



Fertilizer Safety & Security Council

Conseil de la sécurité en fertilisation

# IMPLEMENTATION GUIDE

Agricultural Ammonium Nitrate  
Code of Practice

March 2014

Where  
Stewardship  
Grows



# **IMPLEMENTATION GUIDE AGRICULTURAL AMMONIUM NITRATE CODE OF PRACTICE**

## **GENERAL COMMENTS**

This guide is intended to provide assistance in complying with the Ammonium Nitrate Code of Practice by offering additional details and resources. Applicable regulations, codes and acts have been referenced for easy access.

The Appendices provide templates of protocols that can be used by each facility when preparing their documents for the auditing process.

# Table of Contents

SECTION A – INBOUND SHIPMENTS .....	4
A1 Safety and Security of Inbound Ammonium Nitrate Cargo.....	4
A1.1 Shipments by Marine.....	4
A1.2 Safety and Security of Ammonium Nitrate Cargo Arriving by Rail/Roads .....	11
A2 Providing Transport From Source via Rail/Truck .....	13
A3 Access to Product During Shipment .....	13
A4 Loss of Tampering of Product During Shipment .....	15
A5 Product Spills During Transport and Unloading .....	16
A6 Delivery of Ammonium Nitrate .....	17
SECTION B STORAGE OF AMMONIUM NITRATE.....	18
B1 Product Storage.....	18
B1.1 Storage Security.....	18
B1.2 Storage Safety .....	21
B1.2.1 Physical Storage Facility Requirements.....	21
B1.2.2 Storage and Housekeeping Requirements .....	21
B2 Emergency Response and Security Plan .....	23
B3 Access by On-site Personnel.....	25
B4 Loss of Product During Storage.....	26
SECTION C OUTBOUND SHIPMENTS/PRODUCT SALES.....	27
C1 Security Around Individuals or Company Responsible for Providing Transportation .....	27
C 1.1 Transportation Company Security.....	27
C 1.2 Delivery Receipt Acknowledgement.....	28
C2 Access to Product During Shipment .....	29
C3 Product Spills During Transport and Loading .....	30
C4 Validation of Customers.....	32
C5 Traceability of Sales .....	34
C6 Criteria Specific to End-users .....	35
SECTION D REGULATORY REPORTING .....	36
D1 Annual Inventory Reporting .....	36
SECTION E TRAINING .....	37
E1 GrowZone .....	37
E2 Transportation of Dangerous Goods Training.....	37
E3 WHMIS/MSDS Training .....	37
SUSPICIOUS INCIDENT REPORTING (SIR) SYSTEM.....	38

## **SECTION A – INBOUND SHIPMENTS**

### **A1 SAFETY AND SECURITY OF INBOUND AMMONIUM NITRATE CARGO**

#### **SPECIFIC REQUIREMENTS**

The security of inbound shipments of ammonium nitrate is critical due to the typical size of the shipment and the potential security risks through the receiving process. In order to minimize these risks, the applicable sections of the following acts and regulations must be reviewed to ensure compliance.

#### **A1.1 SHIPMENTS BY MARINE**

##### **International Maritime Dangerous Goods Code:**

The International Maritime Organization (IMO) administers the International Maritime Dangerous Goods (IMDG) Code. The IMO adopted the IMDG as a mandatory regulation for all shipments as of January 1, 2004. Shipments of ammonium nitrate must conform to the applicable sections of the code. The major sections of the IMDG are:

##### Volume 1:

- General Provisions, Definitions and Training
- Classification
- Packing and Tank Provisions
- Consignment Procedures
- Construction and testing of packaging, IBC's, large packaging, portable tanks and road tank vehicles.
- Transport Operations

##### Volume 2:

- Limited Quantity Exemptions
- Index of Dangerous Goods Classifications
- Appendices

##### Supplement:

- EMS Guide
- Medical First Aid Guide
- Reporting Procedures
- Packing Cargo Transport Units

- Safe Use of Pesticides
- INF Code

The *International Maritime Dangerous Goods Code* can be obtained at the following link: <http://www.imo.org/Pages/home.aspx>

## **Canada Shipping Act - 2001**

The objectives of this Act are to

- (a) protect the health and well-being of individuals, including the crews of vessels, who participate in marine transportation and commerce;
- (b) promote safety in marine transportation and recreational boating;
- (c) protect the marine environment from damage due to navigation and shipping activities;
- (d) develop a regulatory scheme that encourages viable, effective and economical marine transportation and commerce;
- (e) promote an efficient marine transportation system;
- (f) develop a regulatory scheme that encourages the viable, effective and economical use of Canadian waters by recreational boaters;
- (g) ensure that Canada can meet its international obligations under bilateral and multilateral agreements with respect to navigation and shipping;
- (h) encourage the harmonization of marine practices; and
- (i) establish an effective inspection and enforcement program.

The *Canada Shipping Act 2001* can be obtained at the following web address: <http://laws-lois.justice.gc.ca/eng/acts/C-10.15/>

## **Maritime Transportation Security Act and Regulations**

The Marine Transportation Security Act and Regulations are administered by Transport Canada and applies to all shipments from Canadian ports.

This Act applies in respect of:

- vessels and marine facilities in Canada;
- Canadian ships outside Canada; and

- marine installations and structures,

The *Marine Transportation Security Act* can be found at the following web address: <http://laws-lois.justice.gc.ca/eng/acts/M-0.8/>

Under the authority of section 5 of the *Maritime Transportation Security Act*, the *Maritime Transportation Security Regulations* (MTSR) came into force on July 1, 2004.

