

# **SUMMARY AUDIT REPORT**

for the June 2018  
International Cyanide Management Code Recertification Audit



**Prepared for:**

Agnico Eagle Mines Limited  
Meadowbank Mine

**Submitted to:**

International Cyanide Management Institute  
1400 "I" Street, NW, Suite 550  
Washington, DC 20005, USA

**FINAL**

3 December 2018



**Ramboll Canada Inc.**

100 Park Royal, Suite 200  
West Vancouver, British Columbia, V7T 1A2, Canada

[www.ramboll.com](http://www.ramboll.com)

## SUMMARY AUDIT REPORT

**Name of Transporter:** Agnico-Eagle Meadowbank Supply Chain

**Name of Owner:** Agnico Eagle Mines Limited

**Name of Responsible Manager:** Luc Chouinard, General Mine Manager

**Address:** Agnico Eagle Mines Limited  
Meadowbank Division  
Baker Lake, Nunavut  
Canada X0C 0A0

**Telephone:** (819) 759-3555

**Fax:** + (867) 793-4611

**E-mail:** [luc.chouinard@agnicoeagle.com](mailto:luc.chouinard@agnicoeagle.com)

### **Location detail and description of operation:**

Agnico-Eagle Mining Limited, Meadowbank, purchases sodium cyanide from Chemours Canada Company FC LLC. (Chemours). Chemours is responsible for the transport from their production plant in Memphis, Tennessee to the Port of Bécancour in Quebec.

The Agnico-Eagle Meadowbank Supply Chain (AEMSC) is the consignor for the transport of cyanide between the Port of Bécancour and the Meadowbank Mine. AEMSC contracts with several companies to undertake the transport. The marine shipping portion of the route between the Port of Bécancour, Quebec, and Baker Lake, Nunavut, is contracted to Nunavut Sealink & Supply Inc. /Désagagnes Transarctik Inc. (NSSI/DTI). Stevedoring services at the Port of Bécancour is contracted to Terminaux Portuaires du Quebec (TPQ). Arctic Fuel Services (AFS) is contracted for road transport between Baker Lake and Meadowbank Mine. Cyanide is shipped once a year during the Arctic summer months when the marine route to Baker Lake is ice free. The route is shown on Figure 1.

The cyanide is shipped and stored in standard 20-foot steel intermodal shipping containers (C-Cans). Within each shipping container the solid cyanide is packaged in 1,000 kg 'bag-in-box' plywood intermediate bulk containers (IBC). The cyanide briquettes in each IBC are packed in nylon supersacks lined in plastic (bag in bag). Since 2016, new USA regulatory requirements led to the reduction in the number of boxes per C-Can from 20 to 18. The total gross loaded weight of each packed C-Can is approximately 22,000 kg.

TPQ unloads the trucks and transfers the C-Cans onto a NSSI/DTI marine vessel. NSSI/DTI ships the C-Cans to Hudson Bay where they are transferred onto barges operated by Atlantic Towing Limited (a sub-contractor to NSSI/DTI) and tugged west along Chesterfield Inlet to Baker Lake. At Baker Lake, the barges are unloaded by NSSI/DTI sub-contractor Peters

Expediting Ltd (PEL). PEL transfers the C-Cans to a dedicated cyanide layout area at the Baker Lake Marshalling facility, about 300m from the barge dock. From here the C-Cans are loaded onto trucks by AFS and trucked to the Meadowbank mine site along a 110 km all weather access road (AWAR). The road is operated and maintained by Agnico-Eagle Mining Limited Meadowbank (AEM). The road is two lanes wide and has a compacted gravel pavement. The road is maintained and policed by AEM and is controlled by a security gate that is manned by AEM Dispatch.

