

EXECUTIVE SUMMARY

The significant escalation of terrorist activities has resulted in the need for all nations to significantly enhance security measures in order to minimize the terrorist threat. This has resulted in fundamental changes in many industries. The fertilizer industry has long known the explosive potential of ammonium nitrate. The industry has also recognized its significant agronomic benefits and industrial applications of this product. Access to this product is still deemed to be critical. At the same time, the industry recognizes that the security of the ammonium nitrate is paramount to prevent criminal misuse of the product.

A meeting was held in Toronto in August of 2004 with representatives from the industry and Natural Resources Canada – Explosives Regulatory Division in order to review the security risks associated with ammonium nitrate. Officials from NRC – Explosives Regulatory Division stated their objectives of the process in the following statement:

“The Explosives Regulatory Division of Natural Resources Canada has been mandated, through the Public Safety Act C-7, to impose controls on the distribution and sale of Ammonium Nitrate to protect against diversion for criminal / terrorist purposes. To this end, the Division supports the development of a code of practice, (including the implementation strategy to achieve & monitor compliance) whereby the means to secure the Ammonium Nitrate supply chain, within Canada, are outlined.”

As a result of this direction, a Working Group of industry representatives was established with the mandate to determine the security risks to the ammonium nitrate industry and recommend measures to mitigate those risks. Through the Working Groups efforts, it was determined that access to ammonium nitrate for agricultural and industrial purposes must be maintained. At the same time, it was recognized that improvements must be made to address security risks associated with the supply chains for both high density and low density ammonium nitrate or risk losing access to the product. Core to the identified improvements is a Code of Practice that has been developed for all elements of the ammonium nitrate supply chain. Effective implementation of this Code will dramatically improve the level and consistency of supply chain security management.

Pending acceptance of the Code of Practice by members of the CFI Board of Directors, approval is sought for implementation of the following recommendations:

1. Develop regular communication process based upon “On Guard for Canada” model to convey identified risks and mitigation practices to industry stakeholders.

2. Establish a communication network for ammonium nitrate by collecting information on the locations currently storing ammonium nitrate. Evaluate the integration of "threat levels" into communication network.
3. Restrict the sale of Low Density ammonium nitrate to the explosives market.
4. Restrict the sale of High Density ammonium nitrate to agricultural and commercial horticultural use only.

In order to develop implementation strategy for the Code of Practice:

1. Determine industry support and obtain feedback from industry associations (CFI, CAAR, QFMA, AFI & OABA), companies and other stakeholders through a consultation process.
2. Conduct a cost impact assessment in order to project cost of implementation.
3. Conduct a representative base line audit of manufacturing, distribution and retail operations in order to project the current level of compliance to the Code of Practice.
4. Present findings and recommendations for implementation to CFI Board of Directors in August, 2005.

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1.0 INTRODUCTION

The following report was commissioned at the request of the Canadian Fertilizer Institute Board of Directors. The report contains the findings and recommendations of the Ammonium Nitrate Working Group. This group was assigned the task of assessing the security risks to the ammonium nitrate supply chain in Canada. The members of the working group are:

- Gord Charlebois (Chair) – Westco Fertilizers
- Dave Clifford – Simplot Canada Ltd.
- Viviane Dewyse – Natural Resources Canada
- David Finlayson – Canadian Fertilizer Institute
- Lewis Greig – Orica USA
- Walter Rozum – YARA
- Germain Pelletier - (QFMA)
- Ron Lowen – Lakeside Fertilizers (CAAR)
- Robert McNaughton – Sylvite Agri-Services (OABA)
- Chris Watson – Natural Resources Canada
- Steve Horvat - Agrium
- Percy Crossman – Consultant

1.1. BACKGROUND

The significant escalation of terrorist activities has resulted in the need for all nations to significantly enhance security measures in order to minimize the terrorist threat. This has resulted in fundamental changes in many industries. The industry has long known the explosive potential of ammonium nitrate. The industry has also recognized its significant agronomic benefits and industrial applications of this product. Access to this product is still deemed to be critical. At the same time, the industry recognizes that the security of the ammonium nitrate is paramount to prevent criminal misuse of the product.

A meeting was held in Toronto in August of 2004 with representatives from the industry and Natural Resources Canada – Explosives Regulatory Division in order to review the security risks associated with ammonium nitrate. Officials from NRC – Explosives Regulatory Division stated their objectives of the process in the following statement:

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As a result of this direction, and a consensus of the representatives at the meeting, it was decided that the security risks in the ammonium nitrate supply chain must be addressed.

