



FERTILIZER CANADA

Anhydrous Ammonia Code of Practice

January 2017



AMMONIA CODE OF PRACTICE

JANUARY 2017

DISCLAIMER

The Anhydrous Ammonia Code of Practice (Code) and the Implementation Guide that follow are intended to be used by Fertilizer Canada for the purpose of issuance of a Certificate of Compliance. Neither Fertilizer Canada, the Agrichemical Warehouse Standards Association (AWSA) nor CropLife Canada, their employees, members or agents have made or hereby purport to make any representations, warranties, or covenants with respect to the specifications or information contained in the Code's protocols or the results generated by their use, nor will they be liable for any damage, loss or claims, including those of an incidental or consequential nature, arising out of these protocols. These protocols are not in any way intended to supersede or detract from any requirements contained in Municipal, Provincial or Federal by-laws, regulations or legislation.

HOW TO USE THIS GUIDE

This guide has been written in two sections. The first half contains the protocols with which ammonia storage facilities must comply and against which the auditors will be scoring compliance.

The second half contains the Implementation Guide. This section, indexed to correspond with the protocols, is designed to assist facilities interpreting the protocols. Please consult the Implementation Guide when reviewing the protocols.

TECHNICAL QUESTIONS

Technical questions or questions about interpretation of the Code may be addressed to the Ammonia Code Project Manager via the 1-866-311-0444 number or by e-mail at ammoniacode@funnel.ca. The Code's Technical Committee will review any questions as necessary. Previous interpretations will be made available on the Fertilizer Canada website at www.fertilizercanada.ca.

For general questions about the Code, please contact Fertilizer Canada at 1-613-230-2600 or by email at Codes@fertilizercanada.ca.

AMMONIA CODE OF PRACTICE & IMPLEMENTATION GUIDE

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Phone Number: _____

Audit Date: _____

Effective January 1, 2017

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AMMONIA CODE OF PRACTICE

PREFACE

Fertilizer Canada created the Ammonia Code of Practice (Code) to provide uniform safety and security practices for the handling and storage of anhydrous ammonia at agri-retail facilities in Canada. This Code was written by fertilizer manufacturers, distributors and agri-retailers, with input from government agencies, and the first responder community. While existing regulations, safety programs and training have greatly reduced the incidence of accidents involving anhydrous ammonia, implementation of this Code will further reduce this risk. It is the first industry-led program of this magnitude for the safe and secure handling of anhydrous ammonia.

The intention of the Code is to assist operators of anhydrous ammonia storage and handling operations to assess their risk and take action to mitigate those risks. The Code is designed for use in conjunction with the Implementation Guide and Appendices. These documents provide more definition of the requirements in the Code plus a description of identified best practices to improve risk management processes at the operation.

The Code cites existing regulations where they have been identified as a suitable means for managing an identified risk. However, the Code is not intended as a complete compilation of regulations as it applies to an anhydrous ammonia operation.

The Owner/Operator of each anhydrous ammonia operation is still individually responsible for their compliance to regulatory requirements.

The Ammonia Code of Practice and its Implementation Guide and Appendices are intended to apply to the following segments of the ammonia industry:

- Road transportation
- Rail transportation
- Storage and handling operations including fixed and temporary facilities
- Associated facilities such as equipment storage areas
- On-farm end use (voluntary basis)

This Code is not intended to apply to manufacturing, repair shops, industrial end use or refrigeration.

In order to understand which facilities require an audit, the path of ammonia (NH₃) must be followed.

Manufacturer: The manufacturer produces the NH₃ and stores it in a large refrigerated tank. At this time the manufacturer is not required to complete an audit.

Product may be shipped directly from the Manufacturer to the Ag Retailer. The Ag Retailer receiving the product would be required to be certified under the Ammonia Code of Practice.

Manufacturer to

Distribution: Some companies that manufacture NH₃ will ship to other companies that will store and resell the product or distribute the product for them. The Distribution Terminals may consist of large refrigerated tanks that receive NH₃ from a manufacturer or be set up to store many railcars and have small storage vessels that the product is transferred into for reloading into transport units that deliver product to the Ag Retailers.

These facilities known as Distribution Terminals are not required to be certified under the Ammonia Code of Practice at this time as they do not directly distribute to the end user.

Ag Retailers

And Transloads: The Ag Retailers that receive NH₃ by transport into a storage vessel or by rail into a storage vessel or by truck or rail and transfer directly into a nurse wagon or field delivery unit are required to complete and pass the Ammonia Code of Practice audit.

Ag Retailers that contract with third parties for the transport of anhydrous ammonia are responsible for ensuring that their contractors comply with all requirements of the Ammonia Code of Practice.

End User Storage: If end users receive product into a fixed storage vessel on the farm, they must be certified under the Ammonia Code of Practice.

The on-going auditing and re-auditing process provides the entire ammonia distribution chain with a framework for the safe handling and storage of anhydrous ammonia that is verified on a continuous basis. Auditing and re-auditing is therefore vital to the process.

AMMONIA CODE COMPLIANCE AND ENFORCEMENT PROCESS

Only facilities certified as compliant with Fertilizer Canada's Ammonia Code of Practice (Code) are eligible to receive shipments of anhydrous ammonia. Notwithstanding audit intervals, certified facilities under the Code are required to maintain their operations in compliance with the Code at all times. If situations exist where uncertified facilities are receiving product or facilities are not in compliance with the Code, a third party complaint process exists to report, investigate and take remedial action. Compliance with the Code may also be randomly verified by Fertilizer Canada through the Quality Assurance/Quality Control program where an auditor may be sent to a certified site to verify compliance at any point during the certification period.

1. Complaint Procedure:

Written or faxed complaints are to be sent to the Ammonia Code Project Manager at fax 1-416-968-6818 or via e-mail at ammoniacode@funnel.ca. The complainant is to outline details of the alleged non-compliance with the Code. The Ammonia Code Project Manager will respect the confidentiality of the complainant.

Within three (3) business days of receiving a complaint (as a working goal) the Ammonia Code Project Manager will carry out the following procedure:

- Ammonia Code Project Manager to send auditor to site to check all details.
- Ammonia Code Project Manager makes immediate initial report to Fertilizer Canada.
- Fertilizer Canada reviews the Project Manager's reports, and directs the Project Manager on an appropriate response.
- On or before the fourth business day (as a working goal) following receipt of the complaint the Ammonia Code Project Manager notifies the location or company to the status of the complaint.

2. Enforcement Procedure:

First Instance of Non-Compliance

- Facility is advised in writing and is given a prescribed number of working days to undertake and complete corrective action dependent upon the type of non-compliance.
- Facility operator to confirm, in writing, that the non-compliant situation has been corrected.
- Report on non-compliance remains on file for two years (730 days) from date of the report.
- If situation is not corrected within the prescribed timeframe, Code certification is withdrawn and manufacturers/distributors are notified of the suspension. To obtain re-certification, a complete re-audit of the entire site is required at the facility operators' expense.
- Fertilizer Canada has the option for a second auditor visit to confirm compliance.
- Unannounced audits may be performed at Fertilizer Canada's expense the following year.

Subsequent Instances of Non-Compliance

This refers to second and following instance(s) of non-compliance (same facility, same area of non-compliance as a previous instance, within a two-year period (730 days) from previous instance).

- Upon validation, the facility is to be notified in writing that it has three (3) working days to undertake and complete corrective action.
- Facility operator to confirm, in writing, that the non-compliant situation has been corrected.
- Report on non-compliance remains on file for two years (730 days) from date of subsequent infraction.
- If situation is not corrected within the prescribed timeframe, certification is withdrawn and manufacturers/distributors are notified of the suspension. A complete re-audit is required at the facility operators' expense. Recertification is issued following a successful audit.
- Manufacturers and distributors are advised of the second or further instance of non-compliance.
- Fertilizer Canada has the option to require a second visit by an auditor to confirm compliance. Follow up visits will be unannounced.
- Unannounced audits may be performed at the election of Fertilizer Canada but at the facilities' expense the following year.

AMMONIA CODE AUDIT PROCESS

The audit of a facility will involve five distinct, interrelated basic steps as follows:

1. Understanding Internal Management Systems and Procedures

The various management systems, procedures and standard practices that have been established to assist in achieving the desired performance of facility operations will be reviewed with the Owner/Manager/Operator.

2. Gathering Audit Evidence

The auditor will gather information that supports the audit score given to each protocol.

3. Evaluating Audit Findings and Exceptions

The auditor will assimilate all audit data and observations into a coherent and complete finding, providing assurance that the audit objectives are being met.

4. Reporting Audit Findings and Exceptions to Site Management

Deficiencies will be reported to the facility Owner/Manager when identified, formally reviewed with management during the exit meeting and summarized on the completed audit report.

5. Submission of successfully completed audits

The auditor submits the audit tabulation forms and confirmation of insurance coverage to the Code Program Manager for review. Once the successful completion of the audit is verified, Code Program Manager will issue site certification.

Audit Tabulation

Compliance with all mandatory items is required for certification.

The site must also obtain 80% of the scoring points for certification for each of the nine categories (A to I). When specific audit protocols are not applicable to the site, full points will be given with a Not Applicable (N/A) designation. In such cases, an N/A designation with point value (i.e. N/A 20) will be indicated. The audit protocols are designed to produce a "yes" or "no" answer and partial scores are not allowed.

AUDIT PREPARATION

To assist the auditor in conducting an effective and efficient audit of your ammonia facility, the following suggestions can save time prior to and during the day of the audit:

The Owner/Manager can select an auditor from the approved list of auditors to conduct their audit. Audits should be scheduled before the end of the third quarter to avoid a shortage of auditing services. Booking the audit with the auditor is the Owner / Manager's responsibility. Each company/location will be invoiced for the audit directly by the auditor.

PRIOR TO THE AUDIT

1. Ensure that you, the Owner/Manager, and the people involved in storing and handling anhydrous ammonia have read the audit protocol and understand the objective of the audit.
2. Have your facility Supervisor/Operator conduct a self-audit using this audit protocol prior to the third party audit to ensure that all areas meet standards.
3. Consider a pre-audit by one of the trained certified auditors if this is a first time audit.
4. Advise the employees when the actual audit will be conducted in advance of the audit.

DAY OF AUDIT

1. Ensure that you, the Owner / Manager, will have time to discuss the audit process and the results.
2. Allocate the time for you/facility personnel to accompany the auditor.
3. Allocate a location for the auditor to examine documents and prepare the report.
4. Encourage all employees handling anhydrous ammonia to communicate with the auditor in a candid manner.
5. Ensure that relevant documentation is readily available for review by the auditor, i.e. operating procedures, check lists, emergency response plan, plot plan, training files, etc.

The auditor may want to see some activity at the facility to verify the written operating procedures.

SAMPLE APPLICATION FOR AUDIT FORM

A separate application must be completed for each facility.