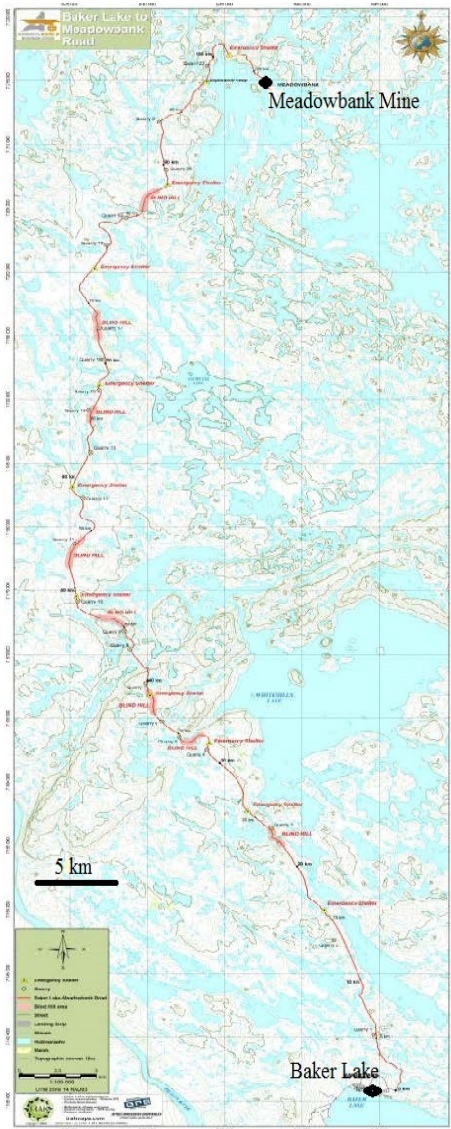


Figure 1: The Meadowbank Supply Chain showing marine barge transport between Port of Bécancour and Baker Lake (above) and road transport route between Baker Lake and the Meadowbank Mine.

# SUMMARY AUDIT REPORT

## *Auditors' Finding*

**The operation is:** ■ in full compliance  
in substantial compliance  
not in compliance

with the *International Cyanide Management Code*.

The Meadowbank Supply Chain has not experienced any ICMC compliance issues during the previous three-year audit cycle.

**Audit Company:** **Ramboll Canada, Inc.**  
100 Park Royal, Suite 200  
West Vancouver, BC V7T 1A2

**Audit Team Leader:** Jean-Marc Léger  
e-mail: [jmleger@alphard.com](mailto:jmleger@alphard.com)

### **Names and Signatures of Other Auditors**

John Lambert



**Date(s) of Audit:** 21 June to 28 June 2018

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the *International Cyanide Management Institute* for Code Verification Auditors. I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the *International Cyanide Management Code Transportation Verification Protocol* and using standard and accepted practices for health, safety and environmental audits.

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

## SUMMARY AUDIT REPORT

### **1. TRANSPORT: Transport cyanide in a manner that minimizes the potential for accidents and releases.**

#### **Transport Practice 1.1: Select cyanide transport routes to minimize the potential for accidents and releases.**

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 1.1

#### *Summarize the basis for this Findings/Deficiencies Identified:*


The Meadowbank mine is located in a remote area of northern Canada where there is no road or rail access to the south. Shipment of cyanide is therefore undertaken by marine passage to Baker Lake followed by truck transport on a 110 km long all-weather access road (AWAR) to the mine. Prior to mine development marine transport routes options were evaluated and the Port of Bécancour was selected as the preferred option as it provided better security than the only alternative Port of Churchill.

The AWAR was constructed for the project and provides the only land access to the mine site. The road was designed for use by conventional tractor trailers. Road access is controlled by a security gatehouse. There are 22 stream crossings consisting of bridges or culverts along the route. The road meanders around lakes and around hills to minimize steep gradients. As a result, there are few steep sections but several blind hills and corners to negotiate that present potential hazards, as well as single lanes at bridge crossings. These hazardous spots have been identified and controls and procedures are in place (speed limits, frequent radio communication notification, road markers) to minimize the hazard. Non-mine users are permitted access to the AWAR but must follow set procedures when using the road to minimize risk to themselves and other users.

AEM has a designated road maintenance crew that maintains the road 365 days a year. Road conditions are continuously monitored. Although snow and blizzard conditions contribute to road closures in the winter months, weather conditions during the summer when cyanide is transported are generally good. All drivers using the road are required to report potentially hazard conditions to Dispatch. The decision on whether to close the road is the responsibility of the Road Supervisor.

AEM continues to contract NSSI/DTI for the marine shipping portion of the AEMSC. NSSI/DTI was selected in part because they are equipped with a fleet of seagoing large capacity cargo ships owned and/or operated by DTI; are experienced with marine shipping in the Canadian Arctic; and comply with the regulatory requirements of Transport Canada and International Maritime Dangerous Goods Code (IMDG Code) through their ISO 9001:2000 Quality

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

Management System for shipping operations, safety, security and environmental management.

TPQ is the sole stevedoring business operating at the Port of Bécancour. The port is secured by fencing and security cameras. The C-Cans are unloaded from tractor-trailers by TPQ personnel and equipment (container stacker) and temporarily stored in dedicated area of the port. When ready for shipping TPQ transfers the C-Cans to the wharf from where onboard NSSI/DTI cranes load them onto the marine vessel following a loading plan, which meets the IMDG Code.