A working group was struck, as a result of this position, with the direction to identify risks in the ammonium nitrate supply chain and recommend enhancements to security measures. The final report of the working group is to be presented at the Canadian Fertilizer Institute Board of Directors meeting in February, 2005.

1.2. SCOPE

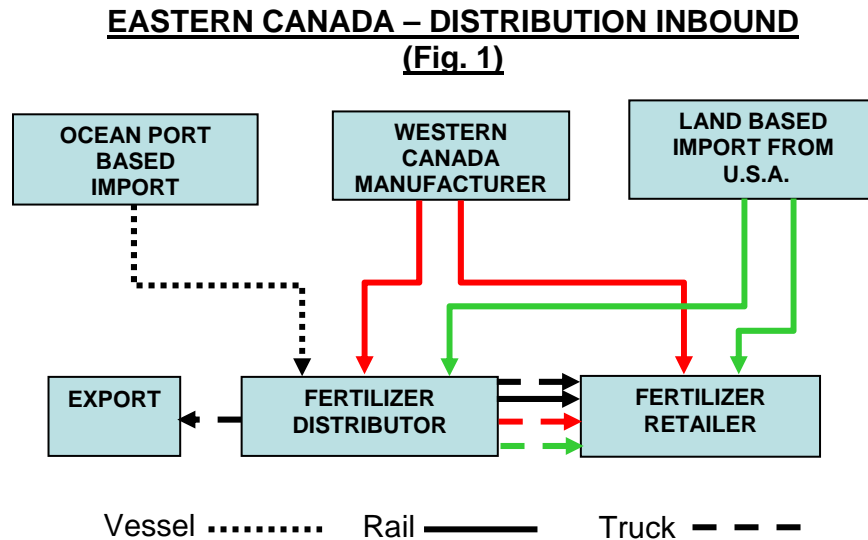
The scope of the study was confined to the supply chains for the import, export, manufacture, distribution, transportation and retailing of ammonium nitrate in Canada. The investigation was limited to ammonium nitrate and ammonium nitrate mixtures containing 28 to 34% nitrogen. Ammonium nitrate solutions of Transportation of Dangerous Goods (TDG) Class 5.1 and ammonium nitrate products classified as TDG Class 1 explosives were not reviewed since they either pose little threat(ie. liquids) or are already strictly regulated (i.e. Class 1 Explosives). The review addressed both high density (agricultural grade) and low density (explosive grade) ammonium nitrate. The investigation was focused on the enhancement of security within existing channels and current supply chain. The recommended risk management measures will need to evolve as the industry evolves. No investigation was conducted into the feasibility of possible reformulation to limit explosive risks associated with the product.

2.0 AMMONIUM NITRATE INDUSTRY DESCRIPTION

There are two basic types of ammonium nitrate produced and/or imported in Canada. High density ammonium nitrate is utilized primarily in high nitrogen demanding crops such as beans, potatoes and horticultural crops. Low density ammonium nitrate is utilized in the manufacture of explosives. Ammonium Nitrate is one of the precursors under the Explosives Act.

2.1. HIGH DENSITY SUPPLY CHAINS - INBOUND

The following diagrams illustrate the supply chains for high density ammonium nitrate in Eastern Canada:



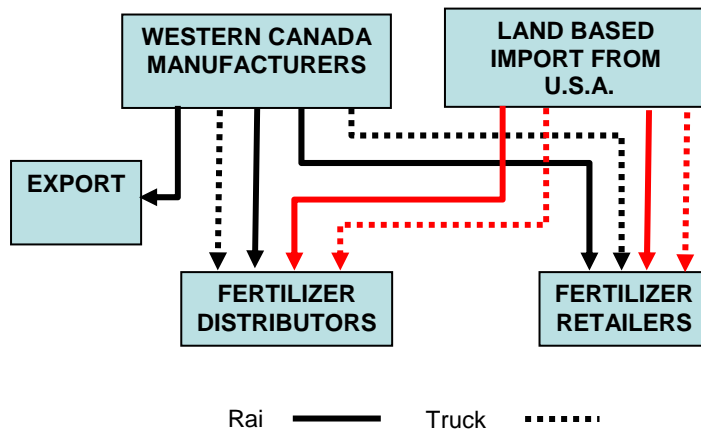
In eastern Canada, ammonium nitrate is supplied via three separate channels. They are:

Ocean Based Import (Black) – ammonium nitrate is imported from an international manufacturers by vessel. The product is received in either bulk form or totes (500 kg). The bulk product is discharged directly into storage at a fertilizer distributor warehouse located in close proximity to the Canadian based port facility. The totes are shipped out by truck to other inland fertilizer distribution or retail facilities. A very small amount of ammonium nitrate (< 100 tonnes) is subsequently exported from a fertilizer distributor by truck.