Compliance Certificate No: _____

Ammonia Code of Practice Application for Compliance Certificate

Name of Applicant: _____ (“Operator”)

Address of Facility: _____ (“Site”)

Operator hereby applies to Fertilizer Canada for a Compliance Certificate in respect of the Site. In making this application, the Operator acknowledges and agrees to the following:

- (a) Operator accepts the Ammonia Code of Practice established by Fertilizer Canada from time to time (the “Code”), and agrees to the appeal process established by Fertilizer Canada for the resolution of disputes arising with respect to the Site’s compliance with the Code;
- (b) Operator understands and agrees that in order to obtain a Compliance Certificate for the Site, Operator must obtain independent certification by an independent auditor (“Auditor”) on the list approved by Fertilizer Canada, confirming that the Facility is in compliance with the Code. Operator is solely responsible for compliance with the Code;
- (c) Operator will permit access to the Site at all reasonable times for the purposes of the audit of the Facility in connection with this application, and for any re-inspection of the Facility in accordance with Fertilizer Canada’s quality control, compliance, and any other policies then in effect. Operator agrees that the results of any audit may be disclosed to Fertilizer Canada, the Agrichemical Warehousing Standards Association (AWSA), CropLife Canada, Funnel Communications Inc. or to such other Code manager or administrator as Fertilizer Canada may designate from time to time;
- (d) Subject to the appeal process established by Fertilizer Canada from time to time, Operator agrees to be bound by the Auditor’s findings with respect to the Site;
- (e) Operator agrees to pay any costs and expenses arising in connection with the certification of the Site, including the Auditor’s fees and expenses;
- (f) Operator understands that non-compliance with the Code will result in the suspension of sales and shipments to Operator by manufacturers or distributors of anhydrous ammonia until such time as certification is obtained;
- (g) Operator releases any and all claims it has or may in future have against Fertilizer Canada, the AWSA, CropLife Canada, Funnel Communications Inc. or such other Code manager or administrator as FSSC may designate from time to time and their respective members, directors, officers and employees and any auditor or senior auditor in connection with this application, the suspension of sales or shipments by manufacturers and distributors anhydrous ammonia, any audits conducted at the Site and any failure by the Operator to obtain a Compliance Certificate;
- (h) If Operator obtains a Compliance Certificate in respect of the Site, Operator understands that the obligation to maintain the site according to the Code is ongoing and Operator must continue to comply with the Code in order to maintain its Compliance Certificate.

Signature of Applicant

Title (if Corporation)

Name (Please Print)

Date

AUDITING LOGISTICS

OFF-SEASON AUDITS

The nature of the audit process requires accessibility to all equipment used for the storage, transport and handling of anhydrous ammonia. Consequently, clear and un-impeded access to all equipment is necessary. Facilities having audits done when snow is on the ground will need to have snow sufficiently cleared to allow access to storage and transport equipment. If equipment has been removed for the season, clear documentation will be required to ensure compliance with all mandatory protocols. Insufficient documentation or impeded access to storage and transport equipment will result in a failed audit. Any equipment removed from service during the off season must be available for inspection during an audit. **All facilities are strongly encouraged not to book audits during the winter months.**

NURSE TANKS AND MOBILE EQUIPMENT

The program requires all nurse tanks and mobile equipment to be in compliance with the Code. Equipment out of service for inspection, maintenance, repair etc. at the time of the audit is exempt from the audit. Such equipment must be tagged out of service prior to the date of the audit according to a written tag-out program.

All tanks containing product must be in full compliance with the Code.

SATELLITE STORAGE LOCATIONS

Within the retail distribution chain, storage sites for anhydrous ammonia have an array of storage capabilities including fixed tanks, delivery units and nurse tanks. For the purposes of the issuance of certification numbers, primary sites will be identified as the main location where the majority of staff are based, records are maintained and in most cases, product and/or equipment is stored.

Satellite sites are locations which have limited storage facilities (i.e. a standalone fixed tank, nurse tank compounds or transload locations) and in many cases, no offices or on-site staff. These satellites are linked to a primary site.

All satellite sites must be in compliance with the Code, unless all ammonia vessels at the site have been emptied and de-pressured. Every primary and satellite site will be assigned a unique certification number.

AMMONIA CODE OF PRACTICE

AUDITS APPEAL PROCESS

1. During the audit process, audited facilities are first encouraged to resolve any uncertainties or disagreements with their Auditor. Questions and inquires may be directed to the Ammonia Code Project Manager. Fertilizer Canada's Fertilizer Safety and Security Council (FSSC) and Ammonia Code Technical Committee may be consulted for assistance in the interpretation and application of the Code.
2. Following the initial and any subsequent audits, audited facilities will be provided a reasonable period of time to correct identified area(s) of non-compliance before certification is declined or withdrawn based on the Auditor's assessment of the time required to correct the deficiency and with regard to public safety.
3. The audited facility may request a review by the Senior Ammonia Code Auditor, who may amend the audit decision should it be warranted. This review is a prerequisite to filing an appeal to the Ammonia Code Appeals Committee.
4. If post-audit non-compliance is not corrected within a reasonable period of time, the Audited Facility will be notified that certification will be withdrawn immediately.
5. In the event of outright failure to be audited within the time specified (every subsequent two years (730 days) following initial audit), certification will be withdrawn automatically upon notification of the termination of the certification.
6. In the event of an appeal of the Senior Ammonia Code Auditor's decision, the withdrawal of certification will not proceed until the appeal has been determined.
7. Once the Senior Ammonia Code Auditor has issued notification that certification will be withdrawn, the Audited Facility ("Appellant") may appeal by submitting a written¹ statement to the Executive Director explaining the circumstances and grounds for the appeal. This request shall be sent by registered mail or via e-mail to Codes@fertilizercanada.ca. It will be deemed received when acknowledgement of its receipt is given. An appeal fee of two thousand dollars (\$2,000) payable via credit card or wire transfer to Fertilizer Canada must be paid to initiate the appeal. If the appeal is granted, this fee will be refunded. If the appeal is denied, the Ammonia Code Appeals Committee at their discretion may reimburse the fee where the appellant has raised a significant issue having industry wide significance, for example one which results in clarification of the Ammonia Code.
8. The Executive Director, in his/her capacity as Secretary to the Ammonia Code Appeals Committee, shall require a written report concerning the matter(s) under appeal from the appropriate Senior Ammonia Code Auditor. The Executive Director shall then forward this information and the Appellant's written statement to the Ammonia Code Appeals Committee.
9. The Hearing Panel of the Ammonia Code Appeals Committee:

¹ Documentation 'in writing' includes email correspondence.

- a. Shall provide a copy of the report of the Senior Ammonia Code Auditor to the Appellant;
 - b. Shall invite the Senior Ammonia Code Auditor and the Appellant to submit any further information within five (5) days of receiving the invitation;
 - c. May review any relevant matter with the Ammonia Code Senior Auditor and the Appellant either in person, via telephone or in writing;
 - d. Shall render a written decision on the appeal as expeditiously as possible while respecting the principles of procedural fairness and public safety; and
 - e. Shall report back in writing no later than fifteen (15) business days following receipt of the appeal, providing a copy of its decision, to the Ammonia Code Appeals Committee, the Audited Facility, the Senior Ammonia Code Auditor and to the Executive Director.
10. In the event that withdrawal of certification is confirmed upon appeal, the withdrawal of certification will be in effect until such time as the Audited Facility completes a subsequent audit confirming compliance with the Ammonia Code.

RE-AUDIT PROCESS AND CYCLE

- The frequency for re-auditing is every two years (730 days). For example; if a facility was audited any time during 2010, it is required to be re-audited before December 31, 2012 and each successive second year thereafter.
- If a facility chooses to advance its re-audit date to an earlier year, the re-audit cycle will correspond to the new re-audit date. For example; if a facility was first audited on May 1, 2010, it will be due for a re-audit any time during the calendar year 2012, with a deadline of December 31, 2012. If the facility chooses to have a re-audit completed in an earlier year, for example on June 15, 2011, then the next re-audit will be due prior to December 31, 2013.
- The timing of the audit will be at the discretion of each facility operator or company owner, provided that the facility is re-audited within the specified two year time frame.
- It is up to the facility's management to co-ordinate the audit/re-audit not less than 60 days prior to any audit deadline in order to ensure the availability of an auditor.
- The selection of the auditor remains at the discretion of the facility operator. A current listing of all auditors can be found on the Fertilizer Canada website at www.fertilizercanada.ca or on the AWSA website at www.awsa.ca.
- For sites that fail to have their facilities successfully re-audited within the required time frame, all manufacturing and distributing members will be notified and all shipments of anhydrous ammonia will be suspended. Once a lapsed facility has been successfully re-audited, all manufacturers will be notified and the suspension of shipments will be removed.
- Please note that facilities who lapse certification will remain on their original re-audit cycle. For example; if a facility was first audited on May 1, 2011, its re-audit is due by each successive second year (i.e. 2013, 2015, 2017 etc.). If the facility lapses certification in 2013 and then has a re-audit completed on February 1, 2014, their next re-audit is required by December 31, 2015. By reverting the delinquent facility back to its original re-audit cycle, any advantage for allowing certification to lapse is removed.

POLICY ON LAPSED CERTIFICATION

Lapsed certification is defined as a withdrawal of certification resulting from:

- Voluntary decertification;
- Failure to successfully re-audit before the expiry date; or
- Withdrawal of certification by program management.

All facilities require a full re-audit every two years (730 days) to maintain certification status. Details on the re-audit process and frequency can be found in the sections above.

What happens if I do not get my facility re-audited before the due date?

- If you do not get your facility re-audited before the due date, the Ammonia Code Program Manager will notify all anhydrous ammonia manufacturers/distributors of your certification lapse. Your certification status will be withdrawn until your facility has successfully completed an audit. You will not be eligible to receive shipments of anhydrous ammonia.
- In addition, an administration fee of five hundred dollars (\$500.00) will be required to re-activate your certification status. Delaying re-certification to the following year will not extend the normal re-audit period. For example, locations due for re-certification in 2012, will have to be re-certified again in 2014. If the facility lapses and has their re-audit completed in 2013, this facility will still be due for a re-audit in the year 2014. It will not jump a cycle.

All facilities are required to coordinate their re-audits within the required time frame. The onus on coordinating and booking the audit lies with the facility.

Please note that failure to maintain certification may affect your insurance coverage.

Notwithstanding the foregoing or any other provision of the Code, for any site certified prior to January 1, 2011 and “grandfathered” under Section A1.1 of the Code (as being closer than 1.5 kilometres from a border of a city, town, village or hamlet, or from evacuation-sensitive facilities such as hospitals, schools, residential developments or senior citizens homes and 500 metres from any occupancy and 50 metres from an environmentally sensitive area) where such certification has been permitted to lapse for any reason for a period of greater than twelve (12) consecutive months, the grandfather exemption will be withdrawn and such site will be ineligible for future recertification or must demonstrate compliance with the current version of the Code.

CERTIFICATION EXTENSIONS

Certified facilities that are challenged with scheduling a re-audit before the expiry of their current certification due to unforeseen issues or renovation plans may be eligible to extend their certification for a determined period of time not to exceed six (6) months following the formal date of audit.

Certification extension allows a facility to avoid a lapse in certification however; the facility during this extended period will be considered 'in suspension' and will be ineligible to receive any product during this time. The facility must successfully complete a full audit prior to the end of the extended period. Failure to successfully complete an audit will result in a lapse in certification (see above Policy on Lapsed Certification).

The decision to grant a certification extension is at the sole discretion of Fertilizer Canada and shall be considered based on a demonstration of reasonable conditions.

Examples of reasonable conditions may include but are not limited to:

- Planned site renovations
- Emergency repairs
- Staff turnover and training

Extension requests must be submitted in writing to the Ammonia Code Project Manager no later than thirty (30) days **before** the site's re-audit due date. Rationale for the extension must be clearly stated and include a date by when the site will be re-audited*.

*Note that the original certification cycle will not change as a result of the certification extension. Please see the Re-Audit Process and Cycle section for details.

POLICY STATEMENT – RENOVATION OF CERTIFIED FACILITIES

Periodically it is expected that facilities certified under the Ammonia Code of Practice (Code) may make changes to their sites. Any renovations made to a site must comply with the Code and sites must be compliant with the Code at all times. If significant renovations or replacements are performed, such as movement, replacement, expansion or addition of fixed storage vessels, such renovations must be re-audited for compliance with Section A, B and G of the Code before being brought into service. The full site will still be subject to a full re-audit by their next scheduled re-audit date.

Notwithstanding the foregoing or any other provision of the Code, for sites certified under the Code prior to January 1, 2011 and “grandfathered” under Section A1.1 of the Code (as being closer than 1.5 kilometres from a border of a city, town, village or hamlet, or from evacuation-sensitive facilities such as hospitals, schools, residential developments or senior citizens homes and 500 metres from any occupancy and 50 metres from an environmentally sensitive area) the following restrictions apply:

- Any renovations to fixed storage vessels may not increase the capacity for product storage;
- Additional fixed storage vessels are not permitted; and
- While replacement or renewal of aging or obsolete fixed storage vessels is encouraged; any replacement vessels shall not have a larger storage capacity than the equipment being replaced.

