libres afin de prévenir l'érosion de son chenal. L'eau provenant du bassin sud du lac Whale Tail sera pompée dans le bassin nord du lac Whale Tail et le niveau de l'eau du lac Whale Tail (bassin sud) reviendra à la normale lorsque la mine fermera.

Les lacs Whale Tail et Mammoth seront séparés par la digue Mammoth durant la durée de vie de la mine. Au cours de la construction et de la fermeture, il y aura moins d'eau s'écoulant dans le lac Mammoth et les niveaux d'eau du lac Mammoth seront moins élevés. Mais durant la phase des opérations de la mine, les niveaux d'eau du lac Mammoth seront pratiquement à la normale. À la fin de la période de fermeture, la digue Mammoth sera retirée afin de ramener les niveaux d'eau de tous les lacs à la normale.

Qualité des eaux de surface

Le Projet peut modifier la qualité de l'eau des lacs locaux en raison des émissions atmosphériques (par exemple, les opérations avec l'équipement motorisé au diesel, l'abattage par explosion et le transport par les routes de transport), de l'inondation qui ajoute du mercure dans l'eau et du rejet d'eaux usées dans les lacs.

En se basant sur l'évaluation de la qualité de l'air, les effets sur la qualité de l'air par la poussière et les émissions seront si faibles qu'ils seront difficiles à mesurer. Le lac Whale Tail (bassin sud) sera inondé au cours de la construction et des opérations, ce qui décomposera la végétation et réduira temporairement la qualité de l'eau dans le lac Whale Tail. Mais, en raison de la courte durée de cette période, l'augmentation du mercure dans l'eau devrait être faible. Elle sera cependant surveillée. Des eaux usées seront rejetées dans le lac Mammoth au cours des opérations, ce qui modifiera la qualité de l'eau des lacs recevant de l'eau provenant du lac Mammoth jusqu'à la post-fermeture, surtout en augmentant les nutriments dans l'eau (c.-à-d. le phosphore), ce qui signifie habituellement que le lac contient plus d'algues.

Les lacs qui ont été identifiés comme culturellement importants (c.-à-d. les lacs Innugugayualik et Pipedream) ne seront pas touchés par le rejet des eaux minières traitées.

Le poisson et l'habitat du poisson

Le Projet peut modifier l'habitat du poisson en pompant l'eau du lac Whale Tail (bassin nord), par la construction des digues (ce qui empêche le passage des poissons entre les lacs et les cours d'eau), par l'inondation des lacs et des cours d'eau, en modifiant les niveaux d'eau des lacs et en modifiant la qualité de l'eau.

Au cours de la construction, des digues seront construites afin de retirer de l'eau du lac Whale Tail (bassin nord). Le poissonssera retiré du lac Whale Tail (bassin nord) avant que l'eau ne soit pompée. Les digues Whale Tail et Mammoth seront construites dans l'eau. La digue Nord-Est sera partiellement construite dans l'eau. La fosse à ciel ouvert dans le lac Whale Tail (bassin nord) réduira de manière permanente l'habitat du poisson. Les digues empêcheront également le passage des poissons jusqu'à ce qu'elles soient rompues à la fin de la période de fermeture. Le lac Whale Tail (bassin sud) sera inondé au cours de la construction et des opérations, réduisant l'habitat dans les cours d'eau. Des niveaux d'eau plus bas sont prévus dans le lac Mammoth et les autres lacs en aval au cours de la construction et de la fermeture, réduisant la zone disponible pour les poissons puissent se nourrir et que les jeunes poissons puissent croître. Les niveaux de nutriments devraient augmenter dans le lac Mammoth et les lacs en aval, ce qui pourrait entraîner une augmentation du plancton (c.-à-d. des algues) au cours des opérations et de la fermeture. Les niveaux d'oxygène pourraient être réduits dans l'eau au cours de la fermeture, ce qui pourrait affecter la survie des œufs, ainsi que la quantité d'habitats convenables pour la reproduction de l'omble chevalier, de la truite de lac et du ménomini rond et d'habitats convenant à la survie des jeunes poissons. Ces effets devraient se poursuivre jusqu'à ce que les digues sont rompues et que les conditions de la qualité de l'eau reviennent à la normale lors de la post-fermeture.

La majorité des effets sont régionaux, et bien que des effets mesurables soient attendus sur certaines populations de poissons, le risque sur l'ensemble des pêches est faible. Agnico Eagle créera un plan qui compensera la perte d'habitat avec l'objectif de maintenir ou d'améliorer les conditions de pêche.

Ressources patrimoniales

Au cours du processus de planification de la route Agnico Eagle a pris connaissance de sites de ressources patrimoniales dénotant une énorme valeur pour les Inuits et alors décidé de refaire le tracé de la route afin d'éviter le plus de sites que possible. Ainsi, 15 des 19 sites archéologiques dans la zone du gisement Whale Tail et de la route de transport ne seront pas touchés. Les quatre autres sites (deux campements, un affût et un repère) sont situés à l'intérieur des limites de la route d'accès au secteur d'exploration Amaruq ou de limites de sources d'emprunt.

Agnico Eagle documentera les sites et prendra les mesures d'atténuation qui lui seront indiquées par le ministère de la Culture et du Patrimoine du Nunavut. Les campements et les trois sites d'affût de chasse feront l'objet d'une récupération de données en utilisant la cartographie détaillée du site, la cartographie des éléments de pierre individuels, la collecte d'artéfacts, les tests avec pelle, l'excavation archéologique et/ou la consultation de la collectivité, selon ce qui convient. Ainsi, les ressources patrimoniales et les connaissances issues des ressources patrimoniales seront conservées.

Utilisation traditionnelle des terres

L'évaluation de l'utilisation traditionnelle des terres et des ressources identifie l'importance du caribou, des animaux à fourrure, des oiseaux, des poissons, et des plantes et baies dans la façon de vivre traditionnelle des Inuits. L'importance des aires culturelles et spirituelles (sentiers, campements, cabanes, caches, tombes) dans la préservation des valeurs traditionnelles et le transfert des connaissances traditionnelles et des IQ entre les générations est également soulignée.

L'évaluation a déterminé que les activités du Projet pourraient affecter l'accès des individus à la récolte faunique, la pêche, la récolte des plantes et l'utilisation des sites culturellement importants en perturbant la zone que les individus utilisent, en réduisant les populations que les individus pêchent et chassent et par le biais de facteurs économiques limitant la capacité des gens à se rendre et se promener sur les terres.

Le Projet ne devrait pas modifier les opportunités de récolte des animaux à fourrure, puisque les aires de prédilection pour le piégeage du renard arctique, du loup arctique, du carcajou ou de l'ours grizzly sont typiquement situés à proximité de Baker Lake, donc non touchées par le gisement Whale Tail. Les individus seront également en mesure de continuer la chasse aux oiseaux et la pêche de leurs poissons préférés, puisque les zones de récolte de prédilection ainsi que les lieux de pêche ne seront pas touchés par le gisement Whale Tail.

La chasse au caribou est un aspect important du mode de vie des Inuits. Le gisement Whale Tail et la route de transport peuvent modifier la façon qu'a le caribou de se déplacer dans le secteur et avoir un effet les endroits qu'iront chasser certains individus. Les emplois et les changements au niveau de l'économie affectent également la capacité de chasser puisque cela peut rendre plus difficile la capacité de se rendre sur les terres. D'un autre côté, ils peuvent fournir des ressources pour contribuer à transférer les connaissances de la chasse aux plus jeunes. Il est anticipé qu'il y aura encore beaucoup de caribous à chasser.

Facteurs socio-économiques

L'expansion de la mine Meadowbank vers le gisement Whale Tail procurera des emplois à la mine Meadowbank pendant trois à quatre années supplémentaires au profit de la population locale de Baker Lake et d'autres collectivités de la région de Kivalliq, ainsi que des occasions d'emplois indirects ailleurs au Nunavut. Pour la plupart des gens dans les collectivités, l'état de santé se verra amélioré, les familles pourraient profiter de plus de ressources et les ménages auront davantage d'occasions d'épargner; cependant, les individus auront besoin de gérer leur argent avec soin, et les nouveaux travailleurs devront s'habituer à passer moins de temps avec leurs familles et à pratiquer des activités traditionnelles. L'augmentation de la durée de vie de la mine peut avoir des effets positifs et des effets négatifs sur la santé et la sécurité des travailleurs et de la collectivité. Cette augmentation a le potentiel d'entraîner des impacts négatifs sur la cohésion de la famille et de la collectivité en raison de l'économie de salaires que vivront certains membres de la collectivité et du fait que certaines familles ou certains individus au sein des familles auront des statuts économiques différents.

Il est anticipé que le Projet aura un certain nombre d'effets positifs, particulièrement un effet positif sur le PIB, les recettes fiscales, le développement de commerces locaux, des emplois et de la formation, des revenus, et un mieux-être associé au revenu disponible, des contributions à la collectivité et la continuation d'ententes entre Agnico Eagle et les collectivités, ententes conçues pour aider les collectivités. Le principal effet sur le revenu sera la conservation pendant trois à quatre années supplémentaires d'emplois à salaire élevé issus de la mine Meadowbank.

Les changements aux facteurs socio-économiques dans la zone du Projet devraient surtout être positifs et durées jusqu'à la fermeture de la mine.

LES MESURES D'ATTÉNUATION

Agnico Eagle continuera d'avoir des plans de gestion et de surveillance ainsi qu'un système de gestion des effets similaire à ce qui se fait à la mine Meadowbank. Le système est constitué de trois parties clés : un plan de gestion environnementale qui lie entre eux tous les aspects de la mine, un programme formel de sensibilisation environnementale, une surveillance environnementale continue et le partage des résultats de surveillance par le biais d'une production de rapports complets annuellement. Voici quelques exemples de programmes de surveillance planifiés pour le gisement Whale Tail :

- la surveillance de la qualité de l'air, des retombées de poussières et du bruit.
- Les programmes de surveillance du pergélisol, des sols, de la végétation et de la faune incluront la surveillance du pergélisol et des conditions du sol, des sondages des eskers afin d'identifier les tanières, la surveillance de la poussière le long de la route de transport, ainsi qu'une surveillance de la faune.
- La surveillance de la quantité et de la qualité de l'eau, ainsi que des poissons.
- Continuer à communiquer avec les individus au sein des collectivités afin d'intégrer les IQ.

LA FERMETURE

Agnico Eagle planifie de laisser le gisement Whale Tail dans une empreinte de projet physiquement et chimiquement stable pour la protection à long terme de l'environnement et de la population du Nunavut. La plupart des activités de fermeture se produiront sur une période de trois ans avec le maintien d'une fermeture passive jusqu'à ce que toute l'infrastructure de gestion des eaux soit rompue/retirée, après quoi une période de post-fermeture sera observée afin de confirmer la stabilité physique et chimique. La surveillance se poursuivra jusqu'à ce qu'il soit confirmé que l'eau est sécuritaire et peut être relâchée dans l'environnement naturel et afin de s'assurer que l'environnement naturel est bien protégé.

EXECUTIVE SUMMARY – VOLUME 3 ASSESSMENT METHODS

Volume 3 describes the approach that was used for analyzing potential effects, and classifying and determining the environmental significance of impacts from the Project on the biophysical and socio-economic environments.

The approaches and methods for assessing potential effects from the Project on the biophysical and socio-economic environments are broken down into the following key elements:

- Valued Components (VCs);
- Pathway Analysis;
- Spatial and Temporal Boundaries;
- Effects Analysis;
- Residual Impact Classification and Significance;
- Uncertainty; and
- Monitoring and Follow-up.

Valued components represent physical, biological, cultural, social, and economic properties of the environment that are either legally, politically, publically, or professionally recognized as important by society. Valued components selected in 2005 are considered appropriate for this Final Environmental Impact Statement (FEIS) Amendment as they are consistent with the issues raised during 2005 FEIS process and recent public meetings with Agnico Eagle.

Pathway analyses are used to identify and assess the linkages between Project components or activities and potential residual effects (i.e., effects after mitigation) to VCs. Pathways are determined to be primary, secondary, or as having no linkage using scientific and traditional knowledge, logic, and experience with similar developments and environmental design features. Each potential pathway is assessed and described as follows:

- no linkage – pathway is removed by environmental design features (i.e., effect mitigation) so that the Project results in no detectable (measurable) environmental change and residual effects to a VC when compared to baseline or guideline values;
- secondary – pathway could result in a minor environmental change, but would have a negligible residual effect on a VC when compared to baseline or guideline values; or
- primary – pathway is likely to result in a measurable environmental change that could contribute to residual effects on a VC when compared to baseline or guideline values.

Pathways with no linkage or that are considered minor are not predicted to result in environmentally significant effects and are not analyzed further. Alternatively, primary pathways undergo further effects analysis to determine the potential environmental significance of the Project on the key properties of VCs. Key properties are called “assessment endpoints”, and should be protected for their use by future human generations.

Spatial and temporal boundaries are defined for each VC prior to the effects analysis. Spatial and temporal boundaries link component-specific characteristics with the appropriate spatial and temporal scales for effects analyses, and gives broad definitions for the boundaries.

The effects analysis provides the general approach to analyzing potential Project-specific and cumulative (where applicable) effects. Cumulative effects assessment includes other human activities that overlap with the spatial and temporal distribution of a VC, and has the potential to substantially affect the environment, including past, present, and reasonably foreseeable future development.

The residual effects summary presents a numerical and/or qualitative description of magnitude, geographic extent, duration, and frequency of residual effects from each pathway. From the summary of residual effects, each pathway that is linked to an assessment endpoint is classified using categorical scales for each impact criterion (e.g., low magnitude, regional geographic extent, long-term duration, high likelihood). Results from the effects analysis and residual impact classification are then used in the evaluation of the significance of impacts from the Project on VCs.

For each effects analysis, key sources of uncertainty are presented, and how the uncertainty is addressed to increase the level of confidence that potential effects to the VC would not be worse than predicted is discussed. Monitoring programs are proposed to deal with the uncertainties associated with the impact predictions and environmental design features. In general, monitoring is used to test (verify) impact predictions and determine the effectiveness of environmental design features (mitigation). Monitoring is also used to identify unanticipated effects and implement adaptive management, where required.

ᓇᐃᓈᖅᓯᒪᔪᖅ – ᐅᖃᓕᒫᒐᖅ 3 ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᑦ

ᐅᖃᓕᒫᒐᖅ 3 ᐅᖃᐅᓯᖃᖅᑐᑦ ᐊᑐᖅᑕᐅᔪᒥᒃ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᑐᐃᓐᓇᕆᐊᖃᖅᑐᓂᒃ, ᐊᒻᒪᓗ ᐃᓂᓕᐅᖅᓱᒋᑦ ᐊᒻᒪᓗ ᖃᐅᔨᓂᕐᒧᑦ ᐊᕙᑎᒥᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐃᓂᐅᔪᒧᑦ ᐊᒻᒪᓗ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᐅᑉ ᐊᕙᑎᖏᓐᓂᑦ.

ᐊᑐᖅᑕᐅᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᑐᐃᓐᓇᕆᐊᓕᖕᓂᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ ᐃᓂᐅᔪᒥᑦ ᐊᒻᒪᓗ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐊᕙᑎᖏᓐᓂᑦ ᐊᕕᒃᑐᖅᑕᐅᓯᒪᔪᑦ ᐅᑯᓄᖕᒐ:

- ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᓄᑦ ᐃᓚᒋᔭᐅᔪᑦ (VC)
- ᐊᑉᖁᑎᒋᔭᐅᔪᒥᒃ ᖃᐅᔨᓴᐃᓂᖅ;
- ᐊᖏᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒧᑦ ᑭᒡᓕᐅᔪᑦ;
- ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ;
- ᕿᒪᒃᑎᑦᑐᓄᑦ ᐊᒃᑐᖅᓯᓂᖅ ᐃᓂᓕᐅᕆᓂᖅ ᐊᒻᒪᓗ ᖃᓄᑎᒋᐅᓂᖓ;
- ᓇᓗᓇᖅᑐᖅ; ᐊᒻᒪᓗ
- ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ.

ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ ᐱᔾᔪᑎᖃᖅᑐᖅ ᑎᒥᒥᒃ, ᐆᒪᓂᖃᕐᓂᕐᒥᒃ, ᐱᖅᑯᓯᕐᒥᑦ, ᐃᓅᖃᑎᒌᒥᑦ, ᐊᒻᒪᓗ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐱᒋᔭᐅᔪᓂᒃ ᐊᕙᑎᒧᑦ ᒪᓕᒃᑯᖓᔪᓪᓗᓐᓂᑦ, ᒪᓕᒐᓕᐅᕐᕕᒃᑯᑦ, ᐃᓄᓗᒃᑖᒧᖓᔪᑦ, ᐅᕝᕙᓘᓐᓂᑦ ᐃᓕᓐᓂᐊᖅᓯᒪᓂᖃᕐᓂᒃᑯᑦ ᐃᓕᑕᕆᔭᐅᔪᑦ ᐱᒻᒪᕆᐅᓂᖏᓐᓄᑦ ᐃᓄᖕᓄᑦ. ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ ᓂᕈᐊᖅᑕᐅᔪᑦ 2005-ᒥᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᓈᒻᒪᒃᑑᓂᖏᓐᓄᑦ ᑖᑉᓯᒧᖕᒐ ᑭᖑᓪᓕᖅᐸᖅ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᖅ (FEIS) ᐋᕿᒋᐊᖅᓯᓂᕐᒧᑦ ᐊᔾᔨᒌᒪᒋᑦ ᐱᔾᔪᑕᐅᔪᑦ ᓴᖅᑭᑕᐅᔪᑦ 2005-ᒥᑦ FEIS-ᓕᕆᕙᓪᓕᐊᓂᕐᒥᑦ ᐊᒻᒪᓗ ᒫᓐᓇᓵᖅ ᐃᓄᓗᒃᑖᓂᒃ ᑲᑎᒪᖃᑎᖃᖅᑎᓪᓗᒋᑦ ᐊᒡᓃᑯᒃᑯᑦ.

ᐊᑉᖁᑎᒋᔭᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓃᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᑦ ᐃᓕᑕᖅᓯᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓗᓂᓗ ᐊᒃᑐᐊᓂᖃᖅᑐᓂᒃ ᐱᓕᕆᐊᑉ ᐃᓚᒋᔭᖏᓐᓄᑦ ᐅᕙᓘᓃᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓄᑦ ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᓂᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓂᒃ (ᓱᕐᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᖅᑳᖅᑎᓪᓗᒋᑦ) VC-ᓄᑦ. ᐊᑉᖁᑎᒋᔭᐅᔪᑦ ᖃᐅᔨᔭᐅᖃᑦᑕᖅᑐᑦ ᑕᒡᕙᓗᐊᖑᓂᖏᓐᓄᑦ, ᑐᒡᓕᐅᓂᖏᓐᓄᑦ, ᐅᕙᓘᓃᑦ ᐊᒃᑐᐊᓂᖃᖕᒋᓐᓂᖏᓐᓄᑦ ᐊᑐᖅᓱᑎᒃ ᐃᓕᓐᓂᐊᖅᓯᒪᓂᒃᑯᑦ ᐊᒻᒪᓗ ᐱᖅᑯᓯᒃᑯᑦ ᖃᐅᔨᒪᓂᒃᑯᑦ, ᐱᔭᕆᐊᖃᕐᒪᑦ, ᐊᒻᒪᓗ ᐊᑐᖅᓯᒪᓂᑯᒃᑯᑦ ᐊᔾᔨᕐᓚᖏᓐᓂᒃ ᐱᕙᓪᓕᐊᓯᒪᔪᓂᒃ ᐊᒻᒪᓗ ᐊᕙᑎᒧᑦ ᐋᕿᒃᓯᒪᔪᓄᑦ. ᐊᑐᓂ ᐊᑉᖁᑕᐅᔪᓐᓇᖅᑐᑦ ᖃᐅᔨᓴᖅᑕᐅᖃᑦᑕᖅᑐᖅ ᐊᒻᒪᓗ ᐅᖃᐅᓯᐅᑉᓗᑎᒃ ᐃᒪᓐᓇ:

- ᐊᒃᑐᐊᓂᖃᙱᑦᑐᖅ - ᐊᑉᖁᑎᒋᔭᐅᔪᖅ ᐋᖅᑕᐅᔪᑦ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐋᕿᒃᑕᐅᓯᒪᔪᓄᑦ (ᓱᕐᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ) ᐱᓕᕆᐊᒥᑦ ᖃᓄᐃᖓᓂᐅᔪᑦ ᖃᐅᔨᓂᖅᑕᖃᔾᔭᖏᒻᒪᑦ (ᐆᒃᑐᕋᖅᑕᐅᔪᓐᓇᖅᑐᖅ) ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐊᓯᐊᖑᕐᓂᐅᔪᒥᒃ ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ VC-ᓄᑦ ᑕᐅᑐᖕᒐᖅᓱᒋᑦ ᑭᒡᓕᒋᔭᐅᔪᑦ ᐅᕙᓘᓃᑦ ᒪᓕᒃᑕᐅᔭᕆᐊᓕᖕᓄᑦ ᓈᓴᐅᑎᓄᑦ;
- ᑐᒡᓕᐅᔪᖅ - ᐊᑉᖁᑎᒋᔭᐅᔪᖅ ᒥᑭᔪᒥᒃ ᐊᓯᐊᖑᖅᓯᓂᖃᕈᓐᓇᖅᑐᖅ ᐊᕙᑎᒧᑦ, ᑭᓯᐊᓂ ᒥᑭᑦᑐᒥᒃ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓗᓂ VC-ᓄᑦ ᑕᐅᑐᖕᒐᖅᓱᒋᑦ ᑭᒡᓕᒋᔭᐅᔪᑦ ᐅᕙᓘᓃᑦ ᒪᓕᒃᑕᐅᔭᕆᐊᓕᖕᓄᑦ ᓈᓴᐅᑎᓄᑦ; ᐅᕙᓘᓃᑦ
- ᑖᒻᓇᓗᐊᖅ - ᐊᑉᖁᑎ ᐆᒃᑐᕋᖅᑕᐅᔪᓐᓇᖅᑐᒥᒃ ᐊᓯᐊᖑᖅᑎᑦᑎᓂᖃᕈᓐᓇᖅᑐᖅ ᐊᕙᑎᒥᒃ ᐃᑲᔪᐃᔪᓐᓇᖅᓱᓂ ᕿᒪᒃᑎᑦᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓂᒃ VC-ᓄᑦ ᑕᐅᑐᖕᒐᖅᓱᒋᑦ ᑭᒡᓕᒋᔭᐅᔪᑦ ᐅᕙᓘᓃᑦ ᒪᓕᒃᑕᐅᔭᕆᐊᓕᖕᓄᑦ ᓈᓴᐅᑎᓄᑦ.

ᐊᑉᖁᑕᐅᔪᑦ ᐊᒃᑐᐊᓂᖃᙱᓪᓗᑎᒃ ᐃᓱᒪᒋᔭᐅᔪᑦ ᒥᑭᑦᑑᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᐊᕙᑎᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᔾᔭᖏᓐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᖃᐅᔨᓴᖅᑕᐅᒃᑲᓐᓂᙱᓕᖅᓗᑎᒃ. ᐊᓯᐊᒍᖕᒐᖅ, ᐊᑉᖁᑕᐅᓗᐊᖅᑐᑦ ᖃᐅᔨᓴᐃᓂᖅᑕᖃᒃᑲᓐᓂᖃᑦᑕᖅᑐᑦ ᖃᐅᔨᓂᕐᒧᑦ ᐊᕙᑎᒥᒃ ᐱᔾᔪᑎᖃᖅᑐᓂᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ VC-ᓄᑦ ᐃᓚᒋᔭᐅᔪᓄᑦ. ᐃᓚᒋᔭᐅᔪᑦ ᑕᐃᔭᐅᔪᑦ "ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐃᓱᒋᔭᐅᔪᑦ", ᐊᒻᒪᓗ ᒥᐊᓂᕆᔭᐅᔭᕆᐊᖃᖅᑐᑦ ᑭᖑᕙᓄᑦ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᕐᒧᑦ.

ᐊᖏᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒧᑦ ᑭᒡᓕᐅᔪᑦ ᑐᑭᓕᐅᖅᑕᐅᔪᑦ ᐊᑐᓂ VC-ᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᖅᑕᖃᖅᑳᖅᑎᓐᓇᒍ. ᐊᖏᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒧᑦ ᑭᒡᓕᐅᔪᑦ ᐊᒃᑐᐊᓂᖃᖅᑐᑦ ᐃᓚᒋᔭᐅᔪᒨᖓᔪᐃᑦ ᐃᓕᖅᑯᓯᖏᓐᓄᑦ ᓈᒻᒪᒃᑐᒧᑦ ᐊᖏᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒧᑦ ᐊᖏᓂᐅᔪᓄᑦ ᐊᑐᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᕐᓄᑦ, ᐊᒻᒪᓗ ᑐᓂᓯᖃᑦᑕᖅᑐᑦ ᐊᖏᔪᒥᒃ ᑐᑭᐅᔪᓂᒃ ᑭᒡᓕᐅᔪᓄᑦ.

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ ᑐᓂᓯᖃᑦᑕᖅᑐᖅ ᐊᑐᖅᑕᐅᔪᒥᒃ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓐᓇᖅᑐᓂᒃ ᐊᒻᒪᓗ ᑲᑎᑉᐸᓪᓕᐊᔪᓂᒃ (ᐊᑐᖅᐸᑦ) ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ. ᑲᑎᑉᐸᓪᓕᐊᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓄᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᐃᓚᐅᔪᑦ ᐊᓯᖏᑦ ᐃᓄᐃᑦ ᖃᓄᐃᓕᐅᕐᓂᖏᑦ ᑲᑎᖕᓂᖃᖅᑐᑦ ᐊᖏᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒧᑦ ᑐᓂᐅᖅᑲᐅᑕᐅᔪᑦ ᐯᑕ-ᒥᑦ, ᐊᒻᒪᓗ ᐊᒃᑐᖅᓯᓂᖃᕐᔪᐊᕈᓐᓇᖅᓱᓂ ᐊᕙᑎᒥᒃ, ᐃᓚᐅᐸᓗᑎᒃ ᐊᓂᒍᖅᑐᒥᑦ, ᐅᐸᓗᒥᐅᔪᒥᑦ, ᐊᒻᒪᓗ ᖃᐅᔨᒪᓐᓇᖅᑐᒥᑦ ᓯᕗᓂᒃᓴᒥᑦ ᐱᕙᓪᓕᐊᓂᕐᒥᑦ.

ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓄᑦ ᓇᐃᓈᖅᓯᒪᔪᖅ ᑕᑯᒃᓴᐅᑎᑦᑎᔪᖅ ᓈᓴᐅᑎᓂᒃ ᐊᒻᒪᓗ/ᐅᕙᓘᓃᑦ ᐊᒥᓱᙳᕈᓐᓇᕐᓂᕐᒧᑦ ᓇᓗᓇᐃᔭᖅᓯᒪᔪᓂᒃ ᐊᖏᓂᐅᔪᒥᑦ, ᖃᓄᑎᒋ ᓄᓇᒥᒃ ᑎᑭᐅᑎᓯᒪᓂᖓ, ᖃᓄᑎᒋᐅᓂᖓ, ᐊᒻᒪᓗ ᖃᐸᒨᖅᑕᖃᑦᑕᕐᓂᖓ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐊᑐᓂ ᐊᑉᐢᑯᑎᒋᔭᐅᔪᓂᑦ. ᓇᐃᓈᖅᓯᒪᔪᒥᑦ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒥᑦ, ᐊᑐᓂ ᐊᑉᐢᑯᑕᐅᔪᑦ ᐊᒃᑐᐊᔪᑦ ᖃᐅᔨᓴᐃᓂᐅᑉ ᐃᓱᖓᓄᑦ ᐃᓂᓕᐅᖅᑕᐅᖃᑦᑕᖅᑐᖅ ᐊᑐᖅᓱᑎᒃ ᖃᓄᐃᑦᑑᓕᖓᔪᑦ ᐊᖏᓂᖏᑦ ᐊᑐᓂ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᒧᑦ (ᓲᕐᓗ ᒥᑭᔪᖅ ᐊᖏᓂᓇᔭᖓ, ᐊᖏᓂᖅᓴᒥᒃ ᑎᑭᖅᑲᐅᒪᓂᖓ, ᐊᑯᓂᐅᔪᑦ ᑕᑭᑎᒋᓂᖓ, ᐊᖏᔪᒥᒃ ᐱᔪᓐᓇᖅᑐᖅ). ᖃᓄᐃᖓᓂᐅᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᓄᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᖅ ᐃᓂᓕᐊᖅᑕᐅᓂᖓ ᐊᑐᖅᑕᐅᓕᖅᓱᑎᒃ ᕿᒥᕐᕈᓂᕐᒧᑦ ᐊᖏᓂᓇᔭᖓ ᐊᒃᑐᖅᓯᓂᐅᑉ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ ᐯᑕ-ᓄᑦ.

ᐊᑐᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓃᑦ, ᐱᕝᕙᐅᔪᑦ ᓇᓗᓇᖅᑐᓂᒃ ᑕᐃᒪᐅᔪᑦ, ᐊᒻᒪᓗ ᖃᓄᖅ ᓇᓗᓇᖅᑎᒋᓂᖓ ᐱᓕᕆᐊᖑᐸᓗᓂ ᐊᖏᒡᓕᒋᐊᖅᑎᓐᓂᕐᒧᑦ ᓇᓃᓐᓂᖓ ᓇᓗᓇᙱᓐᓂᐅᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᑦ ᐯᑕ-ᒧᑦ ᐊᖏᓂᖅᓴᐅᓕᕐᓂᐊᖏᒻᒪᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᒥᑦ ᐅᖃᐅᓯᐅᓕᖅᓱᓂ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕋᖓᔪᑦ ᓴᖅᑭᑕᐅᖃᑦᑕᖅᑐᑦ ᐱᓕᕆᐊᕆᓂᕐᒧᑦ ᓇᓗᓇᖅᑐᐃᑦ ᐊᒃᑐᐊᔪᑦ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᓄᑦ ᐊᒻᒪᓗ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐋᕿᐅᒪᔪᓄᑦ ᐃᓚᒋᔭᐅᔪᓄᑦ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᖅ ᐆᒃᑐᕋᐃᓂᕐᒧᑦ (ᓇᓗᓇᐃᖅᓯᓂᕐᒧᑦ) ᐊᒃᑐᖅᓯᓂᕐᒥᒃ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐊᒻᒪᓗ ᖃᐅᔨᓗᓂ ᐊᑑᑎᖃᕐᓂᖓ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᐋᕿᒃᓯᒪᔪᒧᑦ ᐃᓚᒋᔭᐅᔪᑦ (ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖅ). ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᒥᔪᑦ ᐃᓕᑕᖅᓯᓂᕐᒧᑦ ᓂᕆᐅᓇᖏᑦᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᐊᒻᒪᓗ ᐊᑐᓕᖅᓱᒋᑦ ᐊᐅᓚᑦᑎᔾᔪᑏᑦ, ᐱᔭᕆᐊᖃᖅᑐᓂᑦ.

SOMMAIRE DE GESTION – VOLUME 3 - LES MÉTHODES D'ÉVALUATION

Le Volume 3 décrit l'approche qui a été utilisée pour l'analyse des effets potentiels, ainsi que la classification et la détermination de l'importance environnementale des impacts du Projet sur les environnements biophysique et socio-économique.

Les approches et méthodes pour l'évaluation des effets potentiels du Projet sur les environnements biophysique et socio-économique sont divisées selon les éléments clés suivants :

- Les composantes valorisées (CV);
- L'analyse des trajectoires;
- Les limites spatiales et temporelles;
- L'analyse des effets;
- La classification et l'importance des impacts résiduels;
- L'incertitude; et
- La surveillance et le suivi.

Les composantes valorisées représentent les propriétés physiques, biologiques, culturelles, sociales et économiques de l'environnement qui sont reconnues légalement, politiquement, publiquement ou professionnellement comme importantes par la société. Les composantes valorisées sélectionnées en 2005 sont considérées comme appropriées pour cet Énoncé des incidences environnementales (EIE) puisqu'elles sont conformes aux questions et inquiétudes soulevées au cours du processus de l'EIE 2005 et lors des récentes rencontres publiques avec Agnico Eagle.

Des analyses de trajectoire sont utilisées pour identifier et évaluer les liens et relations entre les composantes ou activités du Projet et les effets résiduels potentiels (c.-à-d. les effets après atténuation) sur les CV. Les trajectoires sont déterminées comme primaires, secondaires ou n'ayant aucun lien, en utilisant les connaissances scientifiques et traditionnelles, la logique et l'expérience avec des éléments similaires de conception environnementaux et de développement. Chaque trajectoire potentielle est évaluée et décrite comme suit :

- aucun lien – la trajectoire est éliminée par des éléments de conception environnementaux (c.à-d. une atténuation des effets) afin que le Projet n'entraîne aucun effet résiduel sur une VC ni aucune modification environnementale détectable (mesurable) lorsque comparé aux valeurs de base ou préconisées;
- secondaire – la trajectoire pourrait entraîner une modification environnementale mineure, mais aurait un effet résiduel négligeable sur une CV lorsque comparé aux valeurs de base ou préconisées; ou
- primaire – la trajectoire est susceptible d'entraîner une modification environnementale mesurable qui pourrait contribuer à des effets résiduels sur une CV lorsque comparés aux valeurs de base ou préconisées.

Les trajectoires n'ayant aucun lien ou qui sont considérées comme mineures ne devraient pas occasionner d'effets importants sur l'environnement et ne sont pas analysées plus avant. Au contraire, les trajectoires primaires font l'objet d'une analyse additionnelle des effets afin de déterminer l'importance environnementale potentielle du Projet sur les propriétés clés des CV. Les propriétés clés sont appelées des « paramètres de mesure » et leur utilisation devrait être protégée et préservée pour les générations futures.

Les limites spatiales et temporelles sont définies pour chaque CV avant de procéder à l'analyse des effets. Les limites spatiales et temporelles relient les caractéristiques spécifiques des composantes aux échelles spatiale et temporelle appropriées aux fins des analyses des effets et procurent des définitions générales des limites et frontières.

L'analyse des effets procure l'approche générale visant à analyser les effets potentiels spécifiques au Projet et les effets potentiels cumulatifs (lorsqu'applicables). L'évaluation des effets cumulatifs inclut les autres activités humaines qui recoupent la répartition spatiale et temporelle d'une CV et a le potentiel d'affecter substantiellement l'environnement, incluant le développement passé, présent, et raisonnablement prévisible pour le futur.

Le résumé des effets résiduels présente une description quantitative et/ou qualitative de l'ampleur, l'étendue géographique, la durée et la fréquence des effets résiduels de chaque trajectoire. À partir du résumé des effets résiduels, chaque trajectoire qui est liée à un paramètre de mesure est classée en utilisant les échelles nominales pour chaque critère d'impact (ex. : faible ampleur, étendue géographique régionale, durée à long terme, probabilité élevée). Les résultats de l'analyse des effets et de la classification des impacts résiduels sont ensuite utilisés pour l'évaluation de l'importance des impacts du Projet sur les CV.

Pour chaque analyse des effets, des sources clés d'incertitude sont présentées, et une discussion se tient sur la façon dont l'incertitude est traitée afin d'augmenter le niveau de confiance que les effets potentiels sur la CV ne sera pas pire que ceux prévus. Des programmes de surveillance sont proposés pour traiter les incertitudes associées aux prévisions des impacts et aux éléments de conception environnementaux. En général, la surveillance est utilisée pour tester (vérifier) les prévisions des impacts et pour déterminer l'efficacité des éléments de conception environnementaux (atténuation). La surveillance est également utilisée pour identifier les effets imprévus et mettre en œuvre une gestion adaptative, lorsque nécessaire.

EXECUTIVE SUMMARY – VOLUME 4 ATMOSPHERIC ENVIRONMENT

Volume 4 of the Final Environmental Impact Statement for the Whale Tail Pit and Haul Road Project (the Project) addresses Guidelines issues by the Nunavut Impact Review Board, specifically those relating to effects to the Atmospheric Environment, including climate and meteorology, air quality, and noise and vibration. The effects assessment evaluates all Project phases, including construction, operations, and closure.

Climate

The Climate and Meteorology section included a review of relevant documents, as well as Inuit Qaujimajatuqangit (IQ) observations from Inuit from Baker Lake. Climate change is a concern for Elders and land users because the unpredictability of weather conditions has resulted in a lack of confidence in using traditional knowledge to predict weather. Inuit are also concerned about the potential effects of climate change to vegetation, wildlife, fish, and other traditional resources.

Greenhouse gas (GHG) emissions from Nunavut are low due to its low population and low intensity of urban/industrial activities. Total average emissions from Nunavut from 2007 to 2011 were 434 kilotonnes of carbon dioxide equivalents per year (kt CO_{2e}/yr). Development of the Whale Tail Pit and emissions from traffic along the haul road to Meadowbank Mine are predicted to result in a 56% increase in GHG emissions for Nunavut. However, when compared to Canada's national emissions (714,000 kt CO_2e/yr), the Project contributes to a less than 0.05% increase in national GHG emissions.

The short duration of the proposed Project means that climate change related effects to the Project are likely negligible.

Air Quality and Dust

Inuit depend upon their local environment for their social, cultural, and economic well-being, they are aware of changes to their environment, including air quality. Inuit have documented recent changes to air quality, and are concerned about the potential effects of these changes on their traditional land use activities and resources. Inuit Qaujimajatuqangit highlighted concerns about the effects of dust deposition on vegetation and the sensitivity of caribou, muskox, and other traditional resources to these potential effects. Potential effects of the Project on air quality and atmospheric deposition of dust were predicted and compared to national and territorial air quality guidelines as there are no standards that can be drawn explicitly from IQ.

Local Inuit requested that emissions of fugitive road dust be mitigated through the use of road watering and the application of chemical dust suppressants, and that the accumulation of dust be monitored. Agnico Eagle conducts local meteorology, air quality, and dustfall monitoring at their existing Meadowbank Mine and mitigation and monitoring opportunities at the proposed Project are similar to those at the existing Meadowbank Mine.

The dispersion model-predicted ground level concentrations of carbon monoxide (CO), NO_2, and sulfur dioxide (SO_2) were very low compared to the baseline and to their relevant ambient air quality standards. Predictions of $PM_{2.5}$ adjacent to the haul road were below Nunavut ambient air quality guidelines within 50 to 75 metres (m) from the haul road. Maximum annual TSP concentrations are predicted to exceed the ambient air quality standard (60 micrograms per cubic metre [$\mu g/m^3$}) within the first 100 to 300 m from the haul road. Predicted dust deposition rates are predicted to be below the BC dustfall standard within 300 m of the haul road. Annual dust deposition is predicted to be below the Ontario dustfall standard within 25 m from the haul road. These standards are considered to be the strictest dust deposition standards in Canada.

The effects of fugitive dust emissions on air quality adjacent to the haul road are limited in spatial extent and occur primarily on dry windy days in the summer. These effects are reversible in that fugitive dust will no longer affect air quality once the Whale Tail Pit is decommissioned and the haul road becomes inactive.

The effects of mining activities at the Whale Tail Pit on regional air quality are limited in spatial extent and occur primarily on dry windy days in summer. These effects are reversible in that emissions will no longer affect air quality once the Whale Tail Pit is decommissioned and the haul road become inactive. Based on an extrapolation of the monitoring results, the effects of an extension to the operations of the Meadowbank Mill and camp on regional air quality are considered low. Any potential effects are considered reversible in that emissions will no longer affect air quality once the Whale Tail Pit and Meadowbank Mill are decommissioned.

The All-Weather Access Road (AWAR) between the community of Baker Lake and the Meadowbank Mine is expected to remain active for a period of up to three years after the Whale Tail Pit operations commence. The significant distance between the AWAR and the Whale Tail operations and the expected limited use of the AWAR limits the potential for combined effects of emissions resulting from the ongoing use of the AWAR and the Whale Tail Pit operations. The most recent (2015) results of the Meadowbank dustfall monitoring program indicate that even in close proximity to the project operations, all samples but 1 out of the 48 collected, compared favourably with the Alberta guidance on dustfall for recreational and residential areas.

The results of this assessment indicate particulate matter and dustfall monitoring at the Whale Tail Pit and along the haul road to the Meadowbank Mine is warranted. The monitoring program will be based on the existing air quality and dustfall monitoring conducted at the Meadowbank Mine, and the dustfall monitoring program along the Meadowbank AWAR to Baker Lake.