Western Canada Manufacturers (Red) – ammonium nitrate is shipped by Western Canadian manufacturers via rail to Eastern Canada. It is either offloaded directly from rail at a fertilizer distributor/retailer storage facility or it is trans-loaded off rail and into trucks which then distribute it to retail storage facilities.

Land Based Import from USA (Green) – ammonium nitrate is imported from US based manufacturers and/or exporters via rail. It is either offloaded directly from rail at a fertilizer distributor/retailer storage facility or it is trans-loaded off rail and into trucks which then distribute it to retail storage facilities.

WESTERN CANADA – DISTRIBUTION INBOUND (Fig. 2)



In Western Canada, ammonium nitrate is supplied via two separate channels (fig.2). They are:

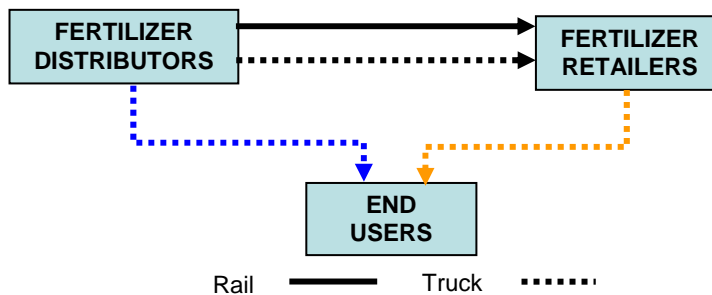
Western Canada Manufacturers (Black) – ammonium nitrate is shipped from Western Canadian manufacturers via rail or truck to distributors or retailers. In addition, a small amount of ammonium nitrate is exported to the USA via rail from a Canadian Based manufacturer.

Land Based Import from USA (Red) – ammonium nitrate is imported from US based manufacturers or exporters via rail to either fertilizer distributors or fertilizer retailers.

2.2. HIGH DENSITY DELIVERY SUPPLY CHAINS - OUTBOUND

As indicated in the previous section (fig. 1 & fig. 2), ammonium nitrate can either be delivered to a distribution storage facility or it can be delivered directly to a retail storage facility. Once at distribution, the delivery channels to end use are similar for both Eastern and Western Canada. Figure 3 illustrates the delivery channels the product can take to reach the end user. The demographic for end use of agricultural grade ammonium nitrate (high density) is primarily agricultural producers.

EASTERN/WESTERN CANADA – DISTRIBUTION OUTBOUND (Fig. 3)



There are two distinct steps in the delivery chain. They are:

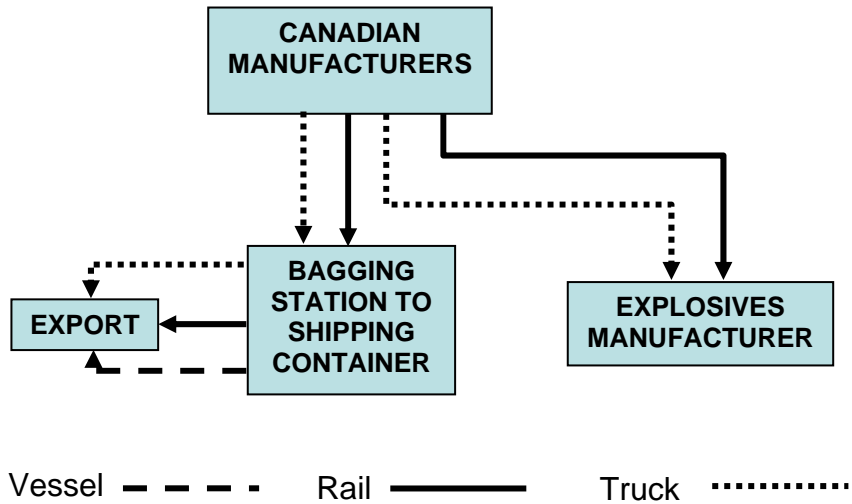
Distribution (Black)- once ammonium nitrate reaches a distributor, it can be sent to an end user utilizing two methods. It can be sent to a fertilizer retailer via rail / truck or sent directly to an end user via truck at the request of a retailer (blue). The direct to end use truck shipments only occur for large truck lot size shipments.