The AWAR conditions are routinely inspected by maintenance crews and continually monitored by road users. In addition, periodic operational audits and annual bridge inspections are undertaken. AFS drivers are required to complete a Work Card each shift that includes procedures to report back on road conditions and wildlife sightings. Drivers also communicate to Dispatch and other road users on hazards observed on the road.

AEM has procedures in place for users of the AWAR to address risks. These procedures are supplemented by other operational procedures, vehicle and equipment specifications, and operating and maintenance requirements stipulated in the contract agreement between AEM and AFS. Contractors follow AEM's safety, security and first aid rules and health and safety requirements. In addition, AEM has a no tolerance drug and alcohol policy and AFS is required to drug test drivers when hired. Drivers work a maximum 12-hour shift with a minimum of an 8-hours rest between shifts.

Meadowbank Mine keeps an office in Baker Lake. The office is staffed with one full time and one part-time Community Liaison Committee (CLC) coordinators that are residents of the Baker Lake. The CLC was established in 2009 and remains an important communication channel for Meadowbank as it enables the mine operator to reach out to various groups within the community. This includes hamlet elders, Baker Lake hunting and trapping organization, representatives of the Inuit Impact Benefit Agreement. During the period cyanide C-Cans are handled in the marshalling area at Baker Lake and transported to the Meadowbank mine, special radio announcements and Facebook posts and used to inform residents about these activities and associated restrictions that apply to hamlet residents regarding usage of the AWAR.

Because the transport corridor is remote and mostly on a private access road, there are currently no security concerns on the road that would warrant the use convoys and security escorts. Nevertheless, convoys, that include ambulance and emergency response vehicles, are arranged when cyanide is transported to provide quick emergency and medical response capability when cyanide is handled at Baker Lake and transported along the road.

Security at the Baker Lake Marshalling Area is provided by a 24-hour surveillance camera and a security guard posted 24/7 at the cyanide laydown area when cyanide is being stored. In addition, C-Cans containing cyanide are stored door to door to prevent unauthorized access

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

during the maximum 72-hour period that cyanide containers are permitted to be stored at the marshalling area.

**Transport Practice 1.2: Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.**

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Transport Practice 1.2

*Summarize the basis for this Findings/Deficiencies Identified:*

AFS drivers and operators are Transport of Dangerous Goods (TDG) and Worker Hazardous Materials Information System (WHMIS) trained and hold Class 1 Licences. Prior to beginning work, new hires must complete AEM induction training that includes safety training, chemical awareness training, emergency response; respirator training and task training related using the AWAR. Drivers and equipment operators complete refresher every three years and training is tracked by AFS and AEM training department. Only experienced drivers are assigned to cyanide transport and there has been a generally low turnover over in the past three years. Training records of drivers are reviewed prior to each cyanide transport season and refresher training is provided to drivers as needed before cyanide transport begins.

AEM has an Action Plan in place to review AFS’s contract obligations. This plan sets out a schedule for conducting checks and audits of AFS operations. The plan requires for quarterly audits of AFS’s preventative maintenance program; monthly meetings to review safety and other topics and to conduct random audits; and for AFS to provide AEM annually with copies of driver permits and licences, lists of vehicles and equipment, and vehicle maintenance records. AFS training in AEM policies and procedures is tracked by the AEM training department.

**Transport Practice 1.3: Ensure that transport equipment is suitable for the cyanide shipment.**

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Transport Practice 1.3

*Summarize the basis for this Findings/Deficiencies Identified:*

Cargo handling at the Port of Bécancour is undertaken by TPQ, an experienced Stevedoring company. TPQ relies on five “reach stackers” rated at 45 t to move C-Cans from delivery tractor-trailers to the laydown storage area and the wharf. TPQ performs most of its maintenance onsite in a dedicated building and records are tracked through a software database.

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

NSSI/DTI have systems in place to ensure that equipment used on their marine vessels and by their subcontractors is designed and maintained to safely handle the cargo being shipped. The obligation for safe handling of cargo is set out in the Contract Agreement between NSSI/DTI and AEM. Vessels are inspected as per Transport Canada and Classification Society requirements. Detailed instructions relating to inspection and preventative maintenance of machinery and equipment on vessels is managed through a preventative maintenance system for the vessel and is set out in various operating manuals.

AFS owns and maintains a fleet of tractors and flatbed trailers rated to carry between 49,650 kg and 54,682 kg depending on the trailer. Since the 2014 ICMC verification audit AEM only permits one C-Can to be loaded onto a trailer. The trailers therefore have adequate capacity to one container with a gross weight of approximately 22,000 kg. The loaders used to load C-Cans onto the trailers at the Baker Lake Marshalling Area and unload at the mine site are rated to 25 t and 45 t, respectively.