Renovations that exceed the above mentioned restrictions are subject to the siting requirements of the current Code version.

POLICY STATEMENT – CHANGE IN OWNERSHIP

If a storage facility changes ownership:

- Facility operator is to notify the Code Program Manager of ownership change upon closing of purchase agreement. The facility operator is to forward the confirmation of insurance coverage as outlined in Protocol I1.
- Upon receipt of ownership change notification, the Code Program Manager will forward an “Application to Audit” form to be signed and returned within thirty (30) days of transfer to new ownership.
- The facility must be re-audited within ninety (90) days of transfer to new ownership, regardless of the date of the last audit. The new audit date would set the audit timelines thereafter.
- If the ownership change does not involve a change of personnel, the facility owner or manager may apply for a waiver from these changes of ownership requirements.
- Sites originally certified prior to January 1, 2011 and grandfathered under Section A1.1 will maintain their grandfathered status provided that the site is in continued use. Please refer to Policy on Lapsed Certification and Policy on Renovation of Certified Facilities.

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- F3–Knowledge of Emergency Response Plan
- F4–Care of Emergency Equipment
- F5–Knowledge of WHMIS
- F6–Critical Security Procedures
- F7–Maintenance of Equipment

SECTION G – EMERGENCY RESPONSE

- G1–Written Emergency Response Plan
- G2 –Communication of Emergency Response Plan
- G3–Risk Assessment

- G4–Copies of Emergency Response Plan
- G5–Annual Review and Update of Emergency Response Plan
- G6–Emergency Contact List
- G7–Emergency Response Drill
- G8–Contaminated Run-Off Water
- G9–Incident Reporting

SECTION H – RAILCARS AND EQUIPMENT

- H1–Railcar Design and Construction
- H2–Railcar Loading and Unloading Operations
- H3–Railcar Vessel Hoses
- H4–Transfer Pumps or Compressors
- H5–Railcar Labels and Markings
- H6–Personal Protective Equipment
- H7–Emergency Equipment
- H8–Railcar Security

SECTION I – INSURANCE

- I1–Insurance

SECTION A – SITING AND EXTERIOR REQUIREMENTS

This section applies to the following ammonia storage and handling operations:

- **Fixed Storage Operations** – are defined as a storage vessel supported on the ground by a foundation system. The foundation system can be permanent or temporary in nature.
- **Anhydrous Ammonia Equipment Storage Operations** – are defined as an area where anhydrous ammonia vessels, with a combined aggregate volume greater than 10,000 liters, are stored for a period greater than 72 hours. Storage areas where all the vessels have been emptied and de-pressured will be exempt from inclusion in this definition.
- **Railcar Transload Operations** – are defined as anhydrous ammonia operations utilized for the loading and off-loading of railcars.

A1 SITING REQUIREMENTS – DISTANCE FROM PEOPLE

A1.1 NEW ANHYDROUS AMMONIA STORAGE AND HANDLING OPERATIONS

NO.	PROTOCOL	Full Compliance Score	Actual Score
A1.1	<p>The minimum distances from occupancies for siting an anhydrous ammonia storage and handling operation certified under the Ammonia Code of Practice on or after January 1, 2011 are:</p> <p>(a) 1.5 kilometres from the border of a city, town, village or hamlet, or from evacuation-sensitive facilities such as hospitals, schools, residential developments or senior citizens homes; <u>and</u></p> <p>(b) 500 metres from <u>any</u> occupancy (e.g. a rural residence or a small business); <u>and</u></p> <p>(c) 50 metres from an environmentally sensitive area (lake, stream, wetland etc.); <u>and</u></p> <p>Approval from the local authority having jurisdiction is also required.</p> <p><i>Compliance will be indicated by documentation such as dated plans demonstrating the required distances, and local authority approval documentation.</i></p> <p>The recommended best practice is to locate new anhydrous ammonia storage and handling operations a minimum of 3.0 kilometres from the boundary of a city, town, village, hamlet or evacuation-sensitive facilities.</p>	Mandatory	

A1.2 ALL OPERATIONS LESS THAN 500 METRES FROM POPULATION CONCENTRATIONS OR LESS THAN 100 METRES FROM ANY OCCUPANCY

All anhydrous ammonia storage and handling operations located less than 500 metres from the boundary of a city, town, village, hamlet or from an evacuation-sensitive facility (e.g. hospital, school or senior citizens home), or less than 100 metres from any occupancy (e.g. rural residence):

NO.	PROTOCOL	Full Compliance Score	Actual Score
A1.2	<p>In order to minimize the risk to people from an accidental release of anhydrous ammonia, the following measures are required:</p> <p>(a) Where loading and unloading is conducted at the operation, pull-away protection shall be installed on liquid hose connections (both in load and out load).</p> <p>All sites are required to have pull-away protection installed on <u>both</u> liquid and vapour hose connections (both in load and out load).</p> <p><i>Compliance will be indicated by inspection of the equipment and demonstration of functionality.</i></p>	Mandatory	
	<p>(b) Additional security precautions shall be installed at the operation including:</p> <ul style="list-style-type: none"> If fencing is in place, all fencing must be topped by three strands of barbed wire ; <p>AND</p>	10	
	<ul style="list-style-type: none"> Some form of security lighting. <p><i>Compliance will be indicated by inspection of the equipment and demonstration of functionality.</i></p>	10	

A1.3 COMMUNICATION WITH LOCAL PEOPLE

This protocol applies to all ammonia operations covered by Section A of this Code.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A1.3	<p>To ensure that members of the public located near ammonia operations are adequately informed and aware of emergency procedure, the following measures are required:</p> <p>(a) Annual contact with people within 3.0 kilometres:</p> <ul style="list-style-type: none"> Communication must inform people of the presence of an ammonia operation, and the communication 	Mandatory	

	<p>process to be used in the event of an emergency.</p> <ul style="list-style-type: none"> • Communication shall be in writing. <p><i>Compliance will be indicated by inspection of the list of local stakeholders and dated copies of the required written materials.</i></p> <p>(b) Annual contact with people within 1.5 kilometres:</p> <ul style="list-style-type: none"> • Communication must include information on the nature and hazards of ammonia. • Communication must include information on basic emergency response procedures including contact numbers, and both shelter-in-place and evacuation procedures. <p><i>Compliance will be indicated by inspection of the list of local stakeholders and dated copies of the required written materials.</i></p> <p>(c) Review of emergency response plan with people within 500 metres:</p> <ul style="list-style-type: none"> • Local people within 500 metres must be invited annually to a review session of the emergency response plan as it applies to those people. <p><i>Compliance will be indicated by inspection of a list of the local people and dated invitation letters to the review sessions.</i></p>	Mandatory	
		Mandatory	

A2 DISTANCE FROM ANHYDROUS AMMONIA STORAGE AND HANDLING OPERATION TO ROADWAY OR RAILWAY

The anhydrous ammonia storage and handling operation complies with the setback distances as prescribed by Provincial or Federal regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A2	<p>The anhydrous ammonia storage and handling operation complies with the setback distances as prescribed by Provincial or Federal regulations. Consult Federal and/or Provincial regulations regarding setback distances.</p> <p><i>Compliance will be indicated by an appropriate license or permit from the authority having jurisdiction, or evidence of compliance presented by the owner or person responsible.</i></p>	Mandatory	

A3 DISTANCE FROM ANHYDROUS AMMONIA STORAGE AND HANDLING OPERATIONS TO ENVIRONMENTALLY SENSITIVE AREAS.

Anhydrous ammonia operations must have measures in place to prevent contamination of environmentally sensitive areas such as rivers, lakes, streams and wetlands.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A3	<p>If the anhydrous ammonia storage and handling operation is located closer than 100 metres from environmentally sensitive areas, means of containment must be present to control and contain emergency run-off water. This may be achieved by utilizing sand bags to plug a culvert in a drainage ditch around the operation in emergency situations.</p> <p><i>Compliance will be indicated by the examination of a runoff containment plan.</i></p>	Mandatory	

A4 SECURITY FOR ANHYDROUS AMMONIA STORAGE AND HANDLING OPERATIONS

The anhydrous ammonia storage and handling operation complies with the applicable requirements of the site security protocol.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A4.1	<p>The anhydrous ammonia storage and handling operation must incorporate measures to prevent unauthorized access to the product. Acceptable measures include one or more of the following:</p> <p>Fencing – Ammonia equipment is secured within a security fence and lockable security gates.</p> <p>Minimum height for fencing is 6 feet. Fencing can be either 5-foot wire fence topped with three-strand barb wire or 6-foot chain link, with or without three strands of barbed wire.</p> <p>– OR –</p> <p>Valve and Tank Securement – All liquid valves that provide primary access to anhydrous ammonia as a means of containment have been physically secured with a valve lock. There must also be physical measures taken to prevent unauthorized removal of portable anhydrous ammonia storage vessels.</p> <p>– OR –</p> <p>Other Physical Means of Security – Other acceptable means of</p>	Mandatory	

A4.2	<p>security include intrusion detection systems, security presence or surveillance. <u>There must also be physical measures taken to prevent unauthorized removal of portable anhydrous ammonia vessels.</u></p> <p><i>Compliance will be indicated through site inspection to verify the presence of required security measures.</i></p> <p>Unattended sites must be inspected every two weeks while unattended.</p> <p><i>Compliance will be indicated by examination of completed inspection check sheets.</i></p>	20	
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A5 OPERATIONAL LIGHTING

The anhydrous ammonia storage and handling operation is equipped with sufficient lighting to allow for the safe transfer of anhydrous ammonia during night-time operations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A5	<p>Minimum Requirements</p> <p>All points around the storage vessels, where anhydrous ammonia is transferred, require dedicated lighting sufficient for work to be done safely.</p> <p><i>Compliance will be indicated through the presence of required operational lighting.</i></p>	10	

A6 EMERGENCY EGRESS

The storage vessel area is constructed in a manner to provide adequate emergency egress for personnel in case of a release.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A6	<p>Fences</p> <p>If the storage vessel is enclosed within a security fence, there must be at least two escape exits located to provide options for escape regardless of wind direction. An exit route with a minimum width of 1 metre leading to exits in the fence must be kept clear at all times. The main gate may function as one of these exits.</p> <p><i>Compliance will be indicated through a visual inspection of the means of emergency egress.</i></p>	Mandatory	

A7 FACILITY SIGNAGE

The anhydrous ammonia storage and handling operation is equipped with required warnings and emergency response signage.

NO.	PROTOCOL	Full Compliance Score	Actual Score
A7	Minimum Requirements The following information must be located at the entrance to the site:		
A7.1	Caution/Danger Anhydrous Ammonia	10	
A7.2	Authorized Personnel Only	10	
A7.3	No Smoking or Open Flames (both statements are required)	10	
A7.4	Nearest location of publically accessible phone	10	
A7.5	After hours and daytime emergency contact numbers including company and emergency services	Mandatory	
A7.6	Signs must be equipped with letters on a contrasting background that makes the sign legible to approaching emergency services.	10	
	<i>Compliance will be indicated through a visual inspection of the signage.</i>		

A8 HOUSEKEEPING

NO.	PROTOCOL	Full Compliance Score	Actual Score
A8	Housekeeping The ammonia operation shall have a written housekeeping program. The program shall include all of the following elements: (a) A list of locations and areas to be inspected; (b) Who is responsible for performing housekeeping inspections; (c) Inspection frequency; and (d) A system for recording the results of inspections and for following up on corrective actions. <i>Compliance will be indicated by examination of the written procedure and records of completed housekeeping inspections.</i>	Mandatory	

SUMMARY SCORE FOR SECTION A

TO BE COMPLETED BY THE AUDITOR

SECTION A	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	11	11	(must be 100% compliant on Mandatory Items)
Points Items	100 points	80 points	(must be 80% compliant on Point Items)

SECTION B – STORAGE VESSEL AND EQUIPMENT

This section contains the standards for managing risks associated with an anhydrous ammonia storage vessel. Storage vessels are defined as fixed tanks designed according to Federal and/or Provincial regulations used for permanent or temporary storage of anhydrous ammonia (excluding units covered by Transportation of Dangerous Goods requirements).