Retail (Orange) – once ammonium nitrate is positioned at retail storage, it is delivered to end users utilizing trucks only. The end-user (farmer) may elect to pick up ammonium nitrate at the retail location.

2.3. LOW DENSITY SUPPLY CHAIN

The supply chain for low density ammonium nitrate is depicted in the following diagram:

CANADIAN – DISTRIBUTION OF L.D. AMMONIUM NITRATE MANUFACTURER TO END USE (Fig. 4)



The delivery channels for low density ammonium nitrate are:

Canadian Manufacturers (Black) – Low density ammonium nitrate produced at Canadian manufacturers is distributed to domestic and foreign industrial or explosive manufacturers via rail, truck or marine (bags in containers).

3.0 RISK ASSESSMENT

This section contains the risk assessment of the ammonium nitrate industry in Canada.

3.1. GENERAL RISKS

Upon investigation, the following general risks were identified:

Awareness – The overall understanding and awareness of the threat posed by the misuse of ammonium nitrate has increased significantly over the last few years on account of initiatives like “On Guard for Canada”. However, this awareness level must continue to improve if the security risks to the ammonium nitrate supply chain are to be minimized. A communication initiative is underway during the development of this report that is supported by the Working Committee members. It is recommended this communication be repeated as required in order to keep all stakeholders in the industry informed of potential new threats.

Communication Network – Improvements must be made in the processes for communicating potential threats to the ammonium nitrate industry in order that quick and effective action can be taken by all stakeholders. An informal system utilizing email communication has been in place for a few years. This system must be formalized and expanded to include all industry stakeholders. In addition, it is recommended that this system incorporate the threat alert levels currently utilized by the RCMP and CSIS to convey the degree of risk presented by a potential threat.

3.2. SUPPLY CHAIN RISK

The security in each respective supply chain must be identified in order to prescribe enhanced security measures. This section contains an assessment of the typical security risks in both the high density and low density supply chains. The primary focus of the assessment is to establish the major security risks associated with the transfer of product at various points along each chain. In general terms, there are two major transfer points: a distribution/manufacturing facility and a retail facility. The risks associated with these operations can be categorized as:

- Inbound supply – the inward movement of ammonium nitrate to the facility.
- Storage security risk – the risk associated with the storage of the product at a facility.
- Outbound shipment – the outward movement of product to another location or end-user.

The following sections contain the identification of the risks at each transfer point and the recommendations to mitigate that specific risk. While there are differences in the High Density and Low Density supply chains, the security risks are similar. Therefore, the following categories have been utilized to describe the risks at each point in the supply chain:

3.3. INBOUND – FROM SOURCE

This risks examined in this section will apply to distributors and brokers of ammonium nitrate.

1. **Risk:** Security of ammonium nitrate cargo aboard import vessels
Recommended Controls:

Vessel Operators will:

- Comply with all requirements of the International Maritime Dangerous Goods Code.
- Maritime Security Act & Regulations
- Coast Guard Requirements

The receiver will:

- Retain records as per Transportation of Dangerous Goods Regulations.

Security will be provided to prevent unauthorized access to cargo while vessel is loading and discharging.

2. **Risk:** Security around individuals or company responsible for providing transportation
Recommended Controls:

Transportation Company will:

- Be bonded or pre-approved.
- Provide written proof of insurance coverage
- Provide training in order to meet regulatory requirements.
- Have developed a security/ERP plan for shipments.
- In accordance with Transportation of Dangerous Goods Regulations, all records of ammonium nitrate shipments must be kept by the carrier for a minimum of two years.
- Recommend utilizing Motor Carrier Evaluation currently under development by CFI Sub-Committee. Also recommend utilizing Rail/Truck Evaluation developed by the Canadian Chemical Producers Association.

3. **Risk:** Unauthorized Delivery
Recommended Controls:

- Carrier shall have authorization for unloading a shipment.
- Receiver at distribution facility must ensure documentation is accurate and complete prior to authorizing unload.
- Process must be in place to verify arrival of shipment at destination.

4. **Risk:** Unauthorized access to product during shipment

Recommended Controls:

- Truck Shipments cannot be left unattended by driver at anytime unless the load is parked in a secured area or the unit/load is properly locked down (i.e. padlocks, fifth wheel locks, etc).
- Hatches on trucks and railcars must be secured and sealed.
- Seals to be inspected and validated after each stop and upon arrival at destination. All tampering of seals must be investigated, documented and any losses reported.