C-Cans used to transport cyanide are owned by AEM. Prior to each shipping season the containers are checked and International Convention for Safe Containers (CSC) approved by Transmodal Marketing Inc.(TMI) prior to being shipped to Chemours in Memphis for stuffing.

AFS conducts equipment inspections prior to loading and transport of goods, including cyanide. Drivers and loader operators complete Work Cards that include a detailed inspection checklist before undertaking a loading task or departing Baker Lake with a loaded truck. The Word Card is checked for completeness at the AEM Security Gate before a truck is permitted to use the AWAR. The driver is also required to stop and inspect the truck and load at designated locations along the AWAR.

AFS has a preventative and corrective maintenance program to ensure that equipment continues to operate as designed. The tractors are inspected and serviced on a 300-hour and 600-hour maintenance program. Maintenance is conducted as per manufacturer's recommendations using only approved parts. Trailers are on an annual inspection and maintenance program which is undertaken at the beginning of each trucking season. Inspection and maintenance is recorded on Inspection Reports and Work Orders that are filed and tracked in the General Managers Office. AEM Site Services conducts spot checks on AFS vehicles entering or leaving the mine site and conducts period audits of AFS's maintenance operations.

AEM has a preventative maintenance program for all mobile equipment operated at the mine, including the loaders used for handling cyanide C-Cans at the warehouse. The program is tracked on JD Edwards. The loader used for unloading and moving cyanide containers is on a monthly, six monthly and annual inspection and preventative maintenance schedule. In addition, daily equipment inspections are conducted by operators which are recorded in the equipment inspection logbook. ACUREN, a non-destructive testing, inspection and engineering company, is also retained annually to conduct non-destructive testing, inspection and repair of accessible welds on mobile equipment.

Meadowbank Supply Chain  
Name of Transporter

  
Jean Marc Leger  
Signature of Lead Auditor

3 December 2018  
Date



Loading of marine vessels and barges is managed by NSSI/DTI using established maritime loading and stowage procedures and requirements to ensure vessel stability and seaworthiness is maintained. Loading is the responsibility of the Master of the vessel.

Road transport vehicle loads are checked against the shipping manifest. The C-Can weight for each transport load are recorded on the AFS haulage form and the load is checked by the AEM Baker Lake Warehouse prior to truck departure. Only one cyanide C-Can is permitted to be loaded on a trailer. During road transport the C-Cans are secured on flatbed trailers using chain locks. Drivers check the locks prior to departure and twice during transport to the mine.

AEM has developed an Action Plan for reviewing AFS's contract obligations and ensuring that it meets the elements of ICMC. This plan sets out a schedule for conducting checks and audits of AFS operations. The plan includes requirements for AFS to provide annually copies of all driver permits and, licences, and lists of vehicles and equipment; undertaking quarterly audits of AFS's preventative maintenance program; and conducting monthly visits to AFS to review safety and other topics and conduct random audits. The Security Gate inspects driver Work Cards prior to allowing AFS vehicles use the AWAR. In addition, AEM's Site Services department completes periodic tractor/trailer spot checks when vehicles enter the mine site.

***Transport Practice 1.4: Develop and implement a safety program for transport of cyanide.***

The operation is:                   ■ in full compliance  
  in substantial compliance  
  not in compliance...with Transport Practice 1.4

*Summarize the basis for this Findings/Deficiencies Identified:*

AEM ensures that the cyanide is transported in a manner that maintains the integrity of the packaging. Cyanide is received as solid briquettes packed in plywood 1,000 kg Intermediate Bulk Containers (IBCs). These are packed and transported in 20ft long C-Cans; 18 IBC boxes per C-Can. Within each IBC, the briquettes are packed in nylon supersacks lined with plastic (bag in bag) to protect against moisture. The C-Cans are loaded and sealed by Chemours and the seal is not broken until the shipped reaches the mine site.

When the C-Cans are being temporarily stored at the interim storage facilities they are monitored by security to ensure there is no unauthorized access. During road transport the C-Cans are secured on flatbed trailers using chain locks. Drivers check the chain locks prior to departure and twice during transport to the mine. At the Baker Lake Marshalling Area and the Meadowbank Warehouse the C-Cans are stored door to door to prevent unauthorized access.