B1 STORAGE VESSEL DESIGN AND CONSTRUCTION

All anhydrous ammonia storage vessels have been designed, constructed, operated and maintained in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B1.1	<p>The storage vessel at the anhydrous ammonia operation has been designed and constructed in accordance with the applicable codes, and has a Canadian Registration Number (CRN). Consult Provincial Boiler and Pressure Vessel Regulations for applicable code requirements.</p> <p><i>Compliance will be indicated by inspection of a data plate on the vessel and evidence of a CRN.</i></p>	Mandatory	
B1.2	<p>The supports for the anhydrous ammonia storage vessel and piping are constructed of non-combustible materials. Foundation systems shall not pose a fire hazard.</p> <p><i>Compliance will be indicated by a visual inspection of the foundation and support structure to determine if it is constructed of non-combustible construction (concrete or steel).</i></p>	Mandatory	
B1.3	<p>Regular and scheduled maintenance and testing is performed as required by codes and regulations.</p> <p><i>Compliance will be indicated through a visual inspection of inspection, testing and repair documentation. When documentation is kept elsewhere, a signed and dated letter from the person responsible for maintenance and testing will be sufficient.</i></p>	Mandatory	

B2 STORAGE VESSEL VALVES, PIPING AND GAUGES

All valves, piping and gauges at the anhydrous ammonia storage and handling operation have been designed, constructed, operated and maintained in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B2	Valves on Storage Vessel – Minimum Requirements		
B2.1	<p>All storage vessels must be equipped with a positive emergency shut-off valve to stop the flow of product from the vessel in an emergency on all liquid lines except inlet lines equipped with check valves. The emergency shut-off must be able to be operated from a distance. The activating lever or device on the emergency shut-off must be colour-coded blue.</p> <p>Best practice is that the emergency shut-off should be able to be operated from multiple locations to ensure access in case of a release. Recommended best practice is to use an Internal Safety Control Valve (ISC) as the emergency shut-off.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel to determine the presence of an emergency shut-off system.</i></p>	Mandatory	
B2.2	<p>All storage vessels are equipped with excess flow valves that have been correctly sized in accordance with the restriction of the piping system to ensure effective operation of the excess flow valve.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible indicating the presence of appropriately sized excess flow valves in the piping system.</i></p>	Mandatory	
B2.3	<p>All valves are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible indicating all valves at the anhydrous ammonia operation are suitable for anhydrous ammonia service.</i></p>	Mandatory	
B2.4	<p>Hose-end valves have been constructed and/or guarded to prevent accidental opening. This may include the configuration of the valve opening mechanism or the installation of a guard.</p> <p><i>Compliance will be indicated through a visual inspection</i></p>	Mandatory	
B2.5	<p>Safety relief valves shall conform to applicable regulations.</p>	Mandatory	

B2.6	Safety relief valves shall also be equipped with standpipes (typically 36 inches in length) and raincaps. Pipes should be adequately supported to prevent damage due to wind.	10	
B2.7	<p>The expiry date on the safety relief valves must not be exceeded.</p> <p><i>Compliance will be indicated in two parts; first through a visual inspection of the standpipes and the raincaps and second through documentary evidence of safety relief valves change outs. When documentation is kept elsewhere, a signed and dated letter from the person responsible for maintenance and testing will be sufficient.</i></p>	Mandatory	
B2.8	<p>Hydrostatic relief valves have been installed to conform with applicable regulations. The expiry date for the hydrostatic relief valve must not be exceeded.</p> <p><i>Compliance will be indicated through a visual inspection of the positioning of the hydrostatic relief valves in the piping system, and inspection of documentation of valve changeouts within expiry dates. For valves stamped with manufacture dates, documentation will be examined to ensure the valves are changed out at the manufacturer's recommended frequency.</i></p>	Mandatory	
B2.9	<p>Piping on Storage Vessel – Minimum Requirements</p> <p>Piping systems on anhydrous ammonia storage vessels have been designed and constructed with Schedule 40 and/or Schedule 80 pipe. All Schedule 40 pipe has been inspected to ensure no threaded connections were made. All threaded connections must be constructed with a minimum of Schedule 80 pipe.</p> <p>Best practice is to standardize all piping systems to a minimum of Schedule 80.</p> <p><i>Compliance will be indicated by a signed and dated requirements list from the current owner or person responsible indicating that all schedule 40 piping is welded and that all threaded connections are minimum schedule 80. When documentation is kept elsewhere, a signed and dated letter from the person responsible for maintenance and testing will be sufficient.</i></p>	Mandatory	
B2.10	<p>Forged steel, stainless steel, or malleable iron fittings are allowed for anhydrous ammonia piping if they are rated for the correct design pressure. No brass, copper, galvanized or zinc fittings shall be used.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible</i></p>	Mandatory	

	<p><i>indicating that all fittings have been sized and rated for the pressures they will be exposed to in the piping system. The letter will also indicate that no brass, galvanized or zinc fittings have been used in the piping system.</i></p>		
B2.11	<p>All piping must be colour-coded yellow for vapour lines, orange for liquid lines and blue for emergency shut-off devices.</p> <p><i>Compliance will be indicated through a visual inspection of lines and devices to ensure proper colour-coding.</i></p>	20	
B2.12	<p>The vessel liquid piping system is equipped with emergency positive shut-off valves that are designed and constructed to activate automatically in the event of a pull-away.</p> <p><i>Compliance will be indicated through a visual inspection of emergency shut-off devices for a pull-away.</i></p>	40	
B2.13	<p>Non-stainless steel flex connectors used for differential movement between components have been approved for anhydrous ammonia service and have been hydrostatically tested annually.</p> <p>Best practice is to install braided stainless steel flex pipe since it does not require an annual hydrostatic test.</p> <p><i>Compliance will be indicated by a visual inspection of connectors and of pressure testing documentation.</i></p>	Mandatory	
B2.14	<p>Gauges on Storage Vessel – Minimum requirements</p> <p>All gauges on the storage vessel and piping system are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a signed and dated letter from the current owner or person responsible indicating that the designs and materials of all gauges are appropriate for the service.</i></p>	Mandatory	
B2.15	<p>The storage vessel must be equipped with a level gauge to prevent over filling of the vessel.</p> <p><i>Compliance will be indicated through a visual inspection of the storage vessel to determine the presence of an approved level gauge.</i></p>	Mandatory	
B2.16	<p>The vessel is equipped with a 0-400 psi (28.129 kPa) pressure gauge to monitor the pressure of product in the vessel.</p> <p><i>Compliance will be indicated through a visual inspection of the storage vessel to determine the presence of an approved pressure gauge.</i></p>	Mandatory	

B3 STORAGE VESSEL HOSES

All hoses at the anhydrous ammonia storage and handling operation have been installed and tested in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B3	Minimum Requirements		
B3.1	<p>All hoses used on an anhydrous ammonia storage vessel are clearly marked as approved for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through visual inspection of all hoses on the vessel to ensure they have proper markings indicating approval for anhydrous ammonia service.</i></p>	Mandatory	
B3.2	<p>All hoses are marked with their Maximum Allowable Working Pressure (MAWP).</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure they have proper markings indicating Maximum Allowable Working Pressure.</i></p>	Mandatory	
B3.3	<p>All hoses have not exceeded their manufacturer's "remove from service" date.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure manufacturer's labelled "remove from service" date has not been exceeded.</i></p>	Mandatory	
B3.4	<p>All hoses have been equipped with crimp-on or bolt-on hose couplings designed for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through visual inspection of all hoses on the vessel to ensure all hose couplings are either of the bolt-on or crimp-on type.</i></p>	Mandatory	
B3.5	<p>All hoses have been annually inspected, tested and marked in accordance with the CSA standards.</p> <p><i>Compliance will be indicated in two parts. First, all hoses on the vessel will be visually inspected to determine if they have been marked in accordance with CSA standards. Second, the hose testing records will be reviewed to ensure hose testing has been conducted and documented at the appropriate frequency. When documentation is kept elsewhere, a signed and dated letter from the person responsible for maintenance and testing will be sufficient.</i></p>	Mandatory	
B3.6	<p>When the site is unattended, the hose-end valves are secured against unauthorized access.</p> <p><i>Compliance will be indicated by a demonstration by site</i></p>	20	

	<i>personnel of the proper methods for securing the hose-end valves while the site is unattended.</i>		
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B4 STORAGE VESSEL TRANSFER PUMPS OR COMPRESSORS

The transfer pump or compressor on the anhydrous ammonia storage vessel has been designed and approved for use with anhydrous ammonia.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B4	Minimum Requirements		
B4.1	The transfer pump or compressor must be approved by the manufacturer for anhydrous ammonia service. <i>Compliance will be indicated through a visual inspection.</i>	Mandatory	
B4.2	The transfer pump or compressor on the anhydrous ammonia storage vessel has been equipped with guards to protect people from contact with drive pulleys and belts. <i>Compliance will be indicated through a visual inspection of all transfer pumps or compressors to ensure they are equipped with guards to prevent contact with drive pulleys and belts.</i>	Mandatory	
B4.3	The transfer pump or compressor must be secured to a mount constructed of non-combustible material. <i>Compliance will be indicated through a visual inspection of the transfer pump mount or compressor mount to ensure it is comprised of non-combustible construction.</i>	Mandatory	

B5 VESSEL LABELS AND MARKINGS

The anhydrous ammonia storage vessel has the required labels and markings.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B5	Minimum Requirements		
B5.1	The anhydrous ammonia storage vessel has been clearly marked with the required labelling for ammonia in a colour distinct from the white background of the pressure vessel. Letters must be a minimum of 4 inches in height. Signage must appear on the two long sides of the vessel.	Mandatory	
B5.2	The anhydrous ammonia storage vessel shall be clearly marked with the words “INHALATION HAZARD” on the two long sides of the vessel in a colour distinct from the white background of the	20	

	pressure vessel. Letters must be a minimum of 4 inches in height.		
B5.3	Current Transportation of Dangerous Goods placards must be mounted on the two long sides of the vessel.	10	
B5.4	WHMIS supplier label must be affixed at all transfer points.	Mandatory	
B5.5	Safe handling procedures must be located at all transfer points.	20	
B5.6	Emergency first aid procedures must be located at all product transfer points on the vessel.	20	
	<i>Compliance will be indicated through a visual inspection of the signage on the vessel to ensure the signage meets requirements.</i>		

B6 BLEED-OFF CONTAINMENT

A system for containing anhydrous ammonia (vapour and liquid) produced during uncoupling and bleed-off operations has been installed on the anhydrous ammonia storage vessel.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B6	Minimum Requirements		
B6.1	A containment tank for bleed-off vapour/liquid is required. <i>Compliance will be indicated through a visual inspection of the required equipment.</i>	Mandatory	
B6.2	The containment tank for the bleed-off vapour/liquid containment system has been labelled as bleed-off water or tank in a contrasting colour and with lettering a minimum of 2 inches in height. <i>Compliance will be indicated through a visual inspection of the vessel to ensure the proper design and construction of the bleed-off vapour/liquid containment system.</i>	10	
B6.3	A program is in place for the proper disposal of contaminated bleed-off water. <i>Compliance will be indicated through the presence of a written procedure in the safe operating procedure manual.</i>	10	
B6.4	The tank is equipped with a lid to prevent access. <i>Compliance will be indicated through a visual inspection of the containment tank.</i>	10	