The regulations set out operator and personnel roles and responsibilities for developing security plans and putting them into action; provides a way to conduct security assessments, to establish adequate security protocols, and to properly document and report; and provides Transport Canada with a means of overseeing compliance of the marine transportation security system; security system; and, addresses Canada's obligations to implement the [\*International Ship and Port Facility Security Code\*](#) and align our regulatory approach with that of our major trading partners.

The Regulations take a risk-based approach to enhancing the security of the Canadian marine transportation system by ensuring that marine facility and vessel security plans address risks identified within their security assessments. The risk approach may be different, depending on issues such as the size of the facility, volume or type of traffic or geographic location.

The MTSR apply to any vessel in Canada, and to any Canadian vessels operating outside of Canada on a voyage between a port in one country and a port in another country, that meet the following criteria:

- Is more than 100 tons gross tonnage, other than a towing vessel;
- Carries more than 12 passengers; or
- Is a towing vessel towing a barge astern or alongside or pushing ahead, if the barge is carrying certain **dangerous** cargoes.

The MTSR also applies to:

- Canadian and foreign flagged vessels (Part 2);
- Marine facilities and port authorities (Part 3); and,
- Marine facilities that receive vessels described in Part 2.

The MTSR consists of the following sections:

### Part 1 – General

### Par 2 - Vessels

- Interpretation
- Company/Vessel Security Officer
- Security Drills and Exercises
- Vessel Security Assessment
- Vessel Security Plan
- Security Procedures for Access Control
- Security Procedures for Restricted Areas
- Security Procedures for Handling Cargo
- Security Procedures for delivery of Ships' Stores and Bunkers
- Security Procedures for Monitoring

### Part 3 – Marine Facilities

- Marine Facility Security Officer
- Security Drills and Exercises
- Marine Facility Security Assessment
- Marine Facility Security Plan
- Security Procedures for Access Control
- Security Procedures for Restricted Areas
- Security Procedures for Handling Cargo
- Security Procedures for Delivery of Ships Stores and Bunkers
- Security Procedures for Monitoring
- Occasional-Use Marine Facilities
- Occasional-Use Marine Facilities Security Officer
- Ports
- Port Security Plan
- Restricted Areas
- Restricted Area Passes or Keys

### Part 4 – [RESERVED] Repeal and Coming into Force

- Repeal
- Coming Into Force

**Amendments** to the *Marine Transport Security Regulations* were proposed on April 27, 2013 as published in the Canada Gazette Part 1: <http://canadagazette.gc.ca/rp-pr/p1/2013/2013-04-27/html/reg9-eng.html>

The *Marine Transport Security Regulations* can be obtained at the following web address:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2004-144/>

## Canada Marine Act

In recognition of the significance of marine transportation to Canada and its contribution to the Canadian economy, the purpose of this Act is to

(a) implement marine policies that provide Canada with the marine infrastructure that it needs and that offer effective support for the achievement of national, regional and local social and economic objectives and will promote and safeguard Canada's competitiveness and trade objectives;

(a.1) promote the success of ports for the purpose of contributing to the competitiveness, growth and prosperity of the Canadian economy;

(b) base the marine infrastructure and services on international practices and approaches that are consistent with those of Canada's major trading partners in order to foster harmonization of standards among jurisdictions;

(c) ensure that marine transportation services are organized to satisfy the needs of users and are available at a reasonable cost to the users;

(d) provide for a high level of safety and environmental protection;

(e) provide a high degree of autonomy for local or regional management of components of the system of services and facilities and be responsive to local needs and priorities;

(f) manage the marine infrastructure and services in a commercial manner that encourages, and takes into account, input from users and the community in which a port or harbour is located;

(g) provide for the disposition, by transfer or otherwise, of certain ports and port facilities; and

(h) promote coordination and integration of marine activities with surface and air transportation systems.

The *Canada Marine Act* can be found at the following web address: <http://laws-lois.justice.gc.ca/eng/acts/c-6.7/page-2.html#docCont>

## Port Authorities Operations Regulations

Under the Canada Marine Act

The *Canada Marine Act* gives Canadian port authorities the general duty to take appropriate measures for the maintenance of order and the safety of persons and property at their ports, and powers to control ship traffic for the purposes of promoting safe and efficient navigation and environmental protection. The *Port Authorities Operations Regulations* (the Regulations) provide a framework within



which these duties and powers are to be carried out. In particular, they set up a scheme that enables the port authorities to authorize certain activities in respect of the navigable waters and the works and activities on properties managed, held, or occupied by the port.

The *Port Authorities Operations Regulations* can be obtained at the following web address: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2000-55/>

### **Practices and Procedures for Public Ports**

Under the Canada Marine Act

These practices and procedures have been developed for the purpose of promoting safe and efficient navigation and environmental protection within the limits of public ports and may be amended from time to time. If circumstance dictate (emergency), an amendment may be made to these practices and procedures without notice. Under normal conditions, advance notice will be given as far in advance as possible but will not be less than 30 days.

The Practices and Procedures for Public Ports can be found on the Transport Canada website: <http://www.tc.gc.ca/eng/programs/ports-practproc-195.htm>

### **Public Ports and Public Ports Facilities Regulations**

Under the Canada Marine Act

The *Public Ports and Public Ports Facilities Regulations* can be obtained at the following web address:

<http://laws-lois.justice.gc.ca/eng/regulations/sor-2001-154/>

When receiving a shipment of Ammonium Nitrate based fertilizers, they must be handled in accordance with the following regulations:

### **Cargo, Fumigation and Tackle Regulations**

Loading and Unloading of Bulk Ammonium Nitrate or Ammonium Nitrate Based Fertilizer

**114.** (1) No person shall load or unload

(a) ammonium nitrate; or

(b) more than 10 000 tonnes of ammonium nitrate based fertilizer.