The integrity of the C-Cans and seal are checked by TPQ prior to loading on the marine vessel at Bécancour, however, according to interview, cyanide C-Cans arriving at Baker Lake are

<u>Meadowbank Supply Chain</u>		<u>3 December 2018</u>
Name of Transporter	Signature of Lead Auditor	Date

visually inspected for apparent damage, but no seal integrity observation was being performed, and no records were being maintained to this effect. Also, no additional seal integrity inspection is carried out at the mine prior to C-Cans opening when mill supply is needed. Although the potential for break-in and tampering with cyanide shipments is considered low in this remote region, the auditors nevertheless recommended that a system be in place to confirm that the cyanide shipments have not been compromised on route. Subsequent to the field component of the audit AEM modified the Shipping Manifest to include C-Can seal numbers and developed a procedure for the 2018 transport season to track and document the integrity of cyanide C-Can seals from receipt at Baker Lake to delivery at Meadowbank.

Each IBC is labelled to identify the shipment as sodium cyanide, including the required international UN#, name of goods, production date, batch number, supplier's name, and buyer's name. The content of each C-Can is clearly identified on each side by "Poison" and UN 1689 placards and Marine Pollutant placards.

NSSI/DTI operations have not significantly changed since the 2014 ICMC verification audit. Procedures are in place to ship cyanide safely between Bécancour port terminal and Baker Lake including an inspection and preventative maintenance program for machinery and equipment as determined in a preventative maintenance system and associated manuals for the vessel; crew work hours are regulated by the Marine Personnel Regulations and tracked as per regulation in a log maintained onboard; all vessels follow instructions provided in the Cargo Stowage Manual; vessels follow procedures in the Bridge Inspection Manual; the ship's Master is responsible for monitoring weather conditions and amending a vessel's course and speed as necessary, and suspends work that may be considered dangerous, in the event of adverse weather conditions; and there is a Drug and Alcohol Policy and crew are tested annually. Employees on duty are strictly prohibited to have any alcohol content in the blood. Records are maintained.

Road transportation safety procedures for the AWAR include; vehicle inspections prior to departure; a preventative maintenance program for all tractor trailers and loading equipment; limitations on drivers to 12 hour shifts; use chain locks for securing C-Cans to trailers; requirement for vehicle/load inspections twice during each trip; an ongoing inspection and maintenance program to ensure the road is safe to drive; a procedures for road closure during hazardous situations or inclement weather; and a mandatory drug abuse program for all drivers. Records are maintained.

As discussed in 1.3 above AEM has developed an Action Plan for reviewing AFS's contract obligations and undertakes periodic reviews and audits of AFS operations to ensure they meet the elements of ICMC. AEM has also developed policies and safety procedures that AFS is required to follow when within the mine property and using the AWAR. Training in AEM policies and procedures is tracked by the AEM training department and other training required by AFS to meet Canadian laws and regulations on safety is verified through periodic audits that are part of the Action Plan.

Meadowbank Supply Chain  
Name of Transporter

  
Jean Marc Leger  
Signature of Lead Auditor

3 December 2018  
Date

**Transport Practice 1.5: Follow international standards for transportation of cyanide by sea and air.**

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 1.5

*Summarize the basis for this Findings/Deficiencies Identified:*

Packing and labelling of C-Cans is the responsibility of Chemours. Each C-Can is packed with twenty (and since 2017 eighteen), 1,000 kg IBC plywood boxes of cyanide briquettes. Each IBC box is labelled as required by IMO DG with UN number, Dangerous Goods Class 6 toxic, and Marine Pollutant Mark. Loaded C-Cans are inspected and marked and placarded in accordance with the IMO DG with UN number, Dangerous Goods Class 6 toxic placard and Marine Pollutant Mark displayed on each side of the container.

Chemours provides TPQ with a manifest for the cyanide transport to the Port of Bécancour. The manifest includes the C-Can container number, Chemour's seal number, Purchase Order number, and weight of the C-Can. TPQ generates an *IMO Dangerous Goods Declaration* document for each cyanide shipping container and an *Inventory of Dangerous Cargo* which includes the NSSI/DTI vessel name and as well as the details presented on the Chemours Manifest. A Bar Code reference is generated for each piece of cargo and this is used to track containers between the Port of Bécancour and the Mine site.

For each shipment a cargo stowage plan is developed for loading a vessel. Stowage and lashing is undertaken to comply with the *Cargo Securing Manual* developed for the vessel. This manual, required by IMO, is approved in accordance with the Safety of Life at Sea (SOLAS) Convention and complies with requirements of the *Rules for Classification and Construction – Stowing and Lashing Container*.