B7 PERSONAL PROTECTIVE EQUIPMENT

The anhydrous ammonia storage and handling operation is equipped with the required personal protective equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B7	Minimum Requirements Each employee working with ammonia at an anhydrous ammonia operation must have the following:		
B7.1	Full-face cartridge style respirator complete with extra cartridges.	Mandatory	
B7.2	One- or two-piece anhydrous ammonia resistant suit.	Mandatory	
B7.3	Gauntlet style anhydrous ammonia resistant gloves.	Mandatory	
B7.4	CSA approved safety boot with a minimum six inch upper.	Mandatory	
B7.5	Individual emergency water bottle filled with clean, fresh water.	Mandatory	
	<i>Compliance will be indicated through a visual inspection of the safety equipment to ensure that the proper type and quantity is on site.</i>		

B8 EMERGENCY EQUIPMENT

The anhydrous ammonia storage and handling operation is equipped with the required emergency equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B8	Minimum Requirements In addition to all personal protective equipment, the following designated emergency equipment is required:		
B8.1	Two anhydrous ammonia full-face respirators complete with spare canisters/cartridges.	Mandatory	
B8.2	If required by Provincial regulations, two Self-Contained Breathing Apparatuses (SCBA).	Mandatory	
B8.3	Two one- or two-piece anhydrous ammonia resistant suits.	Mandatory	
B8.4	First Aid kit of a size appropriate for the number of employees at the site.	Mandatory	

B8.5	At minimum, a 10 lb charged ABC fire extinguisher (one located near each anhydrous ammonia transfer point).	20	
B8.6	Two water supplies are required for emergency requirements. Water supplies may be either safety showers or 200 gallon water troughs filled with clean, fresh water and labelled with a red cross to designate emergency response water. Troughs must be located within 10 metres of anhydrous ammonia transfer points. Water troughs must be located opposite to each other on either side of the storage vessel, considering the prevailing wind direction. Water must be heated to prevent freezing when used in the colder months during spring and fall.	Mandatory	
B8.7	Emergency eyewash capability.	Mandatory	
B8.8	Two wind indicators must be located at the anhydrous ammonia storage operation in order to determine the wind direction for emergency response purposes. <i>Compliance will be indicated through a visual inspection of all required emergency response equipment.</i>	Mandatory	

B9 ELECTRICAL CODE COMPLIANCE

The anhydrous ammonia storage and handling operation's electrical system complies with the requirements of applicable regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
B9	Minimum Requirements		
B9.1	The anhydrous ammonia vessel has been adequately grounded to mitigate damage from lightning strikes. <i>Compliance will be indicated through a visual inspection of grounding system of the vessel.</i>	Mandatory	
B9.2	Electric motors must comply with applicable regulatory requirements. <i>Compliance will be indicated through a signed and dated letter from the current owner or person responsible indicating compliance of motors with local regulations.</i>	Mandatory	
B9.3	Weather-tight electrical enclosures are required for all exterior mounted electrical switches and controls. <i>Compliance will be indicated through a visual inspection of all enclosures for exterior switches and controls to ensure they are</i>	Mandatory	

B9.4	<i>weather-tight.</i> Heaters for emergency water tanks must be protected by Ground Fault Interrupters (GFI). <i>Compliance will be indicated through a visual inspection.</i>	Mandatory	
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SUMMARY SCORE FOR SECTION B

TO BE COMPLETED BY THE AUDITOR

SECTION B	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	43	43	(must be 100% compliant on Mandatory Items)
Points Items	220 points	176 points	(must be 80% compliant on Point Items)

SECTION C – TRANSPORT AND APPLICATION EQUIPMENT

This section contains the standards for managing risks associated with anhydrous ammonia mobile transport and application equipment. For the purposes of this section, the following equipment must comply with the standards defined in this section.

Highway Transport Vessel or Delivery Vessel – is defined as a highway tank or delivery vessel designed to be used to haul product from the manufacturer to the retailer or from the retailer to the farm, excluding nurse wagons and applicator equipment.

SECTION C – PART 1: TRANSPORT EQUIPMENT

C1 TRANSPORT VESSEL DESIGN AND CONSTRUCTION

All anhydrous ammonia transport vessels have been designed, constructed, operated and maintained in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C1	Minimum Requirements		
C1.1	<p>The transport vessels have been designed, constructed, operated and maintained in accordance with the applicable codes. Consult the Provincial Boiler and Pressure Vessel Regulations for applicable code requirements.</p> <p><i>Compliance will be indicated by a visual inspection of the data plate for ASME certification or through documentation.</i></p>	Mandatory	
C1.2	<p>The Canadian Registration Number (CRN), Transport Canada Registration Number (TCRN) or recognized equivalent specification is legible and is on the nameplate affixed to the vessel.</p> <p><i>Compliance will be indicated through a visual inspection of the nameplate.</i></p>	Mandatory	
C1.3	<p>Regular scheduled maintenance and testing is required and can be verified through documentation and visual inspection.</p> <p><i>Compliance will be indicated through a visual inspection of the markings on the vessel or testing documentation.</i></p>	Mandatory	

C2 TRANSPORT VESSEL VALVES, PIPING AND GAUGES

All valves, piping and gauges on the anhydrous ammonia transport vessels have been designed and constructed in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C2	Valves on Transport Vessel – Minimum Requirements		
C2.1	<p>All liquid and vapour lines must be equipped with an emergency shutoff valve to stop the flow of product in an emergency. Emergency shutoff valves must be operable automatically or remotely.</p> <p>The activating lever or device on the emergency shut-off must be colour-coded blue.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	Mandatory	
C2.2	<p>All transport vessels shall be equipped with excess flow valves on outlet lines that have been correctly sized in accordance with the restriction of the piping system to ensure effective operation of the excess flow valve.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	Mandatory	
C2.3	<p>All valves are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	Mandatory	
C2.4	<p>Hose-end valves have been constructed to prevent accidental opening. This may include the configuration of the valve opening mechanism or the installation of a guard to prevent accidental opening.</p> <p><i>Compliance will be indicated through a visual inspection of hose-end valves.</i></p>	Mandatory	
C2.5	<p>Safety relief valves shall conform to applicable regulation. The expiry date on safety relief valves must not be exceeded.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	Mandatory	

C2.6	<p>Hydrostatic relief valves are installed in accordance with regulatory requirements. The expiry date for the hydrostatic relief valves has not been exceeded.</p> <p>Best practice is to direct the valve downward or have it tubed away.</p> <p><i>Compliance will be indicated through a visual inspection of positioning of hydrostatic relief valves in the piping system and a visual inspection of documentary evidence to determine if their expiry date has been exceeded.</i></p>	Mandatory	
C2.7	<p>The transport vessel must have a means of securing discharge valves when left unattended.</p> <p><i>Compliance will be indicated through a visual inspection of devices used for securing of valves.</i></p>	30	
C2.8	<p>Piping on Transport Vessel – Minimum Requirements</p> <p>Piping systems on the transport vessel have been designed and constructed with Schedule 40 and/or Schedule 80 pipe. All Schedule 40 pipe has been inspected to ensure no threaded connections were made. All threaded connections must be constructed with a minimum of Schedule 80 pipe. Best practice is to standardize all piping systems to a minimum of Schedule 80.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for CSA B620 compliance or through documentation.</i></p>	Mandatory	
C2.9	<p>Forged steel, stainless steel or malleable iron fittings are allowed for anhydrous ammonia piping if they are rated for the correct design pressure. No brass, copper, galvanized or zinc materials shall be used.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	Mandatory	
C2.10	<p>All piping must be colour-coded yellow for vapour lines, orange for liquid lines and blue for emergency shut-off devices.</p> <p><i>Compliance will be indicated through a visual inspection of lines and devices to ensure proper colour-coding.</i></p>	20	
C2.11	<p>All types of rubber hose used as flex connectors for differential movement between components shall be approved for anhydrous ammonia service and must be inspected annually and hydrostatically tested at the required intervals.</p>	Mandatory	

<p>C2.12</p>	<p><i>Compliance will be indicated by inspection of hose testing records.</i></p> <p>Gauges on Transport Vessel – Minimum Requirements</p> <p>All gauges on the transport vessel and piping system are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	<p>Mandatory</p>	
<p>C2.13</p>	<p>The transport vessel must be equipped with a level gauge to prevent over filling of the vessel.</p> <p><i>Compliance will be indicated through a visual inspection of the transport vessel to determine the presence of an approved level gauge.</i></p>	<p>Mandatory</p>	
<p>C2.14</p>	<p>The transport vessel is equipped with a 0-400 psi (28.129 kPa) pressure gauge to monitor the pressure of product in the vessel.</p> <p><i>Compliance will be indicated through a visual inspection of the transport vessel to determine the presence of an approved pressure gauge.</i></p>	<p>Mandatory</p>	

C3 TRANSPORT VESSEL HOSES

All hoses on the transport vessel have been installed and tested in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
<p>C3</p>	<p>Minimum Requirements</p>		
<p>C3.1</p>	<p>All hoses used on an anhydrous ammonia transport vessel are clearly marked as approved for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure proper markings indicating approval for anhydrous ammonia service.</i></p>	<p>Mandatory</p>	
<p>C3.2</p>	<p>All hoses are marked with Maximum Allowable Working Pressure (MAWP).</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure proper markings indicating Maximum Allowable Working Pressure.</i></p>	<p>Mandatory</p>	

C3.3	<p>All hoses have not exceeded their manufacturer’s “remove from service” date.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure manufacturer’s labeled “remove from service” date on the hoses has not been exceeded.</i></p> <p>All hoses have been equipped with crimp-on or bolt-on hose couplings designed for anhydrous ammonia service.</p>	Mandatory	
C3.4	<p>All hoses have been equipped with crimp-on or bolt-on hose couplings designed for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure all hose couplings are either of the bolt-on or crimp-on type.</i></p>	Mandatory	
C3.5	<p>All hoses have been annually inspected, tested and marked in accordance with the CSA standards.</p> <p><i>Compliance will be indicated in two parts. First, all hoses on the vessel will be visually inspected to determine if they have been marked in accordance with CSA standards. Second, the hose testing records will be reviewed to ensure hose testing has been documented and conducted at the appropriate frequency.</i></p>	Mandatory	

C4 TRANSPORT VESSEL TRANSFER PUMPS OR COMPRESSORS

The transfer pump or compressor on the anhydrous ammonia transport vessel has been designed and approved for use with anhydrous ammonia.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C4	Minimum Requirements		
C4.1	<p>The transfer pump or compressor must be approved by the manufacturer for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of the pump or compressor to ensure it is approved for anhydrous ammonia service.</i></p>	Mandatory	
C4.2	<p>The transfer pump or compressor on the anhydrous ammonia transport vessel has been equipped with guards to prevent contact with drive pulleys and belts.</p> <p><i>Compliance will be indicated through a visual inspection of all transfer pumps or compressors to ensure they are equipped with guards to prevent contact with drive pulleys and belts.</i></p>	Mandatory	
C4.3	<p>The transfer pump or compressor must be securely mounted.</p> <p><i>Compliance will be indicated through a visual inspection of the transfer pump mount.</i></p>	Mandatory	

C5 VESSEL LABELS AND MARKINGS

The anhydrous ammonia transport vessel has the required labels and markings.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C5	Minimum Requirements		
C5.1	The anhydrous ammonia transport vessel must be clearly marked with the required labelling for ammonia in a colour distinct from the white background of the pressure vessel. Letters must be a minimum of 4 inches in height. Signage must appear on the two long sides of the vessel.	Mandatory	
C5.2	The anhydrous ammonia transport vessel must be clearly marked with the words "INHALATION HAZARD" on the two long sides of the vessel in a colour distinct from the white background of the pressure vessel. Letters must be a minimum of 4 inches in height.	20	
C5.3	Current Transportation of Dangerous Goods (TDG) placards must be mounted on the unit as required by regulations.	Mandatory	
C5.4	Pressure test dates are on the vessel.	Mandatory	
C5.5	Safe handling procedures must be located on the vessel.	20	
C5.6	Emergency first aid procedures must be located on the vessel.	20	
C5.7	Emergency contact number must be legible from both sides of the tank and in a contrasting colour from the vessel.	Mandatory	
	<i>Compliance will be indicated through a visual inspection of signage on the vessel to ensure signage meets requirements.</i>		