(2) At least 24 hours before 150 tonnes or more of ammonium nitrate based fertilizer are to be loaded onto or unloaded from a vessel, its master shall

notify the following of the intention to load or unload and the location where it will take place:

(a) the Department of Transport Marine Safety Office nearest to that location; and

(b) the harbour master at the port or, if there is no harbour master, the person responsible for the port.

(3) The notification shall confirm that the fertilizer is considered to be free from the hazard of self-sustaining decomposition when tested in accordance with section 4 of Appendix 2 to the BC Code.

(4) The harbour master at the port or, if there is no harbour master, the person responsible for the port at the location where loading or unloading ammonium nitrate based fertilizer will take place shall ensure that information in respect of fire prevention, emergency procedures, storage, cleanliness and separation from contaminants and other dangerous goods is available at the location.

The *Cargo, Fumigation and Tackle Regulations* can be obtained at the following web address: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2007-128/page-6.html#h-22>

### **Transportation of Dangerous Goods Regulations, Part 11:**

11.4 Notification of the Loading or Unloading of Explosives or Ammonium Nitrate  
<http://www.tc.gc.ca/eng/tdg/clear-part11-120.htm#sec114>

### **Transportation of Dangerous Goods Regulations, Part 3:**

3.11 Keeping Shipping Document Information  
<http://www.tc.gc.ca/eng/tdg/clear-part3-317.htm>

## **A1.2 SAFETY AND SECURITY OF AMMONIUM NITRATE CARGO ARRIVING BY RAIL/ROADS**

### **SPECIFIC REQUIREMENTS**

The security of inbound shipments of ammonium nitrate is critical due to the typical size of the shipment and the potential security risks through the receiving process. In order to minimize these risks, the applicable sections of the following acts and regulations must be reviewed to ensure compliance:

#### **Transportation of Dangerous Goods Act & Regulations:**

The *Transportation of Dangerous Goods Act and Regulations* is administered by Transport Canada and applies to all shipments of dangerous goods within Canada. The major sections of the regulations are:

- Part 1 – General Provisions
- Part 2 – Classification
- Part 3 - Documentation
- Part 4 - Dangerous Goods Safety Marks
- Part 5 – Means of Containment
- Part 6 – Training
- Part 7 – Emergency Response Assistance Plan
- Part 8 – Accidental Release and Imminent Accidental Release Reporting Requirements
- Part 9 – Road Transportation
- Part 10 – Rail Transportation
- Part 11 – Marine Transportation
- Part 12 - Air Transportation
- Part 13 – Protective Directive
- Part 14 – Permit for Equivalent Level of Safety
- Part 15 – Court Order
- Part 16 – Inspectors

The *Transportation of Dangerous Goods Act and Regulations* can be obtained at the following link: <http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm>

#### **U.S. Department of Transport**

The following links will provide additional insight in to the US regulatory requirements:

How to Comply with Federal Hazardous Materials Regulations:  
<http://www.fmcsa.dot.gov/safety-security/hazmat/complyhmregs.htm>

Federal Motor Carrier Safety Administration – Registration and Licencing requirements for US shippers  
<http://www.fmcsa.dot.gov/registration-licensing/registration-licensing.htm>

The receiver must keep records of shipments as per Part 3 of the TDG Regulation:

**Retaining records as per the Transportation of Dangerous Goods - Part 3**

3.11 Keeping Shipping Document Information

<http://www.tc.gc.ca/eng/tdg/clear-part3-317.htm>

## A2 PROVIDING TRANSPORT FROM SOURCE VIA RAIL/TRUCK

Security around individuals or company responsible for providing transportation

### SPECIFIC REQUIREMENTS

In order to minimize security risks, companies responsible for transporting ammonium nitrate must be properly scrutinized from a security perspective. The following requirements are the basic elements that must be assessed to validate a transportation company:

**Bonding or Pre-approval** – the transportation firm has either been bonded or has been pre-approved by the Canada Border Service Agency. A record must be available from the company responsible for the shipment indicating that the transportation firm has been bonded or pre-approved. The pre-approval process must include a review of past references, licensing and certifications.

<http://www.cbsa-asfc.gc.ca/services/carrier-transporteur/hc-tr-eng.html>

**Proof of Insurance Coverage** – the company responsible for the shipment must have written proof of valid insurance coverage for all transportation firms used for transporting ammonium nitrate within the last two years.

**Training** – The company responsible for the shipment must have written confirmation from all transportation firms used for transporting ammonium nitrate within the last two years indicating that employees have been provided the applicable training required for compliance to the *Transportation of Dangerous Goods Regulations*, the *Marine Transportation Security Act* and the *International Maritime Dangerous Goods Code*.

**Security/ERP Plan** – The company responsible for the shipment must have written confirmation from all transportation firms used for transporting ammonium nitrate within the last two years indicating that the transportation firm has developed an emergency response plan, including security related issues.

It is a mandatory requirement that records of ammonium shipments be kept for a period of two (2) years from the date of shipment as per Part 3 of the TDG reg:

### 3.11 Keeping Shipping Document Information

<http://www.tc.gc.ca/eng/tdg/clear-part3-317.htm>

## A3 ACCESS TO PRODUCT DURING SHIPMENT

### SPECIFIC REQUIRMENTS:

**Security of Ammonium Nitrate in Transit** – All truck shipments of ammonium nitrate cannot be left unattended by the driver at any time unless the load is parked in a secured area or the unit/load is properly locked down (i.e. padlocks, fifth wheel locks, etc.). A secured area refers to an area surrounded by 2 meter high chain link fence with the three strand barb wire at the top. The area must also have lockable gates that are secured when the site is unattended. If storage is not possible in this type of secured area, the access hatches and gates to the load must be secured and locked. It is a recommended best practice that shipments of ammonium nitrate be non-stop to avoid increased security risks.