NSSI/DTI is compliant with Transport Canada rules and regulations including having access to material safety data sheets for sodium cyanide. NSSI is certified ISO 9001 and maintains a Quality, Safety, Security and Environmental Management System. NSSI/DTI's QSSEPM Manuals include procedures for Cargo, Ballast and Anchoring Operations and has a *Deck Instruction Manual* which covers instructions related to: deck organization; cargo with special requirements; cargo operation management; vessel to vessel transfer; and inspection of deck, cargo and ballast system. These procedures are established to ensure that NSSI/DTI complies with Transport Canada (and therefore IMDG Code) stowage and separation requirements.

**Transport Practice 1.6: Track cyanide shipments to prevent losses during transport.**

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 1.6

*Summarize the basis for this Findings/Deficiencies Identified:*

The tracking and communication systems have remained essentially the same since the 2014 ICMC verification audit.

Chemours provides TPQ with a manifest of the cyanide delivered to the Port of Bécancour and TPQ generates the shipping documents for the marine transport. These documents as well as the *Fuel and Freight Haulage* Form used by AFS document the amount of cyanide in transit. NSSI/DTI complies with Transport Canada rules and regulations including having access to material safety data sheets for sodium cyanide. AFS Drivers have a brief of papers they carry with each cyanide transport. These papers include an MSDS for cyanide. Each shipping container is assigned a Bar Code by TPQ. The shipping inventory information which includes the Bar Code is managed through an on-line computer tracking system that enables NSSI/DTI to locate a specific container loaded on a vessel and AEM warehouse personnel to track the progress of each container being transported.

The NSSI/DTI ship and Atlantic Towing tugboats are equipped with VHF radio; MF radio; INMARSAT ship earth station; NAVTEX receiver; EGC receiver; COSPAS-SARSAT as well as radar search and rescue transponder (SART). This radio equipment is required under Safety of Life at Sea Convention (SOLAS) and Canadian marine shipping regulations. Ships navigating in Canadian coastal waters are required by regulation to report any unplanned course change, hazard or emergency to coast guard stations (e.g. ECAREG and NORDREG). In the event of an emergency situation Canadian authorities will coordinate emergency response while the shipping company enacts its emergency response plan. All communications are logged in and audited both internally and externally for compliance to Canadian regulations. According to the interview with NSSI/DTI representative, there are no black out areas along the Port of Bécancour to Baker Lake marine route.

Each AFS truck is equipped with a radio as a requirement for using the AWAR. Radios are in constant use on the road and are tested prior to start of each trip. All vehicles are required to regularly contact AEM Dispatch to report their location and any observed hazards and listen to radio broadcast from other vehicles using the road. All communication goes through AEM Dispatch and in the event of an emergency and emergency response procedures are in place to communicate with responders as required for the type of emergency. A series of radio transmitter/receivers are in place to ensure radio coverage along the whole route. Procedures are in place to change radio channels along route to ensure good coverage and reception. GPS units were not installed in AFS trucks at the time of the audit but the position of the trucks is tracked through frequent radio communication with Dispatch.

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

As discussed in 1.3 AEM has developed an Action Plan for reviewing AFS's contract obligations and undertakes periodic reviews and audits of AFS operations to ensure they meet the elements of ICMC. Warehouse is also reviews AFS haulage documentation prior to each shipment and is able to track the shipment electronically through the bar code logged for each container.

**2. INTERIM STORAGE: Design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent releases and exposures.**

**Transport Practice 2.1: Store cyanide in a manner that minimizes the potential for accidental releases.**

The operation is:

- in full compliance
- in substantial compliance
- not in compliance...with Transport Practice 2.1

*Summarize the basis for this Findings/Deficiencies Identified:*

During transit cyanide C-Cans are temporarily stored at the Bécancour port terminal awaiting shipment to Baker Lake, and at the Baker Lake Marshalling area before trucking to Meadowbank.

At the Bécancour port terminal, the containers are temporarily stored before being transferred to a Desgagnés vessel for marine shipment. The UN and marine pollutant labelling on the side of the C-Cans informs terminal employees about the presence cyanide. The C-Cans are stored on the ground which is gravel at B-5 section of the terminal. The storage area is monitored 24/7 by security cameras when there is no activity at the Bécancour port. The only other containers near the cyanide C-Cans are those placed to offer additional protection against moving reach stackers. The terminal employees are not expected to play a role in the event of a cyanide spill. The Bécancour Fire Department would respond in such a scenario according to the ERP. The Bécancour fire department is trained to respond to cyanide spills as well as other high risks scenarios found within the important Bécancour industrial park.