C6 TRANSPORT EMERGENCY AND PERSONAL PROTECTIVE EQUIPMENT

The anhydrous ammonia transport vessel is equipped with the required emergency equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C6	Minimum Requirements		
	(a) Each transport vehicle must have the following:		
C6.1	First Aid kit.	Mandatory	
C6.2	At minimum, 3A 10BC (5 lb) fire extinguisher with nozzle.	Mandatory	

C6.3	Minimum of 20 liters (5 gallons) of clean, fresh emergency water.	Mandatory	
C6.4	Road side emergency kit.	Mandatory	
C6.5	Communication device (e.g. cell phone or two-way radio).	Mandatory	
	(b) Each transport operator must be equipped and instructed on the proper use of the following personal protective equipment:		
C6.6	One full-face respirator complete with spare cartridge/canister.	Mandatory	
C6.7	One- or two-piece anhydrous ammonia resistant suit.	Mandatory	
C6.8	Gauntlet style anhydrous ammonia resistant gloves.	Mandatory	
C6.9	CSA approved safety boots with a minimum six inch upper.	Mandatory	
C6.10	Individual water bottle with clean, fresh water.	Mandatory	
	<i>Compliance will be indicated through a visual inspection of personal protective equipment to ensure proper type and quantity for personnel operating the transport vessel.</i>		

C7 TRANSPORT VEHICLE CERTIFICATION

NO.	PROTOCOL	Full Compliance Score	Actual Score
C7	<p>Certain licenced vehicles transporting anhydrous ammonia must pass an annual Commercial Vehicle Safety Alliance (CVSA) inspection. Other vehicles must pass an annual safety inspection.</p> <p><i>Compliance will be indicated through an examination of the current CVSA safety sticker on vehicles or trailers requiring that inspection and maintenance records that indicate that other vehicles transporting anhydrous ammonia at the operation have passed an annual safety inspection.</i></p>	Mandatory	

C8 SECURITY FOR ANHYDROUS AMMONIA TRANSPORT VESSELS

The anhydrous ammonia transport vessel is secured in accordance with the security protocol.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C8	<p>Transport Vessel Security Protocol</p> <p>All transport vessels at the anhydrous ammonia operation comply with the following measures to prevent unauthorized</p>		

	access to the product:		
C8.1	Securing While in Transport – Drivers responsible for the transportation of anhydrous ammonia can stop for short break periods (less than 1 hour). However, main access valves on anhydrous ammonia transport vessels will have to be secured if the driver is out of visual contact with the vessel for more than 30 minutes.	Mandatory	
C8.2	Parking Near Evacuation-Sensitive Occupancies –Anhydrous ammonia transport vessels must not be parked within 500 metres of high occupancy facilities such as hospitals, schools, shopping malls, daycare centres and senior care homes, unless the vessel has been emptied and de-pressured.	Mandatory	
C8.3	Off-site storage of Transport Vessels – In addition to the requirements defined in C9.2 in this section, transport vessels cannot be stored, other than for maintenance periods not exceeding 72 hours, within city or town limits unless at a Code compliant site, or the vessels have been emptied and de-pressured.	Mandatory	
C8.4	Mobile ammonia vessels must have liquid valves secured while they are in storage unless they are stored inside a locked, fenced compound that complies with the Code fencing requirements (see Site Security section) or they have been emptied and de-pressured. Storing vessels inside a closed structure is prohibited unless the vessel has been emptied and depressurized.	Mandatory	
	<i>Compliance will be indicated by examination of a signed and dated standard operating procedures or training records.</i>		

SECTION C – TRANSPORT AND APPLICATION EQUIPMENT

This section contains the standards for managing risks associated with anhydrous ammonia application equipment. For the purposes of this section, the following equipment must comply with the standards defined in this section:

Nurse or Applicator Tank – nurse tanks or applicator tanks are anhydrous ammonia tanks that are mounted on a farm wagon or agricultural implement and are designed to be used in the field for applying anhydrous ammonia. This section applies only to Nurse or Applicator Tanks.

SECTION C – PART 2: APPLICATION EQUIPMENT

C9 NURSE AND APPLICATOR TANK DESIGN AND CONSTRUCTION

All anhydrous ammonia nurse tanks and applicator tanks have been designed, constructed, operated and maintained in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C9	Minimum Requirements		
C9.1	<p>The nurse tanks and applicator tanks have been designed and constructed in accordance with the applicable codes. Consult Federal/Provincial Boiler and Pressure Vessel Regulations for applicable code requirements.</p> <p><i>Compliance will be indicated by visual inspection of dataplate for ASME certification or through documentation.</i></p>	Mandatory	
C9.2	<p>The Canadian Registration Number (CRN), Transport Canada Registration Number (TCRN) or recognized equivalent specification is legible and is on the nameplate affixed to the vessels.</p> <p><i>Compliance will be indicated through a visual inspection of the nameplate and through documentation for tanks unavailable for inspection.</i></p>	Mandatory	
C9.3	<p>All nurse and applicator tanks have received scheduled maintenance and testing in accordance with regulatory requirements.</p> <p><i>Compliance will be indicated through a visual inspection of vessel markings or through documentation.</i></p>	Mandatory	

C10 NURSE AND APPLICATOR TANKS VALVES, PIPING, AND GAUGES

All valves, piping and gauges on the anhydrous ammonia nurse and applicator tanks have been designed and constructed in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C10	Valves on Nurse and Applicator Tanks – Minimum Requirements		
C10.1	<p>All nurse and applicator tanks are equipped with fill or withdrawal valves that incorporate excess flow valves that are correctly sized.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible indicating the presence of appropriately sized excess flow valves.</i></p>	Mandatory	
C10.2	<p>All valves are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible indicating all valves are suitable for anhydrous ammonia service.</i></p>	Mandatory	
C10.3	<p>Safety relief valves shall conform to applicable regulations. Valves shall be rated in accordance with tank design pressure. Safety relief valves shall also be equipped with raincaps and rollover protection. The expiry date on safety relief valves must not be exceeded.</p> <p><i>Compliance will be indicated in two parts. First, an examination of documentary evidence of safety relief valves change outs. Second, a visual inspection to determine the presence of raincaps and roll-over protection.</i></p>	Mandatory	
C10.4	<p>Hydrostatic relief valves have been installed to conform to applicable regulations. The expiry date for the hydrostatic relief valves has not been exceeded.</p> <p><i>Compliance will be indicated through a visual inspection of the positioning of the hydrostatic relief valves in the piping system, and a visual inspection of documentary evidence to determine if their expiry date has been exceeded.</i></p>	Mandatory	
C10.5	<p>All new single nurse tanks with a capacity of 10,000 litres (2642 USWG) or more, or any multiple nurse tank configurations purchased or coming into service on or after January 1, 2017, must be equipped with pull-away protection.</p>	Mandatory	

<p>C10.6</p>	<p>Effective January 1, 2022, all existing nurse tanks (single with capacity of 10,000 litres (2642 USWG) or more, or any multiple nurse tank configurations purchased before January 1, 2017, must be equipped with pull-away protection; unless regulations require them sooner.</p> <p><i>Compliance will be indicated by inspection of the equipment and demonstration of functionality.</i></p> <p>Piping on Nurse and Applicator Tanks – Minimum Requirements</p> <p>Any piping on nurse or applicator tanks has been designed and constructed with Schedule 40 and/or Schedule 80 pipe. All Schedule 40 pipe has been inspected to ensure no threaded connections were made. All threaded connections must be constructed with a minimum of Schedule 80 pipe.</p> <p>Best practice is to standardize all the piping systems to a minimum of Schedule 80.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for CSA B620 compliance or through documentation.</i></p>	<p>Mandatory</p>	
<p>C10.7</p>	<p>Forged steel, stainless steel, or malleable iron fittings are allowed for anhydrous ammonia piping if they are rated for the correct design pressure. No brass, copper, galvanized or zinc fittings shall be used.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible indicating that all fittings have been sized and rated for pressures they will be exposed to in the piping system. The letter will also indicate that no brass, galvanized or zinc fittings have been used in the piping system.</i></p>	<p>Mandatory</p>	
<p>C10.8</p>	<p>All piping must be colour-coded yellow for vapour lines and orange for liquid lines. If an emergency shut-off device is installed in the system, the device must be painted blue.</p> <p><i>Compliance will be indicated through a visual inspection of lines and devices to ensure proper colour coding.</i></p>	<p>20</p>	
<p>C10.9</p>	<p>All rubber hoses used as part of the piping system on nurse tanks are suitable for ammonia service, have not exceeded their “remove from service” date, shall be inspected annually and shall be pressure tested at the required intervals.</p> <p><i>Compliance will be indicated by inspection of hoses on nurse tanks and/or hose test records.</i></p>	<p>Mandatory</p>	

C10.10	<p>Gauges on Nurse and Applicator Tanks – Minimum Requirements</p> <p>All gauges on the nurse and applicator tanks and piping system are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of the vessel markings for B620 compliance or through documentation.</i></p>	Mandatory	
C10.11	<p>The nurse and applicator tanks are equipped with a means of determining the liquid level in the vessel. The vessel must be equipped with a magnetic float gauge and a fixed liquid level gauge.</p> <p><i>Compliance will be indicated through a visual inspection of the nurse and applicator tanks to determine the presence of an approved level gauge.</i></p>	Mandatory	
C10.12	<p>The nurse and applicator tanks are equipped with a 0-400 psi (28.129 kPa) pressure gauge to monitor the pressure of the product in the vessel.</p> <p><i>Compliance will be indicated through a visual inspection of nurse and applicator tanks to determine the presence of an approved pressure gauge.</i></p>	Mandatory	

C11 NURSE AND APPLICATOR TANK HOSES

All hoses on the anhydrous ammonia nurse and applicator tanks have been installed and tested in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C11	Minimum Requirements		
C11.1	<p>All hoses used on anhydrous ammonia nurse and applicator tanks are clearly marked as approved for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure they have proper markings indicating approval for anhydrous ammonia service.</i></p>	Mandatory	
C11.2	<p>All hoses are marked with their Maximum Allowable Working Pressure (MAWP).</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure they have proper markings indicating the Maximum Allowable Working Pressure.</i></p>	Mandatory	

C11.3	<p>All hoses have not exceeded their manufacturer’s “remove from service” date.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses to ensure manufacturer’s labelled “remove from service” date on the hoses has not been exceeded.</i></p>	Mandatory	
C11.4	<p>Hose-end valves have been constructed and/or guarded to prevent accidental opening. This may include the configuration of the valve opening mechanism or the installation of a guard.</p> <p><i>Compliance will be indicated by a visual inspection of hose-end valves.</i></p>	Mandatory	
C11.5	<p>All hoses have been equipped with crimp-on or bolt-on hose couplings designed for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure all hose couplings are either of the bolt-on or crimp-on type.</i></p>	Mandatory	
C11.6	<p>All hoses on nurse tanks and applicators have been annually tested and marked in accordance with the CSA standards.</p> <p><i>Compliance will be indicated in two parts. First, all nurse and applicator tank hoses will be visually inspected to determine if they have been marked in accordance with CSA standards. Second, the hose testing records will be reviewed to ensure hose testing has been documented and conducted at the appropriate frequency.</i></p>	Mandatory	
C11.7	<p>Breakaway couplers must be installed on all applicators that are equipped to tow a nurse tank.</p> <p><i>Compliance will be indicated through a visual inspection of applicators equipped for towing of nurse tanks to determine if they are equipped with a breakaway coupler.</i></p>	Mandatory	

C12 VESSEL LABELS AND MARKINGS

Anhydrous ammonia nurse and applicator tanks have the labels and markings as designated by regulatory requirements.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C12	<p>Minimum Requirements</p> <p>The nurse or applicator tanks are labelled in accordance with Federal and/or Provincial regulations. These markings will include:</p>		