**Securing of Hatches on Trucks and Railcars** – All access hatches and gates on trucks and railcars transporting ammonium nitrate must be secured and sealed. The recommended best practice for seals is the cable type seal.

**Inspection of Seals** – Seals installed on the access hatches and gates are to be inspected and validated after each stop and upon arrival at destination. The inspection at destination must be documented and attached to the bill of lading for the shipment. It is a recommended best practice to have a check off sheet for the transport operator in order that they can document an inspection of seals at each stop.

## A4 LOSS OF TAMPERING OF PRODUCT DURING SHIPMENT

### SPECIFIC REQUIREMENTS:

The receiving facility has a written procedure that describes the inspection process for shipments of ammonium nitrate. The procedure must contain the following elements:

**Verification of Quantities** – if possible, it is highly recommended that the actual weight of ammonium nitrate be determined against shipped quantities to determine if there are any shortages. If determining an actual weight is not possible, a visual inspection will suffice to look for empty or short compartments in the load. All shortages must be documented if in excess of historical norms and reported to the seller.

**Tampering of Seals** – Upon arrival at destination, all tampering of seals noticed during shipment or upon arrival must be documented and reported to the seller.

**Note:** The nature of the manufacturing and handling process for ammonium nitrate predicates that there will be a minor loss of product mass through the supply chain due to moisture loss, mechanical abrasion, settling and residues. Some industry members have reported the typical expected loss will range from 0.5% – 1.0% of the total weight of product.

These requirements are outlined in the *Explosives Regulation Part 20 (Restricted Components Regulations)* Section 485 –

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-140.html#docCont>

*Explosives Regulation – Part 20 (Restricted Components Regulations):*

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-134.html#docCont> (Current to February 6, 2014)

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

## A5 PRODUCT SPILLS DURING TRANSPORT AND UNLOADING

### SPECIFIC REQUIREMENTS:

The receiving facility has a written procedure that describes the proper process for containing and cleaning up spills of ammonium nitrate. The procedure must contain:

**Containment** – the procedure must contain instructions on how to effectively contain a spill to limit contamination of the spilled product and segregate it from nearby water sources. One method to achieve this is to erect a simple wood barricade around the spill until it is cleaned up.

**Clean-up** – the procedure must contain instructions to employees involved in the clean-up of the proper personal protective equipment to wear during the clean-up and the proper equipment to use for the safely and effectively cleaning up the spill. The procedure must also designate an area where any contaminated product can be segregated and stored until it is disposed of.

**Disposal** – the procedure must describe the proper method of disposal of contaminated ammonium nitrate. The preferred method is to use the contaminated product as a fertilizer in land farming operation. However, if the contaminant in the ammonium nitrate makes this not agronomically possible, the product will have to be disposed of in accordance with the regulatory requirements.

**Reporting** - Provincial Environmental Regulations typically require that ammonium nitrate spills that produce more than 50 kg's of contaminated product must be reported to regulatory authorities. It is recommended that specific regulations be consulted to determine individual provincial requirements.

Transportation of Dangerous Goods Part 8 requires immediate reporting to provincial authorities and outlines the information required to report:

<http://www.tc.gc.ca/eng/tdg/clear-part8-379.htm>

### **Environmental Emergency Plan (E2 Plan)**

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-307/index.html>

The Implementation Guide to preparing an E2 Plan can be found at the following web address: <http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1FB6D405-1>

A preparation checklist can also be found in Appendix 8 of the implementation guide: <http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1FB6D405-1&offset=17&toc=show>



## A6 DELIVERY OF AMMONIUM NITRATE

### SPECIFIC REQUIREMENTS

**Authorization for Unloading a Shipment** – Verbal or written authorization must be provided to the operator of the transport vehicle/vessel prior to a load of ammonium nitrate being unloaded at destination. This is a sound inventory management practice as well as a good security risk management practice. Authorization must include confirmation of the location of the delivery, the shipper and the exact storage area where the ammonium nitrate is to be deposited at the storage facility. It is a recommended best practice to always have a representative of the receiving organization at the storage site to ensure the ammonium nitrate is placed in the proper location.

**Documentation Review Prior to Unload** – All documentation related to a shipment of ammonium nitrate must be reviewed prior to authorizing unload by a representative from the receiving company. The receiver must review and verify that the name of the shipper, the quantity of ammonium nitrate, the name of the receiving company and the date of shipment are all accurate and listed on the shipping documentation prior to authorizing unload.

**Verification of Arrival of Shipment at Destination** – The shipping company must have a process in place to verify that a shipment of ammonium nitrate has arrived at destination within the estimated arrival time. For longer delivery routes (4 hours or greater), it is recommended that check in times be established between the dispatch for the shipping organization and the transport vehicle/vessel.

## **SECTION B STORAGE OF AMMONIUM NITRATE**

Safe and secure storage of ammonia nitrate is critical due to the volume stored and the numerous safety and security risks that may be presented. The following guide provides additional explanation and resources to assist in compliance to the Code of Practice.

### **B1 PRODUCT STORAGE**

Facilities storing more than 20 tonnes of ammonium nitrate must prepare an Environmental Emergency Plan as required by *CEPA 1999* section 200. Resources for preparing this plan can be found:

#### **Environmental Emergency Plan (E2 Plan)**

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-307/index.html>

The Implementation Guide to preparing an E2 Plan can be found at the following web address: <http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1FB6D405-1>

An E2 Plan preparation checklist can also be found in Appendix 8 of the implementation guide:

<http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1FB6D405-1&offset=17&toc=show>

### **B1.1 STORAGE SECURITY**

#### **SPECIFIC REQUIREMENTS:**

When reviewing the security risks at a storage facility, it is always best to start with an assessment of the security risks at the facility. Once these risks are assessed, it is recommended that a facility develop a multilevel security response plan for the facility. This multilevel plan will feature several “layers” of security that must be breached in order to gain access to the ammonia nitrate storage area. An example of a multilevel plan would be the installation of security lighting that is motion activated as the first level and locks on all doors/bin gates as a second level. Best practices in security have always shown a multilevel approach to be very effective in deterring theft. Remember, that the key issue is to put enough security measures in place that provide notification of potential theft (ie. lighting, alarms, etc.) or barriers to entry (ie. fences, locks, etc) that increases the risk of detection for criminals.