The cyanide interim storage area at the Baker Lake Marshalling Area is used for a few weeks during the summer to temporarily laydown cyanide C-Cans between unloading from the tug barge and trucking to the mine site. During storage warning signage is posted displaying requirements for personnel protective equipment (PPE), no open flame, no smoking, drinking or eating, and providing first aid instruction. In addition, each container is identified on each side with Transport of Dangerous Goods (TDG) hazard class labels, UN 1689 number, the marine pollutant marking. The storage comprises a pad located approximately 300 m from the dock. The pad is a compacted gravel surface that is graded gently toward the east to prevent the accumulation of standing water. The south and southwest sides of the pad are bermed to ensure that no run-off or cyanide briquettes could leave the pad and migrate onto

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

the muskeg and inlet down gradient of the pad. The east and north sides of the pad are defined by large boulders to delineate the pad and provide collision protection to the containers.

**3. EMERGENCY RESPONSE: *Protect communities and the environment through the development of emergency response strategies and capabilities***

**Transport Practice 3.1: *Prepare detailed emergency response plans for potential cyanide releases.***

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 3.1

*Summarize the basis for this Findings/Deficiencies Identified:*

The emergency response measures in place by Chemours for the route between the Chemours production plant and the Bécancour port terminal is covered under the Chemours ICMC certified Canada Supply Chain.

TPQ, the stevedoring company at Bécancour port terminal has an emergency response plan and a specific cyanide emergency response procedure (FTS\_Cyanure de Sodium). The procedure was last updated on 6 June 2018. In the case of a cyanide release on the port property, the response will be conducted by the Bécancour Fire Department who can intervene rapidly due to their proximity to the terminal. TPQ personnel are only instructed to identify a 100-metres safety perimeter in case of a spill under wet conditions and 30-metres perimeter under dry condition.

The NSSI/DTI shipping company operates under IMDG Code and other industry standards. The NSSI/DTI's Vessel Contingency Plan involves general fire scenarios and fire of dangerous goods, explosion, gas and toxic vapour release, and hazardous / toxic cargo release.

Meadowbank mine has implemented a Meadowbank Emergency Response Plan (ERP) that covers the mine site as well as the AWAR (All-Weather Access Road) and the Baker Lake Marshalling Area where cyanide C-Cans are temporarily stored (maximum 72 hours) after being unloaded from the barge. All cyanide release emergencies at the Marshalling Area and the AWAR would be responded to according to the prescriptions and recommendations of the ERP and supporting documents namely, the Spill Contingency Plan, and procedure Meadowbank Transportation of Dangerous Goods.

The TPQ emergency procedure for the Bécancour port terminal is considered an effective planning tool as it incorporates highly trained professional firefighters, readily available to address high risk industrial operations. NSSI/DTI operates under Transport Canada's (and

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

therefore IMDG Code) legal framework and that of other international agencies. Safety and emergency preparedness is central to its operations, and as such, NSSI/DTI implements many procedures and performs its activities under various management plans to ensure safety of crew, vessel and transported goods. AEM hires AFS to transport the cyanide C-Cans from Baker Lake to the mine site. AFS is integrated into AEM's ERP. The AFS drivers are trained on cyanide risk prior each transport season. The emergency response plans are adapted to the transportation of solid sodium cyanide. The availability of heavy equipment and trained personnel to respond to the transportation of cyanide along the approximately 110 km AWAR in an isolated region is also considered in the ERP.

The ERP refers to the Meadowbank Transportation of Dangerous Goods Procedure. This Procedure provides detailed information on how transportation of cyanide C-Cans is to be performed on the AWAR. This includes Road Supervisor inspection of the AWAR prior to the initiation of hazardous material transportation in the later part of the summer season; strict observance of speed limits on the road and crossing bridges; communication requirements with AWAR dispatch; mandatory truck stop to verify load and brakes systems along the road; and communication requirements by the drivers at set points on the 110 km trip between Baker Lake Marshalling Area and mine site. The cyanide convoys are escorted by the Meadowbank mine site ambulance and emergency response team (ERT) pickup truck.