Both IQ and scientific monitoring suggest that road watering and the application of chemical suppressants can reduce fugitive dust emissions.

Noise and Vibration

Haul road construction noise levels for all periods are predicted to be less than the existing ambient noise level at the boundary of the Local and Regional Study Areas (LSA and RSA). The predicted values also indicate that there will be no low frequency noise (LFN) effect along the LSA boundary. Haul road operations noise levels are also predicted to be less than the existing ambient noise level in summertime and wintertime at the boundary of the RSA. Similarly, for all periods, haul road operations Project noise levels are predicted to be less than 35 A-weighted decibel (dBA) at the boundary of the LSA.

Pit Operations noise levels are predicted to be less than 30 dBA at the RSA boundary for both summertime and wintertime. Similarly, for all periods, pit operations noise levels are predicted to be less than the 30 dBA existing ambient noise level for most of the LSA boundary and are predicted to be less than 35 dBA along all areas of the LSA boundary. Summertime and wintertime pit operations cumulative noise levels are predicted to be less than the applicable AER Directive 038 PSL limit along the whole LSA boundary. There will be no LFN effect along the LSA boundary. At the LSA boundary airborne noise levels from Project blasting are predicted to be well below the NCP-119 standard.

The predicted setback distances from pit operations blasting activities required to achieve compliance with DFO peak particle velocity (vibration) and peak pressure level (noise) limits for the protection of spawning fish and fish habitat, are 700 m and 148 m for Fish Spawning areas and Fish Habitat, respectively. During pit operations, blasting will be carefully managed and monitored in the context of DFO limits and appropriate setbacks will be established so that noise and vibration from pit operations blasting do not affect fish spawning or general habitat.

Any potential effects associated with the primary pathways are captured in the assessment of potential effects to, and residual effect classifications for, other valued components, specifically in wildlife, birds, and fisheries.

Follow-up noise monitoring for the Project will be conducted in a way similar to monitoring currently being conducted as part of the Meadowbank Mine noise management plans. Annual monitoring will be conducted at four locations in the vicinity of the Project with locations being selected and adjusted as Project evolves If monitored noise levels exceed appropriate limits, Agnico Eagle will take appropriate actions to identify the specific cause of the exceedance and, if practical, to mitigate the relevant noise source.

ᓇᐃᓈᖅᓯᒪᔪᖅ – ᐅᖃᓕᒫᒐᖅ 4 ᓯᓚᐅᑉ ᓯᓚᖃᙱᑦᑑᑉ ᐊᕙᑎᖓ

ᐅᖃᓕᒫᒐᖅ 4 ᑭᖑᓪᓕᖅᐹᖅ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᕐᒧᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒧᑦ ᐱᓕᕆᐊᕐᒧᑦ (ᐱᓕᕆᐊᖅ) ᐱᓕᕆᐊᖃᖅᑐᖅ ᒪᓕᒃᑕᐅᔪᒃᓴᓂᒃ ᐱᔾᔪᑕᐅᔪᓂᒃ ᓄᓇᕗᒻᒥ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᕿᒥᕐᕈᔨᒃᑯᓐᓄᑦ, ᐱᓗᐊᖅᑐᒥᒃ ᐱᔾᔪᑎᖃᖅᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓯᓚᐅᑉ ᓯᓚᖃᙱᑦᑑᑉ ᐊᕙᑎᖓᓂᑦ, ᐃᓚᐅᑉᓗᑎᒃ ᓯᓚ ᐊᒻᒪᓗ ᓯᓚᖃᙱᑦᑐᖅ, ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖓ, ᐊᒻᒪᓗ ᓂᐱᖃᕐᓂᖅ ᐊᒪᓗ ᓴᔪᕋᓛᕐᓂᐅᔪᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓃᑦ ᕿᒥᕐᕈᔪᑦ ᑕᒪᐃᓄᓗᒃᑖᖅ ᐱᓕᕆᐊᑉ ᓇᓃᓐᓂᕆᔭᕐᓂᑦ, ᐃᓚᐅᑉᓗᑎᒃ ᓴᓇᔭᐅᓂᖓ, ᐊᐅᓛᖅᑎᑦᑎᓂᖅ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᖅ.

ᓯᓚ

ᓯᓚ ᐊᒻᒪᓗ ᓯᓚᖃᙱᑦᑐᖅ ᐊᕕᒃᑐᖅᓯᒪᓂᕐᒥᑦ ᐃᓚᐅᔪᖅ ᕿᒥᕐᕈᓂᖅ ᑕᒪᑐᒧᙱᖓ ᑎᑎᖅᑲᓂᒃ, ᐊᒻᒪᓗ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ (IQ)-ᒥᑦ ᖃᐅᔨᔭᐅᔪᑦ ᐃᓄᖕᓂᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᐅᓂᑦ. ᓯᓚᐅᑉ ᐊᓯᔾᔨᕐᓂᖓ ᐃᓱᒪᒍᑕᐅᔪᖅ ᐃᓐᓇᕆᔭᐅᔪᓄᑦ ᐊᒻᒪᓗ ᓄᓇᒥᒃ ᐊᑐᖃᑦᑕᖅᑐᓄᑦ ᓇᓗᓇᕐᓂᕆᔭᖓᓄᑦ ᓯᓚᐅᑉ ᐊᓯᔾᔨᖃᑦᑕᕐᓂᖓ ᓇᓗᓂᖅᑕᖃᓕᖅᑎᑦᑎᔪᖅ ᐊᑐᖅᑕᐅᓂᖕᒋᑦ ᐱᖅᑯᓯᒃᑯᑦ ᖃᐅᔨᒪᓂᕆᔭᐅᔪᑦ ᓇᓚᐅᑦᑎᓂᕐᒧᑦ ᓯᓚᒥᒃ. ᐃᓄᐃᑦ ᐃᓱᒪᒍᑎᖃᕐᒥᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᓂᒃ ᓯᓚᐅᑉ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᓂᖓᓄᑦ ᐱᕈᖅᑐᓄᑦ, ᓂᕐᔪᑎᓄᑦ, ᐃᖃᓗᖕᓄᑦ, ᐊᒻᒪᓗ ᐊᓯᖕᒋᓐᓄᑦ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᓂᒃ.

ᐱᐅᖕᒋᑦᑐᑦ ᐊᓂᐊᔪᑦ ᓯᓚᒧᑦ (GHG) ᓄᓇᕗᒻᒥᑦ ᐊᑦᑎᒃᑑᔪᑦ ᐊᒥᓲᖕᒋᓐᓂᖕᒋᓐᓄᑦ ᐃᓄᖕᒋᑦ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐊᒻᒪᓗ ᐊᖕᒋᓗᐊᖕᒋᔪᓗᓂ ᐱᓕᕆᕝᕕᒐᔪᐊᖑᖃᑦᑕᖅᑐᓂᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ. ᑲᑎᓗᒃᑖᖅᓱᒋᑦ ᐱᐅᖕᒋᑦᑐᑦ ᐊᓂᐊᔪᓄᑦ ᓈᓴᐅᑏᑦ ᓄᓇᕗᒻᒥᑦ 2007-ᒥᑦ 2011-ᒧᑦ 434 (KILOTONNES) ᑭᓗᑕᓐ-ᖑᓚᐅᖅᑐᑦ ᑳᐸᓐ ᑕᐃᔾᔭᓴᐃᑦ ᐊᔾᔨᒋᑉᓗᒋᑦ ᐅᑭᐅᒥᑦ (kt CO_{2e}/yr). ᐱᕙᓪᓕᐊᓂᖓ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐱᐅᖕᒋᑦᑐᑦ ᐊᓂᐊᔪᑦ ᐃᖕᒋᕋᔭᖕᓂᕐᒧᑦ ᐅᓯᑲᑦᑕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒃᑯᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ 56%-ᒥᑦ ᐊᖕᒋᒡᓕᒋᐊᕐᓂᐊᕐᓂᖓᓄᑦ GHG ᐱᐅᖕᒋᑦᑐᑦ ᐊᓂᐊᔪᑦ ᓄᓇᕗᒻᒧᑦ. ᑭᓯᐊᓂ, ᑕᐅᑐᖕᒑᖅᓱᒍ ᑲᓇᑕᒥᑦ ᐱᐅᖕᒋᑦᑐᑦ ᐊᓂᐊᔪᑦ (714,000 kt CO_2e/yr), ᐱᓕᕆᐊᖅ ᐃᑲᔪᐃᓯᒪᔪᖅ 0.05% ᑐᖕᒑᓂᑦ ᐊᖕᒋᒡᓕᒋᐊᖅᑐᒥᒃ ᑲᓇᑕᐅᑉ GHG-ᓂᒃ ᐊᓂᐊᔪᖕᒋᓐᓄᑦ.

ᓇᐃᑦᑑᓇᔭᕐᓂᖓ ᐱᓕᕆᐊᖑᔪᒪᔪᖅ ᑐᑭᖃᖅᑐᖅ ᓯᓚᐅᑉ ᐊᓯᔾᔨᕐᓂᖓ ᐱᔾᔪᑎᖃᖅᑐᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᐱᓕᕆᐊᕐᒧᑦ ᐅᔾᔨᕐᓇᕋᖕᙱᑦᑐᖅ.

ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖓ ᐊᒻᒪᓗ ᐊᓂᖅᓵᖅᑐᖅᑕᕗᑦ

ᐃᓄᐃᑦ ᐊᑐᖃᑦᑕᖅᑐᑦ ᖃᓂᑕᖕᒋᓐᓂᒃ ᐊᕙᑎᒋᔭᖕᒋᓐᓂᒃ ᐃᓅᖃᑎᒌᖕᓂᕐᒧᑦ, ᐱᖅᑯᓯᕐᒧᑦ, ᐊᒻᒪᓗ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᕐᒧᑦ, ᐅᔾᔨᕈᓯᒃᑐᑦ ᐊᓯᐊᖑᕐᓂᐅᔪᓂᒃ ᐊᕙᑎᖓᓐᓄᑦ, ᐃᓚᐅᑉᓗᓂ ᐊᓂᖅᓵᖅᑐᖅᑕᖕᒋᓐᓂᑦᑕ ᖃᓄᐃᓐᓂᖓᑦ. ᐃᓄᐃᑦ ᖃᐅᔨᓯᒪᔪᑦ ᒫᓐᓇᓵᖅ ᐊᓯᐊᖑᕐᓂᐅᔪᓂᒃ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᑦ, ᐊᒻᒪᓗ ᐃᓱᒪᒍᑎᖃᖅᑐᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᓂᒃ ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᖃᑦᑕᖅᑕᖕᒋᓐᓂᑦ ᐊᒻᒪᓗ ᐱᕝᕕᖃᑦᑕᖅᑕᖕᒋᓐᓂᑦ. ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᑦ ᓇᓗᓇᐃᖅᑕᐅᔪᖕᓇᖅᑐᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖕᒋᓐᓂᑦ.

ᓄᓇᓕᖕᒥᐅᑕᐃᑦ ᐃᓅᔪᑦ ᑐᒃᓯᕋᓚᐅᖅᑐᑦ ᐱᐅᖕᒋᑦᑐᓂᒃ ᐊᓂᐊᔪᓂᒃ ᐊᑉᕐᑯᑎᒥᑦ ᐳᔪᖃᑖᒃ ᐊᖕᒋᓗᐊᖕᒋᒋᐊᖅᑎᑕᐅᕐᑯᑉᓗᒍ ᐊᑐᕐᓗᑎᒃ ᐊᑉᕐᑯᑎᒥᒃ ᐃᒻᒥᖅᑐᐃᖃᑦᑕᕐᓂᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᓂᒃ ᐳᔪᖃᑖᖃᓗᐊᖅᑕᐃᓕᑎᑦᑎᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᑲᑎᑉᐸᓪᓕᐊᔪᑦ ᐳᔪᖃᑖᒃ ᖃᐅᔨᒋᐊᖅᑕᐅᖃᑦᑕᕐᓗᓂ. ᐊᒡᓃᑯᒃᑯᑦ ᓯᓚᓕᕆᖃᑦᑕᖅᑐᑦ ᐃᓂᖃᕐᕕᒋᔭᖓᓐᓂᑦ, ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᑦ, ᐊᒻᒪᓗ ᐳᔪᖃᑖᖕᒥᒃ ᖃᐅᔨᒋᐊᖅᑕᐅᖃᑦᑕᕐᓂᕐᒧᑦ ᑕᐃᒪᐅᔪᒥᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ ᐊᒻᒪᓗ ᐊᖕᒋᓗᐊᖕᒋᒋᐊᖅᑎᑦᑎᑉᓗᑎᒃ ᐊᒻᒪᓗ ᖃᐅᔨᒋᐊᖃᑦᑕᖅᓗᒋᑦ ᐱᕕᖃᕐᓂᐅᔪᑦ ᐱᓕᕆᐊᖑᔪᒪᔪᒥᑦ ᐊᔾᔨᖃᕐᓗᑎᒃ ᑕᐃᒪᐅᔪᓂᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ.

ᓯᐊᒻᒪᒃᑕᐅᓂᖓ ᐋᖅᑭᐅᒪᔪᖅ-ᓇᓚᐅᑦᑖᖅᑕᐅᔪᖅ ᓄᓇᒦᖓᔪᖅ ᑲᑎᓯᒪᔪᑦ carbon monoxide (CO), NO_2, ᐊᒻᒪᓗ sulfur dioxide (SO_2) ᐊᑦᑎᒃᑐᒻᒪᕆᐅᓚᐅᖅᑐᑦ ᑕᐅᑐᖕᒐᖅᓱᒋᑦ ᑭᒡᓕᒋᔭᐅᔪᑦ ᐊᒻᒪᓗ ᐊᔾᔨᖏᓐᓂᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖏᓐᓄᑦ ᐊᑐᖅᑕᐅᔪᓄᑦ. ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ $PM_{2.5}$ ᓄᑦ ᐊᑭᐊᓃᑦᑐᑦ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᐅᑉ ᐊᑖᓃᓚᐅᖅᑐᑦ ᓄᓇᒥᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᒪᓕᒃᑕᐅᔫᒃᓴᖏᓐᓄᑦ 50-ᒥᑦ 75-ᒧᑦ ᒦᑕᓄᑦ (m) ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ. ᐊᖏᓛᒃᑯᑦ ᐊᕐᕌᒍᑕᒫᑦ TSP ᑲᑎᓯᒪᔪᑦ ᓇᓚᐅᑦᑖᒻᑕᐅᔪᑦ ᐅᖓᑕᐅᑦᑎᓂᐊᕐᓂᖏᓐᓄᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓂᐃᓐᓂᖓᓄᑦ ᐊᖅᑐᖅᑕᐅᔪᒥᑦ (60 micrograms cubic ᒦᑕᑕᒫᑦ [µg/m ᓯᕗᓪᓕᖅᐸᐅᔪᑦ 100-ᒥᑦ 300-ᒧᑦ ᒦᑕᓄᑦ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ. ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐳᔪᖃᑖᓄᑦ ᓈᓴᐅᑏᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐊᑖᓃᓂᐊᕐᓂᖏᓐᓄᑦ BC ᐳᔪᖃᑖᖕᒧᑦ ᐊᑐᖅᓂᑕᐅᔪᓂᑦ 300 m ᒦᑕᓂᒃ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ. ᐊᕐᕌᒍᑕᒫᑦ ᐳᔪᖃᑖᒃ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᖅ ᐊᑦᑎᖕᓂᖅᓴᐅᓂᖓᓄᑦ ᐋᓐᑎᐅᕆᔪᒥᑦ ᐳᔪᖃᑖᖕᒧᑦ ᐊᑐᖅᑕᐅᔪᒥᑦ 25 m ᒦᑕᐅᑉ ᐃᓗᐊᓂᑦ ᐅᓯᒃᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑕᐅᑉ ᐃᓗᐊᓂᑦ. ᑕᒪᒃᑯᐊ ᐊᑐᖅᑕᐅᔪᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᐊᐅᓚᑕᐅᓪᓚᕆᖕᓂᖏᓐᓄᑦ ᐊᑐᖅᑕᐅᔪᓂᑦ ᑲᓇᑕᒥᑦ.

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐳᔪᖃᑖᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑎᖕᓄᑦ ᐊᑭᐊᓂᑦ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ ᑭᒡᓕᖃᖅᑐᑦ ᑎᑭᐅᑎᓂᕐᒧᑦ ᐊᖓᓯᖕᓂᕐᒧᑦ ᐊᒻᒪᓗ ᑕᐃᒪᐅᖃᑦᑕᓗᐊᖅᑐᑦ ᐸᓂᖅᑎᓪᓗᒍ ᐊᓄᓇᑐᔪᒥᑦ ᐊᐅᔭᑯᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐅᑎᕈᖕᓇᖅᑐᑦ ᐳᔪᖃᑖᑦ ᐊᒃᑐᖅᓯᓂᖃᕈᖕᓃᕐᓗᑎᒃ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᓇᔭᖏᓐᓄᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᑐᖅᑕᐅᔪᖕᓃᖅᐸᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ ᐊᑐᖅᑕᐅᔪᖕᓃᖅᐸᑦ.

ᐊᑐᖅᓱᒋᑦ ᕿᓂᖅᓴᐃᓂᕐᒧᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᖃᓄᐃᖓᓂᐅᔪᑦ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐅᐃᒍᒋᐊᖅᑕᐅᓂᖓᓄᑦ ᐊᐅᓛᖅᑎᑦᑎᓃᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᓯᖃᓪᓕᑎᓇᕝᕕᖕᒥᑦ ᐊᒻᒪᓗ ᓄᓇᓕᐊᓛᒥᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖓᓄᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᐊᑦᑎᒃᑑᓂᖓᓄᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᐅᑎᖅᑎᑦᑐᖕᓇᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᐱᐅᖏᑦᑐᑦ ᐊᓂᐊᔪᑦ ᐊᒃᑐᖅᓯᓂᖃᕈᖕᓃᕐᓂᐊᕐᒪᑕᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖓᓄᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐊᑐᖅᑕᐅᔪᖕᓃᖅᐸᑕ.

ᐅᑭᐅᓗᒃᑖᖅ ᐊᑉᖁᑎᐅᔪᖅ (AWAR) ᐊᑯᓐᓂᖓᓃᑦᑐᖅ ᖃᒪᓂᑦᑐᐊᑉ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑑᑉ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᑐᖅᑕᐅᖏᓐᓇᕐᓂᐊᕐᓂᖓᓄᑦ ᐅᑭᐅᓄᑦ ᐱᖓᓱᓄᑦ ᑎᑭᓪᓗᒍ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᐅᓛᕐᓃᑦ ᓄᖅᑲᖅᑳᖅᑎᓪᓗᒍ. ᐅᖓᓯᖕᓂᖓ ᐊᑯᓐᓂᖏᓐᓂᑦ AWAR ᐊᒻᒪᓗ Whale Tail-ᒥᑦ ᐊᐅᓛᕐᓃᑦ ᐊᒻᒪᓗ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᐊᕐᓂᖓ AWAR ᑭᒡᓕᖃᖅᑎᑦᑎᔪᖅ ᑲᑎᒪᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᓂᒃ ᐱᐅᖏᑦᑐᓂᒃ ᐊᓂᐊᔪᓂᑦ ᐊᑐᖅᑕᐅᖏᓐᓇᕐᓂᖓᓄᑦ AWAR ᐊᒻᒪᓗ Whale Tail-ᒥᑦ ᐊᐅᓛᕐᓂᐅᔪᓄᑦ. ᒫᓐᓇᓵᖑᓛᖑᔪᖅ (2015) ᖃᓄᐃᖓᓂᐅᔪᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐳᔪᖃᑖᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᖅ ᓇᓗᓇᐃᖅᓯᓚᐅᖅᑐᖅ ᖃᓂᑦᑑᒐᓗᐊᕐᒥᑦ ᐱᓕᕆᐊᑉ ᐊᐅᓛᕐᓂᕆᔭᖓᑕ, ᐆᒃᑐᕋᖅᑕᐅᔪᓗᒃᑖᑦ ᑖᑉᑯᓇᓂ ᐆᒃᑐᕋᖅᑕᐅᔪᓂᑦ ᐊᑕᐅᓯᖅ ᐃᓚᐅᖏᓪᓗᒍ 48-ᖑᔪᓂᑦ ᑲᑎᑕᐅᔪᓂᑦ, ᐱᐅᓂᖅᓴᐅᓚᐅᖅᑐᑦ ᐃᐊᐳᑕᐅᑉ ᒪᓕᒃᑕᐅᔪᒃᓴᖏᓐᓄᑦ ᐳᔪᖃᑖᒧᑦ ᐊᑐᖅᑕᐅᒥᐊᖅᑐᒥᑦ ᐊᒻᒪᓗ ᐊᖏᕐᕋᕆᔭᐅᔪᑦ ᐃᓂᖏᓐᓂᑦ.

ᖃᓄᐃᖓᓂᐅᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᓇᓗᓇᐃᖅᓯᔪᑦ ᒥᑭᔪᑯᓗᖕᓂᑦ ᐊᒻᒪᓗ ᐳᔪᖃᑖᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐱᓕᕆᐊᖑᓯᒪᔪᖅ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᖅ ᐊᑐᕐᓂᐊᖅᑐᖅ ᑕᐃᒪᐅᔪᒥᒃ ᐊᓂᖅᓵᖅᑐᖅᑕᑉᑕ ᖃᓄᐃᓐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᐳᔪᖃᑖᒧᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒥᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ, ᐊᒻᒪᓗ ᐳᔪᖃᑖᖕᒥᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐊᑉᖁᑎᒥᑦ ᖃᒪᓂᑦᑐᐊᕐᒧᙱᐅᔪᒧᑦ.

ᑕᒪᕐᒥᒃ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᐊᒻᒪᓗ ᐃᓕᓐᓂᐊᖅᓯᒪᓂᖃᕐᓂᒃᑯᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᓇᓗᓇᐃᖅᑐᖅ ᐊᑉᖁᑎᒥᒃ ᐃᒻᒥᖅᑐᐃᓂᖅ ᐊᒻᒪᓗ ᐊᑐᖅᑕᐅᓂᖓ ᐳᔪᖃᑖᖃᓗᐊᖅᑕᐃᓕᑎᑦᑎᔾᔪᑏᑦ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᔪᖕᓇᖅᑐᑦ ᐳᔪᖃᑖᒥᒃ.

ᓂᐱᖃᕐᓂᖅ ᐊᒻᒪᓗ ᓴᔪᕋᓛᖕᓂᐅᔪᖅ

ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ ᓴᓇᔭᐅᓂᖓᓄᑦ ᓂᐱᖃᕐᓂᐅᑉ ᓇᓃᓐᓂᓇᔭᖓᓂᑦ ᑕᒪᐃᓐᓄᓗᒃᑖᖅ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖏᓐᓄᑦ ᑕᐅᒪᐅᔪᒥᒃ ᓂᐱᖃᕐᓂᐅᔪᒥᒃ ᑭᒡᓕᖓᓄᑦ ᖃᓂᓐᓂᖅᓴᒥᑦ ᐊᒻᒪᓗ ᐅᖓᓯᖕᓂᖅᓴᒥᑦ ᖃᐅᔨᓴᐃᓂᐅᔪᓂᑦ (LSA ᐊᒻᒪᓗ RSA). ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᓈᓴᐅᑏᑦ ᓇᓗᓇᐃᖅᓯᖕᒥᔪᑦ ᐊᑦᑎᒃᑑᖓᔪᒥᒃ ᓂᐱᑕᖃᔾᔭᖏᓐᓂᖓᓄᑦ (LFN) ᖃᓄᐃᖓᓕᖅᑎᑦᑎᔪᒥᒃ LSA-ᒥᑦ ᑭᒡᓕᐅᔪᒧᑦ. ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒥᑦ ᐊᐅᓛᕐᓂᐅᔪᒥᑦ ᓂᐱᖃᕐᓂᐅᑉ ᓇᓃᓐᓂᓇᔭᖏᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᖕᒥᔪᑦ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖓᓄᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᐅᔪᓂᒃ ᐊᐅᔭᒧᑦ ᐊᒻᒪᓗ ᐅᑭᐅᖑᑎᓪᓗᒍ ᑭᒡᓕᕆᔭᖓᓂᑦ RSA. ᐊᔾᔨᕐᓚᖓ, ᓇᓃᓐᓂᓗᒃᑖᖑᔪᓂᑦ, ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎ ᐊᑐᖅᑕᐅᑎᓪᓗᒍ ᐱᓕᕆᐊᒥᑦ ᓂᐱᖃᕐᓂᐅᑉ ᓇᓃᓐᓂᓇᔭᖏᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖓᓄᑦ 35 (dBA)-ᒥᑦ ᑭᒡᓕᕆᔭᖓᓄᑦ LSA.

ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᐊᐅᓛᕐᓂᕐᒧᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᐅᔪᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖓᓄᑦ 30 dBA-ᒥᑦ ᑭᒡᓕᒋᔭᐅᔪᒥᑦ RSA ᑕᒪᐃᓐᓄᑦ ᐊᐅᔭᒃᑯᑦ ᐊᒻᒪᓗ ᐅᑭᐅᒃᑯᑦ. ᑕᐃᒪᓐᓇᑦᑕᐅᖅ, ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᐊᐅᓛᖅᑎᑦᑎᓂᕐᒧᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᐅᔪᖅ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᖅ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖓᓄᑦ 30 dBA ᑕᐃᒪᐅᔪᒥᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᐅᔪᒥᑦ ᑕᒪᐃᓄᓗᒃᑖᖅᖃᔭᖅ ᑭᒡᓕᒋᔭᐅᔪᖅ LSA-ᒥᑦ ᐊᒻᒪᓗ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᖅ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖓᓄᑦ 35 dBA-ᒥᑦ ᐃᓂᐅᔪᓗᒃᑖᓂᑦ LSA ᑭᒡᓕᒋᖓᓄᑦ. ᐊᐅᔭᒃᑯᑦ ᐅᑭᐅᒃᑯᓪᓗ ᐃᓗᑦᑐᖅᓯᒪᔪᒥᒃ ᐊᐅᓛᖅᑎᑦᑎᓂᕐᒥᑦ ᑲᑎᑉᐸᓪᓕᐊᔪᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᐅᔪᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᒥᑭᓂᖅᓴᐅᓂᐊᕐᓂᖏᓐᓄᑦ ᐊᑐᖅᑕᐅᔭᕆᐊᖃᖅᑐᒥᑦ AER ᒪᓕᒃᑕᐅᔪᒃᓴᒥᑦ 038 PSL-ᒧᑦ ᑭᒡᓕᐅᔪᒥᑦ ᑕᒪᓗᒃᑖᒧᑦ LSA ᑭᒡᓕᖃᖅᑎᑕᖓᓄᑦ. LFN-ᒥᒃ ᐱᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅᑕᖃᔾᔭᖏᑦᑐᖅ LSA ᑭᒡᓕᖃᖅᑎᑕᖓᓄᑦ. LSA ᑭᒡᓕᖃᖅᑎᑕᖓᓂᑦ ᓯᓚᒧᐊᖅᑐᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᓇᓃᓐᓂᐅᔪᑦ ᐱᓕᕆᐊᕐᒥᑦ ᖀᖅᑎᕆᓂᕐᒧᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐊᑦᑎᖕᓂᖅᓴᒃᓪᓚᐅᓂᐊᕐᓂᖓᓄᑦ NCP-119-ᒥᑦ ᐊᑐᖅᑕᐅᔭᕆᐊᓕᖕᒥᑦ.

ᓇᓚᐅᑦᑖᖅᑕᐅᓯᒪᔪᖅ ᐅᖓᓯᖕᓂᐅᔪᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᖀᖅᑎᕆᓂᕐᓂᑦ ᐱᔭᕆᐊᖃᖅᑐᖅ ᒪᓕᒋᐊᖃᕐᓂᕐᒧᑦ ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᓴᔪᒃᑎᑦᑎᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓂᐱᖃᕐᓂᕐᒧᑦ ᑭᒡᓕᓕᐅᖅᓯᒪᔭᖏᓐᓄᑦ ᒥᐊᓂᕆᓂᕐᒧᑦ ᒪᓐᓂᓕᐅᖅᑐᖅ ᐃᖃᓗᐃᑦ ᐊᒻᒪᓗ ᐃᓂᖏᑦ, 700 ᒦᑕᐅᔪᑦ ᐊᒻᒪᓗ 148 ᒦᑕᐅᑉᓗᑎᒃ ᐃᖃᓗᐃᑦ ᒪᓐᓂᓕᐅᕐᕕᖏᓐᓂᑦ ᐃᓂᖏᓐᓄᓪᓗ. ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒥᑦ ᐊᐅᓛᕐᓂᐅᑎᓪᓗᒍ, ᖃᖅᑎᕆᓂᖅ ᐊᐅᓚᑕᐅᑦᑎᐊᕐᓂᐊᖅᑐᖅ ᐊᒻᒪᓗ ᖃᐅᔨᒋᐊᖅᑕᐅᖃᑦᑕᕐᓗᑎᒃ ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᑭᒡᓕᓕᐅᖅᓯᒪᔭᖏᑦ ᐋᕿᒃᓯᒪᔭᖏᓪᓗ ᓴᖅᑭᑕᐅᓗᑎᒃ ᓂᐱᖃᕐᓂᖅ ᐊᒻᒪᓗ ᓴᔪᒃᑎᑦᑎᓂᖅ ᖀᖅᑎᕆᓂᕐᒥᑦ ᐱᔪᓂᒃ ᐊᒃᑐᖅᓯᓂᖃᔾᔭᖏᒻᒪᑕ ᒪᓐᓂᓕᐅᖅᑐᓂᒃ ᐃᓂᒋᔭᖏᓐᓂᒡᔫᓐᓃᑦ.

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐱᔪᑦ ᐊᑉᑯᑕᐅᓗᐊᖅᑐᓂᑦ ᖃᐅᔨᓴᐃᓂᕐᒦᑦᑐᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᓂᑦ, ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐃᓂᓕᐅᖅᓯᒪᔪᑦ, ᐊᓯᖏᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ, ᐱᓗᐊᖅᑐᒥᑦ ᓂᕐᔪᑎᓂᑦ, ᑎᖕᒥᐊᓂᑦ, ᐊᒻᒪᓗ ᐃᖃᓗᖕᓂᑦ.

ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᓂᐱᖃᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᕐᒧᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᖅ ᐊᔾᔨᒋᓗᒍ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᒫᓐᓇᐅᔪᖅ ᐱᓕᕆᐊᖑᔪᑦ ᐃᓚᒋᔭᐅᑉᓗᓂ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᓂᐱᖃᕐᓂᕐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᓂᑦ. ᐊᕐᕌᒍᑕᒫᖅ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒥᒃ ᐱᓕᕆᐊᖃᕐᓂᐊᖅᑐᑦ ᓯᑕᒪᓄᑦ ᐃᓂᐅᔪᓄᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐃᓂᐅᔪᑦ ᓂᕈᐊᖅᑕᐅᓗᑎᒃ ᐊᒻᒪᓗ ᐋᕿᒋᐊᖅᑕᐅᓗᑎᒃ ᐱᓕᕆᐊᖅ ᐱᕙᓪᓕᐊᓂᖓᓂᑦ. ᖃᐅᔨᒋᐊᖅᑕᐅᖃᑦᑕᖅᑐᑦ ᓂᐱᖃᕐᓂᐅᑉ ᓇᓃᓐᓂᕆᔭᖏᑦ ᐅᖓᑕᐅᑦᑎᒃᐸᑕ ᑭᒡᓕᐅᔪᓄᑦ, ᐊᒡᓃᑯᒃᑯᑦ ᖃᓄᐃᓕᐅᕆᐊᕐᓂᐊᖅᑐᑦ ᐃᓕᑕᖅᓯᓂᕐᒧᑦ ᐱᔾᔪᑕᐅᔪᒥᒃ ᐅᖓᑕᐅᑦᑎᓂᕐᒧᑦ ᐊᒻᒪᓗ, ᓈᒻᒪᒃᐸᑦ, ᐊᖏᓗᐊᖏᒋᐊᖅᑎᓪᓗᒋᑦ ᓂᐱᖃᖅᑎᑦᑎᔪᖅ.

SOMMAIRE DE GESTION – VOLUME 4 – L'ENVIRONNEMENT ATMOSPHÉRIQUE

Le Volume 4 de l'Énoncé des incidences environnementales du Projet de gisement Whale Tail et de route de transport (le Projet) traite des directives et lignes directrices émises par la Commission du Nunavut chargée de l'examen des répercussions, plus particulièrement celles relatives aux effets sur l'environnement atmosphérique, dont le climat et la météorologie, la qualité de l'air, ainsi que le bruit et les vibrations. L'évaluation des effets s'attarde à évaluer toutes les phases du Projet, incluant la construction, les opérations et la fermeture.

Le climat

La section sur le climat et la météorologie inclut un examen des documents pertinents, ainsi que des observations sur l'Inuit Qaujimajatuqangit (IQ) de la part d'Inuits de Baker Lake. Les changements climatiques sont une source d'inquiétude pour les aînés et les utilisateurs des terres puisque l'imprévisibilité des conditions climatiques a mené à un manque de confiance envers l'usage des connaissances traditionnelles pour prévoir la température. Les Inuits sont également concernés par les effets potentiels des changements climatiques sur la végétation, la faune, le poisson et les autres ressources traditionnelles.

Les émissions de gaz à effet de serre (GES) du Nunavut sont faibles en raison de sa population restreinte et de la faible intensité de ses activités urbaines/industrielles. Les émissions moyennes totales du Nunavut de 2007 à 2011 étaient de 434 kilotonnes d'équivalent de dioxyde de carbone par an (kt CO_{2e}/an). Le développement du gisement Whale Tail et des émissions engendrées par la circulation le long de la route de transport vers la mine Meadowbank devrait mener à une augmentation de 56 % des émissions de GES pour le Nunavut. Cependant, lorsque comparé aux émissions nationales du Canada (714 000 kt CO_2e/an), le Project contribue à une augmentation de moins de 0,05 % des émissions canadiennes de GES.

La courte durée du Projet proposé signifie que les effets du Projet associés aux changements climatiques sont susceptibles d'être négligeables.

La qualité de l'air et la poussière

Les Inuits dépendent de leur environnement local pour leur mieux-être social, culturel et économique. Ils sont conscients des changements subits par leur environnement, dont la qualité de l'air. Les Inuits ont documenté de récents changements à la qualité de l'air et se questionnent sur les effets potentiels de ces changements sur leurs activités et leurs ressources en lien avec l'utilisation traditionnelle de la terre. L'Inuit Qaujimajatuqangit met en relief des questionnements au sujet des effets des dépôts de poussière sur la végétation et la sensibilité du caribou du bœuf musqué et d'autres ressources traditionnelles à ces effets potentiels. Les effets potentiels du Projet sur la qualité de l'air les dépôts atmosphériques de la poussière ont été prévus et comparés aux directives nationales et territoriales sur la qualité de l'air étant donné u'il n'existe pas de normes pouvant être tirées explicitement des IQ.

Les Inuits locaux ont demandé que les émissions fugitives de poussière de route soient atténuées par l'arrosage des routes et l'application de contrôles chimiques de la poussière, et que l'accumulation de poussière soit surveillée. Agnico Eagle procède à la surveillance locale de la météorologie, de la qualité de l'air et des retombées de poussières à la mine Meadowbank et les possibilités d'atténuation et de surveillance du Projet proposé sont similaires à celles de la mine actuelle de Meadowbank.

Les concentrations au niveau du sol prédites par modélisation de la dispersion du monoxyde de carbone (CO), NO_2 et du dioxyde de soufre (SO_2) étaient très faibles comparées aux données de base et leurs normes pertinentes en matière de qualité de l'air ambiant. Les prévisions de $MP_{2,5}$ adjacentes à la route de transport se situaient en deçà des directives de qualité de l'air ambiant du Nunavut entre 50 et 75 mètres (m) à partir de la route de transport. Les concentrations de MPT annuelles maximales devraient dépasser la norme de qualité de l'air ambiant (60 microgrammes par mètre cube [$\mu g/m^3$}) à l'intérieur des premiers 100 à 300 m de la route de transport. Les taux de dépôt de poussière prévus devraient se situer en deçà de la norme de retombées de poussières de la C.-B. à l'intérieur des 300 m de la route de transport. Le dépôt annuel de poussière devrait se situer en deçà de la norme de retombées de poussières de l'Ontario à l'intérieur de 25 m à partir de la route de transport. Ces normes sont considérées comme les normes canadiennes les plus sévères en matière de dépôt de poussière.

Les effets des émissions fugitives de poussière sur la qualité de l'air à proximité de la route de transport sont limités dans l'espace et se produisent principalement en été, lors de journées venteuses et sèches. Ces effets sont réversibles et cette poussière fugitive cessera d'affecter la qualité de l'air une fois que la fosse Whale Tail sera déclassée et que la route de transport ne sera plus active.

Les effets des activités minières du gisement Whale Tail sur la qualité de l'air de la région sont limités dans l'espace et se produisent principalement en été, lors de journées venteuses et sèches. Ces effets sont réversibles et ces émissions cesseront d'affecter la qualité de l'air une fois que la fosse Whale Tail sera déclassée et que la route de transport ne sera plus active. En se basant sur une extrapolation des résultats de surveillance, les effets d'un prolongement des opérations de l'usine et du campement de Meadowbank sur la qualité de l'air de la région sont considérés comme faibles. Tout effet potentiel est considéré comme réversible et ces émissions cesseront d'affecter la qualité de l'air une fois que la fosse Whale Tail et l'usine de Meadowbank seront déclassées.

La route d'accès praticable par tous les temps (AWAR) entre la collectivité de Baker Lake et l'usine de Meadowbank devrait demeurer active pour une période allant jusqu'à 3 ans après le début des opérations de la fosse Whale Tail. La distance importante entre l'AWAR et les opérations de Whale Tail, ainsi que l'utilisation limitée envisagée de l'AWAR limitent le potentiel d'effets combinés des émissions résultant de l'usage continu de l'AWAR et des opérations de la fosse Whale Tail. Les résultats les plus récents (2015) du programme de surveillance des retombées de poussières de Meadowbank indiquent que même à proximité restreinte des activités du Projet, tous les échantillons sauf 1 sur les 48 qui ont été recueillis, ont pu être comparés favorablement aux directives de l'Alberta sur les retombées de poussières dans les zones récréatives et résidentielles.

Les résultats de cette évaluation indiquent que la surveillance des matières particulaires et des retombées de poussières autour de la fosse Whale Tail et le long de la route de transport jusqu'à la mine Meadowbank est garantie. Le programme de surveillance sera basé sur la surveillance actuelle de la qualité de l'air et des retombées de poussières autour de la mine de Meadowbank, ainsi que sur le programme de surveillance des retombées de poussières le long de l'AWAR de Meadowbank jusqu'à Baker Lake.

Autant la surveillance scientifique que celle des IQ suggèrent que l'arrosage des routes et l'application de contrôles chimiques de la poussière peuvent réduire les émissions de poussière fugitives.

Le bruit et les vibrations

Les niveaux de bruit de la construction de la route de transport pour toutes les périodes devraient être plus faibles que le niveau de bruit ambiant actuel à la limite des zones d'étude locale et régionale (ZEL et ZER). Les valeurs prévues indiquent également qu'il n'y aura pas d'effets causés par le bruit à basse fréquence (BBF) le long de la frontière de la ZEL. Les niveaux de bruit des activités de la route de transport devraient également être plus faibles que le niveau de bruit ambiant actuel en été et en hiver à la frontière de la ZER. De même, pour toutes les périodes, les niveaux de bruit du Projet associés aux activités de la route de transport devraient être en deçà de 35 décibels de gamme A (dBA) à la limite de la ZEL.

Les niveaux de bruit des activités de la fosse devraient être en deçà de 30 dBA à la limite de la ZER, autant en été qu'en hiver. De même, pour toutes les périodes, les niveaux de bruit des activités de la fosse devraient être plus faibles que le niveau de bruit ambiant actuel de 30 dBA pour la plupart des limites de la ZER et de moins de 35 dBA le long de tous les secteurs de la limite de la ZEL. Les niveaux de bruit cumulatifs des activités de la fosse en été comme en hiver devraient se situer en deçà de la directive AER applicable (limite de 038 PSL) le long de la totalité de la frontière de la ZEL. Il n'y aura pas d'effet BBF le long de la frontière de la ZEL. À la limite de la ZEL, les niveaux de bruit aérien de l'abattage par explosion du Projet devraient se situer bien en deçà de la norme NCP-119.