5. **Risk:** Unexplained Loss of Product During Shipment

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. In the fertilizer industry, a tolerance for this loss up to 1% is considered an industry norm.

Recommended Controls:

- Quantities for all shipments of bulk ammonium nitrate must be verified against shipped quantities where possible. Shortages in excess of historical norms should be investigated, documented and, if required, reported.
- Visual inspection of truck or rail car to identify signs of tampering.

6. **Risk:** Product Spills during Transport and Unloading

Recommended Controls:

- All spills of ammonium nitrate must be addressed in accordance with regulatory requirements.
- All spills of 50 kgs or more must be reported to regulatory authorities.

3.4. STORAGE – MANUFACTURING/DISTRIBUTION

The risks examined in this section will apply to manufacturers' and distributors' storage facilities.

1. **Risk:** Unauthorized access to product while in storage

Recommended Controls:

- All bin gates providing access to storage bins containing ammonium nitrate must be locked and secured. Where possible, it is a recommended best practice to provide perimeter security. This may include fencing (refer to appendix for specifications) with lockable gates or other means of perimeter security around bins and/or buildings storing ammonium nitrate.

- All doors, windows and other points of access to buildings storing bagged or bulk ammonium nitrate must be locked and/or secured with a high quality lock (refer to appendix for examples).
- A key control system for all locks must be in place.
- After hours security lighting must be provided to illuminate main points of access to storage buildings or bins.
- Recommend all storage buildings be equipped with a monitored security system.
- Storage facility is equipped with signage indicating no unauthorized access.

2. **Risk:** Lack of formal Emergency Response Plan

Recommended Controls:

- The facility will develop an Emergency Response Plan including security issues.
- All ammonium nitrate storage facilities must inform local law enforcement of presence of ammonium nitrate at storage facility.

3. **Risk:** Storage of Ammonium Nitrate with Incompatible Products

Recommended Controls:

- It is a requirement of the National Fire Code that all Ammonium Nitrate fertilizer (Class 5.1) is not stored in the same compartment of a building with other incompatible products such as flammable or combustible liquids (Class 3).
- No equipment operated with internal combustion motors can be stored in or around the ammonium nitrate storage area.

4. **Risk:** Risk of unauthorized access by onsite personnel

Recommended Controls:

- All employees working at the ammonium nitrate storage facility must provide valid past work references.
- Recommend a standard background check on all new hires.
- All contractors must provide documentation indicating past work history.
- All contract employees must be validated to ensure they present no security risks.
- All contractors must have supervised access to ammonium nitrate storage facilities.

5. **Risk:** Unexplained Loss of Product During Storage

Recommended Controls:

- Recommend an annual audit for all ammonium nitrate bulk storage facilities. Any loss in excess of industry norm shall be investigated.
- Recommend annual product count reconciliation for all bagged ammonium nitrate storage facilities.

- Visual inspections to identify any tampering or loss of product volume are conducted on a regular basis.
- Documented process must be in place for investigating and reporting discrepancies.

3.5. MANUFACTURING/DISTRIBUTION – OUTBOUND

The risks examined in this section will apply to all shipments originating at manufacturers' and/or distributors' facilities. This is also defined as retailer inbound shipments.

1. **Risk:** Security around individuals or company responsible for providing transportation

Recommended Controls:

Transportation Company will:

- Be bonded or pre-approved.
- Provide written proof of insurance coverage
- Provide required training to drivers
- Driver will provide photo identification
- Recommend utilizing Motor Carrier Evaluation currently under development by CFI Sub-Committee
- Recommend utilizing Rail/Truck Evaluation developed by the Canadian Chemical Producers Association.

2. **Risk:** Sale of Ammonium Nitrate via "Direct to End Use" Shipments

Recommended Controls:

Prior to approving a direct to end use shipment, the following conditions must be met:

- The shipment has been coordinated and validated by a recognized ammonium nitrate retailer (and/or low density retailer) who has ensured the following:
 - The customer purchasing ammonium nitrate has been validated through the provision of proper identification such as:
 - Pesticide License
 - Canadian Wheat Board Number
 - Valid credit application with Company
 - Valid picture identification
 - For Low Density Customers, proper licenses or certificates of authorization must be shown.
 - The size of the order of ammonium nitrate is in accordance with the size of the end user's needs.
 - There is a defined location for the delivery of the ammonium nitrate including contact numbers.

- Retailer must ensure that customer is a farmer and is known in the community.
- If retailer is not satisfied, purchaser must be referred to the local police detachment for an ID check.
- Suspicious purchase attempts must be reported to the local police detachment.