C12.1	Nurse and applicator tanks are clearly marked with the required labelling for ammonia in a colour distinct from the white background of the pressure vessel. Letters must be a minimum of 4 inches in height. This signage must appear on the two long sides of the vessel.	Mandatory	
C12.2	Nurse and applicator tanks are clearly marked with the words “INHALATION HAZARD” on the two long sides of the vessel in a colour distinct from the white background of the pressure vessel. Letters must be a minimum of 4 inches in height.	Mandatory	
C12.3	Nurse and applicator tanks must display proper placards as per Transport Canada’s <i>Transportation of Dangerous Goods Regulations</i> .	Mandatory	
C12.4	The vessel testing and inspection labels.	Mandatory	
C12.5	Safe handling procedures and emergency first aid procedures are mounted near discharge points on the vessel.	20	
C12.6	Slow moving vehicle sign on the rear.	20	
C12.7	Emergency contact numbers must be located on both sides of the tank and in a contrasting colour from the vessel.	20	
	<i>Compliance will be indicated through a visual inspection of signage on nurse or applicator tanks to ensure signage meets requirements.</i>		

C13 NURSE AND APPLICATOR TANK PERSONAL PROTECTIVE EQUIPMENT

Anhydrous ammonia nurse and applicator tanks are equipped with the required personal protective equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C13	Minimum Requirements Each nurse and applicator unit must have the following:		
C13.1	Indirect or non-vented goggles.	Mandatory	
C13.2	Anhydrous ammonia resistant gloves.	Mandatory	
C13.3	Individual water bottle with clean, fresh water.	Mandatory	
C13.4	Minimum of 5 gallons of clean, fresh emergency water. Twin nurse tank units must have as a minimum, two 5 gallon water tanks, one on each side. Best practice is to have a minimum of 10 gallons of emergency water.	Mandatory	
	<i>Compliance will be indicated through a visual inspection of safety equipment to ensure proper type and quantity. Where</i>		

	<i>personal protective equipment is issued to customers (i.e. instead of accompanying nurse tanks, etc.), compliance will be indicated by documentation showing that the equipment has been issued.</i>		
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C14 TOW VEHICLE REQUIREMENTS

All vehicles used for towing anhydrous ammonia nurse wagons to and from the point of application of the product must meet minimum capacity requirements in accordance with the size of nurse tank they are towing.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C14	<p>Minimum Requirements</p> <p>In addition to regulatory requirements, tow vehicles used for transporting anhydrous ammonia nurse wagons must be rated for the size and weight of the nurse tank they are towing. Refer to requirements specified in the applicable Highway Traffic Act.</p> <p><i>Compliance will be indicated through a signed and dated requirements list from the current owner or person responsible indicating that all tow vehicles have met minimum requirements in accordance with the size of the nurse tank they are towing, or through inspection of corporate policies/training records.</i></p>	30	

C15 LIGHTING REQUIREMENTS FOR TOWING

All anhydrous ammonia tanks or applicators being towed by licenced vehicles on roads must be equipped with lighting in accordance with the applicable Highway Traffic Act or Transport Regulation.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C15	<p>Minimum Requirements</p> <p>If the size or configuration of the tanks or applicators being towed prevents following drivers from seeing the signal lights of the towing vehicle, the tank or applicator must have the following equipment to provide warning to following drivers (either permanently or temporarily mounted):</p> <ul style="list-style-type: none"> (a) Stop lights (b) Turn signal lights (c) Tail lights or reflectors <p>When transporting tanks or applicators with a farm tractor, the best practice is to enhance the visibility of the tank or</p>	<p>10</p> <p>10</p> <p>10</p>	

	<p>applicator through the use of reflective devices.</p> <p><i>Compliance will be indicated through documentation from the current owner or person responsible indicating that all tow vehicles have been equipped with lighting to allow following drivers to see signal lights from the tow vehicle and/or by visual inspection of the equipment.</i></p>		
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C16 SECURITY FOR ANHYDROUS AMMONIA NURSE AND APPLICATOR TANKS

All anhydrous ammonia nurse and applicator tanks are secured in accordance with the security protocol.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C16	Nurse and Applicator Tanks Security Protocol Nurse and applicator tanks at the anhydrous ammonia operation comply with the following measures to prevent unauthorized access to the product:		
C16.1	Securing While in Transport – Drivers responsible for the transportation of anhydrous ammonia nurse and applicator tanks can stop for short break periods (less than 1 hour). However, main access valves on anhydrous ammonia nurse and applicator tanks must be secured if the driver is out of visual contact for more than 30 minutes.	Mandatory	
C16.2	Parking Near Evacuation-Sensitive Occupancies – Anhydrous ammonia nurse and applicator tanks must not be parked within 500 metres of high occupancy facilities such as hospitals, schools, shopping malls, daycare centres and senior care homes unless the vessels have been emptied and de-pressured.	Mandatory	
C16.3	Storage of Nurse and Applicator Tanks		
	a) In addition to the requirements defined in C17.2 in this section, nurse and applicator tanks cannot be stored, other than for maintenance periods not exceeding 72 hours, within city or town limits unless they are stored at a Code compliant site or the tanks have been emptied and de-pressured.	Mandatory	
	b) In addition, nurse and applicator tanks must be secured against unauthorised access by one of the three methods detailed in section A4.1 of this Code, or they have been emptied and de-pressured.	Mandatory	
C16.4	Securing of Nurse and Applicator Tanks at Farm Locations – Farmers must be instructed on the proper measures to take to secure nurse and applicator tanks at farm locations. These	Mandatory	

	<p>instructions must include:</p> <p>a) Nurse or applicator tanks must have their main access valves secured while they are being stored overnight at a farm location or in the field. Storing the vessels inside a locked building is prohibited unless the vessel has been emptied and de-pressured.</p> <p>b) Nurse or applicator tanks that remain in the field overnight should be positioned to discourage tampering.</p> <p><i>Compliance will be indicated in two parts. First, through an examination of signed standard operating procedures and training records. Second, through a visual examination of a signed and dated letter from the current owner or person responsible, to the farmer advising them of the security requirements.</i></p>	<p>10</p> <p>10</p>	
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C17 NURSE AND APPLICATOR TANKS INSPECTION AND MAINTENANCE PROTOCOL

All nurse and applicator tanks shall be inspected and maintained to prevent running gear failures.

NO.	PROTOCOL	Full Compliance Score	Actual Score
C17	Minimum Requirements		
C17.1	Nurse and applicator tank running gear shall be visually inspected daily during operational periods.	20	
C17.2	A preventive maintenance program shall be in place for nurse and applicator tank running gear. Preventive maintenance programs shall include detailed visual inspection of tires, wheel bearings, kingpins, frames, reaches, hitches, tank mountings and piping assemblies. Inspections shall be completed seasonally and records kept.	Mandatory	
C17.3	<p>A preventive maintenance program shall include a physical inspection including disassembly of wheel bearings, kingpins, frames, reaches, hitches, tank mountings and piping assemblies. Inspections shall be completed every 5 years and records kept.</p> <p><i>Compliance will be indicated through a review of the preventive maintenance program.</i></p>	Mandatory	

SUMMARY SCORE FOR SECTION C – PART 1

TO BE COMPLETED BY THE AUDITOR

SECTION C	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	44	44	(must be 100% compliant on Mandatory Items)
Points Items	110 points	88 points	(must be 80% compliant on Point Items)

SUMMARY SCORE FOR SECTION C – PART 2

TO BE COMPLETED BY THE AUDITOR

SECTION C	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	36	36	(must be 100% compliant on Mandatory Items)
Points Items	180 points	144 points	(must be 80% compliant on Point Items)

SECTION D – TRAINING

D1 FACILITY GENERAL SAFETY RULES

NO.	PROTOCOL	Full Compliance Score	Actual Score
D1	<p>The management of the facility has developed, issued and reviewed the facility general safety rules with all employees of the facility. During discussion and observation, it appears that these rules are enforced.</p> <p><i>Compliance will be through observation and discussion with the person responsible.</i></p>	30	

D2 SAFE OPERATING PROCEDURES TRAINING

Training has been provided to all employees on the operating procedures applicable to their job function. Training must consist of procedural and supervised “hands on” application of the procedures to verify comprehension.

NO.	PROTOCOL	Full Compliance Score	Actual Score
D2	<p>Training has been provided to all employees on the safe operating procedures for each of their jobs.</p> <p><i>Compliance will be indicated through an examination of training records to indicate safe operating procedures training has been provided to all employees.</i></p>	Mandatory	

D3 TRANSPORTATION OF DANGEROUS GOODS TRAINING

All employees involved in the handling, offering for transport or transport of anhydrous ammonia have been trained in the *Transportation of Dangerous Goods Act and Regulations*, specific to anhydrous ammonia, and have valid training certificates.

NO.	PROTOCOL	Full Compliance Score	Actual Score
D3	<p>All employees involved in the handling, offering for transport or transport of anhydrous ammonia have had training on the <i>Transportation of Dangerous Goods Act and Regulations</i>. This may include clerical staff involved in the transportation administration process. Training is refreshed at the required intervals.</p> <p><i>Compliance will be indicated through an examination of training records to indicate Transportation of Dangerous Goods training has been provided to all affected employees.</i></p>	Mandatory	

D4 DRIVER CERTIFICATION

Employees who operate transport units have received the required driver licence certification in accordance with the applicable Highway Traffic Act or Transport Regulation.

NO.	PROTOCOL	Full Compliance Score	Actual Score
D4.1	Driver training, licencing and certification in accordance with applicable Federal and/or Provincial regulations is mandatory. <i>Compliance will be indicated through an examination of training records to indicate the appropriate staff required to operate transport vehicles have the appropriate training as required by regulatory authorities.</i>	Mandatory	
D4.2	Employers must keep driver's abstracts on file and review annually. <i>Compliance will be indicated by a letter from the current owner or person responsible that this requirement has been met for the year.</i>	20	

D5 WHMIS TRAINING

All employees at the anhydrous ammonia operation have been trained on the Workplace Hazardous Materials Information System (WHMIS).

NO.	PROTOCOL	Full Compliance Score	Actual Score
D5	WHMIS/(M)SDS training has been provided for all employees who work at the anhydrous ammonia operation as per Federal and/or Provincial regulations. <i>Compliance will be indicated through an examination of training records to indicate WHMIS training has been provided to all employees and records show an annual review has been completed.</i>	Mandatory	

D6 OCCUPATIONAL HEALTH AND SAFETY TRAINING PROGRAMS

NO.	PROTOCOL	Full Compliance Score	Actual Score
D6	The ammonia operation has developed and implemented an Occupational Health and Safety training program for all employees working with anhydrous ammonia including:		
D6.1	Isolation and lock-out procedures, safe work permit system for confined workspace entry, hot work (cutting and welding), and	20	

	elevated work.		
D6.2	Information on the rights of employees to refuse unsafe work.	20	
D6.3	Responsibilities of management and employees under the appropriate labour legislation. <i>Compliance will be indicated through an examination of training records to indicate Occupational Health and Safety safe work permits training has been provided to all employees as required.</i>	20	

D7 EMERGENCY TRAINING

NO.	PROTOCOL	Full Compliance Score	Actual Score
D7	Training has been provided for appropriate personnel on:		
D7.1	First Aid <i>Compliance will be indicated through an examination of training records to indicate the appropriate number of staff have been trained in first aid as required by regulatory authorities.</i>	Mandatory	
D7.2	Cardiopulmonary Resuscitation (CPR) <i>Compliance will be indicated through an examination of training records to indicate the appropriate number of staff have been trained in CPR as required by regulatory authorities.</i>	Mandatory	
D7.3	Fire extinguisher training <i>Compliance will be indicated through an examination of training records to indicate the appropriate number of staff have been trained on the proper use of fire extinguishers as required by regulatory authorities.</i>	10	
D7.4	Respiratory protection training for all personnel required to wear a respirator including those handling ammonia day-to-day and emergency responders <i>Compliance will be indicated through an examination of training records to indicate respiratory protection (including fit check) training has been provided to all affected staff annually.</i>	Mandatory	