Les distances de retrait prévues pour les activités d'abattage par explosion de la fosse nécessitent de se conformer aux limites de vitesse de crête des particules (vibration) et de pic de pression (bruit) du MPO en matière de protection des poissons en frai et de l'habitat des poissons. Ces distances de retrait sont respectivement de 700 m et de 148 m pour les aires de frai des poissons et l'habitat des poissons. Au cours des opérations de la fosse, l'abattage par explosion sera prudemment géré et surveillé dans le contexte des limites du MPO et des distances de retrait appropriées seront établies afin que le bruit et la vibration provenant de l'abattage par explosion de la fosse n'affectent pas la reproduction des poissons ou leur habitat général.

Tout effet potentiel associé aux trajectoires primaires est saisi dans l'évaluation des effets potentiels, ainsi que la classification des effets résiduels, sur d'autres composantes valorisées, particulièrement au niveau de la faune, des oiseaux et des poissons.

Un suivi de la surveillance du bruit du Projet sera effectué d'une manière demeurant similaire à la surveillance présentement en cours dans le cadre des plans de gestion du bruit de la mine Meadowbank. Il sera procédé à une surveillance annuelle sur quatre emplacements à proximité du Projet. Ces emplacements seront sélectionnés et modifiés au fur et à mesure de l'évolution du Projet. Si les niveaux de bruit enregistrés excèdent les limites appropriées, Agnico Eagle prendra les mesures nécessaires pour identifier la cause spécifique du dépassement des limites et, dans la mesure du possible, atténuer la source du bruit.

EXECUTIVE SUMMARY – VOLUME 5 TERRESTRIAL ENVIRONMENT

Volume 5 of the Final Environmental Impact Statement for the Whale Tail Pit and Haul Road Project (the Project) addresses Guidelines issues by the Nunavut Impact Review Board, specifically those relating to effects to the Terrestrial Environment, including terrain, permafrost, and soils, vegetation and terrestrial wildlife and wildlife habitat.

Volume 5 includes a discussion on valued components (VCs), incorporation of Inuit Qaujimajatuqangit (IQ), description of the study areas, and an assessment of direct effects to changes to the Terrestrial Environment. The effects assessment evaluates all Project phases, including construction, dewatering, operational, closure, and post-closure.

Public / Inuit Qaujimajatuqangit Concerns

Inuit Qaujimajatuqangit and public concerns were incorporated throughout the evaluation of the potential effects of the Project on the terrestrial environment. Concerns about the Project were obtained through public consultation, focus group meetings, government engagement, and scientific knowledge. Concerns were raised regarding direct and indirect habitat losses as a result of Project activities and construction and are summarized below:

- Eskers found in the Project Regional Study Area (RSA) were identified by Elders as preferred habitat for muskox, denning areas for wolves, fox and Arctic ground squirrels and traditional camp sites.
- Concerns were expressed about Project activities resulting in both quantitative and qualitative losses of vegetation communities, a reduction in quality of wildlife forage through dust deposition, and the capacity of vegetation to regenerate following mine activities. Elders were particularly concerned about the potential loss of lichen which is an important part of the caribou's diet.
- Particular concerns of the effects from the mine on caribou included the potential of caribou to ingest toxic chemicals, the ability of caribou to safely cross the proposed Project haul road and potential effects of the Project haul road on migration and distribution patterns, and concerns related to the potential of reduced caribou availability or a change in the taste of caribou meat.
- Concerns regarding birds and bird habitat were centered on the potential for the destruction or disturbance of nesting bird habitat.

Key Project Elements and Findings of Environmental Impact Statement

Valued components were selected for the Project based on discussions with stakeholders, public meetings, IQ, and experience with other mines in the north. These VCs were then confirmed to be appropriate for the Project through an additional IQ study carried out in 2014. Terrestrial environmental VCs include permafrost, terrain/soils, vegetation (wildlife habitat). Wildlife VCs include ungulates, predatory mammals, raptors, water birds, upland birds and small mammals.

Terrain, Permafrost, and Soils

Project impacts on terrain, permafrost, and soils will result from construction, operations, and closure activities during the life of the Project. Some of these activities will result in physical gain of permafrost through permafrost growth into structural fills as well as to the long-term growth of permafrost beneath the Whale Tail WRSF. Other activities will result in physical loss of terrain, permafrost and soil due to extraction of rock and soil material for use in construction, and due to the physical mining of the open pit. Primary pathways are physical loss or permanent alteration of existing permafrost conditions and terrain and soils features and changes to soil properties.

Permafrost degradation may result from the excavation of the open pit, potential groundwater inflows to the open pit during operations (if depth extends below the base of permafrost). The proposed open pit will likely result in retreat of permafrost into the walls and floor of the pit and creation of an active layer. Minor changes to permafrost will result from flooding during of a number of upstream tributary lakes. The diversion channel that will be constructed as part of the Whale Tail Dike may cause the active layer to increase slightly in thickness.

Site clearing and construction for the Project, particularly through the processes of soil stripping and storage, will result in changes to soil quantity and distribution, and changes to terrain. Changes to the existing terrain and soil conditions will be confined to the Project footprint. Till (moraine) is the dominant surficial material that will experience the greatest change within the Project Footprint. Water is the second largest terrain feature that will experience change as a result of dewatering Whale Tail Lake for the Whale Tail Pit.

Site clearing and construction for the Project may result in changes to soil quality. During decommissioning and reclamation, the soil will be not re-constructed. The footprint of the open pit will primarily be a lake at closure.

Soil disturbance during construction is expected to cause physical changes to soil such as loss of soil structure. The adverse effects on soil ecological characteristics are expected to result in decreased rates of nutrient cycling and reduced availability of macro and micro nutrients in the substrates of the closure landscape for several years or decades after reclamation. Erosion will occur during construction due to removal of the vegetation cover. Without mitigation, most soils in the local study area (LSA) are rated as having moderate erosion potential. Accelerated erosion related to Project activities would be confined mainly to the Project footprint.

Vegetation

Project impacts vegetation habitat quantity and quality will result from construction, operations, and closure activities during the life of the Project.

<u>Changes to Vegetation Habitat Quantity</u>

Effects to vegetation will include the physical removal of vegetation in all Project construction areas. The maximum amount of vegetated and non-vegetated Ecological Land Classification (ELC) units lost due to the Project is predicted to be approximately 2.9% of the LSA. Overall vegetation and consequential wildlife habitat loss as a result of the Project footprint is 2.9% of the LSA and 0.2% of the RSA; the Project is anticipated to decrease vegetated ELC units by 0.1%. During Project construction and operations, Project effects will be localized around the mine site and haul road within the LSA. Losses to vegetation communities are predicted to be long-term for ELC units within the mine footprint that will be naturally revegetated in the long-term post-closure. Reclamation efforts will focus on providing conditions conducive to natural re-colonization of the site by surrounding native vegetation.

Changes to Vegetation Habitat Quality

Potential effects to vegetation associated with non-footprint disturbances may occur during Project operations and include dust deposition. Accumulation of dust produced from the Project may result in direct changes to vegetation and bryophyte and lichens may be particularly vulnerable to the chemical effects of dust. The primary effects of dust are generally confined to the immediate area next to roadways. Effects on vegetation will be directly related to the amount of traffic on the haul road, and is anticipated to be highly seasonal with minimal to no dust being produced in winter months, while the road is covered with snow. Consequently, effects of dust on vegetation are expected to be restricted to the LSA, continuous through operations of the Project.

Dust modelling results along the haul road predicted that the maximum dust deposition values would be within 1 m of the haul road and concentrated within 100 m. Dust deposition is anticipated to be primarily in downwind areas from the haul road and mine site. Dustfall effects on vegetation will be reversible following Project closure. Dustfall studies for the Meadowbank All Weather Access Road (AWAR) support dustfall modelling predictions for the Project; specifically that the majority of dustfall occurs within 100 m of the road, and that impacts to vegetation (wildlife habitat) because of dust will be restricted to this area. Consequently, effects of dust on vegetation are expected to be restricted to the LSA, continuous through operations of the Project and reversible following closure.

Dewatering of the Whale Tail will occur at the end of the construction phase, resulting in the flooding of a number of tributary lakes upstream of the Whale Tail Dike to the Mammoth Lake Watershed, thereby altering flows at Mammoth Lake and downstream lakes. Flooded areas will be dewatered at closure; therefore, effects on vegetation habitat quality are anticipated to be reversible.

The combined evidence concerning vegetation quantity and quality in the LSA and RSA indicates that vegetation would remain self-sustaining and ecologically effective during construction and operations and would continue to function as wildlife habitat. Graminoid and lichen-dominated ELC units that function as high-quality caribou and muskox habitat will continue to be present and well distributed across the landscape. Consequently, incremental effects from the Project on vegetation are not considered to be significant on a local and regional scale

Terrestrial Wildlife and Wildlife Habitat

Project impacts wildlife habitat quantity, quality and survival and reproduction will result from construction, operations, and closure activities during the life of the Project.

Changes to Wildlife Habitat Quantity

Developing the Project will result in the loss of vegetation communities leading to a direct loss of wildlife habitat, affecting all VCs. However, losses of preferred VCs habitats are anticipated to be a low percentage of the available habitat in the LSA and RSA for each VC. The total preferred habitat for caribou that is predicted to be displaced by the Project footprint is 2% of the available habitat in the LSA and less than 0.2% for the RSA. The Project footprint is predicted to displace approximately 3% and 0.2% of the likely number of birds in the LSA and RSA, respectively.

Project construction will require removal of surface material from eskers. While this disturbance to eskers will remove denning habitat, predators are present in low densities and other eskers are available in both the LSA and RSA.

Changes to Wildlife Habitat Quality

While the Project will lead to direct habitat loss for VCs because of the Project footprint, indirect loss will also occur at the local and regional scales. Sensory disturbances (such as noise and movement) that extend beyond the Project footprint will occur during construction and operations. Further, the Project will extend the use of the Meadowbank Mill, camp operations and AWAR by three to four years.

Indirect effects from the Project are likely to reduce the proportion of preferred caribou and upland bird habitat quality in the LSA and RSA. The effect of indirect habitat loss on caribou is anticipated to be limited and diminish with distance from the Project. The noise impact assessment for the Project indicates that the noise created through construction and operations of the Project would be similar to that of the Meadowbank Mine, and that effects would be confined to the RSA.

The Project haul road is expected to be a potential barrier to wildlife (primarily ungulates and wolves), which may affect population connectivity and distribution. Movements of collared caribou near the AWAR indicate that most caribou that approach the road will cross it. The effect of the Project and haul road on caribou migration is expected to be moderate, as some deflections will likely occur as caribou select a crossing point. Upon closure, there will be no remaining traffic and the Project haul road will be scarified. It is anticipated that caribou will cross the road freely following closure (i.e., medium-term) and that the impact will be reversed at this time.

Changes to Wildlife Survival and Reproduction

Some of the flooding will occur during the nesting season and may lead to the loss of nests near the shoreline of the lake. Considering the area to be flooded and the estimated bird nest density, approximately seven nests in 2019 and three nests in 2020 of the shorebirds, gulls and waterfowl groups and approximately 61 upland bird nests in 2019 and 27 nests in 2020 will be displaced by flooding during the nesting season if no mitigation is undertaken. These numbers do not account for possible reduced nesting activity due to sensory disturbance. Flooding will be isolated and will only take place in the first three years of construction and operations. This is a short-term impact because following the construction of the dikes there will no longer be a risk of nest destruction.

Overall, the weight of evidence, and the experience from the Meadowbank Mine, indicates that incremental and cumulative effects from the Project will not have a significant adverse effect on the existing self-sustaining and ecologically effective wildlife populations.

Mitigation Measures

Monitoring programs will be implemented during the life of the Project through a variety of monitoring plans, and may be a combination of environmental monitoring to track conditions and implementing further mitigation as required and follow-up monitoring to verify the accuracy of effect predictions and adaptively manage and implement further mitigation as required. Monitoring programs for permafrost, soils, vegetation and wildlife will include monitoring of permafrost and soil condition, esker surveys to identify dens, dust monitoring on vegetation along the haul road, and wildlife monitoring. Monitoring will be consistent with the current monitoring programs at the existing Meadowbank Mine. Monitoring is included in the following plans to determine if effects are as follows:

- Terrestrial Ecosystem Management Plan.
- Road Management Plan.
- Noise Monitoring Plan.

Mitigation measures are described throughout the environmental impact assessment.

ᓇᐃᓈᖅᓯᒪᔪᖅ – ᐅᖃᓕᒫᒐᖅ 5 ᓄᓇᒦᑦᑐᓂᒃ ᐊᕙᑎ

ᐅᖃᓕᒫᒐᖅ 5 ᑭᖑᓪᓕᖅᐹᖅ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᒥᑦ Whale Trail-ᒥᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒥᑦ ᐊᒻᒪᓗ ᐊᑉᑦᑯᑎᒧᑦ (ᐱᓕᕆᐊᖅ) ᐱᓕᕆᐊᖃᖅᑐᖅ ᒪᓕᒃᑕᐅᔫᒃᓴᓂᒃ ᐱᔾᔪᑎᖃᖅᑐᓂᑦ ᓄᓇᕗᒻᒥ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᕿᒥᕐᕈᔨᒃᑯᓐᓂᑦ, ᐱᓗᐊᖅᑐᒥᒃ ᐱᔾᔪᑎᖃᖅᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᓄᓇᒦᑦᑐᑦ ᐊᕙᑎᖏᓐᓂᑦ, ᐃᓚᐅᑉᓗᑎᒃ ᓄᓇ, ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᖅ, ᐊᒻᒪᓗ ᐃᑉᔪᐃᑦ, ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᓄᓇᒥᑦ ᓂᕐᔪᑎᓂᒃ ᐃᓂᒋᔭᖏᓐᓂᒡᓗ.

ᐅᖃᓕᒫᒐᖅ 5-ᒥᑦ ᐃᓚᐅᔪᑦ ᐅᖃᓪᓚᐅᓯᖃᕐᓂᐅᔪᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᓂᑦ ᐃᓚᒋᔭᐅᔪᓂᑦ (VC), ᐃᓚᐅᓕᖅᑎᑕᐅᓂᖏᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ (IQ), ᖃᓄᐃᖓᓂᕆᔭᖏᑦ ᖃᐅᔨᓴᕐᕕᐅᔪᐃᑦ, ᐊᒻᒪᓗ ᖃᐅᔨᓴᐃᓂᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᔪᓂᒃ ᐊᓯᐊᖑᕐᓂᖓᓄᑦ ᓄᓇᐅᑉ ᐊᕙᑎᖓ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓃᑦ ᐱᓕᕆᐊᑉ ᓇᓃᑉᐸᓪᓕᐊᓂᕆᔭᓗᒃᑖᖓᓂᑦ, ᐃᓚᐅᔪᑦ ᓴᓇᔭᐅᓂᖓ, ᐃᒪᐃᔭᐃᓂᖅ, ᐅᒃᑯᐊᖅᑕᐅᕙᓪᓕᐊᑎᓪᓗᒍ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ.

ᐃᓄᓗᒃᑖᑦ / ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᒥᒃᓵᓄᑦ ᐃᓱᒪᒍᑏᑦ

ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᐊᒻᒪᓗ ᐃᓄᖕᓄᑦ ᐃᓱᒪᒍᑕᐅᔪᑦ ᐃᓚᓕᐅᑎᔭᐅᓚᐅᖅᑐᑦ ᕿᒥᕐᕈᓂᓗᒃᑖᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᓂᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ ᐱᔭᐅᓚᐅᖅᑐᑦ ᐃᓄᖕᓂᑦ ᐅᖃᖃᑎᖃᕐᓂᒃᑯᑦ, ᑲᑎᒪᖃᑎᖃᕐᓂᒃᑯᑦ, ᒐᕙᒪᒃᑯᑦ ᐃᓚᐅᑎᓪᓗᒋᑦ, ᐊᒻᒪᓗ ᓱᓇᑐᐃᓐᓇᓂᒃ ᖃᐅᔨᒪᔭᖃᕐᓂᐅᔪᓂᑦ ᐱᔭᐅᔪᓂᒃ. ᐃᓱᒪᒍᑏᑦ ᓴᖅᑭᑕᐅᓚᐅᖅᑐᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᓂᕐᔪᑏᑦ ᐃᓂᒋᔭᖏᓐᓂᒃ ᐊᓯᐅᔨᓂᕐᓄᑦ ᐱᓕᕆᐊᖅ ᖃᓄᐃᓕᐅᕐᓂᕆᔭᖓᓄᑦ ᐊᒻᒪᓗ ᓴᓇᕙᓪᓕᐊᓂᕐᒧᑦ ᐊᑖᓂ ᓇᐃᓈᖅᓯᒪᔪᑦ:

- ᓄᓇ ᒪᓂᕋᐅᓃᑦ ᐱᓕᕆᐊᑉ ᖃᓂᑕᖓᓂᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ (RSA) ᐃᓕᑕᕆᔭᐅᓚᐅᖅᑐᑦ ᐃᓐᓇᕆᔭᐅᔪᓄᑦ ᓄᓇ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᖓᓄᑦ ᐅᒥᖓᓄᑦ, ᐊᒪᖅᑯᓄᑦ ᓯᑎᖃᕐᕕᐅᓂᖏᓐᓄᑦ, ᑎᕆᒐᓂᐊᕐᓄᑦ ᐊᒻᒪᓗ ᓯᒃᓯᓄᑦ ᐊᒻᒪᓗ ᐱᖅᑯᓯᒃᑯᑦ ᑕᖓᖅᑕᕐᕕᐅᓂᖏᓐᓄᑦ.
- ᐃᓱᒪᒍᑏᑦ ᐅᖃᐅᓯᐅᓚᐅᖅᑐᑦ ᐱᓕᕆᐊᑉ ᖃᓄᐃᓕᐅᕐᓂᖏᓐᓄᑦ ᐱᔪᑦ ᑕᒪᐃᓐᓄᑦ ᐊᒥᓱᖑᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓂᐅᓂᕐᒧᑦ ᐊᓯᐅᔨᓂᕐᓄᑦ ᐱᕈᖅᑐᓂᒃ, ᒥᒃᑯᕆᐊᕐᓂᖓᓄᑦ ᖃᓄᐃᓐᓂᖏᑦᑕ ᓂᕐᔪᑏᑦ ᓂᕆᕝᕕᕆᖃᑦᑕᖅᑕᖏᑦ ᐳᔪᖃᑖᖃᓕᕐᓂᒃᑯᑦ, ᐊᒻᒪᓗ ᐃᓂᖏᑦᑕ ᐱᕈᖅᑐᐃᑦ ᐱᖑᒃᑲᓐᓂᕈᖕᓇᕐᓂᖏᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᖅᑕᖃᓕᖅᑳᖅᑎᓪᓗᒍ. ᐃᓐᓇᕆᔭᐅᔪᑦ ᐃᓱᒪᒍᑎᖃᓗᐊᓚᐅᖅᑐᑦ ᐊᓯᐅᔨᔪᖕᓇᕐᓂᖏᑦ ᑐᒃᑐᐃᑦ ᓂᕆᖃᑦᑕᖅᑕᖏᓐᓂᒃ.
- ᐃᓱᒪᒍᑕᐅᓗᐊᓚᐅᖅᑐᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒥᑦ ᐱᔪᓂᒃ ᑐᒃᑐᓄᑦ ᐃᓚᐅᔪᑦ ᑐᒃᑐᐃᑦ ᐅᓗᕆᐊᓇᖅᑐᓂᒃ ᓂᕆᔪᖕᓇᕐᓂᖏᑦ, ᑐᒃᑐᐃᑦ ᐃᑲᕈᖕᓇᕐᓂᖏᑦ ᐱᓕᕆᐊᖅ-ᖑᔪᒪᔫᑉ ᐊᑉᑦᑯᑎᖓᓄᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᑦ ᓅᑉᐸᓪᓕᐊᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᓇᒧᖕᖓᐅᖃᑦᑕᕐᓂᖏᑦᑕ ᐃᓕᖅᑯᓯᖏᓐᓄᑦ, ᐊᒻᒪᓗ ᐃᓱᒪᒍᑕᐅᔪᑦ ᒥᒃᑯᕆᐊᕈᖕᓇᕐᓂᖏᑦ ᑐᒃᑐᐃᑦ ᒪᓂᒪᓂᖏᑦ ᐅᕙᓘᓃᑦ ᐊᓯᐊᖑᕐᓗᓂ ᑐᒃᑐᐃᑦ ᓂᕿᖏᑦᑕ ᑎᐱᖏᑦ.
- ᐃᓱᒪᒍᑕᐅᔪᑦ ᑎᖕᒥᐊᑦ ᒥᒃᓵᓄᑦ ᐃᓂᖏᑦᑕᓗ ᐱᔾᔪᑎᖃᓚᐅᖅᑐᑦ ᓱᕋᒃᑕᐅᔪᖕᓇᕐᓂᖏᑦ ᐅᕙᓘᓃᑦ ᐃᓗᐃᓵᖅᑕᐅᓗᑎᒃ ᐅᑉᓗᖃᕐᕕᕆᖃᑦᑕᖅᑕᖏᑦ.

ᐱᓕᕆᐊᕐᒧᑦ ᐃᓚᒋᔭᐅᓗᐊᖅᑐᑦ ᐊᒻᒪᓗ ᓇᓂᔭᐅᔪᑦ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᒥᑦ

ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ ᐃᓚᒋᔭᐅᔪᑦ ᓂᕈᐊᖅᑕᐅᓚᐅᖅᑐᑦ ᐱᓕᕆᐊᕐᒨᖓᔪᓂᒃ ᐅᖃᐅᓯᕆᔭᐅᓂᕐᒧᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ, ᐃᓄᓗᒃᑖᓂᒃ ᑲᑎᒪᑎᑦᑎᓂᒃᑯᑦ, ᐊᒻᒪᓗ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᓐᓄᑦ, ᐊᒻᒪᓗ ᐱᓕᕆᓂᑰᔪᑦ ᐊᓯᖏᓐᓂᒃ ᐅᔭᕋᖕᓂᐊᕐᕕᖏᓐᓂᑦ ᐅᑭᐅᖅᑕᖅᑐᒥᑦ. ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᑦ ᓇᓗᓇᐃᖅᑕᐃᓕᖅᓱᑎᒃ ᓈᒻᒪᖕᓂᐊᕐᓂᖏᓐᓄᑦ ᐱᓕᕆᐊᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᒃᑲᓐᓂᕐᓂᒃᑯᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᓐᓂᒃ ᐱᓕᕆᐊᖑᔪᒥᑦ 2014-ᒥᑦ. ᓄᓇᒥᑦ ᐊᕙᑎᐅᔪᖅ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᓂᑦ ᐃᓚᐅᓚᐅᖅᑐᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᑦ, ᓄᓇ/ᐃᑉᔪᐃᑦ, ᐱᕈᖅᑐᐃᑦ (ᓂᕐᔪᑏᑦ ᐃᓂᖏᑦ). ᓂᕐᔪᑎᓄᑦ ᐃᒃᐱᒋᖃᕐᕕᐅᔪᑦ ᐃᓚᐅᔪᑦ ᑐᒃᑐᕋᓗᐃᑦ, ᓂᕐᔪᑏᑦ ᓂᕐᔪᑎᑐᖃᑦᑕᖅᑐᑦ, ᑎᖕᒥᐊᑦ, ᐃᒪᕐᒥᐅᑕᐃᑦ ᑎᖕᒥᐊᑦ, ᓄᓇᖅᐸᓯᕐᒥᐅᑕᐃᑦ ᑎᖕᒥᐊᑦ ᐊᒻᒪᓗ ᓂᕐᔪᑎᕋᓛᑦ.

ᓄᓇ, ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᖅ, ᐊᒻᒪᓗ ᐃᑉᔪᐃᑦ

ᐱᓕᕆᐊᕐᒥᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᑦ ᓄᓇᒧᑦ, ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᒧᑦ, ᐊᒻᒪᓗ ᐃᑉᔪᓄᑦ ᑕᐃᒪᙱᕐᓂᐊᖅᑐᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ, ᐊᐅᓛᖅᑎᓪᓗᒍ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ ᐊᐅᓛᕐᓂᓗᒃᑖᖓᓂᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᐅᑉ. ᐃᓚᖏᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᑕᐃᒪᙱᖅᑎᑦᑎᓂᖃᕐᓂᐊᖅᑐᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᐃᑦ ᐊᖏᒡᓕᕙᓪᓕᐊᓂᖏᓐᓂᑦ ᐃᓗᓪᓕᖅᑕᐅᓯᒪᔪᓄᑦ ᐊᒻᒪᓗ ᐊᑯᓂᐅᔪᒥᒃ-ᑕᑭᑎᒋᓂᖓᓄᑦ ᐱᕈᕐᓂᖓ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑑᑉ Whale Tail WRSF-ᒥᑦ. ᐊᓯᖏᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᐊᓯᐊᔨᓂᖃᖅᑎᑦᑎᓂᐊᖅᑐᖅ ᓄᓇᒥᒃ, ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᒥᑦ ᐊᒻᒪᓗ ᐃᑉᔪᓂᒃ ᐲᔭᐃᓂᕐᒧᑦ ᐅᔭᖅᑲᓂᒃ ᐊᒻᒪᓗ ᓄᓇᒥᒃ ᐊᑐᖅᑕᐅᓂᕐᒧᑦ ᓴᓇᔭᐅᓂᖓᓄᑦ, ᐊᒻᒪᓗ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒥᒃ ᐃᓗᑦᑐᖅᑎᖅᑕᐅᓯᒪᔪᒥᑦ. ᐊᑉᖁᑎᒋᔭᐅᓗᐊᖅᑐᑦ ᐊᓯᐅᔨᓂᐅᔪᑦ ᐅᕙᓘᓃᑦ ᐊᓯᐊᖑᖅᑎᑦᑎᓂᖃᖅᑐᑦ ᑕᐃᒪᐅᔪᓂᒃ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᐃᑦᖃᓄᐃᓐᓂᕆᔭᖓᓐᓂᒃ ᐊᒻᒪᓗ ᓄᓇᒥᒃ ᐃᑉᔪᐃᓪᓗ ᐋᕿᒃᓯᒪᓂᕆᔭᖏᓐᓂᒃ ᐊᒻᒪᓗ ᐊᓯᐊᖑᕐᓂᖏᑦ ᐃᑉᔪᐃᑦ ᐃᓚᒋᔭᖏᑦ.

ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᑦ ᓄᖑᑉᐸᓪᓕᐊᔪᖕᓇᖅᑐᑦ ᐲᔭᐃᓂᕐᒧᑦ ᐅᒃᑯᐃᖓᔪᒥᑦ ᐃᓪᓗᑦᑐᖅᓯᒪᔪᒥᑦ, ᓄᓇᒥᑦ ᐃᒪᕐᒥᑦ ᑰᒍᖕᓇᖅᑐᓂᑦ ᐅᒃᑯᐃᖓᔪᒧᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒧᑦ ᐊᐅᓛᕐᓂᖅᑎᓪᓗᒋᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒥᑦ (ᐃᑎᓂᐅᔪᑦ ᑎᑭᐅᑎᒃᐸᑕ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑑᑉ ᐊᑖᓄᑦ). ᐅᒃᑯᐃᖓᔪᖅ ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᒥᑦ ᓴᓂᕋᖓᓐᓂᑦ ᐊᒻᒪᓗ ᓇᑎᖓᓂᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᒧᑦ ᐊᒻᒪᓗ ᐱᑕᖃᓕᖅᑎᑦᑎᓗᓂ ᑕᐃᒪᓐᓇᐃᑦᑐᒥᑦ. ᒥᑭᔪᑦ ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᒧᑦ ᑕᐃᒪᙱᕐᓂᐊᖅᑐᑦ ᐃᒻᒥᖅᑐᖅᑕᐅᑎᓪᓗᒍ ᑕᓯᕐᓄᑦ. ᓴᖑᑎᑦᑎᔪᐃᑦ ᓱᐸᓗᐃᑦ ᓴᓇᔭᐅᓂᐊᖅᑐᑦ ᐃᓚᒋᔭᐅᓗᑎᒃ Whale Tail ᓱᐸᓗᒧᑦ ᑕᐅᒪᐅᔪᓂᒃ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᑐᐃᓐᓇᕆᐊᖃᖅᑐᖅ ᐃᑉᔪᓂᖓᓂᑦ.

ᐃᓂᐅᔪᒥᑦ ᐲᔭᐃᕙᓪᓕᐊᓂᖅ ᐊᒻᒪᓗ ᓴᓇᔭᐅᓂᖓ ᐱᓕᕆᐊᕐᒧᑦ, ᐱᓗᐊᖅᑐᒥᑦ ᓄᓇᐃᔭᐃᓂᕐᒥᑦ ᐊᒻᒪᓗ ᑐᖅᑯᖅᑎᕆᕙᓪᓕᐊᓂᕐᒥᑦ, ᐊᓯᐊᖑᖅᑎᑦᑎᓂᐊᖅᑐᖅ ᐃᑉᔪᐃᑦ ᐊᒥᓲᓂᖏᓐᓂᒃ ᐊᒻᒪᓗ ᓇᒧᙱᐊᓂᖏᓐᓂᒃ, ᐊᒻᒪᓗ ᐊᓯᐊᖑᖅᑎᑦᑎᓗᓂ ᓄᓇᒥᒃ. ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᑕᐃᒪᐅᔪᓂᒃ ᓄᓇᒥᒃ ᐊᒻᒪᓗ ᓄᓇᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓂᒃ ᐱᓕᕆᐊᑉ ᐃᓗᐊᓃᓐᓂᐊᖅᑐᖅ. ᓄᓇᐅᔪᖅ ᖀᖓᓂᑦ ᐊᓯᐊᖑᕐᓂᖃᓛᖑᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᑉ ᐃᓗᐊᓂᑦ. ᐃᒪᖅ ᑐᒡᓕᐅᓂᐊᖅᑐᖅ ᐊᖏᓛᒥᒃ ᐃᓚᒋᔭᐅᔪᖅ ᓄᓇᒧᑦ ᐊᓯᐊᖑᕐᓂᐊᕐᓗᓂ ᐃᒪᐃᔭᐃᓂᕐᒥᑦ ᐱᔪᒥᑦ Whale Tail ᑕᓯᕐᒥᑦ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᒧᑦ.

ᐃᓂᐅᔪᒥᑦ ᐲᔭᐃᕙᓪᓕᐊᓂᖅ ᐊᒻᒪᓗ ᓴᓇᔭᐅᓂᖓ ᐱᓕᕆᐊᕐᒧᑦ ᐊᓯᐊᖑᖅᓯᑐᐃᓐᓇᕆᐊᖃᖅᑐᖅ ᐃᑉᔫᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᑦ. ᓄᖅᑲᖅᐸᓪᓕᐊᑎᑦᑎᓂᕐᒥᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᑎᕆᕙᓪᓕᐊᓂᕐᒥᑦ, ᐃᑉᔪᓕᐅᕆᒃᑲᓐᓂᕐᓂᐊᕐᒋᑦᑐᑦ. ᐃᓂᐅᔫᑉ ᖃᓄᐃᖓᓂᖓ ᐅᒃᑯᐃᖓᔪᖅ ᐃᓕᑦᑐᖅᓯᒪᔪᒥᑦ ᑕᓯᙱᕐᓂᐊᖅᑐᖅ ᐅᒃᑯᐊᖅᑕᐅᑎᓪᓗᒍ.

ᐃᑉᔪᓕᕆᓂᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᓯᐊᖑᖅᓯᓂᐅᓂᐊᕐᓂᖓᓄᑦ ᐃᑉᔪᓄᑦ ᓱᕐᓗ ᐊᓯᐅᔨᓗᓂ ᖃᓄᐃᖓᓂᕆᔭᖓᓂᒃ ᐃᑉᔫᑉ. ᐊᖏᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖅ ᐃᑉᔪᒧᑦ ᖃᓄᐃᖓᓂᖏᓐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᓂᕿᑦᑎᐊᕙᓕᐅᕆᖃᑦᑕᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓗᓂ ᒪᓂᒪᓂᖓᓂᒃ ᓂᕿᑦᑎᐊᕙᕋᓛᖏᓐᓂᒃ ᖁᐊᖑᓂᖃᖅᑐᓂᑦ ᐅᒃᑯᐊᖅᑕᐅᑎᓪᓗᒍᒥᑦ ᓄᓇ ᖃᐸᓯᐊᕐᔪᖕᓄᑦ ᐅᑭᐅᓄᑦ ᐊᒥᓱᓄᓪᓘᓃᑦ ᐅᑎᖅᑎᑎᕆᐊᓂᒃᑎᓪᓗᒋᑦ. ᓱᕈᖅᐸᓪᓕᐊᓂᖅᑕᖃᕐᓂᐊᖅᑐᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐲᔭᖅᑕᐅᓂᖓᓄᑦ ᐱᕈᖅᑐᐃᑦ. ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖃᖏᑎᓪᓗᒍ, ᐃᑉᔪᓗᒃᑖᖅᑲᔭᐃᑦ ᖃᓂᑦᑐᒥᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ (LSA) ᕿᑎᐊᓃᕈᔪᒃᑐᒥᑦ ᓱᕈᖅᐸᓪᓕᐊᓂᖃᕈᓐᓇᕐᓂᕋᖅᑕᐅᔪᖅ. ᓱᕈᖅᐸᓪᓕᐊᕋᓚᓴᕐᓂᖅ ᐱᔾᔪᑎᒋᑉᓗᒍ ᐱᓕᕆᐊᖅ-ᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓂᒃ ᐱᓕᕆᐊᑉ ᐃᓂᖓᓃᖓᓗᐊᓂᕐᐊᖅᑐᖅ.

ᐱᕈᖅᑐᐃᑦ

ᐱᓕᕆᐊᕐᒥᑦ ᐊᒃᑐᖅᓯᓃᑦ ᐱᕈᖅᑐᐃᑦ ᐃᓂᖏᑦᑕ ᖃᑉᓯᐅᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᖃᓂᐃᓐᓂᕆᔭᖏᓐᓄᑦ ᓴᓇᔭᐅᓂᖓᓄᓂᐊᖅᑐᖅ, ᐊᐅᓛᕐᓂᖓᓄᑦ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᑕᐅᕙᓪᓕᐊᓕᖅᑎᓪᓗᒍ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓄᑦ ᐊᐅᓛᕐᓂᖓᓄᑦ ᐱᓕᕆᐊᑉ.

ᐊᓯᐊᖑᕐᓃᑦ ᐱᕈᖅᑐᐃᑦ ᐃᓂᖏᑦᑕ

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐱᕈᖅᑐᓄᑦ ᐃᓚᐅᔪᑦ ᐲᔭᖅᑕᐅᓂᖓᑕ ᐱᕈᖅᑐᐃᑦ ᐱᓕᕆᐊᖅ-ᒧᑦ ᓴᓇᕙᓪᓕᐊᓂᓗᒃᑖᓂᑦ. ᐊᖏᓛᒃᑯᑦ ᐊᖏᑎᒋᓂᖓ ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᓄᓇᐅᔪᖅ (ELC) ᐊᓯᐅᔨᔭᐅᔪᑦ ᐱᓕᕆᐊᖅ ᐱᔾᔪᑎᒋᑉᓗᒍ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᖅ 2.9%-ᓗᐊᖑᓂᐊᕐᓂᖓᓄᑦ LSA-ᒥᑦ. ᑕᒪᐃᓐᓄᑦ ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᕐᓂᐊᕐᓂᖏᑦ ᓂᕿᑦᑏᑦ ᐃᓂᒋᔭᖏᑦ ᐱᓕᕆᐊᑉ ᐃᓂᖓᓄᑦ ᐱᔪᑦ 2.9%-ᖑᓂᐊᖅᑐᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ 0.2%-ᖑᓗᓂ RSA-ᒥᑦ; ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᐱᕈᖅᑐᖅᑐᑦ 0.1%-ᒥᑦ. ᓴᓇᕙᓪᓕᐊᓂᕐᒥᑦ ᐊᒻᒪᓗ ᐊᐅᓛᓕᖅᑎᓪᓗᒍ, ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᖃᓂᑦᑐᒥᐅᓂᐊᖅᑐᖅ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᖃᓂᑕᖓᓂᑦ ᐊᒻᒪᓗ ᐊᑉᖁᑎᐅᑉ LSA-ᒦᓪᓗᓂ. ᐊᓯᐅᔨᓃᑦ ᐱᕈᖅᑐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᑕᑭᓂᖓ ᐊᑯᓂᐅᓂᐊᖅᑐᒥᑦ ELC-ᒧᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᔫᑉ ᐃᓂᖓᓂᑦ ᐃᖏᓂᒃ ᐱᕈᖅᑐᖃᓕᕐᓂᐊᖅᑐᖅ ᐊᑯᓂᐅᔪᒥᑦ ᑕᑭᑎᒋᓂᖓᓄᑦ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ. ᐅᑎᖅᑎᑎᕆᕙᓪᓕᐊᓂᖅ ᑕᐅᑐᒐᖃᕐᓂᐊᖅᑐᖅ ᖃᓄᐃᓐᓂᐅᔪᓂᒃ ᐃᖏᖕᓂᒃ ᐱᖑᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐃᓂᐅᔪᒥᑦ ᑕᐃᒪᐅᕋᓂᒃᑐᓂᒃ ᐱᕈᖅᑐᓂᑦ.

ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᐱᕈᖅᑐᐃᑦ ᐃᓂᖏᑦᑕ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓄᑦ

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᑦ ᐱᕈᖅᑐᓄᑦ ᐃᓂᐅᔫᑉ ᐃᓚᒋᙱᑕᖏᓐᓄᑦ ᐱᔪᓂᒃ ᑕᐃᒪᐅᔪᓐᓇᖅᑐᑦ ᐱᓕᕆᐊᖅ ᐊᐅᓛᖅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐃᓚᐅᔪᑦ ᐳᔪᖃᑖᑦ. ᑲᑎᑉᐸᓪᓕᐊᔪᑦ ᐳᔪᖃᑖᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᑦ ᐊᓯᐊᖑᖅᓯᓂᖃᕈᓐᓇᖅᑐᑦ ᐱᕈᖅᑐᓄᑦ ᐊᒻᒪᓗ bryophyte-ᒧᑦ ᐊᒻᒪᓗ ᑐᒃᑐᐃᑦ ᓂᕿᖏᑦ ᐱᔭᐅᓗᐊᕋᔭᖅᑐᒃᓴᐅᔪᑦ ᐱᐅᖏᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᕐᓂᐅᔪᑦ ᐳᔪᖃᑖᖏᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᓗᐊᖅ ᐳᔪᖃᑖᖏᑦ ᐃᓂᐅᔪᒥᓗᐊᕐᓂᐊᖅᑐᖅ ᐊᑉᖁᑏᑦ ᖃᓄᒋᓗᐊᖅᑕᖏᓐᓂᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐱᕈᖅᑐᓄᑦ ᐃᖏᑦᕋᔭᖕᓂᕐᒥᑦ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᑦ, ᐊᒻᒪᓗ ᓂᕆᐅᕆᔭᐅᔪᖅ ᐅᑭᐅᑉ ᐃᓚᖓᓂᑐᐃᓐᓇᐅᖃᑦᑕᕐᓂᐊᕐᓂᖓᓄᑦ ᒥᑭᔪᒥᑦ ᐱᑕᖃᖏᓪᓗᓂ ᐅᑭᐅᒃᑯᑦ, ᐊᑉᖁᑎ ᐊᐳᑎᑕᖃᖅᑎᓪᓗᒍ. ᑕᐃᒪᓐᓇᒧᑦ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐳᔪᖃᑖᖏᑦ ᐱᔪᓂᒃ ᐱᕈᖅᑐᓄᑦ ᓂᕆᐅᕆᔭᐅᔪᑦ LSA-ᒥᐅᓂᐊᕐᓂᖓᓄᑦ, ᑲᔪᓯᓗᓂ ᐊᐅᓛᕐᓂᖃᖅᑎᓪᓗᒍ ᐱᓕᕆᐊᖅ.