Given enough time and resources, criminals can gain access to most buildings. However, thefts of ammonium nitrate usually occur very opportunistically in short periods of time to avoid detection. Putting measures in place that increase the effort required to take ammonium nitrate will usually deter most criminals.

As a minimum, the following security measures must be employed at all manufacturer and/or distributor locations:

**Securing of Bin Gates** - All bin gates providing access to storage bins containing ammonium nitrate must be locked and secured. It is recommended that the locking device be designed to be resistant to bolt cutters.

**Perimeter Security** – It is a recommended best practice to provide perimeter security. This may include fencing with lockable gates or other means of perimeter security around bins and/or buildings storing ammonium nitrate. The recommended standard for perimeter security is a 2 meter chain link fence complete with lockable gates and 3 stand barb wire barricade at the top of the fence.

**Access Points on Buildings** - All doors, windows and other points of access to buildings storing bagged or bulk ammonium nitrate are secured with a high quality lock. It is recommended that the locking device be designed to be resistant to bolt cutters.

**Key Control System** – A key control system for all locks is employed at the facility. The key control system must have the following features:

- All duplication of keys that provide access to the ammonium nitrate storage areas is done under the strict consent of the facility manager.
- All duplication of keys is to be done by a certified, licensed locksmith who has received permission from the facility manager.
- All keys must be marked as “Do Not Duplicate” and have been stamped with an identification number.
- Assignment of keys is documented and includes, the date of assignment, the ID number of key being assigned, the name of person to whom the key is assigned, the signature of the manager and the signature of the person receiving the key.
- The facility must also have a process in place to retrieve an assigned key once the person leaves the employ of the facility.

**Security Lighting** - After hours security lighting must be provided to illuminate main points of access to storage buildings or bins. The security lighting must be active dusk to dawn and can be motion activated.

**Signage** - the ammonium nitrate storage facility is equipped with signage indicating no unauthorized access as per the *Explosives Regulations Part 20 (Restricted Components Regulations)* section 483. The signage must be placed in close proximity to the ammonium nitrate storage area to prevent unauthorized access by customers

**Inspection of Security Measures** – Inspections should be conducted weekly to ensure the product is stored securely. Records (checklist) should be kept on file for auditor inspection. See Appendices for sample checklists.

Security Plans are mandated by the *Explosives Regulations Part 20 (Restricted Components Regulations)* section 460 (2):

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-135.html#docCont>

and 461 (2): <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-136.html#docCont>

Declaration of the Security plans must also be included in the application of inclusion on the product sellers list or component sellers list, provided to the Chief Inspector of Explosives. The application form is provided by the Department of Natural Resources Canada:

<http://www.nrcan.gc.ca/explosives/restricted-components/9983>

*Explosives Regulations Part 20 (Restricted Components Regulations)* section 483:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-139.html#docCont>

*Explosives Regulation – Part 20 (Restricted Components Regulations):*

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-134.html#docCont> (Current to February 6, 2014)

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

## **B1.2 STORAGE SAFETY**

Specific requirements:

The storage of ammonium nitrate requires the utmost care and must comply with the storage requirements set out in the *Ammonium Nitrate Storage Facilities Regulations*: [http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\\_c.\\_1145/](http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1145/) as well as the *Explosives Regulations Part 20 (Restricted Components Regulations)*: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-134.html#docCont> (Current to February 6, 2014) and the National and Provincial Fire and Building Codes.

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

### **B1.2.1 PHYSICAL STORAGE FACILITY REQUIREMENTS**

#### **Facility and Storage Design**

For additional information regarding the design and construction of the storage facility and storage bins, please refer to sections 15-18 inclusive of the *Ammonium Nitrate Storage Facilities Regulation*. The prescribed distances of the facility location from other structures/buildings can be found in section 12.

Proper ventilation can be defined in the National Building Code, section 3.3.6.6.

#### **Signage**

Section 22 of the *Ammonium Nitrate Storage Facility Regulations* clarifies the signage requirements. *The Ammonium Nitrate Storage Facilities Regulation* requires a sign with the words “Ammonium Nitrate” and “No Smoking or Open Flames” located at the entrance way of the storage facility. The intent of the signage is to identify the presence of Ammonium Nitrate to first responders in the event of an incident. The signage is intended to identify the storage area only and should not be placed in customer-only areas that do not provide access to the storage area. For questions or concerns relating to this requirement, please direct them to the Canadian Transport Commission.

### **B1.2.2 STORAGE AND HOUSEKEEPING REQUIREMENTS**

Proper clearances of stored ammonium nitrate from bin walls, facility ceiling, incompatible products etc. are referred to in section 25.

#### **Internal Combustion Vehicles**

Restrictions on the use and storage of internal combustion engine vehicles are defined in section 23.

### **Ambient Storage Temperature**

The National Fire Code requires that AN not be stored in ambient temperatures exceeding 52°C (125°F). Please also refer to the applicable provincial fire code for specific provincial requirements.

### **Fire Suppression**

A fire suppression system must be available in all storage facilities and must conform to Part 2 of the National Fire Code. The fire suppression system must adhere to good engineering practice and will be specific to the individual storage facility design and quantity stored. Only water should be used to suppress fires involving AN.