3. **Risk:** Lack of traceability of sales records for ammonium nitrate

Recommended Controls:

- Sales records must be kept of all sales of ammonium nitrate for a period of two years. At a minimum, this should include:
 - Customers Name
 - Address or Legal Land Description
 - Carrier
 - Dates of Delivery
 - Quantity of Ammonium Nitrate
 - Bagged or Bulk Product

4. **Risk:** Unauthorized Delivery

Recommended Controls:

- Carrier shall have authorization for unloading a shipment.
- Receiver at retail facility must ensure documentation is accurate and complete prior to authorizing unload.
- Process must be in place to verify arrival of shipment at destination

5. **Risk:** Unauthorized access to product during shipment

Recommended Controls:

- Truck Shipments cannot be left unattended by driver at anytime unless the load is parked in a secured area or the unit/load is properly locked down (i.e. padlocks, fifth wheel locks, etc).
- Hatches on trucks and railcars must be secured and sealed.
- Seals to be inspected and validated after each stop and upon arrival at destination. All tampering of seals should be investigated, documented and any losses reported.
- Process must be in place to verify arrival of shipment at destination.

6. **Risk:** Unexplained Loss of Product During Shipment

Recommended Controls:

- Quantities for all shipments of bulk ammonium nitrate must be verified against shipped quantities where possible.
- Annual audits must be conducted to validate that any product loss is within the industry norm.

- Visual inspection of truck or rail car to identify signs of tampering. All tampering of seals should be investigated, documented and any losses reported.

7. **Risk:** Product Spills at Unload

Recommended Controls:

- All spills of ammonium nitrate must be addressed in accordance with regulatory requirements.
- All spills of 50 kgs or more must be reported to regulatory authorities.

3.6. RETAIL - STORAGE

1. **Risk:** Unauthorized access to product while in storage

Recommended Controls:

- All bin gates providing access to storage bins containing ammonium nitrate must be locked and secured. Where possible, 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.
- All doors, windows and other points of access to buildings storing bagged or bulk ammonium nitrate must be locked and/or secured.
- After hours security lighting must be provided to illuminate main points of access to storage buildings or bins.
- Recommend all storage buildings be equipped with a monitored security system.
- All ammonium nitrate storage facilities must inform local law enforcement of presence of ammonium nitrate at storage facility.
- Storage facility is equipped with signage indicating no unauthorized access.
- Ammonium nitrate remaining in an applicator shall be secured or parked in a secured location.

2. **Risk:** Risk of unauthorized access by onsite personnel

Recommended Controls:

- All employees working at the ammonium nitrate storage facility must provide valid past work references.
- Recommend a standard background check on all new hires.
- All contractors must provide documentation indicating past work history for all contract employees has been validated to ensure no security risks.

3. **Risk:** Unexplained Loss of Product During Storage

Recommended Controls:

- Recommend an annual audit for all ammonium nitrate bulk storage facilities. Any loss in excess of industry norm shall be investigated.

- Recommend annual product count reconciliation for all bagged ammonium nitrate storage facilities.
- Visual inspections to identify any tampering or loss of product volume are conducted on a regular basis.
- Documented process must be in place for investigating and reporting discrepancies.

3.7. RETAIL - OUTBOUND

Commercial carrier/Retailer delivery or end user pick-up are the two primary methods for delivery of ammonium nitrate from a retail location. The risks of both of these transportation methods will be evaluated in this section.

3.7.1. Commercial Carrier/Retailer Delivery to End Use

1. **Risk:** *Sale of ammonium nitrate for potential misuse*

Recommended Controls:

- All customers purchasing ammonium nitrate must be validated through the provision of proper identification such as:
 - Pesticide License
 - Canadian Wheat Board Number
 - Valid credit application with Company
 - Valid picture identification
 - For Low Density Customers, proper licenses or certificates of authorization must be shown.
- The size of the order of ammonium nitrate is in accordance with the size of the farmer's stated agronomic requirements and/or historical consumption.
- Retailer must ensure that customer is a farmer and is known in the community.
- Retailer is responsible to ensure that the sale is being made to a valid farmer with agronomic requirements for the ammonium nitrate.
- If retailer is not satisfied, purchaser shall be referred to the local police detachment for an ID check.
- Suspicious purchase attempts must be reported to the local police detachment.