ᐳᔪᖃᑖᖏᑦ ᐋᕿᐅᒪᔪᑦ ᖃᓄᐃᖓᓂᕐᒧᑦ ᐊᑉᖁᑎᑦ ᓂᕆᐅᕆᔭᐅᔪᖅ ᐊᖏᓛᒃᑰᖓᔪᖅ ᐳᔪᖃᑖᖏᑦ ᓈᓴᐅᑏᑦ 1 ᒪᐃᓚᒥᐅᓂᐊᕐᓂᖓᓄᑦ ᐊᑉᖁᑎᑦ ᐊᒻᒪᓗ 100-ᒧᑦ ᑎᑭᐅᒪᓗᓂ. ᐳᔪᖃᑖᒃ ᓂᕆᐅᕆᔭᐅᔪᖅ ᐊᓄᕆᑦ ᒪᓕᖕᓂᕐᒧᑦ ᐃᓂᐅᔪᓃᓐᓂᐊᕐᓂᖓᓄᑦ ᐊᑉᖁᑎᑦ ᐊᒻᒪᓗ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᐃᓂᖓᓂᑦ. ᐅᔪᖃᑖᖏᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐱᕈᖅᑐᓄᑦ ᐅᑎᖅᑕᐅᔪᖕᓇᓂᖅᓂᑐᑦ ᐱᓕᕆᐊᖅ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ. ᐳᔪᖃᑖᖏᑦ ᖃᐅᔨᓴᐃᓃᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᑭᐅᓗᒃᑖᖅ ᐊᑉᖁᑎᖓᓄᑦ (AWAR) ᐳᔪᖃᑖᖏᒃ ᓇᓚᐅᑖᕐᓂᕐᒧᑦ ᐱᑕᖃᖅᑐᖅ ᐱᓕᕆᐊᕐᒧᑦ; ᐱᓗᐊᖅᑐᒥᑦ ᐊᒥᓲᓂᖅᓴᐃᑦ ᐳᔪᖃᑖᖑᖃᑦᑕᖅᑐᑦ 100-ᒥᑦ ᐊᑉᖁᑎᒥᑦ, ᐊᒻᒪᓗ ᐊᒃᑐᖅᓯᓂᐅᔪᑦ ᐱᕈᖅᑐᓄᑦ (ᓂᕐᔪᑏᑦ ᐃᓂᖏᓐᓄᑦ) ᐳᔪᖃᑖᒃ ᐱᔾᔪᑎᒋᑉᓗᒍ ᐃᓂᐅᔪᒦᓐᓂᐊᖅᑐᖅ. ᑕᐃᒪᓐᓇᒧᑦ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐳᔪᖃᑖᖏᑦ ᐱᕈᖅᑐᓄᑦ ᓂᕆᐅᕆᔭᐅᔪᖅ LSA-ᒥᐅᓂᐊᕐᓂᖓᓄᑦ, ᑲᔪᓯᓗᓂ ᐊᐅᓛᕐᓂᓗᒃᑖᖓᓂᑦ ᐱᓕᕆᐊᖅ ᐊᒻᒪᓗ ᐅᑎᖅᑎᑦᑐᖕᓇᕐᓗᓂ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ.

ᐃᒪᐃᔭᐃᓂᖅ Whale Tail-ᒥᑦ ᐱᒋᐊᕐᓂᐊᖅᑐᖅ ᓴᓇᔭᐅᕙᓪᓕᐊᓂᖅ ᐱᐊᓂᒃᐸᑦ, ᐃᒻᒥᖅᑐᐃᓗᑎᒃ ᖃᑉᓯᐊᕐᔪᖕᓂᑦ ᑕᓯᕐᓂᑦ Whale Tail ᓱᑉᓗᖓᓂᑦ Mammoth ᑕᓯᕐᒧᑦ, ᑕᐃᒪᓐᓇᒧᑦ ᐊᓯᐊᖑᖅᑎᕐᓗᒋᑦ ᑰᒃᑐᑦ Mammoth ᑕᓯᕐᒥᑦ ᐊᒻᒪᓗ ᑕᐅᓄᖓ ᑰᒃᑐᓄᑦ. ᐃᒻᒥᖅᑐᖅᑕᐅᓯᒪᔪᑦ ᐃᒪᐃᔭᖅᑕᐅᓂᐊᖅᑐᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓕᖅᑎᓪᓗᒍ; ᑕᐃᒪᓐᓇᒧᑦ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐱᕈᖅᑐᑦ ᐃᓂᖏᑦᑕ ᖃᓄᐃᓐᓂᕆᔭᖏᑦ ᓂᕆᐅᕆᔭᐅᔪᑦ ᐅᑎᖅᑎᑦᑐᖕᓇᕐᓂᐊᕐᓂᖏᓐᓄᑦ.

ᐊᑕᐅᑦᑎᒃᑯᑦ ᖃᐅᔨᒪᓐᓇᖅᑐᑦ ᐱᔾᔪᑎᒋᑉᓗᒋᑦ ᐱᕈᖅᑐᐃᑦ ᖃᑉᓯᐅᓂᖏᑦ ᐊᒻᒪᓗ ᖃᓄᐃᓐᓂᕆᔭᖏᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ RSA-ᒥᑦ ᓇᓗᓇᐃᖅᓯᔪᑦ ᐱᕈᖅᑐᐃᑦ ᐃᖏᖕᓂᒃ ᐱᕈᒃᑲᓐᓂᕈᖕᓇᕐᒪᑕ ᐊᒻᒪᓗ ᐱᕈᕐᓂᕐᒧᑦ ᐊᔪᙱᓐᓂᖃᖅᓱᑎᒃ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᔪᙱᓐᓂᖃᐃᓐᓇᕐᓂᐊᖅᑐᑦ ᓂᕐᔪᑎᓄᑦ ᐃᓂᒋᔭᐅᓂᕐᒧᑦ. Graminoid ᐊᒻᒪᓗ ᑐᒃᑐᐃᑦ ᓂᕿᒋᖃᑦᑕᖅᑕᖏᓐᓂᒃ ᐱᑕᖃᐅᖅᑐᑦ ELC-ᓄᑦ ᐊᑐᖅᑕᐅᓪᓚᕆᒃᑐᑦ ᑐᒃᑐᓄᑦ ᐊᒻᒪᓗ ᐅᒥᖕᒪᓄᑦ ᐃᓂᒋᔭᐅᓂᕐᒧᑦ ᑕᐃᒪᐅᖏᓐᓇᕐᓂᐊᖅᑐᑦ ᐊᒻᒪᓗ ᓯᐊᒪᒃᑎᑕᐅᓯᒪᑦᑎᐊᕐᓗᑎᒃ ᓄᓇᒥᑦ. ᑕᐃᒪᓐᓇᒧᑦ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᕙᓪᓕᐊᓂᐅᔪᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᑦ ᐱᕈᖅᑐᓄᑦ ᐊᖏᔫᔭᖏᑦᑐᕆᔭᐅᔪᑦ ᖃᓂᑦᑐᒥᑦ ᐊᒻᒪᓗ ᐅᖓᓯᒃᑐᖅ ᐃᓱᒪᒋᑉᓗᒍ.

ᓄᓇᒥᐅᑕᐃᑦ ᓂᕐᔪᑏᑦ ᐊᒻᒪᓗ ᐃᓂᒋᔭᖏᑦ

ᐱᓕᕆᐊᕐᒥᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᑦ ᓂᕐᔪᑏᑦ ᐃᓂᒋᔭᖏᑦᑕ ᖃᑉᓯᐅᓂᖏᓐᓄᑦ, ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓄᑦ ᐊᒻᒪᓗ ᐊᓐᓇᒃᑐᕈᖕᓇᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᕐᕆᐅᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐊᒃᑐᖅᑕᐅᓂᖃᕐᓂᐊᖅᑐᑦ ᓴᓇᔭᐅᓂᖓᓄᑦ, ᐊᐅᓛᖅᑎᑦᑎᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓕᕆᓂᕐᒧᑦ ᐱᓕᕆᐊᑉ ᐊᐅᓛᕐᓂᓗᒃᑖᖓᓂᑦ.

ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᓂᕐᔪᑏᑦ ᐃᓂᒋᔭᖏᑦᑕ ᖃᑉᓯᐅᓂᖏᓐᓄᑦ

ᐱᕙᓪᓕᐊᑎᓪᓗᒍ ᐱᓕᕆᐊᖅ ᐊᓯᐅᔨᓂᖅᑕᖃᕐᓂᐊᖅᑐᖅ ᐱᕈᖅᑐᓄᑦ ᐊᓯᐅᔨᓂᖃᕐᓗᓂ ᓂᕐᔪᑏᑦ ᐃᓂᒋᖃᑦᑕᖅᑕᖏᓐᓂᒃ, ᐊᒃᑐᖅᓯᓗᓂ VC-ᓗᒃᑖᓂᒃ. ᑭᓯᐊᓂ, ᐊᓯᐅᔨᓃᑦ ᐱᔾᔪᑕᐅᓂᖅᓴᐅᔪᓂᒃ VC-ᓂᑦ ᐃᓂᒋᔭᐅᔪᓂᒃ ᓂᕆᐅᕆᔭᐅᔪᑦ ᐊᑦᑎᒃᑑᓂᐊᕐᓂᖓᓄᑦ ᐳᓴᓐᑎᖏᑦᑎᒍᑦ ᒪᓂᒪᔪᐃᑦ ᐃᓂᐅᔪᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ RSA-ᒥᑦ ᐊᑐᓂ VC-ᓄᑦ. ᑲᑎᓗᒃᑖᖅᓱᒋᑦ ᐱᔾᔪᑕᐅᓂᖅᓴᐅᔪᑦ ᐃᓂᒋᔭᐅᔪᑦ ᑐᒃᑐᓄᑦ ᓂᕆᐅᕆᔭᐅᑉᓗᑎᒃ ᐱᑕᖃᕈᓐᓃᕐᓂᐊᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓ ᐱᔾᔪᑎᒋᑉᓗᒍ 2%-ᖑᔪᖅ ᒪᓂᒪᔪᓂᑦ ᐃᓂᐅᔪᓂᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ 0.2% ᑐᖔᓃᑦᓗᓂ RSA-ᒧᑦ. ᐱᓕᕆᐊᑉ ᐃᓂᖓ ᓂᕆᐅᕆᔭᐅᔪᖅ ᐊᓯᐅᔨᓂᐊᕐᓂᖓᓄᑦ 3%-ᓗᐊᓂᑦ ᐊᒻᒪᓗ 0.2%-ᓗᐊᓂᑦ ᑎᖕᒥᐊᑦ ᖃᑉᓯᐅᓂᖏᓐᓄᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ RSA-ᒥᑦ.

ᐱᓕᕆᐊᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐲᔭᐃᓂᖃᕆᐊᖃᕐᓂᐊᖅᑐᑦ ᓄᓇᐅᑉ ᖃᖓᓂᑦ ᒪᓂᕋᐅᓂᐅᔪᓂᑦ. ᐃᓗᐃᓵᕆᓂᖅ ᒪᓂᕋᐅᓂᐅᔪᓂᒃ ᐲᖅᓯᓂᐊᖅᑐᖅ ᓯᑎᖃᕐᕕᐅᖃᑦᑕᖅᑐᓂᒃ, ᓂᕐᔪᑎᐅᖃᑎᒥᖕᓂᑦ ᓂᕆᖃᑦᑕᖅᑐᑦ ᐊᒥᓲᖏᓐᓂᖅᓴᐃᑦ ᐊᒻᒪᓗ ᐊᓯᖏᑦ ᒪᓂᕋᐅᓂᐅᔪᑦ ᒪᓂᒪᔪᑦ ᑕᒪᐃᓂᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ RSA-ᒥᑦ.

ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᓂᕐᔪᑏᑦ ᐃᓂᖏᑦᑕ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓄᑦ

ᐱᓕᕆᐊᖅ ᐊᓯᐅᔨᑎᑦᑎᓂᐊᖅᑎᓪᓗᒍ ᐃᓂᒋᔭᐅᔪᓂᒃ VC-ᓄᑦ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓ ᐱᔾᔪᑎᒋᑉᓗᒍ, ᐊᓯᐊᔨᓃᑦ ᑕᐃᑲᙵᐅᖏᑦᑐᖅ ᑕᐃᒪᐅᓂᐊᕐᒥᔪᑦ ᖃᓂᑦᑐᒥᑦ ᐊᒻᒪᓗ ᐅᖓᓯᖕᓂᖅᓴᐅᔪᓂᑦ. ᐃᒃᐱᒋᓴᕋᐃᓐᓂᕐᒧᑦ ᐃᓗᐃᓵᕆᓃᑦ (ᓲᕐᓗ ᓂᐱᖃᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐊᐅᓚᑲᑕᖕᓂᕐᒧᑦ) ᑎᑭᐅᑎᔪᑦ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓᑕ ᐅᖓᑖᓄᑦ ᑕᐃᒪᐅᓂᐊᖅᑐᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ. ᐊᒻᒪᓗᒃᑲᓐᓂᖅ, ᐱᓕᕆᐊᖅ ᑎᑭᐅᑎᓂᐊᖅᑐᖅ ᐊᑐᖅᑕᐅᓂᖓᓄᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᓯᖃᓪᓕᑎᕝᕕᒃ, ᓄᓇᓕᐊᓛᖅ ᐊᐅᓛᖅᑎᑕᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ AWAR ᐱᖓᓱᓄᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ.

ᑕᐃᑲᙵᐅᖏᑦᑐᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐱᓕᕆᐊᕐᒥᑦ ᒥᒃᓱᒋᐊᖅᑎᑦᑎᔪᖕᓇᖅᑐᑦ ᐃᓚᖏᓐᓂᒃ ᐱᔾᔪᑕᐅᓂᖅᓴᐅᔪᑦ ᑐᒃᑐᐃᑦ ᐊᒻᒪᓗ ᓄᓇᒥᐅᑕᐃᑦ ᑎᖕᒥᐊᑦ ᐃᓂᖏᑦᑕ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓂᒃ LSA-ᒥᑦ ᐊᒻᒪᓗ RSA-ᒥᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᑕᐃᑲᙵᐅᖏᑦᑐᖅ ᐊᓯᐅᔨᓂᕐᒧᑦ ᐃᓂᐅᔪᓂᒃ ᑐᒃᑐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᖏᓲᔾᔭᖏᓐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᓄᖑᓪᓗᓂ ᐊᑐᕐᓗᒍ ᐅᖓᓯᖕᓂᖅ ᐱᓕᕆᐊᕐᒥᑦ. ᓂᐱᖃᕐᓂᕐᒧᑦ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᖅ ᐱᓕᕆᐊᕐᒧᑦ ᓇᓗᓇᐃᖅᓯᔪᖅ ᓂᐱᖃᕐᓂᖅ ᐱᔪᖅ ᓴᓇᔭᐅᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐊᐅᓛᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᖅ ᐊᔾᔨᕐᓚᒋᓂᐊᕐᓂᖓᓄᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ RSA-ᒦᓐᓇᔭᖅᓱᑎᒃ.

ᐱᓕᕆᐊᕐᒥᑦ ᐊᑉᕐᑯᑎ ᓂᕆᐅᒋᔭᐅᔪᖅ ᑐᓗᖅᑕᒋᑕᐅᔪᖕᓇᕐᓂᖓᓄᑦ ᓂᕐᔪᑎᓄᑦ (ᐱᓗᐊᖅᑐᒥᑦ ᑐᒃᑐᐃᑦ, ᐅᒥᖕᒪᐃᑦ ᐊᒻᒪᓗ ᐊᒪᖅᑯᓄᑦ), ᐊᒃᑐᓯᓂᖃᕈᖕᓇᖅᑐᖅ ᖃᑉᓯᐅᓂᖏᑦᑕ ᐊᒃᑐᐊᖃᑎᒌᖕᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓯᐊᒻᒪᖃᑦᑕᕐᓂᖏᓐᓄᑦ. ᐊᐅᓚᓐᓃᑦ ᕐᑯᖓᓯᕈᓯᖅᓯᒪᔪᑦ ᑐᒃᑐᓄᑦ AWAR ᖃᓂᑕᖓᓂᑦ ᓇᓗᓇᐃᖅᓯᔪᖅ ᑐᒃᑐᓗᒃᑖᖅᑲᔭᐃᑦ ᑎᑭᐅᑎᖃᑦᑕᖅᑐᑦ ᐊᑉᕐᑯᑎᒧᑦ ᐃᑳᕐᓂᐊᖅᑐᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᐱᓕᕆᐊᕐᒥᑦ ᐊᒻᒪᓗ ᐊᑉᕐᑯᑎᒥᑦ ᐱᔪᓂᒃ ᑐᒃᑐᐃᑦ ᓈᖃᑦᑕᕐᓂᖏᓐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᖏᓂᖓ ᕿᑎᐊᓃᓐᓂᐊᕐᓂᖓᓄᑦ, ᐃᓚᖏᑦ ᐋᕿᐅᒪᔪᖕᓃᕐᓂᐅᔪᑦ ᑕᐃᒪᐅᓂᐊᖅᑐᒃᓴᐅᖕᒪᑕ ᑐᒃᑐᐃᑦ ᐃᑳᕐᕕᒃᓴᖓᓐᓂᒃ ᓇᓂᓯᒍᑎᒃ. ᐅᒃᑯᐊᖅᑎᓪᓗᒍ, ᓄᓇᒃᑰᕈᑎᕋᓗᖕᓂᑦ ᐃᖏᕐᕋᔭᒃᑐᓂᒃ ᐊᒥᐊᒃᑯᖃᔾᔭᖏᑦᑐᖅ ᐊᒻᒪᓗ ᐱᓕᕆᐊᑉ ᐅᑉᑯᑎᖓ ᐱᑕᖃᕈᖕᓃᖅᑎᑕᐅᓗᓂ. ᓂᕆᐅᒋᔭᐅᔪᖅ ᑐᒃᑐᐃᑦ ᐃᑳᖃᑦᑕᕐᓂᐊᕐᓂᖓᓐᓄᑦ ᐊᑉᕐᑯᑎᒥᑦ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ (ᓲᕐᓗ, ᕿᑎᐊᓃᓗᓂ ᑕᑭᑎᒋᓂᖓ) ᐊᒻᒪᓗ ᐊᒃᑐᖅᓯᓂᐅᔪᖅ ᐅᑎᕈᖕᓇᕐᓂᐊᖅᑐᖅ ᐃᓕᖅᑯᓯᑐᖃᓇᓚᐅᖅᑕᖓᓄᑦ.

ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᓂᕐᔪᑏᑦ ᐊᓐᓇᒃᑐᕈᖕᓇᕐᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᓄᕐᓇᐅᕈᖕᓇᕐᓂᖏᓐᓄᑦ

ᐃᒻᒥᖅᑐᐃᓂᖅᑕᖃᕐᓂᐊᖅᑐᖅ ᐅᑉᓗᓕᐅᓇᓂᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᓯᐅᔨᓂᖅᑕᖃᕈᖕᓇᖅᓱᓂ ᐅᑉᓗᓇᔭᐅᔪᓂᒃ ᑕᓯᐅᑉ ᓯᒡᔭᖓᓂᑦ. ᐃᓱᒪᒋᑉᓗᒍ ᐃᒻᒥᖅᑐᖅᑕᐅᓂᐊᖅᑐᖅ ᐊᒻᒪᓗ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᖅ ᑎᖕᒥᐊᑦ ᐅᑉᓗᖏᑦ ᖃᑉᓯᐅᓂᖏᑦ, 7-ᓗᐊᑦ ᐅᑉᓗᐃᑦ 2019-ᒥᑦ ᐊᒻᒪᓗ ᐱᖓᓱᐃᑦ ᐅᑉᓗᐃᑦ 2020-ᒥᑦ ᓯᒡᔭᒥᐅᑕᓄᑦ ᑎᖕᒥᐊᓄᑦ, ᓇᐅᔭᔾᔪᐊᑦ ᐊᒻᒪᓗ ᐃᒪᕐᒥᐅᑕᐃᑦ ᐊᒻᒪᓗ 61-ᓗᐊᑦ ᓄᓇᒥᐅᑕᐃᑦ ᑎᖕᒥᐊᑦ ᐅᑉᓗᖏᑦ 2019-ᒥᑦ ᐊᒻᒪᓗ 27 ᐅᑉᓗᐃᑦ 2020-ᒥᑦ ᐱᑕᖃᕈᖕᓃᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᐅᑉᓗᓕᐅᕐᓇᐅᑎᓪᓗᒍ ᐃᒻᒥᖅᑐᐃᓂᖅ ᐱᔾᔪᑎᒋᑉᓗᒍ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒥᒃ ᐋᕿᒃᓯᖕᒋᑉᐸᑕ. ᑕᒪᒃᑯᐊ ᓈᓴᐅᑏᑦ ᐃᓚᐅᑎᑦᑎᖕᒋᑦᑐᑦ ᒥᒃᓱᒋᐊᖅᑎᑦᑎᔪᖕᓇᕐᓂᐅᔪᓂᒃ ᐅᑉᓗᓕᐅᖅᑐᓂᒃ ᐃᒃᐱᒍᓱᖕᓂᖅ ᐱᔾᔪᑎᒋᑉᓗᒍ. ᐃᒻᒥᖅᑐᐃᓂᖅ ᐃᖕᒥᒃᑰᖓᓂᐊᖅᑐᖅ ᐊᒻᒪᓗ ᓴᓇᔭᐅᑎᓪᓗᒍᓗ ᐊᐅᓛᕐᓂᐅᑎᓪᓗᒍᓗᑐᐃᓐᓇᐅᓗᓂ ᐱᖓᓱᓄᑦ ᐅᑭᐅᓄᑦ. ᑕᒪᓐᓇ ᐊᒃᑐᖅᓯᓂᖅ ᓇᐃᑦᑑᔪᖅ ᑕᑭᓂᖓᓄᑦ ᓴᓇᔭᐅᕋᓂᒃᐸᑦ ᓱᑉᓗᐃᑦ ᐅᓗᕆᐊᓇᖅᑐᖅᑕᖃᕈᖕᓃᕐᓂᐊᖅᑐᖅ ᐅᑉᓗᓕᐅᕐᕕᑦ ᐃᓂᒋᖃᑦᑕᖅᑕᖕᒋᓐᓂᑦ.

ᑕᒪᐃᓐᓄᖓᑉᓗᒍ, ᓇᓗᓇᙱᔾᔪᑎᐅᑉ ᐊᖏᓂᖓ, ᐊᒻᒪᓗ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᑯᖏᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ, ᓇᓗᓇᐃᖅᓯᔪᖅ ᐊᒥᓲᖑᖅᐸᓪᓕᐊᔪᑦ ᐊᒻᒪᓗ ᑲᑎᑉᐸᓪᓕᐊᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ ᐊᖏᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᔾᔭᖏᑦᑐᖅ ᑕᐃᒪᐅᕋᓂᒃᑐᒥᑦ ᐃᖕᒥᓂᒃ ᐱᔪᖕᓇᕐᓂᖃᖅᑐᒥᒃ ᐊᒻᒪᓗ ᐱᕈᕐᓂᕐᒧᑦ ᐊᔪᖕᒋᓐᓂᐅᔪᓂᒃ ᓂᕐᔪᑎᓄᑦ.

ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐱᓕᕆᐊᖑᔪᑦ

ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᓂᒃ ᓴᖅᑭᑦᑎᓂᐊᖅᑐᑦ ᐊᐅᓛᕐᓂᖓᓂᒃ ᐱᓕᕆᐊᖅ ᐊᔾᔨᒌᖏᑦᑐᒃᑯᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᒃᑯᑦ, ᐊᒻᒪᓗ ᐅᑯᐊᖑᔪᖕᓇᖅᓗᑎᒃ ᐊᕙᑎᒧᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᖃᓄᐃᖓᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐊᑐᓕᖅᑎᑦᑎᒃᑲᓐᓂᕐᓗᑎᒃ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᓂᒃ ᐱᔭᕆᐊᖃᕐᓂᖅ ᒪᓕᒃᓗᒍ ᐊᒻᒪᓗ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓗᑎᒃ ᓇᓗᓇᐃᖅᓯᓂᕐᒧᑦ ᓇᓚᐅᑦᑎᖕᒪᖔᑕ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᓂᒃ ᓇᓚᐅᑦᑖᕆᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐊᐅᓚᑦᑎᓂᖃᕐᓗᑎᒃ ᐊᑐᕐᓗᒍ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖅ ᐱᔭᕆᐊᖃᕐᓂᖓ ᒪᓕᒃᓗᒍ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᓄᑦ, ᐃᑉᔪᓄᑦ, ᐱᕈᖅᑐᓄᑦ ᐊᒻᒪᓗ ᓂᕐᔪᑎᓄᑦ, ᐃᓚᐅᓂᐊᖅᑐᑦ, ᐃᒪᐅᑉ ᖄᖓᑕ ᖃᑉᓯᐅᓂᖓ, ᐃᓚᐅᓗᓂ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑑᑉ ᐊᒻᒪᓗ ᐃᑉᔪᐃᑦ ᖃᓄᐃᓐᓂᖏᑦ, ᓄᓇᒥᒃ ᒪᓂᕋᐅᔪᒥᒃ ᖃᐅᔨᓴᐃᓃᑦ ᔪᑎᒋᔭᐅᔪᓂᒃ ᓇᓂᓯᓂᕐᒧᑦ, ᐳᔪᖃᑖᖏᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓃᑦ ᐱᕈᖅᑐᓄᑦ ᐊᑉᖁᑎᐅᑉ ᖃᓂᖓᓂᑦ, ᐊᒻᒪᓗ ᓂᕐᔪᑎᓂᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐊᔾᔨᒋᓂᐊᖅᑕᖓ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᑦ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐃᓚᒋᔭᐅᔪᖅ ᐅᑯᓇᓂ ᐸᕐᓇᐅᑎᓂᑦ ᖃᐅᔨᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᐃᒪᓐᓇ:

- ᓄᓇᒥᑦ ᐱᕈᖅᑐᐃᑦ ᐆᒻᒪᓂᖃᑎᒌᖕᓂᖏᓐᓄᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ.
- ᐊᑉᖁᑎᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ.
- ᓂᐱᖃᕐᓂᐅᑉ ᒥᒃᓵᓄᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ.

ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᐅᖃᐅᓯᐅᔪᑦ ᐃᓗᐊᓂᑦ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ.

SOMMAIRE DE GESTION – VOLUME 5 L'ENVIRONNEMENT TERRESTRE

Le Volume 5 de l'Énoncé des incidences environnementales du Projet de gisement Whale Tail et de route de transport (le Projet) traite des directives et lignes directrices émises par la Commission du Nunavut chargée de l'examen des répercussions, plus particulièrement celles relatives aux effets sur l'environnement terrestre, incluant le terrain, le pergélisol et les sols, la végétation et la faune terrestre, ainsi que l'habitat faunique.

Le Volume 5 inclut une discussion sur les composantes valorisées (CV), l'intégration des Inuit Qaujimajatuqangit (IQ), la description des zones d'étude, ainsi qu'une évaluation des effets directs sur les modifications à l'environnement terrestre. L'évaluation des effets s'attarde à évaluer toutes les phases du Projet, incluant la construction, l'assèchement, les opérations, la fermeture et la post-fermeture.

Préoccupations du public / Inuit Qaujimajatuqangit

Les préoccupations du public et l'Inuit Qaujimajatuqangit ont été intégrées tout au long de l'évaluation des effets potentiels du Projet sur l'environnement terrestre. Les préoccupations concernant le Projet ont été obtenues par une consultation publique, des rencontres avec groupes témoins, l'implication du gouvernement et les connaissances scientifiques. Des préoccupations ont été soulevées concernant les pertes directes et indirectes sur l'habitat résultant des activités du Projet et de sa construction. Elles sont résumées ci-dessous :

- Des eskers retrouvés sur la zone d'étude régionale (ZER) du Projet ont été identifiés par les aînés comme un habitat de prédilection pour le bœuf musqué, des aires de mise bas pour le loup, le renard et le spermophile arctique, ainsi que des sites de campement traditionnel.
- Des préoccupations ont été exprimées relativement aux activités du Projet résultant en des pertes en quantité et en qualité des communautés de végétation, une réduction de la qualité du fourrage destiné à la faune en raison du dépôt de poussière, et à la capacité de la végétation de se régénérer à la suite des activités minières. Les aînés ont été particulièrement préoccupés au sujet de la perte potentielle de lichen, lequel constitue un élément important de l'alimentation du caribou.
- Des préoccupations particulières au sujet des effets de la mine sur le caribou incluaient le risque potentiel que les caribous ingèrent des produits chimiques toxiques, l'habilité des caribous à traverser de manière sécuritaire la route de transport proposée du Projet et les effets potentiels de la route de transport du Projet sur les modèles de migration et de répartition, ainsi que des préoccupations relatives au risque potentiel d'une présence réduite du caribou ou d'une altération du goût de la viande de caribou.
- Les préoccupations au sujet des oiseaux et de l'habitat des oiseaux étaient centrées sur le risque potentiel de destruction ou de perturbation de l'habitat des oiseaux nicheurs.

Éléments clés du Projet et résultats de l'Énoncé des incidences environnementales

Les composantes valorisées du Projet ont été sélectionnées en se basant sur les discussions avec les parties prenantes, les rencontres avec le public, l'IQ et l'expérience des autres mines dans le nord. Ces CV ont été alors confirmées comme appropriées pour le Projet grâce à une étude additionnelle sur les IQ effectuée en 2014. Les CV de l'environnement terrestre incluent le pergélisol, le terrain/les sols, la végétation (habitat faunique). Les CV fauniques incluent les ongulés, les mammifères prédateurs, les rapaces, les oiseaux aquatiques, les oiseaux terrestres et les petits mammifères.

Terrain, pergélisol et sols

Des impacts du Projet sur le terrain, le pergélisol et les sols résulteront de la construction, des opérations et des activités de fermeture au cours de la durée de vie du Projet. Certaines de ces activités entraîneront des gains physiques du pergélisol en raison de la croissance du pergélisol en remplissage structural, ainsi qu'une croissance à long terme du pergélisol sous la halde de stériles Whale Tail. D'autres activités occasionneront des pertes physiques de terrain, du pergélisol et du sol en raison de l'extraction de roches et de matériaux du sol pour une utilisation lors de la construction, ainsi qu'en raison de l'extraction minière concrète de la fosse à ciel ouvert. Les liens causals principaux sont des pertes physiques ou des altérations permanentes des conditions actuelles du pergélisol et des caractéristiques du terrain et des sols, de même que des modifications aux propriétés du sol.

La dégradation du pergélisol peut résulter de l'excavation de la fosse à ciel ouvert, alors que des entrées potentielles d'eaux souterraines vers la fosse à ciel ouvert peuvent se produire lors des activités minières (si la profondeur se prolonge au-dessous de la base du pergélisol). La fosse à ciel ouvert proposée occasionnera probablement un retrait du pergélisol dans les parois et le plancher de la fosse, ainsi que la création d'une couche active. Des changements mineurs au pergélisol résulteront de l'inondation en raison d'un certain nombre de lacs tributaires en amont. Le canal de dérivation qui sera construit dans le cadre de la digue Whale Tail peut faire en sorte que la couche active augmente légèrement en épaisseur.

Le déblaiement du site et la construction du Projet, particulièrement par le biais des processus de décapage et de stockage des sols, entraîneront des modifications de la quantité et de la répartition des sols, ainsi que des modifications du terrain. Les modifications aux conditions actuelles du terrain et du sol seront confinées à l'empreinte du Projet. Le till (moraine) est le matériau superficiel dominant qui subira les plus grands changements au sein de l'empreinte du Projet. L'eau constitue la deuxième caractéristique du terrain qui subira le plus de changement résultant de l'assèchement du lac Whale Tail pour les biens de la fosse Whale Tail.

Le déblaiement du site et la construction du Projet pourraient occasionner des modifications de la qualité du sol. Au cours du déclassement et de la remise en état, le sol ne sera pas reconstitué. L'empreinte de la fosse à ciel ouvert deviendra principalement un lac au moment de la fermeture.

La perturbation des sols au cours de la construction devrait occasionner des modifications physiques au sol, telle une perte de la structure du sol. Il est envisagé que des effets négatifs sur les caractéristiques écologiques du sol occasionneront des taux plus bas du cycle des nutriments et une disponibilité réduite des macro et micro nutriments dans les substrats du site après la fermeture, et ce pour plusieurs années ou même décennies après la remise en état. De l'érosion se produira durant la construction en raison du retrait du couvert végétal. Sans atténuation, la majeure partie des sols dans la zone d'étude locale (ZEL) est classée comme ayant un potentiel modéré d'érosion. L'érosion accélérée relative aux activités du Projet serait limitée principalement à l'empreinte du Projet.

La végétation

Des impacts du Projet sur la quantité et la qualité de l'habitat végétal résulteront de la construction, des opérations et des activités de fermeture au cours de la durée de vie du Projet.

Modifications à la quantité des habitats végétaux

Les effets sur la végétation incluront le retrait physique de la végétation dans toutes les zones de construction du Projet. Le montant maximum d'unités de classification écologique des terres (CET) de végétation et de non-végétation perdues en raison du Projet devrait être d'environ 2,9 % de la ZEL. La perte de végétation globale et d'habitat faunique associé en raison de l'empreinte du Projet est de 2,9 % de la ZEL et 0,2 % de la ZER; il est anticipé que le Projet fera diminuer le nombre d'unités CET de végétation de 0,1 %. Au cours de la construction et des activités de la phase opérationnelle, les effets du Projet seront localisés autour du site minier et de la route de transport au sein de la ZEL. Il est prévu que les pertes à la végétation seront à long terme pour les unités CET au sein de l'empreinte de la mine, laquelle sera végétalisée naturellement au cours de la post-fermeture à long terme. Les efforts de remise en état se concentreront à fournir des conditions favorisant la recolonisation naturelle du site par la végétation indigène environnante.

Modifications à la qualité de l'habitat végétal

Des effets potentiels sur la végétation associés aux perturbations en dehors de l'empreinte peuvent se produire durant les opérations du Projet et inclurent le dépôt de poussière. L'accumulation de poussière produite par le Projet peut occasionner des changements directs sur la végétation et la bryophyte, et le lichen pourrait être particulièrement vulnérable aux effets chimiques de la poussière. Les premiers effets de la poussière sont généralement limités à la zone immédiate près des routes. Les effets sur la végétation seront directement reliés au niveau de circulation sur la route de transport et il est anticipé que cette circulation sera hautement saisonnière, alors que peu ou pas de poussière du tout ne sera produite en hiver, lorsque la route est recouverte de neige. Par conséquent, les effets de la poussière sur la végétation devraient être confinés strictement à la ZEL, et se poursuivre tout au long des opérations du Projet.

Les résultats de la modélisation de la poussière le long de la route de transport ont prédit que les valeurs maximales de dépôt de poussière se situeraient à moins de 1 m de la route de transport et seraient concentrées à l'intérieur de 100 m. Il est prévu que le dépôt de poussière se produira principalement dans les zones dans le sens du vent par rapport à la route de transport et au site de la mine. Les effets des retombées de poussières sur la végétation seront réversibles, suivant la fermeture du Projet. Les études sur les retombées de poussières de la route d'accès praticable par tous les temps (AWAR) de Meadowbank correspondent aux prévisions modélisées des retombées de poussières pour le Projet; plus particulièrement que la majorité des retombées de poussières se produit à l'intérieur de 100 m de la route et que les impacts sur la végétation (habitat faunique) en raison de la poussière seront restreints à cette zone. Par conséquent, les effets de la poussière sur la végétation devraient être confinés strictement à la ZEL, se poursuivre tout au long des opérations du Projet et être réversibles à la suite de la fermeture.

L'assèchement de Whale Tail se produira à la fin de la phase de construction, résultant en l'inondation d'un certain nombre de lacs tributaires en amont de la digue Whale Tail vers le bassin versant du lac Mammoth, altérant ainsi les débits du lac Mammoth et des lacs en aval. Les zones inondées seront asséchées à la fermeture; donc, les effets sur la qualité de l'habitat végétal seront réversibles.

Les données combinées concernant la quantité et la qualité de la végétation dans la ZEL et la ZER indiquent que la végétation demeurerait autosuffisante et efficace écologiquement au cours de la construction et des opérations et conserverait sa fonction d'habitat faunique. Les unités CET de graminées et de couvertures de lichen qui servent d'habitat de grande qualité pour le caribou et le bœuf musqué continueront d'être présentes et bien réparties à travers le secteur. Par conséquent, les effets incrémentiels du Projet sur la végétation ne sont pas considérés comme importants à l'échelle locale et régionale.

Faune terrestre et habitat faunique

Des impacts du Projet sur la quantité, la qualité de l'habitat faunique, ainsi que sur la survie et la reproduction de la faune résulteront de la construction, des opérations et des activités de fermeture au cours de la durée de vie du Projet.

Modifications à la quantité des habitats fauniques

Le développement du Projet résultera en la perte de communautés de végétation menant à une perte directe des habitats fauniques, affectant toutes les CV. Cependant, les pertes des habitats de prédilection des CV devraient se limiter à un faible pourcentage de l'habitat disponible dans la ZEL et la ZER pour chaque CV. L'habitat de prédilection total pour le caribou qui devrait être déplacé par l'empreinte du Projet est de 2 % de l'habitat disponible dans la ZEL et de moins de 0,2 % pour la ZER. Il est prévu que l'empreinte du Projet déplace environ 3 % et 0,2 % du nombre d'oiseaux habituellement retrouvés dans la ZEL et la ZER, respectivement.

La construction du Projet nécessitera le retrait des matériaux de surface des eskers. Alors que cette perturbation aux eskers éliminera une partie de l'habitat de mise bas, les prédateurs sont présents en faible proportion et d'autres eskers sont disponibles autant dans la ZEL que dans la ZER.

Modifications à la qualité des habitats fauniques

Alors que le Projet engendrera une perte directe de l'habitat pour les CV en raison de l'empreinte du Projet, une perte indirecte se produira également à l'échelle locale et à l'échelle régionale. Des perturbations sensorielles (tels le bruit et le mouvement) qui vont au-delà de l'empreinte du Projet se produiront au cours de la construction et des opérations. De plus, le Projet prolongera l'utilisation de l'usine, des activités du campement et de l'AWAR de Meadowbank de trois à quatre années.

Des effets indirects du Projet devraient mener à la réduction de la proportion de la qualité des habitats de prédilection des oiseaux terrestres et du caribou dans la ZEL et la ZER. L'effet de la perte d'habitat indirect sur le caribou devrait être limité et diminuer en s'éloignant du Projet. L'évaluation des impacts par le bruit du Projet indique que le bruit créé par la construction et les opérations du Projet serait similaire à celui de la mine Meadowbank, et que ces effets seraient confinés à la ZER.

Il est prévu que la route de transport du Projet sera une barrière potentielle pour la faune (principalement les ongulés et les loups), ce qui pourrait avoir un impact sur la connectivité et la répartition des populations. Les mouvements des caribous munis de colliers près de l'AWAR indiquent que la majorité des caribous s'approchant de la route la traverseront. Les effets du Projet et la route de transport sur la migration du caribou devraient être modérés, alors que quelques déviations se produiront certainement lorsque des caribous opteront pour un point de passage. À la fermeture, il n'y aura plus de circulation et la route de transport du Projet sera scarifiée. Il est anticipé que les caribous traverseront la route librement à la suite de la fermeture (c.-à-d. à moyen terme) et que les impacts seront renversés à ce moment.

Modifications à la survie et à la reproduction de la faune

Une portion des inondations se produira durant la saison de nidification et pourrait mener à une perte au niveau des nids près de la rive du lac. Considérant la zone à être inondée et la densité estimé de la nidification des oiseaux, approximativement sept nids en 2019 et trois nids en 2020 des groupes des oiseaux de rivage, des goélands et des sauvagines et environ 61 nids d'oiseaux terrestres en 2019 et 27 nids en 2020, seront déplacés en raison de l'inondation au cours de la saison de nidification si aucune mesure d'atténuation n'est entreprise. Ces chiffres ne prennent pas en compte la possible diminution de l'activité de nidification en raison de la perturbation sensorielle. L'inondation sera isolée et ne se produira qu'au cours des trois premières années de construction et d'opération. Il s'agit d'un impact à court terme puisqu'à la suite de la construction des digues, il n'y aura plus aucun risque de destruction des nids.