Additional guidance can be found in section 24 of the *AN Storage Facilities Regulations*.

### **Housekeeping**

Housekeeping requirements are defined in section 28.

### **Weekly Inspections**

Weekly inspections of the storage facility should be conducted to ensure that all safe storage requirements are complied with. A sample checklist can be found in the Appendices to facilitate the record keeping for these inspections. Any non-conformances found during the weekly inspection should be corrected immediately or as soon as practically possible and should be recorded and available for inspection. Inspection sheets should be available for verification at the time of audit.

Bear in mind that the safe storage of Ammonium Nitrate ensures the safety of employees, customers and surrounding communities.

## **B2 EMERGENCY RESPONSE AND SECURITY PLAN**

### **SPECIFIC REQUIREMENTS:**

An emergency response plan (ERP) and Safety and Security Plan, are very effective tools for planning for a response to emergency situations relating to both the safety and security of the stored product. In order to ensure that major risk events are planned for, including security related incidents; the following requirements must be key features of the emergency response plan:

**Written ERP** – Every facility that stores ammonium nitrate must have a written Emergency Response Plan. This plan must address all of the major risk events at the facility including security related incidents. As a minimum requirement, the plan must identify the process to be followed in the event of security breach at the facility. This would include contact numbers for security issues, contact numbers for local law enforcement and reporting procedures.

**Updating of ERP** - The ERP has been reviewed and updated within the previous 12 months. Issues to be reviewed may include:

- Updating of Names on the contact list
- Updating of Contact Numbers on the emergency contact list.
- Updating of changes at the storage facility.
- Communication of updated plan to local law enforcement and emergency responders. Documentation of such communication should be kept on file for auditor inspection

**Notification of Storage of Ammonium Nitrate** - A letter should be sent to local law enforcement informing them of the presence of ammonium nitrate at the storage facility. It is a strongly recommended best practice to invite local law enforcement officials to the storage site in order to review the storage location of the ammonium nitrate and gain their input to security measures being employed at the facility.

Documentation of such communication with local authorities should be kept on file and presented at the time of auditing.

*Explosives Regulation – Part 20 (Restricted Components Regulations):*

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-137.html#docCont> (Current to January 14, 2014)

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

Section 460 (2) and 461 (2) outline the requirements of the Security Plan:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-135.html>  
<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-136.html#docCont>

Bulletin #53 issued by Natural Resources provides Guidance on preparing this plan as per the Restricted Components Regulation. Although the Regulation has been superseded by the Explosives Regulation Part 20, the bulletin provides good guidance.

<http://www.nrcan.gc.ca/explosives/publications/directives/9965?destination=node/3112>



## **B3 ACCESS BY ON-SITE PERSONNEL**

### **SPECIFIC REQUIREMENTS:**

One element of a well planned and executed security plan is a process to ensure that all employees and contractors at the storage facility have been screened to prevent possible security risks. It is critical that this screening process not infringe on an individual's personal rights and freedoms. Therefore, it is good practice to ensure authorization is received from an individual prior to any review of their past references.

The screening process must include:

#### **Past Work References for Existing Employees:**

All employees working at the ammonium nitrate storage facility provide valid past work references. This is not required if the employee has been working at the facility for a period greater than five years.

#### **Past Work References on New Hires:**

As a condition of employment, a potential new hire must disclose any previous criminal charges and provide valid past work references. As a matter of due diligence, it is critical that all past work references be contacted to verify the work history of the new hire and any potential security related risks.

#### **Past Work References for Contractors:**

All contractors must provide documentation indicating past work history. This is not required if the contractor has established work history with the facility for a period equal to or greater than five years.

#### **Written Authorization for Contractors:**

All contractors at the ammonium nitrate storage facility have written authorization from the manager of the facility including the date of authorization, the names of the contractors and a description of the work to be performed.

**CAUTION:** refusal to hire a person based on a disclosure of pardoned or provincial offences may constitute illegal discrimination. Employers are cautioned to ensure that their hiring practices comply with their obligations under human rights and employment law in their region.

## **B4 LOSS OF PRODUCT DURING STORAGE**

### **SPECIFIC REQUIREMENTS:**

It is good inventory management practice, as well as good security risk management, to regularly reconcile inventories of ammonium nitrate. This will quickly identify any loss of product above historical norms in order that the potential cause(s) can be investigated. In addition, it is good practice to make regular visual inspections at the facility to identify potential issues of tampering.

The facility must have a written policy and procedure that contains the following elements:

#### **Inventory Audit Reconciliation**

The facility must have a written process describing the annual inventory audit reconciliation for all ammonium nitrate bagged and bulk storage facilities. For bulk storage, the recommended best practice is a weighed audit executed at periods of low inventory levels. Where this is not possible, an estimate of inventory levels will suffice.

#### **Reconciliation and Reporting**

There must be a reporting process for any shortages in excess of historical norms. The reporting process must indicate the amount of the shortage and an investigation into the potential cause.

#### **Weekly Inspection**

A documented, weekly inspection must be conducted for all ammonium nitrate storage areas to identify any tampering or loss of product. If any tampering and/or product loss is noted, it must be reported immediately to company officials. Tampering or product loss must also be immediately reported to the local police and within 24 hours to the Chief Inspector as per section 488 of the *Explosives Regulations Part 20 (Restricted Components Regulations)*. <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-141.html>

*Explosives Regulation – Part 20 (Restricted Components Regulations)*:  
<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-134.html#docCont> (Current to February 6, 2014)

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

## SECTION C OUTBOUND SHIPMENTS/PRODUCT SALES

This section provides more detailed description of compliance requirements for Section C of the Code. This section of the guide will also apply to Inbound Shipments to Retail.