***Transport Practice 3.2: Designate appropriate response personnel and commit necessary resource, for emergency response.***

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 3.2

*Summarize the basis for this Findings/Deficiencies Identified:*

AEM is legally required to train its Emergency Response Team members a minimum of 48 hours per year on identified emergency response scenarios specific to mine activities. Since AEM's ERP includes road transportation of cyanide from Baker Lake to Meadowbank, the ERT training also involves emergency response on the AWAR. The training program provides theoretical and practical sessions on mobilizing to an ERT gathering point for a mill or AWAR intervention; donning PPE; maintenance of PPE and emergency response equipment; decontamination of exposed workers (from cyanide or other hazardous substance exposure) and provision of first aid. TPQ representative confirmed that personnel at the Bécancour port terminal are trained in Transportation of Dangerous Goods, a federal legal requirement. TPQ personnel are also trained in their ERP which directs them to clear the cyanide spill area and request support from the Bécancour Fire Department. The Meadowbank ERP lists the responsibilities associated to fifteen different positions or departments of the mine and describes responsibilities associated with maintaining the lists of equipment available for intervention should a release of cyanide occur on the AWAR or the Baker Lake Marshalling

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date

Area. The Spill Contingency Plan (SCP) provides a detailed list of available equipment to responders of a cyanide spill.

Meadowbank provides AFS drivers emergency kits. The kits are maintained by AEM and provided to AFS at the start of the cyanide transport season. The kits include a Tyvek® suit; a half mask respirator equipped with P100 cartridges and rubber gloves. The hauling documentation includes cyanide Materials Safety Data Sheet (MSDS). AEM provided respirator training and fit testing to AFS drivers and equipment operators. The ERT equipment inspection process is influenced by criticality of the equipment and likelihood of failure when solicited by ERT during an emergency response. As such, respiratory protection equipment namely SCBA and mobile pumps are inspected on a weekly basis and emergency response vehicles according to preventive maintenance schedule (every 6, 8 and 26 weeks for emergency vehicle, ambulance, utility fire truck). Other technical equipment like boom, boats are tested during ERT training sessions and inspected twice a year or according to manufacturer's recommendations.

AFS and AEM renewed their contractual agreement on 24 July 2017 with effective date 1 August 2017 and termination date set for 15 November 2022. Schedule A of the contract refers to AFS establishing and maintaining a protocol and emergency plan approved by AEM. In practice, AFS abides by AEM's ERP and supporting documents with regard to responding to cyanide related emergencies.

**Transport Practice 3.3:    *Develop procedures for internal and external emergency notification and reporting.***

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 3.3

*Summarize the basis for this Findings/Deficiencies Identified:*

The contact information for regulatory agency notification, health services authorization and medical evacuation to hospital, potentially affected communities, shipper and receiver is included in the Meadowbank ERP and the SCP. In relation to a medical evacuation, a checklist provides the decision process, which includes initial contact with the Nunavut Health Authorities for prior consent to accept responsibility for patient transfer. The Meadowbank ERP is reviewed and updated as needed at least annually. The document control section of the ERP records the type of review conducted (partial or comprehensive). The SCP is organized in the same manner and provides a record of any changes. An email reminder is automatically sent to the Emergency Measures Coordinator to verify contact information of all external stakeholders identified in the ERP and SCP documents.

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date



**Transport Practice 3.4:    *Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.***

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 3.4

*Summarize the basis for this Findings/Deficiencies Identified:*

The SPC contains a dedicated appendix to cyanide spill management. This appendix provides rational on how to address a cyanide release outdoors, on land or water; snow or ice, recover spilled material, recover contaminated media, disposal of spill cleanup debris and event monitoring. The SCP has the following notice regarding the addition of chemicals during cyanide remediation efforts:

*“IMPORTANT: It is strictly prohibited to add any chemicals or neutralizing solutions to a Sodium Cyanide Spill near a drainage system, or near or in a water body.”*

**Transport Practice 3.5:    *Periodically evaluate response procedures and capabilities and revise them as needed.***

- The operation is:
- in full compliance
  - in substantial compliance
  - not in compliance...with Transport Practice 3.1

*Summarize the basis for this Findings/Deficiencies Identified:*

The Meadowbank ERP is reviewed annually as per regulatory requirement and this requirement is documented in the ERP. The document control page of the ERP highlights changes made to the Plan in 2016, 2017 and 2018. The Emergency Measures Coordinator organizes emergency response equipment inspection workshops, mock drills, or other emergency response related activities every Sunday to ensure ERT members have a minimum 48 hours a year emergency response practical experience as required by Nunavut regulation. ERT training at Meadowbank mine covers a wide range of risk including risks associated with cyanide transportation. The Meadowbank ERP provides a statement to the effect that the Plan will be evaluated for effectiveness on an annual basis or more often if needed. Since there has not been a cyanide release accident that triggered the implementation of the ERP in the last three years or even since 2010, the improvement of the plan is largely attributed to the recommendations from lessons learned from catastrophic mock drills and transportation incidents that have occurred between Baker Lake and Meadowbank mine.

Meadowbank Supply Chain  
Name of Transporter

  
Signature of Lead Auditor

3 December 2018  
Date