De manière générale, les éléments de preuve apportés et l'expérience de la mine Meadowbank indiquent que les effets incrémentiels et cumulatifs du Projet n'auront pas un impact négatif important sur les populations fauniques actuelles autosuffisantes et écologiquement efficaces.

Les mesures d'atténuation

Des programmes de surveillance seront mis en œuvre au cours de la durée de vie du Projet par le biais d'une panoplie de plans de surveillance, et possiblement par une combinaison de surveillance environnementale afin de suivre les conditions et de mettre en œuvre des mesures d'atténuation supplémentaires lorsque nécessaires. Également, il faudra un suivi des activités de surveillance afin de vérifier l'exactitude des prévisions des effets et d'adapter la gestion et la mise en œuvre de mesures d'atténuation supplémentaires, au besoin. Les programmes de surveillance du pergélisol, des sols, de la végétation, de la faune et de la quantité des eaux de surface incluront la surveillance du pergélisol et des conditions du sol, des sondages des eskers afin d'identifier les tanières, la surveillance de la poussière sur la végétation le long de la route de transport, ainsi qu'une surveillance de la faune. La surveillance correspondra aux programmes de surveillance actuels de la mine Meadowbank. La surveillance des impacts est incluse dans les plans suivants :

- Plan de gestion de l'écosystème terrestre;
- Plan de gestion des routes;
- Plan de surveillance du bruit.

Les mesures d'atténuation sont décrites tout au long de l'évaluation des impacts environnementaux.

EXECUTIVE SUMMARY – VOLUME 6 FRESHWATER ENVIRONMENT

Volume 6 of the Final Environmental Impact Statement for the Whale Tail Pit and Haul Road Project (the Project) addresses Guidelines issues by the Nunavut Impact Review Board for the Project, specifically those relating to the effect of the Project on the Freshwater Environment, including hydrogeology and groundwater, surface water quantity and quality, and fish population.

Volume 6 includes a discussion on valued components (VCs), incorporation of Inuit Qaujimajatuqangit (IQ), description of the study areas, and an assessment of direct effects to changes to the Freshwater Environment in the study area. The effects assessment evaluates all Project phases, including the construction, dewatering, operational, closure, and post-closure phases.

Public / Inuit Qaujimajatuqangit concerns

Inuit Qaujimajatuqangit highlighted the cultural significance of water to the Inuit, including rivers and lakes, which were considered important travel routes during the winter, areas adjacent to lakes were considered preferred locations for camping and caching, critical in providing habitat for fish and important secondary source of traditional food for Baker Lake community members, and prime harvesting sites where caribou crossings were located. Inuit Qaujimajatuqangit related to knowledge and observations of changing weather and climate and its effects on water levels in rivers and lakes was identified as a key concern.

Concerns have been raised regarding the effect of specific project activities that could affect water quality (e.g., spills and accidents, dust deposition, disturbance of lakes from construction activities, dewatering of waterbodies, and accumulation of toxic substances), fish, waterfowl, and aquatic ecosystems. Concerns were also raised regarding specific project activities about the protection of lakes, including restricted water flow and dewatering of waterbodies, watercourse crossings.

Concerns related explicitly to fish populations and habitats were effects of siltation, spills, the accumulation of toxic substances, habitat loss, restricted water flow and dewatering of waterbodies, dust, and the potential overharvesting of fish species near construction sites or camps.

Key Project Elements and Findings of Environmental Impact Statement

Hydrogeology and Groundwater

Pathway analysis for groundwater and hydrogeology identifies and assesses the linkages between the Project components or activities. No primary pathways were identified. Changes in hydrogeology and groundwater quantity and quality were evaluated in the context of how these changes in turn may result in changes to VCs (i.e. surface water hydrology and surface water quality).

Surface Water Quantity

Primary pathways for surface water quantity are the result of dewatering, mine infrastructure development, and diversion activities for the Project. Infrastructure development will modify the configuration of a watershed, including drainage area, and lake water surface fractions. Dewatering and diversion of waterbodies will augment discharges and water levels of receiving lakes. Effects resulting from the Project on discharges, water levels, and channel/bank stability are summarized below by Project phases: During construction and dewatering discharge and water level regimes from Lake A16 (Mammoth Lake) and downstream lakes are expected to decrease from the baseline values, and no effects are expected on channel/bank stability . During operations, the Whale Tail Lake (South Basin) diversion to the Lake A16 (Mammoth Lake) watershed, and the North-East sector diversion to the Lake C38 (Nemo Lake) watershed, are expected to increase water levels in Whale Tail Lake (South Basin), flood discharge and water level regimes are expected to increase slightly from the baseline values at Lake A16 (Mammoth Lake), discharge and water level regimes are expected to increase from the baseline values at Lake C38 (Nemo Lake), and negligible effects are expected on channel/bank stability. No effects are expected on channel/bank stability at Lake A16 (Mammoth Lake) or Lake C38 (Nemo Lake). During closure discharge and water level regimes from Lake A16 (Mammoth Lake) and downstream lakes are expected to decrease from the baseline values. No effects are expected on channel/bank stability. The effects are expected to remain confined to the Local Study Area (LSA). There are no reasonably foreseeable future developments and cumulative effects are expected to be negligible.

Surface Water Quality

Assessment of water and sediment quality provides a basis for evaluation of the aquatic ecosystems to determine whether water quality during each phase of the Project meets acceptable levels for the protection of aquatic life, source drinking water, and water for wildlife consumption. Primary pathways to water and sediment quality are potential Project effects from the deposition of dust of metals from air emissions, from alteration of watersheds, and from release of mine wastewater. Assessment results of each primary pathway are summarized below.

Air Emissions

Generation of dust and air emissions are linked to Project activities such as operations of diesel powered equipment, blasting, and transportation along the haul roads. The duration of these effects are predicted to be short to medium-term in length, primarily restricted to operations, with some pathways in construction and closure. Based on monitoring data from Meadowbank Mine and other Northern mines, the spatial extent of dust deposition is expected to be local, and measureable changes in water quality from deposition of dust and acidifying air emissions is expected to be low. Based on the results of the air quality predictions for the Project, the use of mitigation such as low-sulfur diesel fuel, and watering of roads, the effects of deposition of dust and acidifying air emissions is predicted to have a negligible effect on water quality, and thus a negligible effect on aquatic ecosystems and traditional and non-traditional uses.

Flooding

The planned diversion of Whale Tail Lake (South Basin) will result in flooding of tributary lakes which may result in increased concentrations of mercury in the water and biota, from decomposition of newly flooded vegetation.

The effects of flooding on mercury cycling will be limited to the period of time when Whale Tail Lake (South Basin) is flooding (i.e., approximately 2 years). Based on the literature, mercury concentrations in water and biota can start to increase one to two years after flooding; the time to return to baseline conditions is unknown, but it is assumed that the time will be less than the time observed in naturally flooded reservoirs since the flooded state will be temporary. Based on these assumptions, the duration of effects was rated as medium-term and the geographical extent of effects was considered local because effects will be limited to Whale Tail Lake. The potential magnitude of the effect was rated as moderate because some parameters may increase above guidelines, but not to a level that could affect the sustainability of the ecosystem nor limit the continued traditional and non-traditional uses.

Effluent Discharge

Management of water in the Whale Tail Pit area and the discharge of effluent to the downstream environment has the potential to change water quality through disturbance of lakes and effluent release. There is the potential to change Lake A16 (Mammoth Lake) and the downstream receiving environment from the Project activities related to this pathway. Lakes that have been identified as culturally important (e.g., Innugugayualik and Pipedream lakes; Section 6.4.1.1; Volume 7, Appendix 7-A) will not be affected by this pathway.

Management of water on site will be necessary to manage and minimize downstream effects. Discharge of effluent will be limited to the operations phase, but the potential effects may extend through to early post-closure. It is predicted that there will be a change in downstream water quality due to the Project but that changes will be limited to one constituent: phosphorus. The predictions are conservative but suggest there could be increases in phosphorus in the downstream lakes, which could change productivity.

The duration of the effect was rated as long-term but not permanent because the model predicts a return to baseline conditions in post-closure. The geographic extent was rated as regional as there is the potential for changes in nutrients to Downstream Node 2. The magnitude was rated as moderate to high because there is a high degree of conservatism in the predictions, increased phosphorus could affect sustainability of the ecosystem, in a select system of lakes, but may not affect aquatic health.

The Project is not anticipated to have a significant effect to water quality. There are no reasonably foreseeable future developments and cumulative effects are expected to be negligible.

Fish and Fish Habitat

Primary pathway effects will result largely from direct habitat losses from the construction of the Mammoth and Whale Tail dikes, the Whale Tail Pit, the dewatering and fish out of the diked area in Lake A16 (Mammoth Lake) and Lake A17 (Whale Tail Lake), and the flooding of Lake A17 (Whale Tail Lake). Indirect effects to fish and fish habitat will include those related to changes in surface water quantity and water quality.

The effects from the Project are expected not to have a significant adverse effect on fish and fish habitat VCs based on the weight of evidence from the analysis of primary pathways, summarized below. There are no existing or planned developments (other than the Project) that would contribute to cumulative effects to fish and fish habitat within the aquatics Regional Study Area (RSA). Any measurable effects of the Project to the productivity of the fishery (or support for the productivity of the fishery) will be restricted to the assessment area for fish and fish habitat within the aquatics RSA. Furthermore, unavoidable effects to the productivity of the fishery from the construction of the dikes and subsequent dewatering of the diked area will be addressed with the implementation of offsetting measures developed in consultation with Fisheries and Oceans Canada (DFO) and local stakeholders with the goal of maintaining or improving the productivity of a fishery.

Habitat Losses

The construction of the North East, Mammoth, and Whale Tail dikes and the subsequent dewatering of the diked area will result in habitat losses for Arctic Char, Lake Trout, and Round Whitefish. These changes are expected to occur on a regional scale and have a moderate effect on VC fish species that rely on coarse substrate habitat for spawning and rearing in Mammoth Lake and Whale Tail Lake. Most of the residual effects from direct changes in habitat will be long-term in duration and reversible following back-flooding, breach of dikes, and reconnection of habitats. Residual effects from direct losses of lake habitat from the dike (sections remaining at post-closure) and the open pit development are expected to be permanent, but are expected to be low in magnitude and occur at the local scale.

Fish-Out

Dewatering of Whale Tail Lake (North Basin) and a small portion of Mammoth Lake at the narrows between Whale Tail Lake and Mammoth Lake will be required to access the mineral deposit. Prior to dewatering, a fish-out will be conducted to remove fish from the dewatered area. Fish mortality is expected to result in a moderate effect to Arctic Char, Lake Trout, and Lake Round Whitefish, and the forage species that support the fishery. Residual effects from the fish-out are expected to occur at the regional scale and be short-term in duration. DFO and affected Inuit communities will continue to be consulted during the DFO authorization phase of the Project to ensure measures and standards to avoid and mitigate serious harm to fish are approved, are of benefit to Inuit stakeholders and successful. The Final Fish-Out Work Plan may include a fish salvage (or transfer) to mitigate effects to fish mortality.

Habitat Fragmentation

Construction and operations of the Mammoth, Whale Tail, and North East dikes and diversions will also result in effects to habitat connectivity. The presence of the dikes will impede fish passage between Whale Tail Lake and Mammoth Lake, and between these lakes and affected tributary habitats. Fish populations above and below any barriers are expected to be maintained. Habitats with the potential to provide overwintering, spawning, rearing, and foraging functions will remain available for populations during construction through post-closure. Fragmentation effects related to the Project dikes are expected to be low in magnitude, long-term in duration, and occur at the regional scale. Any effects would be reversible when the dikes are breached at closure.

Habitat Alteration from Flooding

The construction and operations of the Mammoth, Whale Tail, and North East dikes and their associated diversions will result in the flooding of tributary streams, affecting the abundance and distribution of Arctic Char, Lake Trout, and Round Whitefish. With flooding, affected stream habitat would be eliminated with the increase in elevation and total surface area of Whale Tail Lake (South Basin). Species distributions have the potential to shift (i.e., expand distributions) as Arctic Char, Lake Trout, and Round Whitefish gain access to forage fish populations in small lakes and ponds. The effects of flooding from the Project dikes and diversions are possible, and effects, if any, are expected to be low in magnitude, medium-term in duration, and occur at the local scale.

Downstream Changes to Flows

Water diversions during construction and operations phases will reduce water depths and volumes of Mammoth Lake and downstream lakes, resulting in a reduction in fish habitat. A similar effect is expected for streams below Mammoth Lake where the timing window for fish use of affected streams may be limited to periods of high flow, such as the spring freshet period in June. Project activities resulting in downstream reductions in flows during construction and closure phases are expected to have a moderate impact on Arctic Char, Lake Trout, and Round Whitefish, occurring on a regional scale. Residual effects will be short-term in duration for the construction phase and medium-term during back-flooding of the diked area at closure.

Changes to Lake Ecosystem Productivity

The effect of increased nutrient concentrations to Mammoth Lake, and downstream lakes during operations and closure may result in a general increase in productivity at lower trophic levels. Biomass of phytoplankton, zooplankton, and benthic invertebrates will likely increase during this period. Possible shifts in overall community structure and dominant taxonomic groups may result due to the meso-eutrophic trigger value being exceeded in Mammoth Lake, Lake A15, and Lake A12 during operations and closure with a subsequent return to oligotrophic conditions expected by 2039. Due to the increased food base (lower trophic levels and forage fish), there may also be a minor increase in growth and reproduction rates in Arctic Char, Lake Trout, and Round Whitefish, and the forage fish that support the fishery. However, an increase in nutrient levels in Mammoth Lake and downstream lakes may also result in a moderate increase in algae or sediment on lake habitats, including spawning shoals, leading to reductions in oxygen levels. Thus, an increase in nutrient levels is expected to result in negative residual effects to the fishery in response to any changes in trophic status during closure and operations. Residual effects from changes in nutrient levels are expected to have a moderate effect on fish and fish habitat, occur at the regional scale, and be long-term in duration with effects being reversible during post-closure.

Mitigation Measures

Monitoring programs will be implemented during the life of the Project through a variety of monitoring plans, and may be a combination of environmental monitoring to track conditions and implementing further mitigation as required and follow-up monitoring to verify the accuracy of effect predictions and adaptively manage and implement further mitigation as required. Monitoring programs for hydrogeology and groundwater, and surface water quantity, will include monitoring of surface and groundwater flows, water quality and levels at key locations in the LSA and Project infrastructure during all phases of the Project. Visual inspections will also be undertaken to assess the integrity of shorelines, outlets and stream crossings to monitor for the development of channel or bank erosion. Monitoring is included in the following plans to determine if effects are as follows:

- Dike Construction and Monitoring Plan;
- Water Quality and Flow Monitoring Plan;
- Water Management Plan;
- Aquatic Effects Management Program;
- Core Receiving Environment Monitoring Plan;
- Fisheries Offsetting Plan; and
- Habitat Compensation Monitoring Plan.

ᓇᐃᓈᖅᓯᒪᔪᖅ – ᐅᖃᓕᒫᒐᖅ 6 ᑕᓲᑦ ᐃᒪᖓᑕ ᐊᕙᑎᖓ

ᐅᖃᓕᒫᒐᖅ 6 ᑭᖑᓪᓕᖅᐸᖅ ᐊᕙᑎᒥᑦ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᖅ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒧᑦ ᐱᓕᕆᐊᕐᒧᑦ (ᐱᓕᕆᐊᖅ) ᐱᓕᕆᐊᖅᖅᑐᖅ ᒪᓕᒃᑕᐅᔪᒃᓴᓕᕆᓂᐅᔪᓂᒃ ᓄᓇᕗᒻᒥ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᕿᒥᕐᕈᔨᒃᑯᓐᓂᑦ ᐱᓕᕆᐊᕐᒧᑦ, ᐱᓗᐊᖅᑐᒥᑦ ᐱᔾᔪᑎᖃᖅᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᔪᓂᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ ᑕᓲᑦ ᐃᒪᖏᑦᑕ ᐊᕙᑎᖓᓄᑦ, ᐃᓚᐅᐸᓗᑎᒃ ᐃᒪᓕᕆᓂᖅ ᐊᒻᒪᓗ ᓄᓇᒥᑦ ᐃᒪᖅ, ᐃᒪᐅᑉ ᖀᖓᑕ ᖃᐸᐅᓂᖏᑦ ᐊᒻᒪᓗ ᖃᓄᐃᓐᓂᕆᔭᖏᑦ, ᐊᒻᒪᓗ ᐃᖃᓗᐃᑦ ᖃᐸᐅᓂᖏᑦ.

ᐅᖃᓕᒫᒐᖅ 6-ᒥᑦ ᐃᓚᐅᔪᑦ ᐅᖃᐅᓯᖃᕐᓂᐅᔪᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᔪᓂᒃ ᐃᓚᒋᔭᐅᔪᓂᒃ (VC), ᐃᓚᓕᐅᑎᔭᐅᓂᖏᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ (IQ), ᖃᓄᐃᑦᑑᓂᖏᑦᑕ ᖃᐅᔨᓴᕐᕕᐅᔪᑦ, ᐊᒻᒪᓗ ᖃᐅᔨᓴᐃᓂᖅ ᑕᐃᑲᓐᖓᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᐊᓯᐊᖑᖅᑐᓄᑦ ᑕᓯᐅᑉ ᐃᒪᖏᑦᑕ ᐊᕙᑎᖓᓐᓄᑦ ᖃᐅᔨᓴᐃᕝᕕᐅᔪᒥᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓃᑦ ᕿᒥᕐᕈᔪᑦ ᐱᓕᕆᐊᑉ ᓇᐅᒃᑰᕐᓂᓗᒃᑖᕆᔭᖓᓂᒃ, ᐃᓚᐅᑉᓗᑎᒃ ᓴᓇᔭᐅᓂᖓ, ᐃᒪᐃᔭᐃᓂᖅ, ᐊᐅᓛᖅᑎᓐᓂᖓ, ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᖓ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ.

ᐃᓄᓗᒃᑖᑦ / ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᓐᓄᑦ ᐃᓱᒪᓗᑏᑦ

ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᑕᑯᒃᓴᐅᑎᑦᑎᔪᖅ ᐱᖅᑯᓯᒃᑯᑦ ᐃᓅᔪᓄᑦ ᐊᖏᔫᑎᑕᐅᓂᖓ ᐃᒪᖅ, ᐃᓚᐅᑉᓗᑎᒃ ᑯᑦ ᐊᒻᒪᓗ ᑕᓲᑦ, ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᐱᒻᒪᕆᐅᓂᖏᓐᓄᑦ ᐃᖏᕐᕋᔭᖕᓂᕐᒧᑦ ᐊᑉᕐᑯᑎᒋᔭᐅᖃᑦᑕᖅᑐᓄᑦ ᐅᑭᐅᒃᑯᑦ, ᐃᓂᐅᔪᑦ ᐊᑭᖏᓐᓂᑦ ᑕᓲᑦ ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᐃᒃᐱᒋᔭᐅᓂᖅᓴᐅᓂᖏᓐᓄᑦ ᑕᖕᒫᕐᕕᐅᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐱᑖᕆᕐᕕᐅᓂᕐᒧᑦ, ᐱᒻᒪᕆᐅᑉᓗᓂ ᐃᓂᒋᔭᐅᓂᕐᒧᑦ ᐃᖃᓗᖕᓄᑦ ᐊᒻᒪᓗ ᖃᒪᓂᑦᑐᐊᕐᒥᐅᓄᑦ ᐱᒻᒪᕆᐅᑉᓗᓂ ᐱᖅᑯᓯᒃᑯᑦ ᓂᕿᖃᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᒪᖃᐃᕝᕕᐅᒐᔪᒃᓱᑎᒃ ᑐᒃᑐᓄᑦ ᐃᑳᖅᑕᕐᕕᐅᖃᑦᑕᖅᑐᖅ. ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᖃᐅᔨᒪᔭᖃᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᖃᐅᔨᔭᐅᓯᒪᔪᑦ ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᓯᓚᒧᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᐃᒪᐃᑦ ᖃᓄᑎᒋᐅᓂᖏᓐᓄᑦ ᑰᖕᓂᑦ ᐊᒻᒪᓗ ᑕᓯᕐᓂᑦ ᐃᓕᑕᕆᔭᐅᓚᐅᖅᑐᑦ ᐃᓱᒪᓗᑕᐅᓂᕐᒧᑦ.

ᐃᓱᒪᓗᑏᑦ ᓴᖅᑭᑕᐅᓚᐅᖅᑐᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᓂᒃ ᐊᒃᑐᖅᓯᔪᖕᓇᖅᑐᑦ ᐃᒪᐃᑦ ᖃᓄᐃᓐᓂᕆᔭᖓᓂᒃ (ᓱᕐᓗ ᑯᕕᔪᖅᖅᐸᑦ ᐅᖅᓱᐊᓗᕋᓗᖕᓂᑦ ᐊᒻᒪᓗ ᐱᓂᕐᓗᐊᕐᕿᓐᑦ, ᐳᔪᖅᑖᑦ, ᐃᓗᐃᓵᕆᓐᑦ ᑕᓯᕐᓄᑦ ᓴᓇᔭᐅᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᖅᐸᓪᓕᐊᓂᕐᒥᑦ, ᐃᒪᐃᔭᐃᓂᖅ ᑕᓯᕐᓂᑦ, ᐊᒻᒪᓗ ᑲᑎᑉᐸᓪᓕᐊᓂᖏᑦ ᐱᐅᖏᑦᑐᑦ), ᐃᖃᓗᐃᑦ, ᐃᒪᕐᒥᐅᑕᐃᑦ ᑎᖕᒥᐊᑦ, ᐊᒻᒪᓗ ᐃᒪᕐᒥᑦ ᐱᕈᖃᑎᒌᖕᓂᖃᖅᑐᑦ. ᐃᓱᒪᓗᑏᑦ ᓴᖅᑭᑕᐅᓚᐅᕐᒥᔪᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᐱᓕᕆᐊᖅ-ᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᕐᒨᖓᔪᓂᒃ ᒥᐊᓂᖅᓯᓂᕐᒧᑦ ᑕᓯᕐᓂᑦ, ᐃᓚᐅᑉᓗᑎᒃ ᑭᒡᓕᖅᑐᑦ ᐃᒪᐃᑦ ᑰᖕᓂᖏᑦ ᐊᒻᒪᓗ ᐃᒪᐃᔭᐃᓂᖅ ᐃᒪᓕᖕᓂᑦ, ᑰᖕᓂᐅᔪᑦ.

ᐃᓱᒪᓗᑏᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᐃᖃᓗᐃᑦ ᖃᐸᐅᓂᖏᓐᓄᓗᐊᖅ ᐊᒻᒪᓗ ᐃᓂᒋᔭᖏᓐᓄᑦ ᖃᓄᐃᖓᓕᕐᓂᐅᔪᑦ ᑕᕆᐅᖃᓕᕐᓂᕐᒧᑦ, ᑯᕕᔪᖃᕐᓂᕐᒧᑦ, ᑲᑎᑉᐸᓪᓕᐊᓂᖏᑦ ᐱᐅᖏᑦᑐᐃᑦ, ᐃᓂᐅᔪᓂᒃ ᐊᓯᐅᔨᓐᓂᑦ, ᑭᒡᓕᖅᑎᑦᑎᓂᖅ ᑰᒃᑐᓂᒃ ᐊᒻᒪᓗ ᐃᒪᐃᔭᐃᓂᖅ ᐃᒪᖅᑐᓂᒃ, ᐳᔪᖅᑖᒃ, ᐊᒻᒪᓗ ᐅᖓᑎᓗᐊᖓᓄᑦ ᐃᖃᓗᖃᑦᑕᕐᓂᖅ ᖃᓂᑕᖓᓂᑦ ᓴᓇᔭᐅᕙᓪᓕᐅᔫᑉ ᐅᕙᓘᓐᑦ ᓄᓇᓕᐊᑏᑦ.

ᐱᓕᕆᐊᖅ-ᒧᑦ ᐃᓚᒋᔭᐅᓗᐊᖅᑐᑦ ᐊᒻᒪᓗ ᓇᓂᔭᐅᔪᑦ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓂᕐᒧᑦ ᑎᑎᖅᑲᒥᑦ

ᐃᒪᓕᕆᓂᖅ ᐊᒻᒪᓗ ᓄᓇᒥᑦ ᐃᒪᖅ

ᐊᑉᕐᑯᑎᒋᔭᐅᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᓄᓇᒥᑦ ᐃᒪᕐᓂᑦ ᐊᒻᒪᓗ ᐃᒪᓕᕆᓂᕐᒧᑦ ᐃᓕᑕᖅᓯᔪᑦ ᐊᒻᒪᓗ ᖃᐅᔨᓴᐃᑉᓗᓂ ᐊᒃᑐᐊᓂᖃᕐᓂᖏᑦ ᐱᓕᕆᐊᖅ-ᒥᑦ ᐃᓚᒋᔭᐅᔪᓂᒃ ᐅᕙᓘᓐᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓂᒃ. ᐊᑉᕐᑯᑎᒋᔭᐅᓗᐊᖅᑐᓂᒃ ᐃᓕᑕᖅᓯᓂᖅᑕᖃᓚᐅᖏᑦᑐᖅ. ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᐃᒪᓕᕆᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒥᑦ ᐃᒪᐅᑉ ᖃᐸᐅᓂᖏᑦ ᐊᒻᒪᓗ ᖃᓄᐃᓐᓂᖏᑦ ᕿᒥᕐᕈᔭᐅᓚᐅᖅᑐᑦ ᖃᓄᖅ ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᔪᓐᓇᕐᒪᖔᑕ VC-ᓄᑦ (ᓱᕐᓗ ᐃᒪᐅᑉ ᖀᖓ ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᖃᖓᑕ ᖃᓄᐃᓐᓂᖓ)

ᐃᒪᐅᑉ ᖃᖔᑕ ᖃᐸᐅᓂᖓ

ᐊᑉᕐᑯᑎᒋᔭᐅᓗᐊᖅᑐᑦ ᐃᒪᐅᑉ ᖀᖓᑕ ᖃᐸᐅᓂᖏᓐᓄᑦ ᐃᒪᐃᔭᐃᓂᕐᒥᑦ ᐱᔪᑦ, ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᐱᕐᑯᑎᖏᓐᓄᑦ ᐱᓕᐅᕆᕙᓪᓕᐊᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᓴᖑᑎᑦᑎᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓂᑦ ᐱᓕᕆᐊᕐᒧᑦ. ᐱᕐᑯᑏᑦ ᐱᕙᓪᓕᐊᔭᐅᓂᖏᑦ ᐊᓯᐊᖑᖅᓯᓂᐊᖅᑐᑦ ᐃᒪᖃᕐᕕᐅᔪᓂᒃ, ᐃᓚᐅᑉᓗᑎᒃ ᑯᕕᕙᓪᓕᐊᓂᖅ, ᐊᒻᒪᓗ ᑕᓯᐅᑉ ᖀᖓᑕ ᐃᓚᖏᑦ. ᐃᒪᐃᔭᐃᓂᖅ ᐊᒻᒪᓗ ᓴᖑᑎᑦᑎᓂᖅ ᐃᒪᕐᓂᑦ ᑯᕕᑎᑦᑎᓂᐊᖅᑐᖅ ᐊᒻᒪᓗ ᐃᒪᐃᑦ ᓇᓃᓐᓂᕆᔭᖏᓐᓂᒃ ᑕᓯᕐᓂᒃ ᐃᒪᕐᒥᒃ ᐱᕙᓪᓕᐊᔪᓂᒃ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐱᔪᑦ ᐱᓕᕆᐊᕐᒥᑦ ᑯᕕᔪᓄᑦ, ᐃᒪᐃᑦ ᓇᓃᓐᓂᕆᔭᖏᑦ ᐊᖏᓂᖏᑦᑕ, ᐊᒻᒪᓗ ᓱᑉᓗᐃᑦ ᐱᔪᖕᓇᕐᓂᖓᓐᓄᑦ ᓇᐃᓈᓕᖅᑐᖅᑕᐅᓯᒪᔪᑦ ᐊᑖᓂᑦ ᐱᓕᕆᐊᖅ ᓇᓃᑉᐸᓪᓕᐊᓂᖓᓂ: ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐃᒪᐃᔭᐃᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᓇᓃᓐᓂᕆᔭᖓᑕ ᑕᓯᖅ A16-ᒥᑦ (Mammoth ᑕᓯᖅ) ᐊᒻᒪᓗ ᑕᐅᓄᖓ ᑰᒡᕕᐅᔪᑦ ᑕᓲᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᒥᒃᓵᒋᐊᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᑭᒡᓕᒋᔭᐅᔪᓂᑦ ᓈᓴᐅᑎᓂᑦ, ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᓂᕆᐅᒋᔭᐅᔪᖃᙱᑦᑐᖅ ᓱᑉᓗᐃᑦ

ᐊᔪᙱᓐᓂᕆᔭᖏᓐᓄᑦ. ᐊᐅᓛᕐᓂᐅᑎᓪᓗᒍ, Whale Tail ᑕᓯᖅ (ᓂᒋᐊᓂᑦ) ᓴᖑᑎᑦᑎᓂᖅ ᑕᓯᖅ A16-ᒧᑦ (Mammoth ᑕᓯᖅ) ᐃᒪᕐᒧᑦ, ᐊᒻᒪᓗ ᓂᒋᐊᓂᑦ-ᑲᓇᖕᓇᖓᓂᑦ ᓴᖑᑎᑦᑎᓂᖅ ᑕᓯᖅ C38-ᒧᑦ (Nemo ᑕᓯᖅ) ᐃᒪᕐᒧᑦ, ᓂᕆᐅᒋᔭᐅᔪᑦ ᐊᖏᒡᓕᒋᐊᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᓇᓃᓐᓂᕆᔭᖏᑦ Whale Tail ᑕᓯᕐᒥᑦ (ᓂᒋᐊᓂᑦ), ᐃᒻᒥᖅᑐᐃᓂᕐᒧᑦ ᑯᕕᔪᖅ ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᓇᓃᓐᓂᕆᔭᖏᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐊᖏᒡᓕᒋᐊᕋᔪᖕᓂᐊᕐᓂᖏᓐᓄᑦ ᑕᓯᖅ A16-ᒥᑦ (Mammoth ᑕᓯᖅ), ᑯᕕᔪᑦ ᐊᒻᒪᓗ ᓇᓃᓐᓂᐅᔪᑦ ᐊᖏᒡᓕᒋᐊᕐᓂᐊᕋᔪᒋᔭᐅᔪᑦ ᑭᒡᓕᐅᔪᓄᑦ ᓈᓴᐅᑎᖏᓐᓂᑦ ᑕᓯᖅ C38-ᒥᑦ (Nemo ᑕᓯᖅ), ᐊᒻᒪᓗ ᒥᑭᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᕆᐅᒋᔭᐅᑉᓗᑎᒃ ᓱᐸᓗᐃᑦ ᐱᔪᖕᓇᕐᓂᕆᔭᖏᓐᓄᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓂᒃ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᑦ ᓱᐸᓗᐃᑦ ᐊᔪᙱᓐᓂᖏᓐᓄᑦ ᑕᓯᖅ A16-ᒥᑦ (Mammoth ᑕᓯᖅ) ᐅᕙᓘᓃᑦ ᑕᓯᖅ C38-ᒥᑦ (Nemo ᑕᓯᖅ). ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍᒥᑦ ᑯᕕᔪᑦ ᐊᒻᒪᓗ ᐃᒪᐃᑦ ᓇᓃᓐᓂᕆᔭᖏᑦ ᑕᓯᖅ A16-ᒥᑦ (Mammoth ᑕᓯᖅ) ᐊᒻᒪᓗ ᑕᐅᓄᖓ ᑯᕕᔪᓄᑦ ᑕᓯᕐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᒥᒃᓱᒋᐊᕐᓂᐊᕐᓂᖏᓐᓄᑦ ᑭᒡᓕᐅᔪᓂᑦ ᓈᓴᐅᑎᓂᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᓂᕆᐅᒋᔭᖏᑦᑐᑦ ᓱᐸᓗᐃᑦ ᐱᔪᖕᓇᕐᓂᕆᔭᖏᓐᓄᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᖃᓂᑦᑐᒥᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᐅᓂᐊᕐᓂᖏᓐᓄᑦ (LSA). ᓯᕗᓂᒃᓴᒥᑦ ᐱᕙᓪᓕᐊᓂᖃᕐᓂᐊᖅᑐᓂᒃ ᐱᑕᖃᙱᑦᑐᖅ ᐊᒻᒪᓗ ᑲᑎᐸᐸᓪᓕᐊᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᒥᑭᔫᓂᐊᕐᓂᖏᓐᓄᑦ.

ᐃᒪᐅᑉ ᖄᖓᑕ ᖃᓄᐃᓐᓂᖓ

ᖃᐅᔨᓴᐃᓂᖅ ᐃᒪᕐᒥᒃ ᐊᒻᒪᓗ ᐊᓗᐊᓃᑦᑐᐃᑦ ᖃᓄᐃᓐᓂᖏᑦ ᑐᓂᓯᔪᑦ ᑐᙵᕕᐅᔪᒥᒃ ᕿᒥᕐᕈᓂᕐᒧᑦ ᐃᒪᕐᒥᑦ ᐱᕈᖃᑎᒌᒃᑐᓄᑦ ᖃᐅᔨᓂᕐᒧᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓ ᐱᓕᕆᐊᖅ ᐱᕙᓪᓕᐊᓂᕆᔭᖓᓂᑦ ᑎᑭᐅᑎᓂᕐᒧᑦ ᓈᒻᒪᒋᔭᐅᔪᓂᒃ ᓇᓃᓐᓂᐅᔪᓄᑦ ᒥᐊᓂᖅᓯᓂᕐᒧᑦ ᐃᒪᕐᒥᐅᑕᒃ, ᐃᒥᖅᑕᐅᖃᖅᑕᖅᑐᖅ, ᐊᒻᒪᓗ ᐃᒪᕆᔭᐅᔪᑦ ᓂᕐᔪᑎᓄᑦ. ᐊᐸᖅᑯᑎᒋᔭᐅᓗᐊᖅᑐᑦ ᐃᒪᕐᒧᑦ ᐊᒻᒪᓗ ᐊᓗᐊᓃᑦᑐᑦ ᖃᓄᐃᓐᓂᖏᓐᓄᑦ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑕᐅᔪᑦ ᐳᔪᖃᑖᖕᒥᑦ ᓴᕕᕋᔭᖕᒥᙱᖅᑐᓂᒃ ᓯᓚᒧᐊᖅᑐᓄᑦ, ᐊᓯᐊᖑᖅᑕᐅᓂᖏᓐᓄᑦ ᐃᒪᐃᑦ, ᐊᒻᒪᓗ ᓴᐸᑯᐃᓂᕐᒧᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᙱᖅᑐᒥᒃ ᐃᒪᕐᒥᒃ. ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᖃᓄᐃᖓᓂᐅᔪᑦ ᐊᑐᓂ ᐊᐸᖅᑯᑎᒋᔭᐅᓗᐊᖅᑐᓂᑦ ᐊᑖᓂ ᓇᐃᓈᖅᓯᒪᔪᑦ.

ᓯᓚᒧᐊᖅᐸᓪᓕᐊᔪᑦ

ᐳᔪᖃᑖᓕᐅᕐᓂᖅ ᐊᒻᒪᓗ ᓯᓚᒧᐊᖅᐸᓪᓕᐊᔪᑦ ᐊᒃᑐᐊᔪᑦ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓄᑦ ᓲᕐᓗ ᐊᐅᓛᖅᑎᑦᑎᓂᕐᒧᑦ ᐅᖅᓱᐊᓗᒃᑐᖅᑐᓂᒃ ᐃᑯᒪᓅᖅᑐᓂᒃ ᐱᕐᑯᑎᓂᒃ, ᖄᖅᑎᕆᓂᖅ, ᐊᒻᒪᓗ ᐊᒡᔭᖅᑐᐃᓂᕐᒥᑦ ᐅᓯᒃᑕᓐᓂᕐᒧᑦ ᐊᐸᖅᑯᑎᒃᑯᑦ. ᖃᓄᑎᒋᐅᓂᖏᑦ ᑕᒪᒃᑯᐊ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᓇᐃᑦᑐᒥᑦ ᕿᑎᐊᓅᓂᐊᕐᓂᖓᓄᑦ ᑕᑭᑎᒋᓂᖓ, ᐊᐅᓛᖅᑎᑦᑎᓂᕐᒦᖓᓗᐊᕐᓂᐊᖅᓱᓂ, ᐃᓚᖏᑦ ᐊᐸᖅᑯᑎᒋᔭᐅᔪᑦ ᓴᓇᔭᐅᕙᓪᓕᐊᓂᕐᒥᑦ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒦᓪᓗᑎᒃ. ᐊᑐᖅᓱᒍ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐊᒻᒪᓗ ᐊᓯᖏᓐᓂᑦ ᐅᑭᐅᖅᑕᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᔪᓂᑦ, ᐃᓂᐅᔫᑉ ᑎᑭᐅᑎᓂᖓ ᐳᔪᖃᑖᖕᒥᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᖃᓂᑦᑑᓂᐊᕐᓂᖓᓄᑦ, ᐆᒃᑐᕋᖅᑕᐅᔪᖕᓇᕐᓗᑎᒃ ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᐃᒪᐃᑦ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓂᑦ ᐳᔪᖃᑖᖕᒥᑦ ᐱᔪᒃ ᐊᒻᒪᓗ ᐊᓂᖅᓵᖅᑐᖅᑕᐸᑎᖕᓄᐊᖅᑐᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐊᑦᑎᒃᑑᓂᐊᕐᓂᖓᓄᑦ. ᐊᑐᖅᓱᒋᑦ ᖃᓄᐃᖓᓂᐅᔪᑦ ᐊᓂᖅᓵᖅᑐᖅᑕᐸᑕ ᖃᓄᐃᓐᓂᕆᔭᖓᓄᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᓂᑦ ᐱᓕᕆᐊᕐᒧᑦ, ᐊᑐᖅᑕᐅᓂᖓ ᐊᖏᓗᐊᖏᑭᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᓲᕐᓗ ᐊᑦᑎᒃᑐᖅ sulfur-ᖃᖅᑐᖅ ᐅᖅᓱᐊᓗᒋᔭᐅᔪᖅ, ᐊᒻᒪᓗ ᐃᒪᕐᒥᖅᑐᐃᓂᖅ ᐊᐸᖅᑯᑎᓂᒃ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓᑦ ᐳᔪᖃᑖᒃ ᐊᒻᒪᓗ ᓯᓚᒧᑦ ᐊᓂᐊᔪᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐅᔾᔨᕐᓇᖅᑑᓂᐊᖏᓐᓂᖏᓐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓐᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓄᑦ, ᑕᐃᒪᓐᓇᒧᓪᓗ ᐅᔾᔨᕐᓇᖕᒋᑦᑐᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᓂᐊᖅᑐᖅ ᐃᒪᕐᒥᐅᑕᓄᑦ ᐱᕈᖃᑎᒌᒃᑐᓄᑦ ᐊᒻᒪᓗ ᐱᖅᑯᓯᒃᑯᑦ ᐊᒻᒪᓗ ᐱᖅᑯᓯᕆᔭᐅᖏᑦᑐᒃᑯᑦ ᐊᑐᖅᑕᐅᓂᕐᒧᑦ.

ᐃᒻᒥᖅᑐᐃᓂᖅ

ᐸᕐᓇᐅᑕᐅᓯᒪᔪᖅ ᓴᖑᑎᑦᑎᓂᕐᒧᑦ Whale Tail ᑕᓯᕐᒥᑦ (ᓂᒋᐊᓂᑦ) ᐃᒻᒥᖅᑐᐃᓂᖃᕐᓂᐊᖅᑐᖅ ᐊᓯᖏᓐᓂᑦ ᑕᓯᕐᓂᑦ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᔪᖕᓇᖅᑐᑦ ᑲᑎᓯᒪᔪᓂᑦ ᓄᖑᓯᐃᑦᑐᓂᒃ ᐃᒪᕐᒧᑦ ᐊᒻᒪᓗ ᐆᒪᔪᕋᓛᓄᑦ, ᑖᑉᑯᓇᖕᒐᑦ ᐃᒻᒥᖅᑐᖅᑕᐅᔫᖅᑐᓂᒃ ᐱᕈᖅᑐᓂᑦ.