### C1 SECURITY AROUND INDIVIDUALS OR COMPANY RESPONSIBLE FOR PROVIDING TRANSPORTATION

#### C 1.1 TRANSPORTATION COMPANY SECURITY

##### SPECIFIC REQUIREMENTS

In order to minimize security risks, companies responsible for transporting ammonium nitrate must be properly scrutinized from a security perspective. The following requirements are the basic elements that must be assessed to validate a transportation company:

**Bonding or Pre-approval** – the transportation firm has either been bonded or has been pre-approved by the Canada Border Service Agency. A record must be available from the manufacturer or distributor indicating that the transportation firm has been bonded or pre-approved. The pre-approval process must include a review of past references, licensing and certifications. <http://www.cbsa-asfc.gc.ca/services/carrier-transporteur/hc-tr-eng.html>

**Proof of Insurance Coverage** – the seller must have written proof of valid insurance coverage for all transportation firms used for transporting ammonium nitrate within the last two years.

**Training** – The seller must have written confirmation from all transportation firms used for transporting ammonium nitrate within the last two years indicating that employees have been provided the applicable training required for compliance to the Transportation of Dangerous Goods Regulations.

**Photo Identification** – All transport operators will have valid photo identification.

**Security/Emergency Response Plan** – The seller must have written confirmation from all transportation firms used for transporting ammonium nitrate within the last two years indicating that the transportation firm has developed an emergency response plan, including security related issues.

##### Record Keeping

It is a mandatory requirement that records of ammonium shipments be kept for a period of two (2) years from the date of shipment.

### **C 1.2 DELIVERY RECEIPT ACKNOWLEDGEMENT**

The seller must obtain written acknowledgement from the buyer that the shipment has been delivered as per the agreed upon terms. Documentation of delivery receipt should be kept on file along with sales records and available for verification during the audit. A dated and signed delivery invoice could be sufficient as a documented delivery receipt.

## C2 ACCESS TO PRODUCT DURING SHIPMENT

### SPECIFIC REQUIREMENTS:

**Security of Ammonium Nitrate in Transit** – All truck shipments of ammonium nitrate cannot be left unattended by the driver at any time unless the load is parked in a secured area or the unit/load is properly locked down (i.e. padlocks, fifth wheel locks, etc). A secured area refers to an area surrounded by 2 meter high chain link fence with the three strand barb wire at the top. The area must also have lockable gates that are secured when the site is unattended. If storage is not possible in this type of secured area, the access hatches and gates to the load must be secured and locked. It is a recommended best practice that shipments of ammonium nitrate be non-stop to avoid increased security risks.

**Securing of Hatches on Trucks, Railcars** or other transport equipment– All access hatches and gates on trucks and railcars transporting ammonium nitrate must be secured and sealed. The recommended best practice for seals is the cable type seal.

**Inspection of Seals** – Seals installed on the access hatches and gates are to be inspected and validated after each stop and upon arrival at destination. The inspection at destination must be documented and attached to the bill of lading for the shipment. It is a recommended best practice to have a check off sheet for the transport operator in order that they can document an inspection of seals at each stop.

### Reporting

Any evidence of tampering or product loss must be reported immediately to the local police and to the Chief Inspector within 24 hours of the discovery. This is a requirement of section 488 of the *Explosives Regulation (Part 20) (Restricted Components Regulations)*: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-141.html>

*Explosives Regulation – Part 20 (Restricted Components Regulations)*:  
<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-134.html#docCont> (Current to February 6, 2014)

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

## C3 PRODUCT SPILLS DURING TRANSPORT AND LOADING

### SPECIFIC REQUIREMENTS:

The selling facility has a written procedure that describes the proper process for containing and cleaning up spills of ammonium nitrate. The procedure must contain:

**Containment** – the procedure must contain instructions on how to effectively contain a spill to limit contamination of the spilled product and segregate it from nearby water sources. One method to achieve this is to erect a simple wood barricade around the spill until it is cleaned up.

**Clean-up** – the procedure must contain instructions to employees involved in the clean-up of the proper personal protective equipment to wear during the clean-up and the proper equipment to use for the safe and effective cleaning up the spill. The procedure must also designate an area where any contaminated product can be segregated and stored until it is disposed of.

**Disposal** – the procedure must describe the proper method of disposal of contaminated ammonium nitrate. The preferred method is to use the contaminated product as a fertilizer in land farming operation. However, if the contaminant in the ammonium nitrate makes this not agronomically possible, the product will have to be disposed of in accordance with the regulatory requirements.

**Reporting** - Provincial Environmental Regulations typically require that ammonium nitrate spills that produce more than 50 kg's of contaminated product must be reported to regulatory authorities. It is recommended that specific regulations be consulted to determine individual provincial requirements.

*Transportation of Dangerous Goods Regulations* Part 8 requires immediate reporting to provincial authorities and outlines the information required to report:  
<http://www.tc.gc.ca/eng/tdg/clear-part8-379.htm>

### **Environmental Emergency Plan (E2 Plan)**

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-307/index.html>

The Implementation Guide to preparing an E2 Plan can be found at the following web address: <http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1FB6D405-1>

A preparation checklist can also be found in Appendix 8 of the implementation guide:

<http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1FB6D405-1&offset=17&toc=show>

## C4 VALIDATION OF CUSTOMERS

### SPECIFIC REQUIREMENTS:

For larger customers, direct to end use shipments have become an increasingly frequent occurrence. These shipments are higher risk from a security perspective since they are often coordinated by retailers and the manufacturer/distributor has limited knowledge of the customer from a security perspective. In order to ensure ammonium nitrate is being sold to end users with a legitimate agronomic need, the facility must have a policy that contains the following elements for validating an end use customer prior to sale:

**Coordination/Authorization from Retail** – The responsibility for coordinating the sale and delivery of the shipment resides with the retail facility operator. They have a greater knowledge of the local customers and can more easily validate the customer. Prior to issuing an authorization for shipment to the manufacturer/distributor, the retailer must:

- Validated the customer through the provision of proper identification such as:
  - Pesticide License
  - Canadian Wheat Board Number
  - Valid credit application with Company
  - Valid picture identification
- Validate that the size of the order of ammonium nitrate is in accordance with the size of the end user's needs.
- Ensure that customer is a farmer and is known in the community.
- Report any suspicious purchase attempts to the local police detachment.