2. **Risk:** *Lack of traceability of sales records for ammonium nitrate*

Recommended Controls:

- Sales records must be kept of all retail sales of ammonium nitrate for a period of two years. At a minimum, this should include:
 - Customers Name
 - Address or Legal Land Description
 - Carrier

- Dates of Delivery
- Quantity of Ammonium Nitrate
- Bagged or Bulk Product

Note: for custom application of ammonium nitrate, the legal land description for the area of application must be included on the sales receipt.

3. **Risk:** Security around individuals or company responsible for providing transportation

Recommended Controls:

Transportation Company will:

- Be bonded or pre-approved
- Provide written proof of insurance coverage
- Provide required training to drivers.
- Recommend utilizing Motor Carrier Evaluation currently under development by CFI Sub-Committee
- Recommend utilizing Rail/Truck Evaluation developed by the Canadian Chemical Producers Association.

4. **Risk:** Improper or inaccurate documentation for shipment

Recommended Controls:

- Truck driver will ensure farmer signs delivery invoice acknowledging receipt of and responsibility for product.

5. **Risk:** Unauthorized access to product during shipment

Recommended Controls:

- Truck Shipments cannot be left unattended by driver at anytime unless the load is parked in a secured area or the unit/load is properly locked down (i.e. padlocks, fifth wheel locks, etc).
- If the delivery is non-stop to its destination, the gates do not have to be sealed. Otherwise, seals are required.
- If the load is equipped with seals, the seals are to be inspected and validated after each stop and upon arrival at destination. Any tampering with seals must be investigated, documented and any loss of product reported.
- Process must be in place to verify arrival of shipment at destination.

6. **Risk:** Unexplained Loss of Product During Shipment

Recommended Controls:

- Visual inspection of truck to identify signs of tampering upon arrival at destination.
- Any signs of tampering or product loss must be investigated, documented and reported.

7. **Risk:** Product Spills at Unload

Recommended Controls:

- All spills of ammonium nitrate must be addressed in accordance with regulatory requirements.
- All spills of 50 kgs or more must be reported to regulatory authorities.

3.7.2. End User Truck Pick-up and Delivery

1. **Risk:** Sale of ammonium nitrate for potential misuse

Recommended Controls:

- Every customer purchasing ammonium nitrate must be validated through the provision of proper identification such as:
 - Pesticide License
 - Canadian Wheat Board Number
 - Valid credit application with Company
 - Valid picture identification
- The size of the order of ammonium nitrate is in accordance with the size of the farmer's stated agronomic requirements and/or historical consumption.
- Retailer must ensure that customer is a farmer and is known in the community.
- Retailer is responsible for ensuring that the sale is being made to a valid farmer with agronomic requirements for the ammonium nitrate.
- If retailer is not satisfied, purchaser must be referred to the local police detachment for an ID check.
- Suspicious purchase attempts must be reported to the local police detachment.
- Recommend that all retail sales of ammonium nitrate are restricted to agricultural and commercial horticultural use only.

2. **Risk:** Sales of ammonium nitrate to non-essential end users

Recommended Controls:

- Recommend that all retail sales of ammonium nitrate are restricted to agricultural and commercial horticultural use only.
- Recommend that sales of low density ammonium nitrate are restricted to the explosives market.

3. **Risk:** Lack of traceability of sales records for ammonium nitrate

Recommended Controls:

- Sales records must be kept of all retail sales of ammonium nitrate for a period of two years. At a minimum, this should include:

- Customers Name
- Address or Legal Land Description
- Carrier
- Dates of Delivery
- Quantity of Ammonium Nitrate
- Bagged or Bulk Product
- Location of Farm Storage

Note: for custom application of ammonium nitrate, the legal land description for the area of application must be included on the sales receipt.

4. **Risk:** Improper or inaccurate documentation for shipment
Recommended Controls:

- Farmer must review and sign sales receipt to acknowledge receipt of and responsibility for product.

5. **Risk:** Unauthorized access to product during shipment
Recommended Controls:

- Farmer must not leave their truck/applicator loaded with ammonium nitrate unattended at anytime or they have parked the truck in a secured area.
- If the delivery is non-stop to its destination, the gates do not have to be sealed. Otherwise, seals are required.
- If the load is equipped with seals, the seals are to be inspected and validated after each stop and upon arrival at destination.
- Process must be in place for the farmer to notify retail location of arrival of shipment at destination.

6. **Risk:** Unexplained Loss of Product During Shipment
Recommended Controls:

- Visual inspection of truck to identify signs of tampering upon arrival at destination. Any signs of tampering and/or product loss must be reported to retail location.