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓐᑦ ᐃᒻᒥᖅᑐᖅᑕᐅᔪᒥᑦ ᓄᖑᓯᐃᑦᑐᒧᑦ ᑭᒡᓕᖃᕐᓂᐊᖅᑐᖅ ᐱᕕᖃᕐᓂᐅᔪᒧᑦ Whale Tail (ᓂᒋᐊᓂᑦ) ᐃᒻᒥᖅᑐᖅᑕᐅᒃᐸᑦ (ᓲᕐᓗ ᒪᕐᕈᓪᓗᐊᓄᑦ ᐅᑭᐅᓄᑦ). ᐊᑐᖅᓱᒋᑦ ᑎᑎᖅᑲᐅᑎᓂᒃ ᐱᔪᓂᒃ, ᓄᖑᓯᐃᑦᑐᖅ ᑲᑎᓯᒪᔪᑦ ᐃᒪᕐᒥᑦ ᐊᒪᓗ ᐆᒪᔪᕋᓛᓂᑦ ᐊᖏᒡᓕᓂᓪᓕᐊᔪᖕᓇᖅᑐᑦ ᐊᑕᐅᓯᕐᒥᑦ ᒪᕐᕉᖕᓄᑦ ᐅᑭᐅᓄᑦ ᐃᒻᒥᖅᑐᖅᑕᐅᓚᐅᖅᑳᖅᑎᓪᓗᒍᒥᑦ; ᖃᖓᒃᑯᑦ ᑭᒡᓕᐅᔪᓄᑦ ᐅᑎᕐᓂᐊᕐᒪᖔᑕ ᖃᐅᔨᒪᔭᐅᖏᑦᑐᖅ, ᑭᓯᐊᓂ ᐃᓱᒪᒋᔭᐅᔪᖅ ᓇᐃᓐᓂᖅᓴᐅᓂᐊᕋᓱᒋᔭᐅᑉᓗᓂ ᐃᖕᒥᓂᒃ ᐱᔪᓂᒃ ᖃᐅᔨᔭᐅᓯᒪᖃᑦᑕᖅᑐᓂᒃ ᐃᒻᒥᖅᑐᖅᑕᐅᓯᒪᔪᓂᑦ ᐃᒻᒥᖅᑐᖅᑕᐅᓂᖅ ᕿᓚᒥᐅᓂᐊᕐᓂᖓᓄᑦ. ᒪᓕᒃᑐᒋᑦ ᑕᒪᒃᑯᐊ ᐃᓱᒪᒋᔭᐅᔪᑦ, ᖃᓄᑎᒋᐅᓂᐊᕐᓂᖓ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓐᑦ ᕿᑎᐊᓂᓐᓂᐊᖅᑐᖅᑎᔭᐅᔪᖅ ᑕᑭᓂᖅᓴᐅᔪᖅ ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓐᑦ ᐃᓱᒪᒋᔭᐅᔪᖅ ᖃᓂᑦᑐᒥᐅᓂᐊᕐᓂᖓᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓐᑦ ᑭᒡᓕᖃᕐᓂᐊᕐᒪᑦ Whale Tail ᑕᓯᕐᒧᑦ. ᐊᖏᔫᓇᔭᕐᓂᖓ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᑉ ᕿᑎᐊᓂᓐᓂᐊᕐᓂᖓᓄᑦ ᐃᓚᖏᑦ ᑭᒡᓕᐅᔪᑦ ᐊᖏᒡᓕᒋᐊᕈᖕᓇᕐᓂᖓᓄᑦ ᒪᓕᒃᑕᐅᔭᕆᐊᖃᖅᑐᓂᑦ, ᑭᓯᐊᓂ ᓇᓃᓐᓂᕆᔭᖓᓐᓃᖏᑦᑐᖅ ᐊᒃᑐᖅᓱᔪᖕᓇᖅᑐᖅ ᖃᓄᐃᖏᑦᑐᖕᓇᕐᓂᖓᓄᑦ ᐱᕈᖃᑎᒌᖕᓂᖃᖅᑐᐃᑦ ᑭᒡᓕᖃᖅᑎᑦᑎᖕᒋᓪᓗᓂᓗ ᑲᔪᓯᓂᒃᑯᑦ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐊᒻᒪᓗ ᐱᖅᑯᓯᕆᔭᐅᖏᑦᑐᒃᑯᑦ ᐊᑐᕐᓂᕐᒧᑦ.

ᖁᕐᕕᖕᒥᙱᖅᑐᑦ ᑯᕕᔪᖅ

ᐊᐅᓚᑦᑎᓂᖅ ᐃᒪᕐᒥᒃ Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔫᑉ ᖃᓂᑕᖓᓂᑦ ᐊᒻᒪᓗ ᑯᕕᔭᐅᓂᖓ ᖁᕐᕕᖕᒥᙱᖅᑐᐃᑦ ᑰᒃᑐᒧᑦ ᐊᓯᐊᖑᖅᓯᑎᑦᑎᔪᓐᓇᖅᑐᖅ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᓇᔭᖓᓂᒃ ᑕᓯᕐᒧᐊᖅᑕᐅᓂᖕᒋᓐᓄᑦ ᖁᕐᕕᖕᒥᙱᖅᑐᑦ. ᐊᓯᐊᖑᕈᓐᓇᖅᑐᖅ ᑕᓯᖅ A16 (Mammoth ᑕᓯᖅ) ᐊᒻᒪᓗ ᑕᐅᓄᖓ ᑰᒃᑐᒃᑯᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᒥᒃ ᐱᔾᔪᑎᖃᖅᑐᖅ ᑕᒪᑐᒧᙱᖓ. ᑕᓲᑦ ᐃᓕᑕᕆᔭᐅᓚᐅᖅᑐᑦ ᐱᖅᑯᓯᕆᔭᐅᔫᒃᑯᑦ ᐱᒻᒪᕆᐅᓂᖓᓄᑦ (ᓱᕐᓗ ᐃᓐᓄᒍᒐᔪᐊᓕᒃ ᐊᒻᒪᓗ Pipdream ᑕᓲᑦ; ᐃᓚᒋᔭᐅᔪᖅ 6.4.1.1; ᐅᖃᓕᒫᒐᖅ 7, ᑎᑎᖅᑲᖅ ᐃᓚᓕᐅᑎᓯᒪᔪᖅ 7-A) ᐊᒃᑐᖅᑕᐅᔾᔭᖕᒋᑦᑐᖅ ᑕᒪᑐᒧᙱᖓ.

ᐊᐅᓚᑦᑎᓂᖅ ᐃᒪᕐᒥᒃ ᐃᓂᐅᔪᒥᑦ ᐱᔭᕆᐊᖃᕐᓂᐊᖅᑐᖅ ᐊᐅᓚᑦᑎᓂᕐᒧ ᐊᒻᒪᓗ ᒥᑭᓛᒃᑰᖅᑎᓐᓂᕐᒧᑦ ᑰᒃᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ. ᑯᕕᔪᑦ ᖁᕐᕕᖕᒥᙱᖅᑐᑦ ᑭᒡᓕᖃᕐᓂᐊᖅᑐᑦ ᐊᐅᓛᖅᑎᑦᑎᓂᕐᒥᐅᑎᓪᓗᒍ, ᑭᓯᐊᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓐᓇᖅᑐᑦ ᑎᑭᐅᑎᔪᓐᓇᖅᑐᑦ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑳᖅᑎᓪᓗᒍᒧᑦ. ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᓯᐊᖑᕐᓂᖃᕐᓂᐊᖅᑐᖅ ᑰᒃᑐᒧᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓄᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᒥᒃ ᑭᓯᐊᓂ ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᑭᒡᓕᖃᕐᓂᐊᖅᑐᑦ ᐊᑕᐅᓯᕐᒧᑦ; phosphorus-ᒧᑦ. ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐊᔾᔨᒌᒃᑐᑦ ᑭᓯᐊᓂ ᐊᖏᒡᓕᒋᐊᕐᓂᖃᕈᓐᓇᖅᑐᖅ phosphorus-ᒥᑦ ᑰᒃᑐᑦ ᑕᓯᕐᓄᑦ. ᐊᓯᐊᖑᖅᑎᑦᑎᔪᓐᓇᖅᑐᖅ ᐱᓕᐅᕆᓇᕐᓕᐊᓂᕐᒥᑦ.

ᖃᓄᑎᒋᐅᓂᖓ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᑉ ᐊᑯᓂᐅᓂᐊᕋᓱᒋᔭᐅᔪᖅ ᑕᑭᓂᖓ ᑭᓯᐊᓂ ᑕᐃᒪᓐᓇᐃᖏᓐᓇᔾᔭᖏᑦᑐᖅ ᐋᕿᐅᒪᔪᓄᑦ ᓇᓚᐅᑦᑖᖅᑕᐅᔪᑦ ᐅᑎᕐᓂᐊᕐᓂᖓᓄᑦ ᑭᒡᓕᐅᔪᓄᑦ ᖃᓄᐃᓐᓂᐅᔪᓄᑦ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ. ᑎᑭᐅᑎᓂᖓ ᐅᖓᓯᖕᓂᖅᓴᒥᐅᓂᐊᕐᓂᕋᖅᑕᐅᔪᖅ ᐊᓯᐊᖑᕐᓂᖃᕈᓐᓇᕐᒪᑦ ᓂᕿᑦᑎᐊᕙᓐᓄᑦ ᑰᒃᑐᒧᑦ 2. ᐊᖏᓂᖓ ᕿᑎᐊᓂᑦ ᖁᑦᑎᒃᑐᒨᕐᓂᐊᕐᓂᕋᖅᑕᐅᔪᖅ ᓇᓚᐅᑦᑖᖅᑕᐅᓂᖓᓄᑦ, ᐊᖏᒡᓕᒋᐊᕐᓗᓂ phosphorus ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕈᓐᓇᖅᑐᖅ ᐱᔪᓐᓇᕐᓂᓇᔭᖏᓐᓂᒃ ᐱᕈᖃᑎᒌᒃᑐᐃᑦ, ᐃᓚᖏᓐᓂᑦ ᑕᓯᕐᓂᑦ, ᑭᓯᐊᓂ ᐊᒃᑐᖅᓯᙱᑐᐃᓐᓇᓇᐊᖃᖅᑐᖅ ᐃᒪᕐᒥᐅᑕᐃᑦ ᐋᓐᓂᐊᖅᑕᐃᓕᒪᓂᖏᓐᓂᑦ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᖏᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᕆᔭᖓᓄᑦ. ᓯᕗᓂᕐᒥᑦ ᖃᐅᔨᒪᔭᐅᔪᓂᒃ ᐱᕙᓪᓕᐊᓂᐅᓂᐊᖅᑐᓂᒃ ᐱᑕᖃᙱᑦᑐᖅ ᐊᒻᒪᓗ ᑲᑎᑉᐸᓪᓕᐊᔪᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᒥᑭᑦᑑᓂᐊᕐᓂᖏᓐᓄᑦ.

ᐃᖃᓗᐃᑦ ᐊᒻᒪᓗ ᐃᓂᒋᔭᖏᑦ

ᐊᑉᖁᑕᐅᓗᐊᖅᑐᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓄᑦ ᐊᓯᐅᔨᓂᐅᓗᐊᕐᓂᐊᖅᑐᖅ ᐃᓂᐅᔪᓂᒃ ᓴᓇᔭᐅᓂᖓᓄᑦ Mammoth ᐊᒻᒪᓗ Whale Tail ᓱᑉᓗᓕᖏᑦ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ, ᐃᒪᐃᔭᐃᓂᖅ ᐊᒻᒪᓗ ᐃᖃᓗᐃᔭᐃᓂᖅ ᓱᑉᓗᓕᖃᖅᑐᓂᑦ ᑕᓯᖅ A16-ᒥᑦ (Mammoth ᑕᓯᖅ) ᐊᒻᒪᓗ ᑕᓯᖅ A17-ᒥᑦ (Whale Tail ᑕᓯᖅ), ᐊᒻᒪᓗ ᐃᒻᒥᖅᑐᐃᓂᖅ ᑕᓯᖅ A17-ᒥᑦ (Whale Tail ᑕᓯᖅ). ᑕᐃᑲᙱᐅᖏᑦᑐᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐃᖃᓗᖕᓄᑦ ᐊᒻᒪᓗ ᐃᓂᖏᓐᓄᑦ ᐃᓚᐅᓂᐊᖅᑐᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᐊᓯᐊᖑᕐᓂᕐᒧᑦ ᐃᒪᐅᑉ ᖀᖓᑕ ᖃᐸᓯᐅᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᖃᓄᐃᓐᓂᖏᓐᓄᑦ.

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐱᓕᕆᐊᕐᒥᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐊᖏᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᖏᓐᓂᖏᓐᓄᑦ ᐃᖃᓗᖕᓄᑦ ᐊᒻᒪᓗ ᐃᓂᖏᓐᓄᑦ VC-ᓂᑦ ᖃᐅᔨᒪᓐᓇᖅᑐᖅ ᒪᓕᒃᑯᒍ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᐊᑉᖁᑕᐅᓗᐊᖅᑐᓂᑦ, ᓇᐃᒡᓕᒋᐊᖅᓯᒪᔪᑦ ᐊᑖᓂᑦ. ᑕᐃᒪᐅᔪᓂᒃ ᐅᕙᓘᓐᑦ ᐸᕐᓇᐅᑕᐅᔪᓂᒃ ᐱᕙᓪᓕᐊᓂᖅᑕᖃᙱᑦᑐᖅ (ᐱᓕᕆᐊᑉ ᐊᓯᖏᓐᓂᑦ) ᐃᑲᔪᐃᓇᔭᖅᑐᓂᒃ ᑲᑎᑉᐸᓪᓕᐊᔪᓂᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᓂᒃ ᐃᖃᓗᖕᓄᑦ ᐊᒻᒪᓗ ᐃᓂᖏᓐᓄᑦ ᐃᒪᓕᕆᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ (RSA). ᐆᒃᑐᕋᖅᑕᐅᔪᓐᓇᖅᑐᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓂᑦ ᐱᓕᕆᐊᕐᒥᑦ ᐃᖃᓗᐃᑦ ᐊᒥᓱᙱᖅᐸᓪᓕᐊᑎᓐᓂᕐᒧᑦ (ᐅᕙᓘᓐᑦ ᐃᑲᔪᐃᓂᕐᒧᑦ ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ) ᑭᒡᓕᖃᕐᓂᐊᖅᑐᖅ ᑖᑉᓯᒧᙱᖓ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐃᖃᓗᖕᓄᑦ ᐃᓂᖏᓐᓄᓪᓗ ᐃᒪᓕᕆᓂᕐᒥᑦ RSA-ᒥᑦ. ᐊᒻᒪᓗᒃᑲᓐᓂᖅ, ᖃᓄᐃᖓᓕᖅᑎᑦᑎᑦᑕᐃᓕᑎᑦᑎᓃᑦ ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ ᓴᓇᔭᐅᓂᖏᓐᓄᑦ ᓱᑉᓗᓖᑦ ᐊᒻᒪᓗ ᑭᖑᓂᐊᒍᑦ ᐃᒪᐃᔭᐃᓂᖅ ᓱᑉᓗᓕᖃᕐᕕᐅᔪᓂᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ ᐊᑐᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᓈᒻᒪᒃᓯᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᐱᕙᓪᓕᐊᓂᖅ ᓴᓇᔭᐅᓂᖓ ᐅᖃᖃᑎᒋᓂᒃᑯᑦ ᑲᓇᑕᒥᑦ ᐃᖃᓗᓕᕆᔨᒃᑯᑦ (DFO) ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᑦ ᐱᖃᖃᑕᐅᔪᑦ ᑐᕌᖃᖅᓗᑎᒃ ᐱᓕᕆᐊᖃᕐᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐱᕙᓪᓕᖅᑎᓐᓂᕐᒧᑦ ᐃᖃᓗᒃᓯᐅᕐᓂᖅ.

ᐃᓂᒋᔭᐅᔪᓂᒃ ᐊᓯᐊᔨᓂᖅ

ᓴᓇᔭᐅᓂᖓ ᐅᐊᖕᓇᖓᓂᑦ ᑲᓇᖕᓇᖓᓂᑦ, Mammoth, ᐊᒻᒪᓗ Whale Tail ᓱᐸᓗᓖᑦ ᐊᒻᒪᓗ ᑭᖑᓂᐊᒍᑦ ᐃᒪᐃᔭᐃᓂᐅᓂᐊᖅᑐᖅ ᓱᐸᓗᓕᖃᕐᕕᐅᔪᓂᑦ ᐃᓂᒋᔭᐅᔪᓂᒃ ᐊᓯᐅᔨᓂᖃᕐᓂᐊᖅᑐᖅ ᐃᖃᓗᒃᐱᖕᓄᑦ, ᐃᓘᕋᓄᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᓄᑦ. ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᑕᐃᒪᐅᓂᐊᕐᓂᖏᓐᓄᑦ ᐅᖓᓯᖕᓂᖅᓴᒨᖓᔪᒧᑦ ᐊᒻᒪᓗ ᕿᑎᐊᓂᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓗᓂ VC-ᓄᑦ ᐃᖃᓗᖕᓂᑦ ᐊᑐᖃᑦᑕᖅᑐᑦ ᓯᐅᕋᐅᓂᐅᔪᓂᒃ ᐃᓂᐅᔪᓂᒃ ᒪᓐᓃᔭᐃᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐃᖃᓗᙳᖅᑎᓪᓗᒋᑦ Mommoth ᑕᓯᕐᒥᑦ ᐊᒻᒪᓗ Whale Tail ᑕᓯᕐᒥᑦ. ᕿᒪᒃᑎᑐᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᓗᒃᑖᖅᑲᔭᐃᑦ ᐊᓯᐊᖑᖅᓯᓂᐅᔪᓂᑦ ᐃᓂᐅᔪᓄᑦ ᑕᑭᔫᓂᐊᖅᑐᖅ ᐊᑯᓂᐅᑎᒋᓂᖓ ᐊᒻᒪᓗ ᐅᑎᕈᖕᓇᖅᓱᓂ ᐃᒻᒥᖅᑐᖅᑕᐅᒃᑲᓐᓂᖅᑳᖅᑎᓪᓗᒍ, ᐲᖅᑕᐅᓂᖏᑦ ᓱᐸᓗᐃᑦ, ᐊᒻᒪᓗ ᑲᑎᑎᒃᑲᓐᓂᕐᓗᒋᑦ ᐃᓂᐅᔪᑦ. ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐊᓯᐅᔨᓂᕐᒧᑦ ᑕᓯᕐᒥᑦ ᐃᓂᐅᔪᓂᒃ ᓱᐸᓗᓂᑦ (ᐃᓚᖏᑦ ᐊᒥᐊᒃᑰᔪᑦ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ) ᐊᒻᒪᓗ ᐅᒃᑯᐃᖓᔪᓂᑦ ᐃᓗᑦᑐᖅᓯᒪᔪᓕᐅᕆᓂᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᑕᐃᒪᐅᖏᓐᓇᕐᓂᐊᕐᓂᖓᓄᑦ, ᑭᓯᐊᓂ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐊᑦᑎᒃᑑᓂᐊᕐᓂᖓ ᐊᖏᓂᕆᔭᖓᓂᑦ ᐊᒻᒪᓗ ᑕᐃᒪᐅᓗᓂ ᖃᓂᑦᑐᒥᑦ.

ᐃᖃᓗᐃᔭᐃᓂᖅ

ᐃᒪᐃᔭᐃᓂᖅ Whale Tail ᑕᓯᕐᒥᑦ (ᐅᐊᖕᓇᖓᓂᑦ) ᐊᒻᒪᓗ ᒥᑭᔪᒥᒃ ᐃᓚᖓᓂᑦ Mammoth ᑕᓯᕐᒥᑦ ᐊᑯᓐᓂᖏᓐᓂᑦ Whale Tail ᑕᓯᐅᑉ ᐊᒻᒪᓗ Mammoth ᑕᓯᐅᑉ ᐱᔭᕆᐊᖃᕐᓂᐊᖅᑐᑦ ᐅᔭᖅᑲᓂᒃ ᐱᕝᕕᐅᓂᐊᕐᓗᓂ. ᐃᒪᐃᔭᐃᒋᐊᖅᑳᖅᑎᓐᓇᒋᑦ, ᐃᖃᓗᐃᔭᐃᓂᖅᑕᖃᕐᓂᐊᖅᑐᖅ ᐃᒪᐃᔭᖅᑕᐅᓯᒪᔪᓂᑦ. ᐃᖃᓗᐃᑦ ᑐᕐᑯᕋᖅᑐᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᕿᑎᐊᓃᑦᑐᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᐃᖃᓗᒃᐱᖕᓄᑦ, ᐃᓘᕋᓄᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᓄᑦ, ᐊᒻᒪᓗ ᓂᕆᖃᑦᑕᖅᑐᐃᑦ ᐃᖃᓗᐃᑦ ᐃᑲᔪᐃᔪᑦ ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ. ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᖃᓗᐃᔭᐃᓂᕐᒧᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐅᖓᓯᖕᓂᖅᓴᒧᐊᕐᓂᐊᕐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᓇᐃᑦᑑᓗᓂ ᑕᑭᓂᖓ. ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ ᐃᓄᐃᑦ ᓄᓇᓕᖏᑦ ᑲᔪᓯᓂᖃᕐᓂᐊᖅᑐᖅ ᐅᖃᖃᑎᒋᔭᐅᓂᒃᑯᑦ ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᐱᒋᐊᖅᑎᑦᑎᔪᖕᓇᕐᓂᕆᔭᖓᐅᑎᓪᓗᒍ ᐱᓕᕆᐊᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐊᑐᖅᑕᐅᔪᑦ ᐱᑦᑕᐃᓕᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐋᓐᓂᖅᓯᕐᔪᐊᕐᓂᕐᒧᑦ ᐃᖃᓗᖕᓄᑦ ᓈᒻᒪᒋᔭᐅᓗᑎᒃ, ᐃᑲᔫᑕᐅᖕᒪᑕ ᐃᓅᔪᓄᑦ ᐱᖃᖃᑕᐅᔪᓄᑦ ᐊᒻᒪᓗ ᐱᐊᓂᑦᑎᐊᕈᖕᓇᕐᒪᑕ. ᑭᖑᓪᓕᖅᐸᒃᑯᑦ ᐃᖃᓗᐃᔭᐃᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᒥᑦ ᐃᓚᐅᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ ᐃᖃᓗᖕᓂᒃ ᐱᓂᕐᒧᑦ (ᐅᕙᓘᓃᑦ ᓅᑎᕐᓗᒋᑦ) ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᖃᓗᐃᑦ ᑐᕐᑯᕋᕐᓂᖏᓐᓄᑦ.

ᐃᓂᐅᔪᓂᒃ ᐋᖅᑭᐅᒪᔪᖕᓃᖅᑎᑦᑎᓂᖅ

ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᕐᓂᐅᑎᓪᓗᒍ Mammoth, Whale Tail, ᐊᒻᒪᓗ ᐅᐊᖕᓇᖓᓂᑦ ᑲᓇᖕᓇᖓᓂᑦ ᓱᐸᓗᐃᑦ ᐊᒻᒪᓗ ᓴᖑᑎᑦᑎᔾᔪᑏᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᖕᓇᖅᑐᑦ ᐃᓂᐅᔪᑦ ᐊᒃᑐᐊᖃᑎᒌᖕᓂᖏᓐᓄᑦ. ᑕᐃᒪᐅᓂᖏᑦ ᓱᐸᓗᐃᑦ ᓄᖅᑲᖅᑎᑦᑎᓂᐊᖅᑐᑦ ᐃᖃᓗᐃᑦ ᐃᑳᕐᓂᖏᓐᓄᑦ ᐊᑯᓐᓂᖏᓐᓂᑦ Whale Tail ᑕᓯᖅ ᐊᒻᒪᓗ Mammoth ᑕᓯᐅᑉ, ᐊᒻᒪᓗ ᐊᑯᓐᓂᖏᓐᓂᑦ ᑖᑉᑯᐊᒃ ᑕᓲᑦ ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ ᐃᓂᐅᖃᑕᐅᔪᑦ. ᐃᖃᓗᐃᑦ ᖃᑉᓯᐅᓂᖏᑦ ᖁᓛᓃᑦᑐᑦ ᐊᒻᒪᓗ ᐊᑖᓃᑦᑐᑦ ᑐᓗᖅᑕᕈᑏᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐱᓕᕆᐊᖑᖃᑦᑕᕐᓂᐊᕐᓂᖏᓐᓄᑦ. ᐃᓂᐅᔪᑦ ᑕᐃᒪᐅᔪᖕᓇᖅᑐᑦ ᐅᑭᐅᒃᑯᑦ, ᒪᓐᓂᓕᐅᕐᕕᐅᓗᑎᒃ, ᐃᖃᓗᙳᖅᑎᓪᓗᒋᓪᓗ, ᐊᒻᒪᓗ ᓂᕆᕝᕕᐅᔪᖕᓇᖅᑐᐃᑦ ᒪᓂᒪᓂᐊᖅᑐᑦ ᖃᑉᓯᐅᔪᓄᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍᓂᖓᓄᑦ. ᐋᕿᐅᒪᔪᖕᓃᕐᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᐱᓕᕆᐊᖅ-ᒥᑦ ᓱᐸᓗᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐊᑦᑎᒃᑑᓂᐊᕐᓂᖓᓄᑦ ᐊᖏᓂᖓ, ᐊᑯᓐᓂᐅᓗᓂ ᑕᑭᑎᒋᓂᖓ, ᐊᒻᒪᓗ ᑕᐃᒪᐅᓗᓂ ᐅᖓᓯᖕᓂᖅᓴᒥᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐅᑎᕈᖕᓇᕐᓂᐊᖅᑐᑦ ᐃᓕᖅᑯᓯᕆᓚᐅᖅᑕᖏᓐᓄᑦ ᓱᐸᓗᐃᑦ ᐲᖅᑕᐅᒃᐸᑦ ᐅᒃᑯᐊᖅᑎᓪᓗᒍ.

ᐃᓂᐅᔪᑦ ᐊᓯᐊᖑᕐᓂᖏᑦ ᐃᒻᒥᖅᑕᐅᓂᕐᒧᑦ

ᓴᓇᔭᐅᓂᖓ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᑕᐅᓂᖓ Mammoth, Whale Tail, ᐊᒻᒪᓗ ᐅᐊᖕᓇᖓᓂᑦ ᑲᓇᖕᓇᖓᓂᑦ ᓱᐸᓗᐃᑦ ᐊᒻᒪᓗ ᐊᒃᑐᐊᔪᑦ ᓴᖑᑎᑦᑎᔪᐃᑦ ᐃᒻᒥᖅᑐᐃᓂᖃᖅᑎᑦᑎᓂᐊᖅᑐᑦ ᑰᓚᓛᓂᒃ, ᐊᒃᑐᖅᓯᓂᖃᕐᓗᑎᒃ ᖃᑉᓯᐅᓂᖏᑦᑕ ᐊᒻᒪᓗ ᓇᒧᙵᐅᓂᖏᑦᑕ ᐃᖃᓗᒃᐲᑦ, ᐃᓘᕋᐃᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᐃᑦ. ᐃᒻᒥᖅᑐᐃᓂᖅ, ᐊᒃᑐᖅᓯᓂᖅ ᑰᓚᓛᓂᑦ ᐃᓂᐅᔪᓂᒃ ᐲᖅᓯᓇᔭᖅᑐᑦ ᐊᖏᒡᓕᒋᐊᕐᓂᕐᒥᒃ ᖁᑦᑎᖕᓂᕐᒥᒃ ᐊᒻᒪᓗ ᑲᑎᓗᒃᑖᖅᓗᒋᑦ ᖀᖓᓃᑦᑐᓂᒃ Whale Tail ᑕᓯᐅᑉ (ᓂᒋᐊᓂᑦ). ᐆᒪᔪᐃᑦ ᓇᒧᙵᐊᓂᖏᑦ ᐊᓯᐊᙳᕈᖕᓇᖅᑐᑦ (ᓱᕐᓗ ᐊᖏᒡᓕᒋᐊᕐᓗᑎᒃ ᓇᒧᙵᐅᓂᖏᑦ) ᐃᖃᓗᒃᐲᑦ, ᐃᓘᕋᐃᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᐃᑦ ᑎᑭᐅᑎᔪᖕᓇᖅᓯᒍᑎᒃ ᓂᕆᓂᕐᒧᑦ ᐃᖃᓗᖕᓂᑦ ᒥᑭᒃᑐᓂᒃ ᑕᓯᕐᓂᑦ ᐊᒻᒪᓗ ᑕᓯᕋᔭᖕᓂᑦ. ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐃᒻᒥᖅᑐᖅᑕᐅᓂᕐᒧᑦ ᐱᓕᕆᐊᕐᒥᑦ ᓱᐸᓗᓂᑦ ᐊᒻᒪᓗ ᓴᖑᑎᑦᑎᓂᐅᔪᑦ ᑕᐃᒪᐅᔪᖕᓇᖅᑐᑦ, ᐊᒻᒪᓗ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ, ᐱᑕᖃᖅᐸᑦ, ᓂᕆᐅᒋᔭᐅᔪᑦ ᐊᑦᑎᒃᑑᓂᐊᕐᓂᖓᓄᑦ ᐊᖏᓂᖓ, ᕿᑎᐊᓃᓪᓗᓂ ᑕᑭᑎᒋᓂᖓ, ᐊᒻᒪᓗ ᖃᓂᑦᑐᒦᓪᓗᓂ.

ᑰᒃᑐᐃᑦ ᐊᓯᐊᖑᕐᓂᖏᑦ ᑰᖕᓂᖏᑦ

ᐃᒪᕐᒥᒃ ᓴᖑᑎᑦᑎᓕᕆᓂᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒍ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓂᐊᖅᑐᖅ ᐃᒪᐃᑦ ᐃᑎᓂᖏᓐᓂᒃ ᐊᒻᒪᓗ ᐊᖏᓂᖏᓐᓂᒃ Mammoth ᑕᓯᕐᒥᑦ ᐊᒻᒪᓗ ᑰᒃᑐᓄᑦ ᑕᓯᓄᑦ, ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓗᓂ ᐃᖃᓗᐃᑦ ᐃᓂᖏᓐᓂᑦ. ᐊᔾᔨᕐᓚᖓᓂᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᑰᒐᓛᓄᑦ ᐊᑖᓂ Mammoth ᑕᓯᐅᑉ ᐃᖃᓗᐃᑦ ᐊᑐᖃᑦᑕᕐᓂᖏᓐᓄᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᓄᑦ ᑰᒐᓛᓄᑦ ᑭᒡᓕᖃᖃᑦᑕᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ ᑰᖕᓂᕐᒥᑦ, ᓲᕐᓗ ᐅᐱᕐᖓᒃᑯᑦ ᐊᐅᒃᐸᓪᓕᐊᓂᕐᒥᑦ ᔫᓂᒥᑦ. ᐱᓕᕆᐊᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᑕᐅᓄᖓ ᑰᒃᑎᑦᑎᓂᕐᒥᒃ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓂᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ ᓂᕆᐅᒋᔭᐅᔪᑦ ᕿᑎᐊᓃᖓᔪᒥᒃ ᐊᒃᑐᖑᓂᖃᕐᓂᐊᕐᓂᕐᒧᑦ ᐃᖃᓗᒃᐱᖕᓄᑦ, ᐃᓘᕋᓄᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᓄᑦ, ᐅᖓᓯᖕᓂᖅᓴᒧᑦ ᑎᑭᖅᑲᐅᒪᓗᓂ. ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓇᐃᑦᑑᓂᐊᖅᑐᑦ ᑕᑭᓂᖓᓄᑦ ᓴᓇᔭᐅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᕿᑎᐊᓃᖓᓗᓂ ᑕᑭᑎᒋᓂᖓ ᐃᒻᒥᖅᑐᖅᑕᐅᑎᓪᓗᒍ ᓱᐸᓗᖃᕐᕕᐅᔪᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ.

ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᑕᓲᑦ ᐱᕈᖅᐸᓪᓕᐊᖃᑎᒌᖕᓂᖏᓐᓄᑦ

ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᐊᖏᒡᓕᒋᐊᕐᓂᕐᒧᑦ ᓂᕿᑦᑎᐊᕙᐅᔪᑦ ᑲᑎᓯᒪᓂᖏᑦ Mammoth ᑕᓯᕐᒥᑦ, ᐊᒻᒪᓗ ᑰᒃᑐᓄᑦ ᑕᐅᓄᖓ ᑕᓯᕐᓄᑦ ᐊᐅᓛᖅᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᓂᐅᓂᐊᖅᑐᖅ ᐱᓕᐅᓇᕙᓪᓕᐊᓂᕐᒧᑦ ᐊᑦᑎᖕᓂᖅᓴᐅᔪᓐᓂᖓᔪᓄᑦ. ᐊᖏᓂᐅᔪᖅ ᐆᒪᔪᕋᓛᓄᑦ ᐊᖏᒡᓕᒋᐊᕐᓂᐊᖅᑐᒃᓴᐅᔪᑦ ᑕᒡᕙᓃᖓᑎᓪᓗᒋᑦ. ᐊᓯᐊᓄᐊᕐᓂᖃᑐᐃᓐᓇᕆᐊᖃᖅᑐᖅ ᑕᒪᐃᓄᑦ ᐋᕿᐅᒪᔪᒧᑦ ᐊᒻᒪᓗ ᐱᑕᖃᕐᓂᖅᓴᐅᔪᓄᑦ ᐆᒪᔪᕋᓛᓄᑦ ᐱᒋᐊᕈᖕᓇᑐᐃᓐᓇᕆᐊᖃᖅᑐᖅ meso-eutrophic-ᒧᑦ ᓈᓴᐅᑎᓄᑦ ᐅᖓᑕᐅᑦᑎᔪᑦ Mammoth ᑕᓯᕐᒥᑦ, ᑕᓯᖅ A15-ᒥᑦ, ᐊᒻᒪᓗ ᑕᓯᖅ A12-ᒥᑦ ᐊᐅᓛᖅᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ ᐅᑎᓕᕐᓗᑎᒃ ᐃᓕᖅᑯᓯᕆᓚᐅᖅᑕᖏᓐᓄᑦ ᖃᓄᐃᓐᓂᐅᔪᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ 2039-ᒥᑦ. ᐊᖏᒡᓕᒋᐊᕐᓂᖓᓄᑦ ᓂᕿᑦ ᐱᔭᐅᔪᑦ (ᐊᑦᑎᖕᓂᖅᓴᐅᔪᑦ ᐊᒻᒪᓗ ᓂᕆᖃᑦᑕᖅᑐᑦ ᐃᖃᓗᐃᑦ), ᐊᖏᒡᓕᒋᐊᕐᓂᖑᕐᔪᖕᓂᐊᖅᑐᒃᓴᐅᔪᖅᑕᐅᖅ ᐊᒻᒪᓗ ᐱᓕᐅᑲᓐᓂᖅᐸᓪᓕᐊᓂᖅ ᐃᖃᓗᒃᐱᖕᓄᑦ, ᐃᓘᕋᓄᑦ, ᐊᒻᒪᓗ ᐊᒥᕋᕐᓗᒃᑐᓄᑦ, ᐊᒻᒪᓗ ᓂᕆᖃᑦᑕᖅᑐᑦ ᐃᖃᓗᐃᑦ ᐃᑲᔪᐃᔪᑦ ᐃᖃᓗᓕᕆᓂᕐᒥᒃ. ᑭᓯᐊᓂ, ᐊᖏᒡᓕᒋᐊᕐᓂᖅ ᓂᕿᑦᑎᐊᕙᐃᑦ ᓇᓃᓐᓂᕆᔭᖏᓐᓄᑦ Mammoth ᑕᓯᕐᒥᑦ ᐊᒻᒪᓗ ᑰᒃᑐᓄᑦ ᑕᐅᓄᖓ ᑕᓯᕐᓄᑦ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᓂᐊᖅᑐᒃᓴᐅᔪᑦᑕᐅᖅ ᐃᒪᕐᒦᖃᑦᑕᖅᑐᓂᒃ ᑐᖑᔪᖅᑐᓂᒃ ᑕᓯᕐᓂᑦ ᐃᓂᒋᔭᐅᔪᓂᑦ, ᐃᓚᐅᑉᓗᑎᒃ ᒪᓐᓂᓕᐅᕐᕕᐅᕙᓪᓕᐊᕕᑦ, ᒥᒃᓵᒋᐊᓂᖅᑎᑦᑎᓗᑎᒃ ᐋᒃᓯᔾᔨᓐ ᓇᓃᓐᓂᓇᔭᖏᓐᓂᑦ. ᑕᐃᒪᓐᓇᒧᑦ, ᐊᖏᒡᓕᒋᐊᕐᓂᐅᔪᑦ ᓂᕿᑦᑎᐊᕙᐃᑦ ᓇᓃᓐᓂᓇᔭᖏᓐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐱᐅᖏᑦᑐᒥᑦ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᔪᖕᓇᖅᑐᑦ ᐃᖃᓗᓕᕆᓂᕐᒧᑦ ᐱᔾᔪᑎᒋᑉᓗᒋᑦ ᐊᓯᐊᖑᕐᓂᐅᔪᑦ ᖃᓄᐃᖓᓂᐅᔪᓂᒃ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐊᐅᓛᖅᑎᓪᓗᒋᑦ. ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐊᓯᐊᖑᕐᓂᖏᓐᓄᑦ ᓂᕿᑦᑎᐊᕙᐃᑦ ᓇᓃᓐᓂᓇᔭᖏᓐᓄᑦ ᓂᕆᐅᒋᔭᐅᔪᑦ ᕿᑎᐊᓃᓐᓂᐊᕐᓂᖏᓐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᐃᖃᓗᖕᓄᑦ ᐃᓂᖏᓐᓄᓪᓗ, ᐅᖓᓯᖕᓂᖅᓴᒦᓪᓗᓂ, ᐊᒻᒪᓗ ᐊᑯᓂᐅᔪᒥᒃ ᑕᑭᑎᒋᓂᓇᔭᖓᓂᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᐅᑎᕈᖕᓇᕐᓂᐊᕐᓗᑎᒃ ᐅᒃᑯᐊᖅᑕᐅᓯᒪᓂᓕᖅᑎᓪᓗᒍ.

ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ

ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᑦ ᐊᑐᓕᖅᑎᑕᐅᓂᐊᖅᑐᑦ ᐊᐅᓛᕐᓂᓇᔭᖓᓂᑦ ᐱᓕᕆᐊᖅ ᐊᔾᔨᒌᖏᑦᑐᒃᑯᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᒃᑯᑦ, ᐊᒻᒪᓗ ᑲᑎᕐᒪᑐᐃᓐᓇᕆᐊᖃᖅᓗᑎᒃ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᖃᓄᐃᓐᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐊᑐᓕᖅᑎᓪᓗᒋᑦ ᐊᐅᓚᑦᑎᓂᐅᔪᑦ ᐊᒻᒪᓗ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᒃᑲᓐᓃᑦ ᐱᔭᕆᐊᖃᕐᓂᖅ ᒪᓕᒃᓗᒍ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᑐᕌᖓᔪᑦ ᐃᒪᓕᕆᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᓇᒥᑦ ᐃᒪᕐᒧᑦ, ᐊᒻᒪᓗ ᐃᒪᐅᑉ ᖀᖓᑕ ᖃᑉᓯᐅᓂᖏᓐᓄᑦ, ᐃᓚᐅᓂᐊᖅᑐᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᖀᖓᓂᑦ ᐊᒻᒪᓗ ᓄᓇᒥᑦ ᐃᒪᐅᑉ ᑯᕕᓂᖏᓐᓂᑦ, ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖓ ᐊᒻᒪᓗ ᓇᓃᓐᓂᖏᑦ ᐃᓂᐅᔪᓂᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ ᐱᓕᕆᐊᒧᑦ ᐱᕐᑯᑎᖏᓐᓂᑦ ᓇᓃᓐᓂᓗᒃᑖᖓᓂᑦ ᐱᓕᕆᐊᑉ. ᑕᐅᑐᒡᓗᒋᑦ ᖃᐅᔨᓴᐃᓃᑦ ᐱᓕᕆᐊᖑᓂᐊᕐᒥᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐃᓗᐃᑦᑑᑦᑎᐊᕐᓂᖏᑦ ᓯᒡᔭᐃᑦ, ᐃᒪᖃᕐᓂᐅᔪᑦ ᐊᒻᒪᓗ ᑰᒐᓛᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐱᕙᓪᓕᐊᓂᐅᔪᑦ ᓱᐸᓗᓂᒃ ᐃᒪᐃᓪᓘᓃᑦ ᓱᕈᖅᐸᓪᓕᐊᓂᖏᓐᓄᑦ. ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ ᐃᓚᐅᔪᖅ ᐸᕐᓇᐅᑎᓂᑦ ᖃᐅᔨᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᒪᓐᓇ:

- ᓱᐸᓗᓕᐅᕐᓗᑎᒃ ᐊᒻᒪᓗ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᒥᒃ;
- ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖓ ᐊᒻᒪᓗ ᑯᕕᓂᕐᒧᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ;
- ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ;
- ᐃᒪᕐᒥᐅᑕᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᓄᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᑐᕌᖓᔪᖅ;
- ᐱᕙᓪᓕᐊᓗᐊᖅᑐᖅ ᐊᕙᑎ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ;
- ᐃᖃᓗᖕᓂᒃ ᓈᒻᒪᒃᓯᑎᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ; ᐊᒻᒪᓗ
- ᐃᓂᒋᔭᐅᔪᓂᒃ ᐅᑎᖅᑎᑦᑎᓂᕐᒧᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ.