**Authorization for Delivery** – Once the customer has been validated by the retail facility operator, a written authorization must be provided to the seller for the shipment that provides:

- The name of end user
- The quantity of the shipment
- The defined location for the delivery
- The date of the order
- Contact number for the retail location and the end user.



Valid identification is listed in the *Explosives Regulation – Part 20 (Restricted Components Regulations)* Section 490:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-141.html>

## C5 TRACEABILITY OF SALES

### SPECIFIC REQUIREMENTS:

Tracking of past sales of ammonium nitrate is important in order to provide an audit trail for investigations into criminal misuse of the product. At a minimum, the following information must be contained on each sales receipt:

- Customer's Name
- Address or Legal Land Description
- Customer's phone number
- Identification – type and number of document verified
- Carrier Details – Operator info
- Dates and location of delivery
- Quantity of Ammonium Nitrate – format of delivery (Bagged or Bulk Product)
- Description of use
- If delivery is made at time of purchase, a receipt signed by purchaser containing the information contained in the above.

All sales records for ammonium nitrate must be kept for period of two years. The records can be kept in a paper or electronic form.

NOTE: All information collected respecting the sale of ammonium nitrate must be kept under lock and key or password protection in the case of electronic records and may be accessed only by persons who require such access in the course of their employment. The collection, use and protection of the information above must also comply with the obligations under the Personal Information Protection and Electronic Documents Act (PIPEDA).

PIPEDA legal information

[http://www.priv.gc.ca/leg\\_c/leg\\_c\\_p\\_e.asp](http://www.priv.gc.ca/leg_c/leg_c_p_e.asp)

Substantially Similar Provincial Legislation

[http://www.priv.gc.ca/leg\\_c/legislation/ss\\_index\\_e.asp](http://www.priv.gc.ca/leg_c/legislation/ss_index_e.asp)

## **C6 CRITERIA SPECIFIC TO END-USERS**

### **SPECIFIC REQUIREMENTS:**

It is imperative that all end-users (i.e. farmers) have the right information to ensure the safe and secure use and storage of ammonium nitrate. All storage and handling must follow the same regulations as those identified in the ammonium nitrate code of practice.

Please see the Appendices for sample hand-out materials.

## SECTION D REGULATORY REPORTING

### D1 ANNUAL INVENTORY REPORTING

The *Explosives Regulation Part 20 (Restricted Components Regulations)* requires an annual inventory report due March 31 for the previous calendar year (section 487). A copy of this report should be available for verification during the audit.

Section 487 – <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-140.html#docCont>

*Explosives Regulation – Part 20 (Restricted Components Regulations)*:  
<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-211/page-134.html#docCont> (Current to February 6, 2014)

Full pdf version - <http://laws-lois.justice.gc.ca/PDF/SOR-2013-211.pdf>

## **SECTION E TRAINING**

### **E1 GrowZone**

The Fertilizer Safety and Security Council developed an online course to help employers train their employees on the safe and secure storage and handling of ammonium nitrate. The course can be found on the GrowZone website:

<https://growzone.cfi.ca>. This course should be completed annually.

### **E2 TRANSPORTATION OF DANGEROUS GOODS TRAINING**

It is mandatory for all employees handling dangerous goods be transportation of dangerous goods trained. Certification must be renewed every 3 years.

### **E3 WHMIS/MSDS TRAINING**

Federal and provincial labour codes require WHMIS/MSDS training for all employees handling controlled products. Please verify with local government on the specific requirements.

## **SUSPICIOUS INCIDENT REPORTING (SIR) SYSTEM**

As part of its national security mandate, the RCMP is working with Canadian critical infrastructure (CI) owners and operators to prevent, detect, investigate and deter criminal threats to CI. The RCMP has launched the Suspicious Incident Reporting (SIR) system which is designed to collect information on suspicious incidents that may be related to criminality associated to critical infrastructure. SIR allows the private sector stakeholder to report suspicious incidents online by submitting a SIR report from their own work terminal. Suspicious incidents within SIR includes behavior and activities which, when viewed in context of the totality of available circumstances/intelligence, may have a possible nexus to national security. As such, these incidents may be indicators of terrorist pre-incident planning or other serious criminal activity.

What makes the SIR program unique? The RCMP recognizes the sharing of criminal intelligence with sector owners and operators is a must. If there is a threat to critical infrastructure, it is imperative that sector stakeholders be briefed accordingly so they can implement appropriate contingency and business continuity plans. Providing intelligence up front or well in advance provides the private sector the opportunity to develop contingency and emergency response plans in accordance with the appropriate threat intelligence. The SIR system is among the first RCMP applications designed to engage non-law enforcement users and access may be given to a secure RCMP critical infrastructure library.

The SIR system is more than a reporting system—it is a mechanism that allows the RCMP to develop operational contacts within the private sector enhancing the resiliency of Canada's CI, support criminal investigations, and maintain continuous dialogue with internal and external stakeholders.

SIR does not replace calls for criminal activity or emergencies to local Police of jurisdiction. Neither does SIR replace the mandatory reporting to the Chief of Explosives in the cases of loss, tampering or suspicious attempts to acquire AN.

The Program Hotline: 1800-387-0020