7. **Risk:** Product Spills at Unload
Recommended Controls:

- All spills of ammonium nitrate must be addressed in accordance with regulatory requirements.
- All spills of 50 kgs or more must be reported to regulatory authorities.

3.8. END USE STORAGE

The risks examined in this section will apply to all on farm (high density) or end-use (commercial, horticultural or explosive) storage facilities.

1. **Risk:** Unauthorized access to product while in storage

Recommended Controls:

- All bin gates providing access to storage bins containing ammonium nitrate must be locked and secured. Where possible, 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.
- All doors, windows and other points of access to buildings storing bagged or bulk ammonium nitrate must be locked and/or secured.
- After hours security lighting must be provided to illuminate main points of access to storage buildings or bins.
- Recommend all storage buildings be equipped with a monitored security system.
- Ammonium nitrate remaining in an applicator shall be secured or the applicator will be parked in a secured location. Any unused bagged product will be secured as well.

2. **Risk:** Post Season Storage of Ammonium Nitrate

Recommended Controls:

- Recommend that the size of a farmers order is matched to their needs so that post season storage of ammonium nitrate is eliminated.

3. **Risk:** Usage documentation and record keeping

Recommended Controls:

- Recommend that farmers keep records of all ammonium nitrate purchases, in season usage and post season storage for two years.
- Farmers must be informed re-selling ammonium nitrate is illegal.

4.0 CONCLUSION

Access to ammonium nitrate for agricultural and industrial purposes must be maintained. To ensure this access continues, security risks associated with the supply chains for both high density and low density ammonium nitrate must be addressed in order to prevent criminal misuse of the product. In accordance with the objectives established by representatives from the Explosives Regulatory Division of Natural Resources Canada and on behalf of the industry through the Canadian Fertilizer Institute's Board of Directors and affiliate members, concrete improvements must be made to minimize these identified risks. The changes include improvements in the communication of potential security risks in the industry as well as improvements in security risk management for all ammonium nitrate supply chains. Fortunately many of the proposed improvements are procedural enhancements or require only minor capital investment. However, the scope of the improvements and the number of affected locations should not be minimized. Therefore, careful consideration is required to ensure the implementation strategy for the enhancements considers the resources required, the timeframe and the costs for implementation. It is recommended that these issues be determined by the Ammonium Nitrate Working Group in order to satisfy the objectives of all stakeholders.

5.0 RECOMMENDATIONS

Pending approval of the Ammonium Nitrate Code of Practice by the Canadian Fertilizer Institute Board of Directors, the Ammonium Nitrate Working Group recommends the following in order to determine the final implementation strategy:

1. Develop regular communication process based upon "On Guard for Canada" model to convey identified risks and mitigation practices to industry stakeholders.
2. Establish a communication network for ammonium nitrate by collecting information on the locations currently storing ammonium nitrate. Provide central contact number (1-800-387-0020) to each location to report suspicious activities (by March 15, 2005). Evaluate the integration of "threat levels" into communication network.
3. Restrict the sale of Low Density ammonium nitrate to the explosives market.
4. Restrict the sale of High Density ammonium nitrate to agricultural and commercial horticultural use only.
5. Determine industry support and obtain feedback from industry associations (CFI, CAAR, QFMA, AFI & OABA), companies and other stakeholders through a consultation process. The steps to achieve this would include:
 - a. Development of a Code of Practice presentation
 - NR CAN to translate AN Code of Practice
 - b. Breakdown of assignments and process for consultation
 - c. Completion of consultation sessions by June 30, 2005
 - d. Ammonium Nitrate Working Group will review and document results of consultations by July 2005.
 - e. Present findings to CFI Board of Directors in August of 2005.
6. Conduct a cost impact assessment in order to project cost of implementation. The steps to achieve this would be:
 - f. Develop cost assessment criteria and process
 - g. Select representative locations for cost assessment
 - h. Conduct assessments and complete by June 30, 2005.
 - i. Ammonium Nitrate Working Group will review and document results of cost assessment by July 2005.
 - j. Present findings to CFI Board of Directors in August of 2005.

7. Conduct a representative base line audit of manufacturing, distribution and retail operations in order to project the current level of compliance to the Code of Practice. The steps to achieve this would be:
 - k. Develop checklist and support material to accurately and consistently conduct audits.
 - l. Select representative locations for audits
 - m. Conduct audits by June 30, 2005.
 - n. Ammonium Nitrate Working Group will review and document results of audits in July 2005.
 - o. Present findings to CFI Board of Directors in August of 2005.