SOMMAIRE DE GESTION – VOLUME 6 L'ENVIRONNEMENT D'EAU DOUCE

Le Volume 6 de l'Énoncé des incidences environnementales du Projet de gisement Whale Tail et de route de transport (le Projet) traite des directives et lignes directrices émises par la Commission du Nunavut chargée de l'examen des répercussions, plus particulièrement celles relatives aux effets du Projet sur l'environnement d'eau douce, notamment l'hydrogéologie et la quantité et la qualité des eaux souterraines et des eaux de surface, ainsi que la population des poissons.

Le Volume 6 inclut une discussion sur les composantes valorisées (CV), l'intégration des Inuit Qaujimajatuqangit (IQ), la description des zones d'étude, ainsi qu'une évaluation des effets directs sur les modifications à l'environnement d'eau douce dans la zone d'étude. L'évaluation des effets s'attarde à évaluer toutes les phases du Projet, incluant la construction, l'assèchement, les opérations, la fermeture et la post-fermeture.

Préoccupations du public / Inuit Qaujimajatuqangit

L'Inuit Qaujimajatuqangit a mis en évidence l'importance culturelle de l'eau pour les Inuits, incluant les rivières et les lacs, lesquels étaient considérés comme des voies de passage importantes au cours de l'hiver. De plus, les secteurs adjacents aux lacs étaient considérés comme des emplacements de prédilection pour le camping et la cache, essentiels pour fournir un habitat aux poissons et une source secondaire importante de nourriture traditionnelle pour les membres de la collectivité de Baker Lake. Ce sont aussi des sites principaux de récolte faunique, là où des traverses de caribous sont situées. L'Inuit Qaujimajatuqangit a été associée aux connaissances et aux observations sur les changements climatiques et météorologiques et leurs effets sur les niveaux d'eau des rivières et des lacs ont été identifiés comme une préoccupation majeure.

Des préoccupations ont été soulevées au sujet des effets d'activités spécifiques du Projet qui pourraient affecter la qualité de l'eau (ex. : déversements et accidents, dépôt de poussière, perturbations des lacs en raison des activités de construction, assèchement de plans d'eau et accumulation de substances toxiques), de même que les poissons, les sauvagines et les systèmes aquatiques. Des préoccupations ont également été soulevées concernant des activités spécifiques du Projet et touchant la protection des lacs, incluant le débit d'eau restreint et l'assèchement des plans d'eau, et les traverses de cours d'eau.

Les préoccupations associées explicitement aux populations de poissons et à leurs habitats concernaient les effets de l'envasement, des déversements, de l'accumulation des substances toxiques, de la perte d'habitat, du débit d'eau restreint et de l'assèchement des plans d'eau, de la poussière et du risque de surrécolte des espèces de poissons près des sites de construction ou des campements du Projet.

Éléments clés du Projet et résultats de l'Énoncé des incidences environnementales

Hydrogéologie et eaux souterraines

L'analyse de trajectoire sur les eaux souterraines et l'hydrogéologie identifie et évalue les liens entre les composantes ou les activités du Projet. Aucune trajectoire primaire n'a été identifiée. Les changements à l'hydrogéologie et à la quantité et la qualité des eaux souterraines ont été évalués en s'attardant à la façon dont ces changements pourraient ensuite entraîner des changements sur les CV (c.-à-d. l'hydrogéologie des eaux de surface et la qualité des eaux de surface).

Quantité des eaux de surface

Les trajectoires primaires concernant la quantité des eaux de surface sont le résultat de l'assèchement, développement des infrastructures minières et des activités de dérivation du Projet. Le développement des infrastructures modifiera la configuration du bassin versant, incluant la zone de drainage, ainsi que des fractions de surface de l'eau du lac. L'assèchement et la dérivation de plans d'eau augmenteront les déversements et les niveaux d'eau des lacs récepteurs. Les effets résultant du Projet sur les déversements, les niveaux d'eau et la stabilité des chenaux/berges sont résumés ci-dessous, par phases du Projet : Au cours de la construction et de l'assèchement, les déversements et les régimes de niveau d'eau provenant du Lac A16 (lac Mammoth) et des lacs en aval devraient diminuer par rapport aux valeurs de référence, et aucun effet n'est anticipé sur la stabilité des chenaux/berges. Au cours de la phase des opérations, la dérivation du lac Whale Tail (bassin sud) vers le bassin versant du lac A16 (lac Mammoth) et la dérivation du secteur nord-est vers le bassin versant du lac C38 (lac Nemo) devraient augmenter les niveaux d'eau dans le lac Whale Tail (bassin sud); le débit de crue et les régimes de niveau d'eau devraient augmenter légèrement par rapport aux valeurs de référence dans le lac A16 (lac Mammoth); les déversements et les régimes de niveau d'eau devraient augmenter par rapport aux valeurs de référence du lac C38 (lac Nemo); et il est anticipé qu'il y aura des effets négligeables sur la stabilité des chenaux/berges. Aucun effet n'est anticipé sur la stabilité des chenaux/berges du lac A16 (lac Mammoth) ou du lac C38 (lac Nemo). Au cours de la fermeture, les déversements et les régimes de niveau d'eau provenant du Lac A16 (lac Mammoth) et des lacs en aval devraient diminuer par rapport aux valeurs de référence. Aucun effet n'est anticipé sur la stabilité des chenaux/berges. Les effets devraient demeurer confinés à la zone d'étude locale (ZEL). Aucun développement futur n'est raisonnablement envisagé et les effets cumulatifs devraient être négligeables.

Qualité des eaux de surface

L'évaluation de la qualité de l'eau et des sédiments procure une base pour l'évaluation des écosystèmes aquatiques afin de déterminer si la qualité de l'eau au cours de chacune des phases du Projet satisfait aux niveaux acceptables en matière de protection de la vie aquatique, des sources d'eau potable et de l'eau consommée par la faune. Les trajectoires primaires de la qualité de l'eau et des sédiments sont des effets potentiels du Projet occasionnés par le dépôt de poussières métalliques par le biais d'émissions atmosphériques, par l'altération des bassins versants et par le rejet des eaux usées de la mine. Les résultats de l'évaluation de chaque trajectoire primaire sont résumés ci-dessous.

<u>Émissions atmosphériques</u>

La production de poussière et les émissions atmosphériques sont liées aux activités du Projet, tels les opérations de l'équipement motorisé au diesel, l'abattage par explosion et le transport le long des routes de transport. La durée de ces effets devrait se poursuivre à court et moyen termes. Ces effets seront surtout limités aux opérations, avec quelques trajectoires dans les phases de construction et de fermeture. En se basant sur les données de surveillance de la mine Meadowbank et d'autres mines situées dans le nord, l'étendue spatiale des dépôts de poussière devrait être locale, et les changements mesurables à la qualité de l'eau en raison des dépôts de poussière et des émissions atmosphériques acidifiantes devraient être faibles. En se basant sur les résultats des prévisions sur la qualité de l'air, l'utilisation de mesures d'atténuation telles que le carburant diesel faible en soufre et l'arrosage des routes, les dépôts de poussière et des émissions atmosphériques acidifiantes devraient avoir un effet négligeable sur la qualité de l'eau, et ainsi avoir un effet tout aussi négligeable sur les écosystèmes aquatiques et l'utilisation traditionnelle et non traditionnelle.

Les inondations

La dérivation planifiée du lac Whale Tail (bassin sud) entraînera l'inondation des lacs affluents ce qui pourrait mener à des concentrations accrues de mercure dans l'eau et le biote en raison de la décomposition d'une végétation nouvellement inondée.

Les effets des inondations sur le cycle du mercure seront limités à la période de temps où le lac Whale Tail (bassin sud) est inondé (c.-à-d. environ 2 ans). En se basant sur la documentation, les concentrations de mercure dans l'eau et le biote peuvent commencer à augmenter de 1 à 2 ans suivant l'inondation; le délai pour revenir aux conditions de base est inconnu, mais il est pressenti que le délai sera moindre que le délai observé dans les réservoirs naturellement inondés étant donné que l'état d'inondation ne sera que temporaire. En se basant sur ces hypothèses, la durée des effets a été évaluée comme étant à moyen terme et l'étendue géographique des effets a été considérée locale puisque les effets seront limités au lac Whale Tail. L'ampleur potentielle des effets a été évaluée comme modérée étant donné que quelques paramètres pourraient augmenter au-dessus des directives, mais pas à un niveau qui pourrait affecter la durabilité de l'écosystème ni limiter les utilisations continues traditionnelle et non traditionnelle.

Déversement des effluents

La gestion de l'eau de la zone du gisement Whale Tail et le déversement des effluents dans l'environnement en aval ont le potentiel de modifier la qualité de l'eau par la perturbation des lacs et du rejet des effluents. Cela a le potentiel de modifier les paramètres du lac A16 (lac Mammoth) et l'environnement récepteur en aval en raison des activités du Projet associées à cette trajectoire. Les lacs qui ont été identifiés comme culturellement importants (c.-à-d. les lacs Innugugayualik et Pipedream; Section 6.4.1.1; Volume 7, Annexe 7-a) ne seront pas touchés par cette trajectoire.

La gestion de l'eau sur le site sera nécessaire afin de gérer et de réduire les effets en aval. Le déversement des effluents sera limité à la phase des opérations, mais les effets potentiels pourraient se poursuivre jusqu'au début de la phase de post-fermeture. Il est prédit qu'il y aura une modification de la qualité de l'eau en aval en raison du Projet, mais que cette modification sera limitée à un seul constituant : le phosphore. Les prévisions sont conservatrices, mais suggèrent qu'il pourrait y avoir une augmentation du phosphore dans les lacs en aval, ce qui pourrait changer la productivité.

La durée des effets a été évaluée comme étant à long terme, mais non permanente, puisque le modèle prédit un retour aux conditions de base lors de la post-fermeture. L'étendue géographique a été évaluée comme régionale étant donné le potentiel de modifications des nutriments dans le Nœud 2 en aval. L'ampleur a été évaluée comme modérée à élevée puisqu'il y a un haut degré de conservatisme dans les prévisions. L'augmentation du phosphore pourrait affecter la durabilité de l'écosystème, dans certains lacs, mais n'affecterait pas la santé aquatique.

Il n'est pas anticipé que le Projet ait un effet important sur la qualité de l'eau. Aucun développement futur n'est raisonnablement envisagé et les effets cumulatifs devraient être négligeables.

Le poisson et l'habitat du poisson

Des effets des trajectoires primaires seront largement occasionnés par des pertes directes d'habitat en raison de la construction des digues Mammoth et Whale Tail, de la fosse Whale Tail, de l'assèchement et de l'enlèvement de poissons du secteur des digues dans le lac A16 (lac Mammoth) et lac A17 (lac Whale Tail), ainsi que de l'inondation du lac A17 (lac Whale Tail). Les effets indirects sur le poisson et l'habitat du poisson incluront ceux associés aux modifications à la quantité de l'eau de surface et à la qualité de l'eau.

Les effets du Projet ne devraient pas comporter d'effet négatif important sur les CV du poisson et de l'habitat du poisson, si l'on se base sur les éléments de preuve issus de l'analyse des trajectoires primaires, éléments de preuve résumés ci-dessous. Il n'y a pas de développements actuels ou planifiés (autres que le Projet) qui pourraient contribuer à des effets cumulatifs sur le poisson ou l'habitat du poisson au sein de la zone d'étude régionale (ZER) aquatique. Tout effet mesurable du Projet sur la productivité de la pêche (ou soutenant la productivité de la pêche) sera limité à la zone d'évaluation du poisson et de l'habitat du poisson au sein de la ZER aquatique. De plus, les effets inévitables sur la productivité de la pêche engendrés par la construction des digues et l'assèchement subséquent de la zone endiguée seront traités grâce à la mise en œuvre des mesures de compensation développées en consultation avec Pêches et Océans Canada (MPO) et les parties prenantes locales avec pour objectif de maintenir ou d'améliorer la productivité de la pêche.

Pertes d'habitat

La construction des digues Nord-Est, Mammoth et Whale Tail et l'assèchement subséquent de la zone endiguée entraîneront des pertes d'habitat pour l'omble chevalier, la truite de lac et le ménomini rond. Ces changements devraient se produire à l'échelle régionale et avoir un effet modéré sur espèces de poissons CV qui reposent sur un habitat de substrat grossier pour la reproduction et la croissance dans les lacs Mammoth et Whale Tail. La majorité des effets résiduels provenant des changements directs sur l'habitat sera d'une durée à long terme et réversible à la suite du reflux, de la rupture des digues et de la reconnexion des habitats. Les effets résiduels engendrés par les pertes directes de l'habitat du lac en raison de la digue (les sections restantes à la post-fermeture) et du développement de la fosse à ciel ouvert devraient être permanents, mais il est anticipé qu'ils seront de faible ampleur et demeureront à l'échelle locale.

Enlèvement de poissons

L'assèchement du lac Whale Tail (bassin nord) et d'une petite portion du lac Mammoth au niveau des rétrécissements entre le lac Whale Tail et le lac Mammoth sera requis pour accéder au gisement de minerai. Préalablement à l'assèchement, un enlèvement de poissons sera effectué afin de retirer les poissons de la zone à assécher. La mortalité sur les poissons devrait entraîner un effet modéré sur l'omble chevalier, la truite de lac et le ménomini rond de lac, ainsi que sur les espèces fourragères qui sont au cœur de la pêche. Les effets résiduels de l'enlèvement de poissons devraient se produire à l'échelle régionale et être d'une durée à court terme. Le MPO et les collectivités inuites touchées continueront d'être consultés au cours de la phase d'autorisation du Projet par le MPO afin d'assurer que des mesures et des normes permettant d'éviter et d'atténuer des préjudices graves aux poissons sont approuvées, bénéficient aux parties prenantes inuites et fonctionnent. Le Plan final de l'enlèvement de poissons pourrait inclure la récupération de poissons (ou un transfert) afin d'atténuer les effets sur la mortalité des poissons.

Fragmentation de l'habitat

La construction et les opérations des digues et dérivations de Mammoth, Whale Tail et Nord-Est entraîneront également des effets à la connectivité de l'habitat. La présence des digues gênera le passage des poissons entre le lac Whale Tail et le lac Mammoth, ainsi qu'entre ces lacs et les habitats affluents touchés. Les populations de poissons au-dessus et en dessous des barrières devraient être maintenues. Les habitats ayant le potentiel de procurer des fonctions d'hivernage, de reproduction, de croissance et de fourrage demeureront disponibles aux populations durant la construction et jusqu'à la post-fermeture. Les effets de fragmentation associés aux digues du Projet devraient être faibles en terme d'ampleur, d'une durée à long terme, et se produire à l'échelle régionale. Tous les effets seraient réversibles lorsque les digues seront rompues à la fermeture.

Altération de l'habitat en raison des inondations

La construction et les opérations des digues Mammoth, Whale Tail et Nord-Est et de leurs ouvrages de dérivation associés entraîneront l'inondation des courants affluents, affectant l'abondance et la répartition de l'omble chevalier, de la truite de lac et du ménomini rond. Grâce à l'inondation, l'habitat lotique touché serait éliminé avec l'augmentation de l'élévation et la zone de surface totale du lac Whale Tail (bassin sud). Les répartitions des espèces ont le potentiel d'être modifiées (c.-à-d. des répartitions élargies) alors que l'omble chevalier, la truite de lac et le ménomini rond obtiennent un accès aux populations de poissons-fourrages dans les petits lacs et les étangs. Des effets de l'inondation des digues et des dérivations du Projet sont possibles, et ces effets, s'il y en a, devraient être de faible ampleur, d'une durée moyenne, et se produire à l'échelle locale.

Changements en aval sur les débits

Les ouvrages de dérivation de l'eau durant les phases de construction et des opérations réduiront les profondeurs et les volumes d'eau du lac Mammoth et des lacs en aval, entraînant une diminution de l'habitat des poissons. Un effet similaire est attendu pour les cours d'eau en dessous du lac Mammoth où la fenêtre de temps d'utilisation par les poissons des cours d'eau touchés peut se limiter aux périodes à débit élevé, telle la période de crue printanière en juin. Les activités du Projet entraînant des réductions de débit en aval durant les phases de construction et de fermeture devraient avoir un impact modéré sur l'omble chevalier, la truite de lac et le ménomini rond, et ce, à une échelle régionale. Les effets résiduels seront de courte durée pour la phase de construction et de durée moyenne durant le reflux de la zone endiguée à la fermeture.

Changements à la productivité de l'écosystème du lac

Les effets d'une concentration accrue de nutriments dans le lac Mammoth et les lacs en aval durant les opérations et la fermeture peuvent entraîner une augmentation générale de la productivité dans les niveaux trophiques inférieurs. La biomasse de phytoplancton, de zooplancton et d'invertébrés benthiques est susceptible d'augmenter au cours de cette période. De possibles changements dans la structure générale de la communauté et des groupes taxonomiques dominants peuvent se produire en raison du dépassement de la valeur de déclenchement méso-eutrophisée dans les lacs Mammoth, A15 et A12 durant les opérations et la fermeture, avec un retour ultérieur à des conditions oligotrophes prévu d'ici à 2039. En raison de l'augmentation de la nourriture de base (niveaux trophiques inférieurs et poissons-fourrages), il pourrait également y avoir une légère augmentation des taux de croissance et de reproduction de l'omble chevalier, de la truite de lac et du ménomini rond, ainsi que du poisson-fourrage qui soutient la pêche. Cependant, une augmentation des niveaux de nutriments dans le lac Mammoth et les lacs en aval peut également entraîner une augmentation modérée des algues ou des sédiments sur les habitats du lac, incluant des hauts-fonds de frai, menant à des réductions des niveaux d'oxygène. Ainsi, une augmentation des niveaux de nutriments devrait entraîner des effets résiduels négatifs à la pêche en réponse à tout changement du statut trophique durant la fermeture et les opérations. Les effets résiduels provenant des changements des niveaux de nutriments devraient avoir un effet modéré sur le poisson et l'habitat du poisson, se produire à l'échelle régionale et être d'une durée à long terme. Ces effets seront réversibles durant la post-fermeture.

Les mesures d'atténuation

Des programmes de surveillance seront mis en œuvre au cours de la durée de vie du Projet par le biais d'une panoplie de plans de surveillance, et possiblement par une combinaison de surveillance environnementale afin de suivre les conditions et de mettre en œuvre des mesures d'atténuation supplémentaires lorsque nécessaires. Également, il faudra un suivi des activités de surveillance afin de vérifier l'exactitude des prévisions des effets et d'adapter la gestion et la mise en œuvre de mesures d'atténuation supplémentaires, au besoin. Les programmes de surveillance concernant l'hydrogéologie et la quantité des eaux souterraines et de l'eau de surface incluront la surveillance des débits des eaux de surface et souterraines, la qualité et les niveaux de l'eau à des endroits stratégiques dans la ZEL, ainsi que l'infrastructure du Projet durant toutes les phases du Projet. Des inspections visuelles seront également entreprises dans le but d'évaluer l'intégrité des bandes riveraines, des sorties d'eaux et des traverses de cours d'eau afin de surveiller le développement d'érosion sur les chenaux ou les berges. La surveillance des impacts est incluse dans les plans suivants :

- Plan de construction et de surveillance des digues;
- Plan de surveillance des débits et de la qualité de l'eau;
- Plan de gestion de l'eau;
- Programme de gestion des effets aquatiques;
- Plan de surveillance de base du milieu récepteur;
- Plan de compensation de la pêche; et
- Plan surveillance des compensations pour perte d'habitat.

EXECUTIVE SUMMARY – VOLUME 7 HUMAN ENVIRONMENT

Volume 7, Human Environment, for the Whale Tail Pit and Haul Road Project (the Project), assesses the significance of the Project's effects on archaeological and heritage resources, traditional land use, and socio-economics. Where Project effects are identified, mitigation measures are developed to minimize adverse effects, while benefit enhancement measures are crafted to maximize positive effects. The significance of the Project's residual effects is then determined based on the assessment criteria described in Volume 3, Methods.

Public / Inuit Qaujimajatuqangit Concerns

Public concerns, including those based on Inuit Qaujimajatuqangit (IQ), have been considered in determining the focus of Volume 7. Inuit Qaujimajatuqangit has been incorporated throughout the assessment in the description of the existing human environment. Inuit perspectives on the cultural value of archaeological and heritage sites, the importance of the lands and resources traditionally used, and the complex interaction between the traditional and wage economies are considered when determining the magnitude and significance of the Project's residual effects on features of the human environment. Inuit Qaujimajatuqangit also guides the development of mitigation and benefit enhancement measures that are appropriate for the Project's social and cultural context.

Heritage Resources

The Heritage Resources Assessment recorded 19 heritage resource sites within or adjacent to the archaeology Local Study Area (LSA). Of these, nine were perceived to be of highly significant value, eight of moderately significant value, and two of lowly significant value. Sites included campsites, caches, blinds, a marker, and a gravesite. The assessment considered the potential of Project construction, operations, and closure to disturb cultural deposits and features, damaging artifacts, hindering, or increasing access to archaeological deposits, and destroying contextual information essential for interpreting site function and age. Following discussions with community stakeholders including Elders and the Hunting and Trapping Organization (HTO), the route of the road and location of the borrow pit areas were altered to minimize impacts to heritage sites. The assessment determined that 15 of the 19 archaeological sites, including the gravesite, are outside the LSA, and not impacted by Project development. The remaining four sites (two campsites, a blind and a marker) are within the haul road or borrow source boundaries, and will be disturbed by Project construction.

The marker site will be recorded and documented; however, as it has been evaluated as having limited scientific interpretive value, no further mitigation has been recommended, pending the approval of the Nunavut Department of Culture and Heritage. The remaining three sites will mitigated through systematic data recovery measures such as detailed site mapping, mapping of individual stone features, collection of artifacts, shovel testing, archaeological excavation, and/or community consultation, as appropriate. Given that these sites will be mitigated, the Heritage Resources Assessment concludes that there are no primary pathways between Project construction, operations and closure, and heritage resources. Residual Project effects to archaeological sites relative to baseline conditions are not expected.

Traditional Land and Resource Use

The Traditional Land and Resource Use (TLRU) Assessment identifies the importance of caribou, fur bearers, birds, fish, and plants and berries in the traditional way of life of the Inuit. The importance of cultural and spiritual areas (trails, camps, cabins, caches, graves) in the preservation of traditional values, and the transfer of traditional knowledge and IQ between generations, is also highlighted.

The assessment determined that Project activities could have four primary effect pathways on TLRU: affecting opportunities for wildlife harvesting, fishing, plant harvest, and using culturally important sites through disturbances to preferred use areas, changes to the availability of land and resources, and social and economic factors affecting participation in TLRU. Mitigation measures aimed at limiting the Project' effect on the availability of wildlife, vegetation and fish will be employed, constructing and maintaining marked crossings for traditional land use, limiting the cascading effects on continued opportunities for traditional harvesting of these resources. Avoidance of archaeological and heritage resources, and mitigation of those that are unavoidable, are similarly anticipated to limit the associated Project effect on continued opportunities to use culturally important sites.

The Project is not expected to change opportunities for harvesting furbearers, as no environmentally significant effects are anticipated for Arctic wolf, wolverine, or grizzly bear, and preferred Arctic fox trapping areas are typically in close proximity to Baker Lake. Similarly, the Project is not expected to significantly affect continued opportunities for harvesting birds, as preferred harvesting areas were not documented in the vicinity of the Project. The Project will, however, change caribou movement patterns, potentially affecting opportunities for traditional harvesting of caribou. Given the uncertainty around the nature of the Project's effect on caribou migration and movement, and the importance of the species in the traditional way of life, the residual effect on continued opportunities for caribou harvesting is low to moderate in magnitude, local to regional in extent, short- to medium-term in duration, and assessed as significant.

The Project is not expected to result in changes to opportunities for traditional fishing, as significant environmental effects to fish habitat and abundance in preferred fishing locations are not anticipated.

Project-generated dust and changes to hydrology are expected to be restricted to the terrestrial LSA and reversible, confining the effect on the quality of traditional plants to the Project area. With the implementation of dust control measures and ongoing monitoring, these effects are expected to be minimal. Given the abundance of traditionally harvested plant communities in the region, the localization of vegetation effects, and the limited traditional use of the Project area for plant harvesting, the Project's residual effect on continued opportunities for traditional plant harvesting is low in magnitude, local in extent, medium- to long-term in duration, and, therefore, assessed as not significant.

Socio-Economics

The Socio-Economic Assessment describes the Project's potential interactions with population demographics, economic activity, business development, employment, education and training, individual and community wellbeing, housing, and infrastructure. As an extension of an existing mine, the Whale Tail Pit is expected to continue many of the socio-economic benefits of the Meadowbank Mine, including contributions to the territorial economy, local business development, local employment and incomes, and contributions to education, training, and community investment. The Project can have both positive and negative effects on worker and community health and safety, providing health and safety training and awareness, while at the same time presenting risks of accidents and emergencies. The Project has the potential to result in adverse changes in family and community cohesion, indirectly contributing to substance abuse and addiction, associated family and intergenerational conflict, domestic violence and crime, and to inequalities between families and communities. Involvement in the wage economy sustained by the Project also has the potential to change cultural practices and values, and may influence participation in community activities. The existing Meadowbank Mine workforce transitioning to the Project has experience in managing their finances, and it is unlikely that they would change their current behavior or lifestyle as a result of the Project. However, the behaviour of new employees may be impacted.

The Project will extend employment opportunities at Meadowbank Mine by an additional 3 to 4 years and by around 200 additional direct employment opportunities. Many of these opportunities will be targeted to the local population in Baker Lake and other Kivalliq communities. Most indirect employment opportunities occurring in Nunavut are expected to be filled by the existing labour force working in industries currently supplying Meadowbank Mine. The Project will maintain current pick-up points in Kivalliq communities, and any incidental employment that arises via attrition will be filled with priority given to residents of the Kivalliq Region, and, secondarily, Nunavut. Given the approach to recruitment, the Project is not expected to induce intra- or inter-territorial migration, population increase, or demographic change.

The Project is anticipated to have a number of positive effects that have been assessed as significant, specifically a positive effect on the GDP, tax revenues, local business development, employment and training, incomes, and well-being related to disposable incomes, community contributions, and the continuation of the Inuit Impact Benefit Agreement (IIBA). The Project's positive GDP effect is over 10% of the current GDP of Nunavut. Project-related tax generation and royalties paid will amount to government revenue in Nunavut equivalent to about 4% of the territory's total annual budgeted revenue.

The Project's primary income effect will be the continuation of high paying wage employment from Meadowbank Mine. Employment incomes for current employees are not expected to change significantly, but will be extended by the Project beyond Meadowbank Mine's closure in 2018. The Project will also generate new incomes associated with a limited amount of new employment, and will sustain indirect and induced incomes, through to closure. The Project's overall effect of continued incomes, community contributions and the Meadowbank IIBA is expected to have a positive effect on the wellbeing of individuals and communities. Community and IIBA contributions are substantial, and support community development and wellbeing initiatives. Both will occur throughout the Kivalliq Region, but will be concentrated in Baker Lake over the operational life of the Project.

ᓇᐃᓈᖅᓯᒪᔪᖅ – ᐅᖃᓕᒫᒐᖅ 7 ᐃᓄᐃᑦ ᒥᒃᓵᓄᑦ ᐊᕙᑎ

ᐅᖃᓕᒫᒐᖅ 7, ᐃᓄᐃᑦ ᒥᒃᓵᓄᑦ ᐊᕙᑎ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᐸᑎᒧᑦ ᐱᓕᕆᐊᖅ (ᐱᓕᕆᐊᖅ), ᖃᐅᔨᓴᐃᔪᖅ ᐊᖏᓂᖓᑕ ᐱᓕᕆᐊᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᓂᒃ, ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᖃᑦᑕᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᖏᓐᓂᒃ. ᐱᓕᕆᐊᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓᓄᑦ ᐃᓕᑕᕆᔭᐅᔪᑦ, ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓃᑦ ᐱᙳᖅᑎᑕᐅᓯᒪᔪᑦ ᒥᑭᓛᒃᑰᖅᑎᓐᓂᕐᒧᑦ ᐊᖏᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ, ᐃᑲᔪᐃᓂᐅᔪᑦ ᐱᐅᓯᒋᐊᖅᑎᑕᐅᑎᓪᓗᒋᑦ ᐊᖏᓛᒃᑰᖅᑎᓐᓂᕐᒧᑦ ᐱᐅᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ. ᐊᖏᓂᖓᑕ ᐱᓕᕆᐊᑉ ᕿᒪᒃᑎᓐᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᖃᐅᔨᓴᐅᓕᖅᓗᑎᒃ ᖃᐅᔨᓴᐃᓂᒃᑯᑦ ᐅᖃᐅᓯᐅᔪᖅ ᐅᖃᓕᒫᒐᖅ 3-ᒥᑦ, ᐊᑐᖅᑕᐅᔪᑦ.

ᐃᓄᓗᒃᑖᑦ / ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᒥᒃᓵᓄᑦ ᐃᓱᒪᓗᑏᑦ

ᐃᓄᓗᒃᑖᓄᑦ ᐃᓱᒪᓗᑏᑦ, ᐃᓚᐅᔪᑦ ᐊᑐᖅᑕᐅᔪᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ (IQ), ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᖃᐅᔨᓂᕐᒧᑦ ᑕᐅᑐᒐᐅᔪᖅ ᐅᖃᓕᒫᒐᖅ 7-ᒧᑦ. ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᐃᓚᓕᐅᑎᔭᐅᓯᒪᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᓗᒃᑖᖅ ᐅᖃᐅᓯᐅᔪᒥᑦ ᑕᐃᒪᐅᔪᒥᑦ ᐃᓄᐃᑦ ᒥᒃᓵᓄᑦ ᐊᕙᑎᒥᑦ. ᐃᓄᐃᑦ ᑕᐅᑐᒐᖓᑦ ᐱᖅᑯᓯᖅ ᐃᒃᐱᒋᔭᐅᓂᖓᓄᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᑦ, ᐱᒻᒪᕆᐅᓂᖏᑦ ᓄᓇᐃᑦ ᐊᒻᒪᓗ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᖏᑦ, ᐊᒻᒪᓗ ᐊᖏᔫᓂᖓᑕ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐊᒻᒪᓗ ᐱᓕᕆᐊᖃᖅᓗᓂ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒧᑦ ᐱᕈᖅᐸᓪᓕᐊᓃᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᖃᐅᔨᒋᐊᕈᑎᒃ ᐊᖏᓂᕆᔭᖓᑕ ᐱᓕᕆᐊᑉ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕆᔭᖓ ᐊᒃᑐᐊᓂᕆᔭᖏᓐᓄᑦ ᐃᓄᐃᑦ ᐊᕙᑎᖓᓐᓄᑦ. ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᒪᓕᒃᑎᑦᑎᖕᒥᔪᑦ ᐱᕙᓪᓕᐊᓂᕐᒧᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐃᑲᔫᑎᖃᕐᓂᕐᒥᒃ ᐱᐅᓯᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᓈᒻᒪᒃᑑᔪᑦ ᐱᓕᕆᐊᑉ ᐃᓄᖕᓄᑦ ᐊᒻᒪᓗ ᐱᖅᑯᓯᖏᓐᓄᑦ ᐊᑐᖅᑕᖓᓐᓄᑦ.

ᐱᖅᑯᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕕᐅᔪᑦ

ᐱᖅᑯᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕕᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓂᖅ ᑎᑎᕋᐃᓚᐅᖅᑐᖅ 19-ᓂᒃ ᐱᖅᑯᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕕᐅᔪᑦ ᐃᓂᖏᓐᓂᒃ ᑕᐃᑲᓂ ᐊᑭᐊᓂᓪᓗᓃᑦ ᐃᑦᑕᕐᓂᑕᐃᑦ ᒥᒃᓵᓄᑦ ᖃᓂᑦᑐᒥᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ (LSA). ᑖᑉᑯᓇᓂ, 9-ᖑᔪᑦ ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᕐᑯᑦᑎᒃᑐᒥᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᓂᖏᓐᓄᑦ, 8-ᖑᔪᑦ ᕿᑎᐊᓃᑦᑐᒥᒃ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᑉᓗᑎᒃ, ᐊᒻᒪᓗ ᒪᕐᕉᒃ ᐊᑦᑎᒃᑐᒥᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᑉᓗᑎᒃ. ᐃᓂᐅᔪᓂᑦ ᐃᓚᐅᔪᑦ ᑕᖕᒪᕐᕕᑦ, ᐱᕈᐃᕝᕕᑦ, ᑕᓗᐃᑦ, ᓇᓗᓇᐃᑯᑦᑎᖅᓯᒪᔪᖅ, ᐊᒻᒪᓗ ᐃᓗᕕᖃᕐᕕᒃ. ᖃᐅᔨᓴᐃᓂᖅ ᐃᓱᒪᓚᐅᖅᑐᖅ ᐱᓕᕆᐊᖅ-ᒥᒃ ᓴᓇᕙᓪᓕᐊᓂᕐᒧᑦ, ᐊᐅᓛᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐃᓗᐃᓵᓇᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᐱᖅᑯᓯᖃᕐᕕᐅᔪᓂᒃ, ᓱᕋᐃᓗᑎᒃ ᐱᕐᑯᑎᑐᖃᓂᒃ, ᓄᖅᑲᖓᑎᑦᑎᓗᓂ, ᐅᕙᓘᓃᑦ ᐊᖏᒡᓕᒋᐊᖅᑎᑦᑎᓗᑎᒃ ᑎᑭᑕᐅᔪᖕᓇᕐᓂᖏᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᑦ, ᐊᒻᒪᓗ ᓱᕋᐃᓗᓂ ᑖᑉᑯᓄᖓ ᑐᑭᓯᐅᒪᒃᔪᑎᓂᒃ ᑐᑭᓕᐅᕆᔫᔪᑕᐅᔭᕆᐊᖃᖅᑐᑦ ᐃᓂᐅᔫᑉ ᖃᓄᐃᓕᐅᖃᑦᑕᕐᓂᕆᔭᖓᓂᑦ ᐊᒻᒪᓗ ᐅᑭᐅᕆᔭᖓᓂᑦ. ᐅᖃᓪᓚᐅᓯᕆᓚᐅᖅᓗᒍ ᓄᓇᓕᖏᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ ᐃᓚᐅᑉᓗᑎᒃ ᐃᓐᓇᕆᔭᐅᔪᑦ ᐊᒻᒪᓗ ᐆᒪᔪᓕᕆᔨᐊᓛᒃᑯᑦ (HTO), ᐊᑉᑯᑎᐅᔪᖅ ᐊᒻᒪᓗ ᐃᓂᒋᔭᖓ ᐃᓗᑦᑐᖅᓯᒪᔫᑉ, ᐃᓚᐅᑉᓗᑎᒃ ᐃᓗᕝᕕᖃᕐᕕᒃ, ᓱᓚᑖᓃᑦᑐᑦ LSA, ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓯᒪᙱᑦᑐᑦ ᐱᓕᕆᐊᖅ ᐱᕙᓪᓕᐊᓂᕆᔭᖓᓄᑦ. ᐊᒥᐊᒃᑯᐃᑦ ᓱᑕᒪᐅᔪᑦ ᐃᓂᐅᔪᑦ (ᒪᕐᕉᒃ ᑕᖕᒫᕐᕕᒃ, ᑕᓗ ᐊᒻᒪᓗ ᓇᓗᓇᐃᑯᑎ) ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᑯᑎᐅᑉ ᖃᓂᖓᓃᑦᑐᑦ ᐅᕙᓘᓃᑦ ᐃᓗᑦᑐᖅᑕᐅᓂᐊᖅᑑᑉ ᑭᒡᓕᖏᓐᓂᑦ, ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᐱᓕᕆᐊᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ.

ᓇᓗᓇᐃᑯᑕᐅᑉ ᐃᓂᖓ ᑎᑎᕋᐅᓯᐅᓂᐊᖅᑐᖅ; ᑭᓯᐊᓂ, ᕿᒥᕐᕈᔭᐅᓯᒪᑎᓪᓗᒍ ᒥᑭᑦᑐᒥᒃ ᓱᓇᑐᐃᓐᓇᓂᒃ ᖃᐅᔨᓴᖅᑕᐅᓂᕐᒧᑦ ᑐᑭᓕᐅᖅᑕᐅᔪᖕᓇᕐᓂᖓᓄᑦ, ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐱᒃᑲᓐᓂᕐᓂᖃᓚᐅᖏᑦᑐᖅ, ᓈᒻᒪᒋᔭᐅᓂᕐᒧᑦ ᓄᓇᕗᒻᒥᑦ ᐱᖅᑯᓯᓕᕆᔨᒃᑯᓐᓂᑦ. ᐊᒥᐊᑯᐃᑦ ᐱᖓᓱᐃᑦ ᐃᓂᐅᔪᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᒃᑯᑦ ᓈᓴᐅᑎᒃᑯᑦ/ᑎᑎᖅᑲᑎᒍᑦ ᐅᑎᖅᑎᕆᓂᕐᒨᖓᔪᒧᑦ ᓱᕐᓗ ᓇᓗᓇᐃᔭᕐᓗᒋᑦ ᐃᓂᐅᔪᖅ ᓄᓇᖑᐊᑎᒍᑦ, ᓄᓇᖑᐊᓕᐅᕐᓗᒋᑦ ᐊᑐᓃᖓᓗᒋᑦ ᐅᔭᖅᑲᓄᑦ ᓴᓇᓯᒪᔪᑦ, ᑲᑎᖅᓱᐃᓗᓂ ᐱᕐᑯᑎᕕᓂᕐᓂᑦ, ᐳᐊᕆᔭᕐᓂᒃᑯᑦ ᐆᒃᑐᕋᐃᓂᒃᑯᑦ, ᐃᑦᑕᕐᓂᑕᕐᓂᒃ ᐲᖅᓯᓗᓂ, ᐊᒻᒪᓗ/ᐅᕙᓘᓃᑦ ᓄᓇᖕᒥᐅᓂᒃ ᐅᖃᖃᑎᖃᕐᓗᓂ, ᐱᔭᕆᐊᖃᕖᖓᑦ. ᑕᒪᒃᑯᐊ ᐃᓂᐅᔪᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖃᕐᕕᐅᓂᐊᖅᑎᓪᓗᒋᑦ, ᐱᖅᑯᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕕᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᐃᓚᐅᔪᑦ ᐊᑐᖅᑕᐅᓗᐊᖅᑐᒥᑦ ᐊᑉᑯᑎᑕᖃᙱᑦᑐᖅ ᐊᑯᓐᓂᖏᓐᓂᑦ ᐱᓕᕆᐊᖅ ᓴᓇᔭᐅᓂᖓ, ᐊᐅᓛᕐᓂᖓ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᖓᓄᑦ, ᐊᒻᒪᓗ ᐱᖅᑯᓯᓂᒃ ᐱᕝᕕᐅᔪᓄᑦ. ᕿᒪᒃᑎᑦᑎᓄᑦ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᓄᑦ ᖃᓂᑦᑐᓄᑦ ᑭᒡᓕᕆᔭᐅᔪᑦ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓄᑦ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᑦ.

ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᒻᒪᓗ ᐱᕝᕕᐅᔪᓂᒃ ᐊᑐᕐᓂᖅ

ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᒻᒪᓗ ᐱᕝᕕᐅᔪᓂᒃ ᐊᑐᕐᓂᖅ (TLRU) ᖃᐅᔨᓴᐃᓂᖅ ᐃᓕᑕᖅᓯᔪᖅ ᐱᒻᒪᕆᐅᓂᖏᓐᓂᒃ ᑐᒃᑐᐃᑦ, ᒥᖅᑯᓖᑦ, ᑎᖕᒥᐊᑦ, ᐃᖃᓗᐃᑦ, ᐊᒻᒪᓗ ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᐸᐅᖕᒐᐃᑦ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐃᓅᓯᖏᑦᑕ ᐃᓅᔪᐃᑦ. ᐱᒻᒪᕆᐅᓂᖓ ᐱᖅᑯᓯᖅ ᐊᒻᒪᓗ ᐅᒃᐱᕐᓂᕐᒧᖓᔪᑦ (ᐊᑉᖁᑏᑦ, ᑕᖕᒫᕐᕕᑦ, ᐃᒡᓗᕐᔪᐊᕋᓛᑦ, ᐱᕈᕆᕝᕕᑦ, ᐃᓗᕕᑦ) ᐊᓯᐅᔨᑦᑕᐃᓕᓂᕐᓄᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐃᒃᐱᒋᓂᕆᔭᐅᔪᑦ, ᐊᒻᒪᓗ ᑐᓂᐅᑎᒋᔭᐅᓂᖓ ᐱᖅᑯᓯᕐᒥᒃ ᖃᐅᔨᒪᓂᖅ ᐊᒻᒪᓗ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖓᑦ (IQ) ᑭᖑᕙᓄᑦ, ᓇᓗᓇᐃᖅᑕᐅᓯᒪᖕᒥᔪᖅ.

ᖃᐅᔨᓴᐃᓂᖅ ᖃᐅᔨᓚᐅᖅᑐᖅ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᓯᑕᒪᓗᐊᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕈᓐᓇᕐᓂᖓᓂᒃ ᐊᑉᖁᑎᓄᑦ TLRU-ᒧᑦ: ᐊᒃᑐᖅᓯᓗᓂ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᓂᕐᔪᑎᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ, ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ, ᐱᕈᖅᑐᓂᒃ ᐱᖃᑦᑕᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐊᑐᕐᓂᕐᒧᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐱᒻᒪᕆᐅᔪᒥᒃ ᐃᓂᐅᔪᓂᒃ ᐃᓗᐃᓵᖅᑕᐅᓂᒃᑯᑦ ᐊᑐᖅᑕᐅᔪᒪᓂᖅᓴᐅᔪᑦ, ᐊᓯᐊᖑᕐᓂᖏᑦ ᒪᓂᒪᓂᖓ ᓄᓇᐅᑉ ᐊᒻᒪᓗ ᐱᕝᕕᐅᔪᑦ, ᐊᒻᒪᓗ ᐃᓅᖃᑎᒌᖕᓂᕐᒧᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐱᔾᔪᑕᐅᔪᑦ ᐊᒃᑐᖅᓯᓂᖏᑦ ᐃᓚᐅᖃᑕᐅᓂᕐᒧᑦ TLRU-ᒥᑦ. ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᐅᔪᑦ ᑐᕌᖓᔪᑦ ᑭᒡᓕᖃᖅᑎᓐᓂᕐᒧᑦ ᐱᓕᕆᐊᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᒪᓂᒪᓂᖏᓐᓄᑦ ᓂᕐᔪᑏᑦ, ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᐃᖃᓗᐃᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ, ᓴᓇᓗᑎᒃ ᐊᒻᒪᓗ ᐱᓕᕆᐊᕆᖃᑦᑕᕐᓗᒋᑦ ᓇᓗᓇᐃᑯᑦᑎᖅᓯᒪᔪᑦ ᐃᑳᖅᑕᕐᕕᐅᔪᑦ ᐱᖅᑯᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᕐᓂᕐᒧᑦ, ᑭᒡᓕᓕᐅᕐᓗᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᖅᐸᓪᓕᐊᓂᐅᔪᑦ ᑲᔪᓯᓂᒃᑯᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐱᖅᑯᓯᒃᑯᑦ ᒪᖃᐃᓐᓂᕐᒥᒃ ᑕᒪᒃᑯᓂᖕᒐᑦ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᓂᒃ. ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᓄᐊᖅᑕᐃᓕᓂᖅ ᐊᒻᒪᓗ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᓂᒃ, ᐊᒻᒪᓗ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖅ ᐊᒃᑐᖅᑕᐃᓕᓂᖅ ᐊᔪᕐᓇᖅᑐᓂᒃ, ᐊᔾᔨᕐᓚᒋᔭᖓ ᓂᕆᐅᒋᔭᐅᔪᑦ ᑭᒡᓕᖃᖅᑎᓐᓂᕐᒧᑦ ᐊᒃᑐᐊᔪᑦ ᐱᓕᕆᐊᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᑲᔪᓯᔪᒥᒃ ᐱᕕᖃᕐᓂᐅᔪᓄᑦ ᐊᑐᕐᓂᕐᒧᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐱᒻᒪᕆᐅᔪᓂᒃ ᐃᓂᐅᔪᓂᒃ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᓯᐊᖑᖅᓯᓂᐊᕐᓂᕐᒧᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᒥᖅᑯᓕᖕᓂᑦ, ᐊᕙᑎᒧᖓᔪᒥᒃ ᐊᖏᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᓂᕆᐅᒋᔭᐅᖏᒻᒪᑦ ᑎᕆᒐᓂᐊᓄᑦ, ᖃᕝᕕᖕᓄᑦ, ᐅᕙᓘᓃᑦ ᐊᒃᓱᓄᑦ, ᐊᒻᒪᓗ ᑎᕆᒐᓂᐊᓂᒃ ᑮᔭᖃᑦᑎᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐃᓂᐅᔪᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᖅᓴᐅᖓᒧᑦ ᖃᓂᑦᑐᕋᓚᐅᖓᑕ ᖃᒪᓂᑦᑐᐊᕐᒧᑦ. ᐊᔾᔨᕐᓚᖓ, ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᖏᔪᒥᒃ ᐊᒃᑐᖅᓯᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᑲᔪᓯᔪᒥᒃ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᑎᖕᒥᐊᓂᒃ, ᐱᔭᐅᔪᒪᓂᖅᓴᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᐃᓂᐅᔪᑦ ᑎᑎᕋᐅᓯᐅᖅᓯᒪᖕᒋᑦᑐᑦ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓᓄᑦ. ᐱᓕᕆᐊᖅ, ᑭᓯᐊᓂ, ᐊᓯᐊᖑᖅᓯᑎᑦᑎᓂᐊᖅᑐᖅ ᑐᒃᑐᐃᑦ ᓅᓐᓂᓇᖃᑦᑕᖅᑕᖏᓐᓂᒃ, ᐊᒃᑐᖅᓯᑐᐃᓐᓇᕆᐊᖃᖅᓱᓂ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐱᖅᑯᓯᒃᑯᑦ ᒪᖃᐃᓐᓂᕐᒥᒃ ᑐᒃᑐᓂᒃ. ᓇᓗᓇᕐᓂᖓᐅᑎᓪᓗᒍ ᖃᓄᐃᓐᓂᖓᑕ ᐱᓕᕆᐊᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᑐᒃᑐᐃᑦ ᓅᖃᑦᑕᕐᓂᖏᓐᓄᑦ, ᐊᒻᒪᓗ ᐱᒻᒪᕆᐅᓂᖓᑕ ᐆᒪᔪᐃᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐃᓅᓯᕆᔭᐅᓂᕐᒧᑦ, ᕿᒪᒃᑎᓐᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᑲᔪᓯᓂᒃᑯᑦ ᐱᕕᖃᕐᓂᐅᔪᓄᑦ ᑐᒃᑐᓂᒃ ᒪᖃᐃᖃᑦᑕᕐᓂᕐᒧᑦ ᐊᑦᑎᒃᑑᔪᖅ ᕿᑎᐊᓅᖅᓱᓂ ᐊᖏᓂᕆᔭᖓᑕ, ᖃᓂᑦᑐᒥᑦ ᐅᖓᓯᖕᓂᖅᓴᕐᒧᑦ ᐅᖓᓯᒃᑎᒋᓂᖓ, ᓇᐃᑦᑑᒥᑦ-ᕿᑎᐊᓄᑦ ᑕᑭᑎᒋᓂᖓ, ᐊᒻᒪᓗ ᖃᐅᔨᓴᖅᑕᐅᔪᖅ ᐊᖏᔫᓂᖓᓄᑦ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᓯᐊᖑᖅᓯᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᐱᕕᖃᕐᓂᐅᔪᓄᑦ ᐱᖅᑯᓯᒃᑯᑦ ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ, ᐊᖏᔪᒥᒃ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅᑕᖃᖕᒋᒻᒪᑦ ᐃᖃᓗᐃᑦ ᐃᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᖃᐸᓯᐅᓂᖏᓐᓄᑦ ᐃᖃᓗᒃᓯᐅᕐᕕᐅᔪᒪᓂᖅᓴᐅᔪᓄᑦ.

ᐱᓕᕆᐊᕐᒥᑦ-ᐱᔪᑦ ᐳᔪᖃᑖᑦ ᐊᒻᒪᓗ ᐊᓯᐊᖑᖅᓯᓂᐅᔪᑦ ᐃᒪᕐᓄᑦ ᓂᕆᐊᒋᔭᐅᔪᑦ ᓄᓇᒥᐅᓂᐊᕐᓂᖓᓄᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᑦᑐᓐᓇᕐᓂᐊᖅᓱᓂ, ᑕᒡᕙᓂᑐᐃᓐᓇᐅᓗᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᖃᓄᐃᓐᓂᖓᓄᑦ ᐱᕈᖅᑐᐃᑦ ᐱᓕᕆᐊᑉ ᐃᓂᖓᓂᑦ. ᐊᑐᓕᖅᑎᑦᑎᓂᖅ ᐳᔪᖃᑖᖕᒥᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᖓᔪᑦ ᐊᒻᒪᓗ ᑲᔪᓯᔪᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ, ᑕᒪᒃᑯᐊ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᕆᐊᒋᔭᐅᔪᑦ ᒥᑭᑦᑑᓂᐊᕐᓂᖏᓐᓄᑦ. ᐊᒥᓲᓂᖏᐅᑎᓪᓗᒋᑦ ᐱᕈᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᖃᑦᑕᕐᓂᐅᔪᑦ ᖃᓂᑦᑐᒥᑦ, ᑕᒫᓐᓂᖏᑦ ᐱᕈᖅᑐᐃᑦ ᖃᓄᐃᖓᓕᕐᓂᖏᑦ, ᐊᒻᒪᓗ ᑭᒡᓕᖃᕐᓂᖓ ᐱᖅᑯᓯᒃᑯᑦ ᐊᑐᖃᑦᑕᕐᓂᖅ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓᓂᑦ ᐱᕈᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ, ᐱᓕᕆᐊᑉ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᑲᔪᓯᔪᓄᑦ ᐱᕕᖃᕐᓂᐅᔪᑦ ᐱᕈᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ ᐊᑦᑎᒃᑑᔪᖅ ᐊᖏᓂᖓ, ᖃᓂᑦᑑᑉᓗᓂ, ᕿᑎᐊᓂᑦ-ᐊᑯᓂᐅᑎᒋᓂᖓ, ᐊᒻᒪᓗ, ᑕᐃᒪᓐᓇᒧᑦ, ᖃᐅᔨᓴᐃᓂᖅ ᐊᖏᔫᖏᑦᑐᖅ.

ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᖕᒐᔪᑦ

ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᔪᓂᒃ ᖃᐅᔨᓴᐃᓂᖅ ᐅᖃᐅᓯᖃᖅᑐᖅ ᐱᓕᕆᐊᑉ ᐊᒃᑐᐊᓂᖃᖃᑦᑕᕐᓂᖓ ᐃᓄᖕᓂᒃ, ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᕐᒥᒃ, ᓇᖕᒥᓂᖃᖅᑐᓕᐅᕆᓂᕐᒥᒃ, ᐱᓕᕆᐊᒃᓴᖃᖅᑎᑦᑎᓂᕐᒥᒃ, ᐃᓕᓐᓂᐊᕐᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐊᔪᕈᖕᓃᖅᓴᓂᕐᒥᒃ, ᐃᓄᖕᒧᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᐅᑦ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖕᒋᓐᓄᑦ, ᐃᒡᓗᓕᕆᓂᖅ, ᐊᒻᒪᓗ ᐱᕐᑯᑎᒋᔭᐅᔪᓄᑦ. ᐅᐃᒍᒋᐊᖅᓯᓂᖅ ᑕᐃᒪᐅᔪᒥᒃ ᐅᔭᕋᖕᓂᐊᕐᓂᐅᔪᒥᒃ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᑲᔪᓯᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᖕᒋᓐᓄᑦ ᐃᑲᔪᐃᓂᕐᒥᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᖅ, ᐃᓚᐅᑉᓗᓂ ᑐᓂᕐᑕᐅᔪᑦ ᓄᓇᕗᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᖓᓄᑦ, ᓄᓇᓕᖕᒥᑦ ᓇᖕᒥᓂᖃᕐᓂᕐᒧᑦ ᐱᕙᓪᓕᐊᓂᕐᒥᒃ, ᓄᓇᓕᖕᒥᑦ ᐱᓕᕆᐊᖃᖅᑎᑦᑎᓂᕐᒥᒃ ᐊᒻᒪᓗ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᑐᓂᕐᕈᑎᖃᕐᓂᖅ ᐃᓕᓐᓂᐊᕐᓂᕐᒧᑦ, ᐊᔪᕈᖕᓃᖅᓴᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᓄᓇᓕᒃ ᐱᕐᑯᑎᑖᖃᑕᐅᓂᕐᒧᑦ. ᐱᓕᕆᐊᖅ ᑕᐃᓐᓂᒃ ᐱᔪᒥᒃ ᐊᒻᒪᓗ ᐱᐅᖕᒋᑦᑐᒥᒃ ᖃᓄᐃᖕᒐᓕᖅᑎᑦᑎᓂᖃᕈᖕᓇᖅᑐᖅ ᐱᓕᕆᔨᒥᒃ ᐊᒻᒪᓗ ᓄᓇᓕᐅᑉ ᐋᓐᓂᐊᖃᖅᑕᐃᓕᒪᓂᖓᓂᒃ ᐊᒻᒪᓗ ᐊᑦᑕᓇᖅᑐᖃᖕᒋᓐᓂᕆᔭᖓᓂᒃ, ᑐᓂᓯᓗᓂ ᐋᓐᓂᐊᖃᖅᑕᐃᓕᒪᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐊᑦᑕᓇᖅᑐᖃᖕᒋᓐᓂᕐᒧᑦ ᐊᔪᕈᖕᓃᖅᓴᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐅᔾᔨᖅᑐᕐᓂᕐᒥᒃ, ᐊᑕᐅᑦᑎᒃᑯᑦ ᑐᓂᓯᓗᓂ ᐅᓗᕆᐊᓇᖅᑐᓂᒃ ᐱᓂᕐᓗᐊᕈᔪᓂᒃ ᐊᒻᒪᓗ ᑐᐊᕙᓇᖅᑐᓕᕆᓂᕐᒥᒃ. ᐱᓕᕆᐊᖅ ᐊᕐᒋᔪᒥᒃ ᐊᓯᐊᖑᖅᓯᓂᖃᖅᑎᑦᑎᔪᖕᓇᖅᑐᖅ ᖃᑕᖕᒐᑎᑖᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒧᑦ, ᑕᐃᑲᖕᒐᐅᖕᒋᑦᑐᖅ ᐱᔪᓂᒃ ᐋᖓᔭᕐᓇᖅᑐᓕᕆᓗᕐᒋᓂᕐᒥᒃ ᐊᒻᒪᓗ ᑕᒪᒃᑯᓂᖕᒐᑦ ᐊᔪᓕᖅᓯᒪᓂᐅᔪᓂᒃ, ᐊᒃᑐᐊᓂᖃᖅᑐᓂᒃ ᖃᑕᖕᒐᑎᑖᓄᑦ ᐊᒻᒪᓗ ᑭᖑᕙᓄᑦ ᐃᓗᐃᓗᑦᑎᐅᑎᔪᓂᒃ, ᓂᖓᖃᑦᑕᕐᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐱᕋᔭᖕᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᐊᔾᔨᖕᓂᖃᕈᖕᓃᖅᑎᑦᑎᓗᓂ ᖃᑕᖕᒐᑎᑖᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᓄᑦ. ᐃᓚᐅᖃᑕᐅᓂᖅ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒧᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᒥᒃ ᐊᓯᐊᖑᖅᓯᓂᖃᖅᑎᑦᑎᔪᖕᓇᕐᒥᔪᖅ ᐱᖅᑯᓯᕆᔭᐅᔭᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᒥᒃ ᐊᒻᒪᓗ ᐃᒃᐱᒋᓂᕆᔭᐅᔪᒥᒃ, ᐊᒻᒪᓗ ᐱᒋᐊᖅᑎᑦᑎᔪᖕᓇᖅᓗᓂ ᐃᓚᐅᖃᑕᐅᓂᕐᒥᒃ ᓄᓇᓕᖕᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓂᒃ. ᑕᐃᒪᐅᔪᖅ ᐊᐳᖅᑎᓐᓈᖅᑐᕐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ ᐱᓕᕆᔪᐃᑦ ᐱᓕᕆᐊᕐᒧᐊᖅᓯᒪᔪᑦ ᐱᓕᕆᐊᖃᕐᓂᑯᖃᖅᓯᒪᔪᑦ ᐊᐅᓚᑦᑎᓂᕐᒥᒃ ᑮᓇᐅᔭᓕᐊᖕᒋᓐᓂᒃ, ᐊᒻᒪᓗ ᒫᓇᐅᔪᖅ ᐃᓕᖅᑯᓯᕆᔭᖕᒋᓐᓂᒃ ᐊᓯᐊᖑᖅᓯᓂᐊᖕᒋᑦᑐᒃᓴᐅᓕᖅᓗᑎᒃ ᐅᕙᓘᓐᓂᑦ ᐃᓅᓯᖓᑦ ᐱᔾᔪᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ. ᑭᓯᐊᓂ, ᐃᓕᖅᑯᓯᕆᓕᖅᑕᖕᒋᑦ ᓄᑖᑦ ᐱᓕᕆᔨᑦ ᐊᒃᑐᖅᑕᐅᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ.

ᐱᓕᕆᐊᖅ ᐅᐃᒍᒋᐊᖅᓯᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᖃᕐᓂᕐᒧᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐃᓚᓯᒃᑲᓐᓂᕐᓗᓂ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ ᐊᒻᒪᓗ 200 ᖃᓂᑕᖓᓂᑦ ᐱᓕᕆᐊᒃᓴᓂᒃ ᓴᖅᑭᑦᑎᒃᑲᓐᓂᕐᓗᓂ. ᐊᒥᓱᐃᑦ ᐱᕕᖃᕐᓂᐅᔪᑦ ᑐᕌᖅᑎᑕᐅᓂᐊᖅᑐᑦ ᓄᓇᓕᖕᒥᐅᓄᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᑦ ᐊᒻᒪᓗ ᐊᓯᖕᒋᓐᓄᑦ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᓕᖕᒋᓐᓄᑦ. ᑕᐃᒃᑯᖓᐅᖕᒋᑦᑐᖅ ᐱᓕᕆᐊᒃᓴᓗᒃᑖᕐᓚᐃᑦ ᓄᓇᕗᒻᒥ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐃᓐᓄᒃᑕᐅᓂᐊᕐᓂᖕᒋᓐᓄᑦ ᑕᐃᒪᐅᔪᓄᑦ ᐱᓕᕆᔨᐅᔪᓂᑦ ᐱᓕᕆᕝᕕᐊᕐᓂᑦ ᑐᓂᓯᔪᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ. ᐱᓕᕆᐊᖅ ᐱᓕᕆᐊᖃᕐᓂᐊᖅᑐᖅ ᒫᓇᐅᔪᖅ ᐃᓕᖅᑯᓯᕆᔭᖕᒋᓐᓂᒃ ᐊᓯᐊᖑᖅᓯᓂᐊᖕᒋᑦᑐᒃᓴᐅᓕᖅᓗᑎᒃ ᐅᕙᓘᓐᓂᑦ ᐃᓅᓯᖓᑦ ᐱᔾᔪᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ. ᑭᓯᐊᓂ, ᐃᓕᖅᑯᓯᕆᓕᖅᑕᖕᒋᑦ ᓄᑖᑦ ᐱᓕᕆᔨᑦ ᐊᒃᑐᖅᑕᐅᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ.

ᐱᓕᕆᐊᖅ ᐅᐃᒍᒋᐊᖅᓯᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᖃᕐᓂᕐᒧᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐃᓚᓯᒃᑲᓐᓂᕐᓗᓂ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ ᐊᒻᒪᓗ ᐊᓯᖕᒋᓐᓄᑦ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᓕᖕᒋᓐᓄᑦ. ᑕᐃᒃᑯᖓᐅᖕᒋᑦᑐᖅ ᐱᓕᕆᐊᒃᓴᓗᒃᑖᕐᓚᐃᑦ ᓄᓇᕗᒻᒥ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐃᓐᓄᒃᑕᐅᓂᐊᕐᓂᖕᒋᓐᓄᑦ ᑕᐃᒪᐅᔪᓄᑦ ᐱᓕᕆᔨᐅᔪᓂᑦ ᐱᓕᕆᕝᕕᐊᕐᓂᑦ ᑐᓂᓯᔪᑦ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ. ᐱᓕᕆᐊᖅ ᐱᓕᕆᐊᖃᕐᓂᐊᖅᑐᖅ ᒫᓇᐅᔪᖅ ᐃᓕᖅᑯᓯᕆᔭᖕᒋᓐᓂᒃ ᐊᓯᐊᖑᖅᓯᓂᐊᖕᒋᑦᑐᒃᓴᐅᓕᖅᓗᑎᒃ ᐅᕙᓘᓐᓂᑦ ᐃᓅᓯᖓᑦ ᐱᔾᔪᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ. ᑭᓯᐊᓂ, ᐃᓕᖅᑯᓯᕆᓕᖅᑕᖕᒋᑦ ᓄᑖᑦ ᐱᓕᕆᔨᑦ ᐊᒃᑐᖅᑕᐅᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᖃᐸᓯᐊᕐᔪᖕᓂᒃ ᐱᐅᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᔪᓂᒃ ᐊᖏᔫᓂᖕᒋᓐᓄᑦ, ᐱᓗᐊᖅᑐᒥᒃ ᐱᐅᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ GDP-ᒧᑦ, ᑖᒃᓱᔭᐃᔭᕐᓂᕐᒧᑦ ᑮᓇᐅᔭᓕᐊᓄᑦ, ᓄᓇᓕᖕᒥᑦ ᓇᖕᒥᓂᖅᑖᖅᑐᖅᐸᓪᓕᐊᓂᕐᒥᒃ, ᐱᓕᕆᐊᒃᓴᓂᒃ ᐊᒻᒪᓗ ᐊᔪᕈᖕᓃᖅᓴᓂᐅᔪᓂᒃ, ᑮᓇᐅᔭᓕᐊᓂᒃ, ᐊᒻᒪᓗ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᕐᒨᖓᔪᓂᒃ ᑮᓇᐅᔭᓕᐊᖑᔪᓄᑦ, ᓄᓇᓕᖕᒧᑦ ᑐᓂᕐᕈᑎᖃᖃᑦᑕᕐᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᑲᔪᓯᓂᖓ ᐃᓄᐃᑦ ᐊᒃᑐᖅᑕᐅᓂᖕᒋᓐᓄᑦ ᐃᑲᔫᑎᒧᑦ ᐊᖏᖃᑎᖏᒍᑎᒃᑯᑦ (IIBA). ᐱᓕᕆᐊᑉ ᐱᔪᒥᒃ GDP-ᖃᕐᓂᖓ ᐊᒃᑐᖅᓯᔪᖅ 10%-ᖑᔪᒥᒃ ᒫᓇᐅᔭᖅ GDP-ᖓᓂᑦ ᓄᓇᕗᑦ. ᐱᓕᕆᐊᕐᒨᖓᔪᑦ ᑖᒃᓱᔭᐃᔭᕐᓂᕐᒧᑦ ᑮᓇᐅᔭᓕᐊᖑᔪᑦ ᐊᒻᒪᓗ ᐊᑭᓕᐅᑕᐅᔪᑦ ᒐᕙᒪᒃᑯᑦ ᑮᓇᐅᔭᓕᐊᖕᒋᓐᓂᒃ ᓄᓇᕗᒻᒥ ᐃᑲᔪᐃᓂᐊᖅᑐᑦ 4%-ᓗᐊᒧᑦ ᓄᓇᕗᒻᒥᑦ ᑲᑎᓗᒃᑖᖅᓱᒋᑦ ᑮᓇᐅᔭᖅᑑᑎᓕᐊᖑᔫᑉ ᑮᓇᐅᔭᓕᐊᖓᓄᑦ.

ᐱᓕᕆᐊᑉ ᑮᓇᐅᔭᓕᐊᓗᐊᖓ ᐊᒃᑐᖅᓯᓂᐅᔪᖅ ᑲᔪᓯᓂᐅᓂᐊᖅᑐᖅ ᕐᑯᑦᑎᒃᑐᒥᒃ ᑮᓇᐅᔭᓕᐅᖅᑎᑦᑎᓂᐊᕐᓂᕐᒧᑦ ᐱᓕᕆᔪᓂᒃ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒥᑦ. ᐱᓕᕆᐊᖃᖅᓱᒃ ᑮᓇᐅᔭᓕᐊᖑᔪᖅ ᒫᓇᐅᔪᖅ ᐱᓕᕆᔨᓄᑦ ᐊᓯᐊᖑᕐᓂᖃᕐᔪᐊᕐᓂᐊᕐᓂᖓᓄᑦ ᓂᕆᐅᒋᔭᐅᖕᒋᑦᑐᖅ, ᑭᓯᐊᓂ ᐅᐃᒍᒋᐊᖅᑕᐅᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᑉ ᐊᐳᖅᑎᓐᓈᖅᑐᒥᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᑉ ᐅᒃᑯᐊᕐᕕᒃᓴᖓᑕ 2018 ᐅᖓᑖᓄᑦ. ᐱᓕᕆᐊᖅ ᓄᑖᓂᒃ ᑮᓇᐅᔭᓕᐅᕐᓂᖅᑕᖃᕐᓂᐊᕐᒥᔪᖅ ᐱᔾᔪᑎᖃᖅᑐᓂᒃ ᑭᒡᓕᖃᖅᑐᓄᑦ ᑮᓇᐅᔭᓕᐊᓂᒃ ᓄᑖᓄᑦ ᐱᓕᕆᐊᓄᑦ, ᐊᒻᒪᓗ ᑕᐃᒃᑯᖓᐅᖕᒋᑦᑐᖅ ᑮᓇᐅᔭᓕᐅᕐᓂᖅᑕᖃᖅᑎᑦᑎᓗᓂ, ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᒃᑯᑦ. ᐱᓕᕆᐊᑉ ᑕᒪᐃᓄᓗᒃᑖᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᑲᔪᓯᓂᒃᑯᑦ ᑮᓇᐅᔭᓕᐅᕐᓂᒃᑯᑦ, ᓄᓇᓕᖕᒧᑦ ᑐᓂᕐᕈᑎᖃᕐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓐᓈᖅᑐᒧᑦ IIBA-ᑯᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐱᐅᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᕐᓂᕐᒧᑦ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖕᒋᓐᓄᑦ ᐃᓄᐃᑦ ᐊᒻᒪᓗ ᓄᓇᓖᑦ. ᓄᓇᓕᖕᒧᑦ ᐊᒻᒪᓗ IIBA-ᒧᑦ ᑐᓂᕐᕈᑕᐅᔪᑦ ᐊᖏᔫᔪᑦ, ᐊᒻᒪᓗ ᓄᓇᓕᖕᒧᑦ ᐱᕙᓪᓕᐊᓂᕐᒥᒃ ᐃᑲᔪᐃᓐᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖕᒋᑦ ᐱᓕᕆᐊᒃᓴᐃᑦ. ᑕᒪᕐᒥᒃ ᑕᐃᒪᐅᓂᐊᖅᑐᑦ ᑭᕙᓪᓕᓗᒃᑖᕐᒥᑦ, ᑭᓯᐊᓂ ᖃᒪᓂᑦᑐᐊᕐᒥᓗᐊᖑᓂᐊᖅᑐᑦ ᐊᐅᓛᕐᓂᖓᓂᑦ ᐱᓕᕆᐊᖅ.

SOMMAIRE DE GESTION – VOLUME 7 - L'ENVIRONNEMENT HUMAIN

Le Volume 7, L'environnement humain, du Projet de gisement Whale Tail et de route de transport (le Projet) évalue l'importance des effets du Projet sur les ressources archéologiques et patrimoniales, l'utilisation traditionnelle de la terre et les paramètres socio-économiques. Lorsque des effets du Projet sont identifiés, des mesures d'atténuation sont développées afin de réduire les effets négatifs, alors que des mesures de renforcement des bénéfices sont élaborées afin de maximiser les effets positifs. L'importance des effets résiduels du Projet est alors déterminée à partir des critères d'évaluation décrits au Volume 3 : Les méthodes d'évaluation.

Préoccupations du public / Inuit Qaujimajatuqangit

Les préoccupations du public, incluant celles basées sur l'Inuit Qaujimajatuqangit (IQ), ont été prises en considération lors de la détermination de l'orientation du Volume 7. L'Inuit Qaujimajatuqangit a été intégré tout au long de l'évaluation dans la description de l'environnement humain actuel. Les perspectives inuites sur la valeur culturelle des sites archéologiques et patrimoniaux, l'importance des terres et des ressources utilisées traditionnellement et l'interaction complexe entre l'économie traditionnelle et l'économie basée sur les salaires sont considérées lors de la détermination de l'ampleur et de l'importance des effets résiduels du Projet sur les caractéristiques de l'environnement humain. L'Inuit Qaujimajatuqangit guide également le développement des mesures d'atténuation et des mesures de renforcement des bénéfices qui sont appropriées pour les contextes social et culturel du Projet.

Ressources patrimoniales

L'évaluation des ressources patrimoniales a répertorié 19 sites de ressources patrimoniales au sein, ou à proximité, de la zone d'étude locale (ZEL) archéologique. Parmi ceux-ci, neuf ont été perçus comme comportant une valeur significative élevée, huit de valeur significative modérée et deux de valeur significative faible. Les sites incluent des campements, des caches, des affûts de chasse, un repère et un lieu de sépulture. L'évaluation a pris en considération le potentiel de la construction, des opérations et de la fermeture à perturber les vestiges et éléments culturels, à endommager les artéfacts, à entraver ou augmenter l'accès aux vestiges archéologiques et à détruire de l'information contextuelle essentielle à l'interprétation de la fonction et de l'âge des sites. À la suite de discussions avec les parties prenantes de la collectivité, dont les aînés et l'Organisation des chasseurs et des trappeurs (HTO - Hunting and Trapping Organization) locale, le tracé de la route et l'emplacement des aires d'emprunts de la fosse ont été modifiés afin de réduire les impacts sur les sites patrimoniaux. L'évaluation a permis de déterminer que 15 des 19 sites archéologiques, incluant le lieu de sépulture, sont situés à l'extérieur de la ZEL, et ne sont pas touchés par le développement du Projet. Les quatre autres sites (deux campements, un affût et un repère) sont situés à l'intérieur des limites de la route de transport ou des sources d'emprunt, et seront perturbés par la construction du Projet.

Le site du repère sera enregistré et documenté; cependant, comme il a été évalué comme ayant une valeur interprétative et scientifique limitée, aucune mesure d'atténuation supplémentaire n'a été recommandée, en attente de l'approbation du ministère de la Culture et du Patrimoine du Nunavut. Les trois sites restants profiteront d'une atténuation par le biais de mesures de récupération systématique des données telles que la cartographie détaillée du site, la cartographie des éléments de pierre individuels, la collecte d'artéfacts, les tests avec pelle, l'excavation archéologique et/ou la consultation de la collectivité, selon ce qui convient. Puisque ces sites seront atténués, l'évaluation des ressources patrimoniales conclut qu'il n'y a pas de trajectoires significatives entre la construction, les opérations et la fermeture du Projet et les ressources patrimoniales. Aucun effet résiduel découlant du Projet n'est prévu sur les sites archéologiques, relativement aux conditions de base.

Utilisation traditionnelle des terres et des ressources

L'évaluation de l'utilisation traditionnelle des terres et des ressources (UTTR) identifie l'importance du caribou, des animaux à fourrure, des oiseaux, des poissons, et des plantes et baies dans la façon de vivre traditionnelle des Inuits. L'importance des aires culturelles et spirituelles (sentiers, campements, cabanes, caches, tombes) dans la préservation des valeurs traditionnelles et le transfert des connaissances traditionnelles et des IQ entre les générations est également soulignée.

L'évaluation a déterminé que les activités du Projet pourraient engendrer quatre trajectoires principales d'effets sur l'UTTR : affecter les opportunités de récolte d'animaux sauvages, de pêche, de récolte de plantes et d'utilisation de sites importants culturellement en raison de la perturbation des aires de prédilection, une modification dans la disponibilité des terres et des ressources, ainsi que des facteurs sociaux et économiques affectant la participation à l'UTTR. Des mesures d'atténuation visant à limiter les effets du Projet sur la disponibilité de la faune, de la végétation et du poisson seront utilisées. Il y aura également construction et entretien de passages bien identifiés pour l'utilisation traditionnelle des terres, ce qui limitera les effets en cascade sur la non-interruption des opportunités de récolte traditionnelle de la faune, des plantes (et baies) et du poisson. Le contournement des ressources archéologiques et patrimoniales, ainsi que l'atténuation sur celles qui ne peuvent être évitées, est également prévu afin de limiter les effets associés du Projet sur la non-interruption des opportunités d'utilisation des sites culturellement importants.

Le Projet ne devrait pas modifier les opportunités de récolte des animaux à fourrure, puisqu'aucun effet environnemental important n'est anticipé sur le loup arctique, le carcajou ou l'ours grizzly, et les aires de prédilection pour le piégeage du renard arctique sont typiquement situés à proximité de Baker Lake. De manière similaire, le Projet ne devrait pas affecter de façon importante la non-interruption des opportunités de la chasse des oiseaux, puisque les zones de prédilection pour cette chasse n'ont pas été répertoriées à proximité du Projet. En revanche, le Projet modifiera les modèles de déplacement du caribou, affectant potentiellement les opportunités de récolte traditionnelle du caribou. Étant donné l'incertitude autour de la nature des effets du Projet sur la migration et le déplacement des caribous, ainsi que l'importance de l'espèce dans le mode de vie traditionnel, l'effet résiduel sur la non-interruption des opportunités de la chasse au caribou est de faible à modéré en terme d'ampleur, d'une étendue locale à régionale, d'une durée de court à moyen terme, et évalué comme important.

Le Projet ne devrait pas entraîner de modifications dans les opportunités de pêche traditionnelle, puisque des effets environnementaux importants sur l'habitat et l'abondance des poissons dans les aires de prédilection de la pêche ne sont pas anticipés.

La poussière générée par le Projet ainsi que les changements aux paramètres hydrologiques devraient se limiter à la ZEL terrestre et être réversibles, confinant l'effet sur la qualité des plantes traditionnelles à la zone du Projet. Grâce à la mise en œuvre de mesures de contrôle de la poussière et d'une surveillance continue, ces effets devraient être minimes. Étant donné l'abondance des communautés de plantes traditionnelles récoltées dans la région, la localisation des effets sur la végétation et l'utilisation traditionnelle limitée de la zone du Projet à des fins de récolte de plantes, l'effet résiduel du Projet sur la non-interruption des opportunités de récolte de plantes traditionnelles est faible en terme d'ampleur, d'une étendue locale, d'une durée de moyen à long terme et a été ainsi évalué comme non important.

Facteurs socio-économiques

L'évaluation socio-économique décrit les interactions potentielles du Projet avec les paramètres démographiques, l'activité économique, le développement des affaires, l'emploi, l'éducation et la formation, les individus, ainsi que le mieux-être, le logement et l'infrastructure de la collectivité. En tant que prolongement de la mine actuelle, il est anticipé que le gisement Whale Tail poursuive plusieurs des avantages socio-économiques de la mine Meadowbank, incluant les contributions à l'économie du territoire, au développement des commerces locaux, à l'emploi et aux salaires des résidents locaux, ainsi que des contributions à l'éducation, à la formation et à l'investissement dans la collectivité. La Projet peut comporter autant d'effets positifs que négatifs sur la santé et la sécurité des travailleurs et de la collectivité, fournissant une formation et de la sensibilisation sur la santé et la sécurité, tout en présentant simultanément des risques d'accidents et de situations d'urgence. La Projet comporte le potentiel d'entraîner des changements négatifs au niveau de la cohésion de la famille et de la collectivité, contribuant indirectement à l'abus et à la dépendance de substances, à des conflits familiaux et intergénérationnels, à de la violence conjugale et à des crimes, ainsi qu'à des inégalités entre les familles et les collectivités. L'engagement dans une économie de salaires soutenu par le Projet comporte également le potentiel de modifier les pratiques et les valeurs culturelles, et peut influencer la participation à des activités communautaires. La main-d'œuvre actuelle de Meadowbank faisant la transition vers le Projet a de l'expérience dans la gestion de ses finances, et il est peu probable qu'elle modifie ses habitudes actuelles ou son mode de vie en raison du Projet. Cependant, le comportement des nouveaux employés pourrait être influencé.

Le Projet prolongera les possibilités d'emplois de la mine Meadowbank de 3 à 4 années supplémentaires et d'environ 200 occasions d'emplois directes additionnelles. Plusieurs de ces occasions seront offertes surtout à la population locale de Baker Lake et des autres collectivités de la région de Kivalliq. La plupart des possibilités d'emplois indirectes se produisant au Nunavut devraient être comblées par la main-d'œuvre actuelle dans les industries fournissant présentement la mine Meadowbank. Le Projet maintiendra les points de cueillette actuels des collectivités de la région de Kivalliq, et tout emploi accessoire se présentant en raison d'un manque d'effectifs sera comblé en priorité par les résidents de la région de Kivalliq, puis, au besoin, par les résidents d'autres collectivités du Nunavut. Étant donnée l'approche en matière de recrutement, le Projet ne devrait pas provoquer de migration intra ou interterritoriale, d'augmentation de la population ou de modification des paramètres démographiques.

Il est anticipé que le Projet aura un certain nombre d'effets positifs qui ont été évalués comme importants, particulièrement un effet positif sur le PIB, les recettes fiscales, le développement du commerce local, l'emploi et la formation, le revenu des individus, ainsi que le mieux-être associé au revenu disponible, les contributions à la collectivité et la poursuite de l'Entente sur les répercussions et les avantages pour les Inuits (ERAI). L'effet positif du Projet sur le PIB est une augmentation de plus de 10 % du PIB actuel du Nunavut. La génération de taxes et de redevances associées au Projet qui seront payées mènera à un revenu pour le gouvernement du Nunavut équivalent à environ 4 % de la recette totale budgétée annuellement pour le territoire.

Le principal effet du Projet sur le revenu sera la conservation d'emplois à salaire élevé issus de la mine Meadowbank. Les revenus d'emploi des employés actuels ne devraient pas changer de manière importante, mais seront prolongés par le Projet au-delà de la fermeture de la mine de Meadowbank en 2018. Le Projet générera également de nouveaux revenus associés à un nombre limité de nouveaux emplois et soutiendra des revenus indirects et induits, et ce, jusqu'à la fermeture. L'effet global du Projet sur la préservation des revenus, les contributions à la collectivité et l'ERAI de Meadowbank devrait avoir un effet positif sur le mieux-être des individus et des collectivités. Les contributions à la collectivité et à l'ERAI sont substantielles et supportent le développement de la collectivité et les initiatives en matière de mieux-être. Les deux toucheront la totalité de la région de Kivalliq, mais seront surtout concentrées à Baker Lake au cours de la durée de vie opérationnelle du Projet.