D8 EMERGENCY RESPONSE TRAINING

NO.	PROTOCOL	Full Compliance Score	Actual Score
D8.1	All employees have been trained on what to do in an emergency situation.	Mandatory	

<p>D8.2</p>	<p><i>Compliance will be indicated through an examination of training records to indicate that all staff has been trained on the emergency response procedures.</i></p> <p>Employees who are involved in responding to emergencies at the anhydrous ammonia operation have received the appropriate training.</p> <p><i>Compliance will be indicated through an examination of training records to indicate that all staff has been trained on the emergency response procedures appropriate for their role.</i></p>	<p>Mandatory</p>	
<p>D8.3</p>	<p>Employees involved in the transportation of anhydrous ammonia have been trained in the proper procedures for their role in responding to a transportation emergency.</p> <p><i>Compliance will be indicated by an examination of training records to verify that employees have been trained.</i></p>	<p>Mandatory</p>	

D9 SECURITY

NO.	PROTOCOL	Full Compliance Score	Actual Score
<p>D9</p>	<p>All employees at the anhydrous ammonia operation have received training on security measures to prevent unauthorized access to anhydrous ammonia, and how to respond to a security incident.</p> <p><i>Compliance will be indicated through an examination of training records to verify that all staff have been trained on the security procedures appropriate to their role.</i></p>	<p>20</p>	

D10 CONTRACTOR SAFETY

NO.	PROTOCOL	Full Compliance Score	Actual Score
<p>D10</p>	<p>Minimum Requirements</p> <p>All contractors providing services on or in close proximity to anhydrous ammonia equipment shall be made aware of the hazards associated with ammonia.</p> <p><i>Compliance will be indicated through a signed letter from the current person responsible indicating all contractors have either received appropriate training or are directly supervised by a competent person with the appropriate training.</i></p>	<p>20</p>	

D11 CUSTOMER EDUCATION

NO.	PROTOCOL	Full Compliance Score	Actual Score
D11	<p>Customers transporting and using anhydrous ammonia have been instructed on the proper safety and emergency response procedures. All customers must be instructed every three years at minimum.</p> <p><i>Compliance will be indicated through a signed and dated letter from the current person responsible indicating that all customers are instructed on the proper procedures.</i></p>	Mandatory	

SUMMARY SCORE FOR SECTION D

TO BE COMPLETED BY THE AUDITOR

SECTION D	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	11	11	(must be 100% compliant on Mandatory Items)
Points Items	160 points	130 points	(must be 80% compliant on Point Items)

SECTION E – DOCUMENTATION

This section contains the documentation requirements for an anhydrous ammonia operation.

E1 EMPLOYEE TRAINING RECORDS

The anhydrous ammonia operation has training records for all employees.

NO.	PROTOCOL	Full Compliance Score	Actual Score
E1	<p>Minimum Requirements</p> <p>Training records are available for all employees.</p> <p><i>Compliance will be indicated through examination of the training records for employees at the operation.</i></p>	30	

E2 CRITICAL SAFE OPERATING PROCEDURES

The anhydrous ammonia operation has written procedures for critical tasks at the operation.

NO.	PROTOCOL	Full Compliance Score	Actual Score
E2	<p>Minimum Requirements</p> <p>The anhydrous ammonia operation has written safe operating procedures:</p>		
E2.1	Describing the correct process for safely and effectively performing all anhydrous ammonia transfer operations.	Mandatory	
E2.2	Describing (where applicable) the correct process for safely and effectively performing all confined workspace entry, lock-out, hot work and elevated work.	30	
E2.3	For the proper use and maintenance of personal protection equipment.	30	
	<p><i>Compliance will be indicated through an examination of the written safe operating procedures.</i></p>		

E3 MAINTENANCE RECORDS

The anhydrous ammonia operation has maintenance records indicating the completion of appropriate scheduled inspection and maintenance plans on anhydrous ammonia related equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
E3	Minimum Requirements		
E3.1	<p>Records are available indicating an annual safety inspection of all vehicles transporting anhydrous ammonia.</p> <p>Recommended best practice is to have all vehicles transporting anhydrous ammonia pass an annual inspection as certified by the Commercial Vehicle Safety Alliance (CVSA).</p> <p><i>Compliance will be verified through an examination of the maintenance records indicating that all vehicles transporting anhydrous ammonia at the operation have had a safety inspection within the last 12 months.</i></p>	Mandatory	
E3.2	<p>Records are available indicating a documented hydrostatic test on all anhydrous ammonia hoses.</p> <p><i>Compliance will be verified through an examination of the hose test records indicating that all hoses have had a pressure test within the last 12 months. When documentation is kept elsewhere, a signed and dated letter from the person responsible for maintenance and testing will be sufficient.</i></p>	20	
E3.3	<p>Records indicate seasonal visual inspections and a 5 year physical inspection of all running gear on nurse wagons.</p> <p><i>Compliance will be verified through an examination of the maintenance records indicating that all nurse wagons have had a seasonal visual safety inspection(s) within the last 12 months and a physical safety inspection completed in the last 60 months (as applicable).</i></p>	Mandatory	
E3.4	<p>Records are available indicating all pressure vessels are inspected, tested and certified in accordance with regulatory requirements.</p> <p><i>Compliance will be indicated through an examination of the maintenance records that indicate that all anhydrous ammonia vessels at the operation have been inspected and tested as defined by regulatory requirements. When documentation is kept elsewhere, a signed and dated letter from the person responsible for maintenance and testing will be sufficient.</i></p>	30	

E4 SHIPMENT OF PRODUCT TO COMPLIANT SITES

NO.	PROTOCOL	Full Compliance Score	Actual Score
E4	<p>Minimum Requirements</p> <p>All facilities receiving anhydrous ammonia shall be Ammonia Code compliant.</p> <p><i>Compliance will be indicated through examination of shipping records which shall clearly show the receiver's Ammonia Code certification number.</i></p>	Mandatory	

SUMMARY SCORE FOR SECTION E

TO BE COMPLETED BY THE AUDITOR

SECTION E	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	4	4	(must be 100% compliant on Mandatory Items)
Points Items	140 points	120 points	(must be 80% compliant on Point Items)

SECTION F – EMPLOYEE KNOWLEDGE

This section contains the standards for employee knowledge of the required safe practices for handling anhydrous ammonia.

F1 CRITICAL SAFE OPERATING PROCEDURES

The employees at the anhydrous ammonia operation are knowledgeable of the procedures for conducting critical tasks safely.

NO.	PROTOCOL	Full Compliance Score	Actual Score
F1	Minimum Requirements		
F1.1	The employees at the anhydrous ammonia operation can explain the hazards associated with anhydrous ammonia.	10	
F1.2	The employees at the anhydrous ammonia operation can explain the critical steps in completing anhydrous ammonia transfer operations.	10	
F1.3	The employees at the anhydrous ammonia operation can demonstrate an understanding of the critical operating limits and emergency procedures for equipment. <i>Compliance will be indicated through correct responses from a selection of employees from the anhydrous ammonia operation.</i>	10	

F2 KNOWLEDGE OF TRANSPORTATION OF DANGEROUS GOODS ACT AND REGULATIONS

The employees at the anhydrous ammonia operation are knowledgeable about the *Transportation of Dangerous Goods Act and Regulations*.

NO.	PROTOCOL	Full Compliance Score	Actual Score
F2	Minimum Requirements		
F2.1	Employees can explain the Transportation of Dangerous Goods placard classification system as it pertains to anhydrous ammonia.	10	
F2.2	Employees can explain the hazards associated with anhydrous ammonia and how that relates to the information featured on a Transportation of Dangerous Goods placard.	10	
F2.3	Employees can explain the documentation requirements as defined by the <i>Transportation of Dangerous Goods Act and Regulations</i> . <i>Compliance will be indicated through correct responses from a selection of employees.</i>	10	

F3 KNOWLEDGE OF EMERGENCY RESPONSE PLAN

Employees at the anhydrous ammonia operation are aware of the contents of the emergency response plan and their role within it.

NO.	PROTOCOL	Full Compliance Score	Actual Score
F3	Minimum Requirements		
F3.1	Employees can explain the emergencies addressed in the emergency response plan.	10	
F3.2	Employees can explain their specific duties in the event of various types of emergencies.	10	
F3.3	Employees can explain the proper procedures for activating the plan.	10	
F3.4	Employees at the anhydrous ammonia operation are knowledgeable of the correct procedures for treating skin or eye contact with anhydrous ammonia.	10	
F3.5	Employees at the anhydrous ammonia operation are knowledgeable of the procedures for treating inhalation of anhydrous ammonia.	10	
	<i>Compliance will be indicated through correct responses from a selection of employees from the anhydrous ammonia operation.</i>		

F4 CARE OF EMERGENCY EQUIPMENT

The designated employees at the anhydrous ammonia operation are knowledgeable of the procedures for the proper care of emergency equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
F4	Minimum Requirements		
	The designated employees can demonstrate the proper procedure for inspecting and maintaining equipment such as:		
	(a) Full-face respirators	5	
	(b) Anhydrous ammonia resistant suits, gloves, boots	5	
	(c) Fire extinguishers	5	
	(d) Self-contained breathing apparatus	5	
	(e) Emergency water stations.	5	
	<i>Compliance will be indicated through correct responses from a selection of employees from the anhydrous ammonia operation.</i>		

F5 KNOWLEDGE OF WHMIS

The employees at the anhydrous ammonia operation are knowledgeable of the Workplace Hazardous Materials Information System (WHMIS).

NO.	PROTOCOL	Full Compliance Score	Actual Score
F5	<p>Minimum Requirements</p> <p>Utilizing information contained in WHMIS, employees at the anhydrous ammonia operation can identify the hazards of the product, interpret labels, and (Material) Safety Data Sheets.</p> <p><i>Compliance will be indicated through correct responses from a selection of employees from the anhydrous ammonia operation.</i></p>	20	

F6 CRITICAL SECURITY PROCEDURES

The employees at the anhydrous ammonia operation are knowledgeable of critical security procedures.

NO.	PROTOCOL	Full Compliance Score	Actual Score
F6	<p>Minimum Requirements</p>		
F6.1	Employees can explain the procedure for responding to suspicious activity.	10	
F6.2	Employees can explain the procedure for locking and securing the anhydrous ammonia operation and the equipment.	10	
	<p><i>Compliance will be indicated through correct responses from a selection of employees from the anhydrous ammonia operation.</i></p>		

F7 MAINTENANCE OF EQUIPMENT

NO.	PROTOCOL	Full Compliance Score	Actual Score
F7	<p>Minimum Requirements</p> <p>The employees at the anhydrous ammonia operation are knowledgeable of the procedures for properly inspecting and maintaining anhydrous ammonia equipment specific to their job requirements.</p> <p><i>Compliance will be indicated through correct responses from a selection of employees from the anhydrous ammonia operation.</i></p>	20	

SUMMARY SCORE FOR SECTION F

TO BE COMPLETED BY THE AUDITOR

SECTION F	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	0	0	(must be 100% compliant on Mandatory Items)
Points Items	195 points	155 points	(must be 80% compliant on Point Items)

SECTION G – EMERGENCY RESPONSE

This section contains the standards for emergency response planning required for an anhydrous ammonia operation.

G1 WRITTEN EMERGENCY RESPONSE PLAN

The anhydrous ammonia operation has a written emergency response plan.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G1	Minimum Requirements The anhydrous ammonia operation has a written emergency response plan containing:		
G1.1	An index, be dated, have page numbers and contain a list of all plan holders.	Mandatory	
G1.2	An organizational chart.	Mandatory	
G1.3	Responsibilities of the key roles featured on the organizational chart.	Mandatory	
G1.4	The telephone numbers of all emergency responders.	Mandatory	
G1.5	Telephone numbers of outside resources.	Mandatory	
G1.6	Telephone numbers of neighbouring businesses, residences and other affected occupancies.	Mandatory	
G1.7	If applicable, the operation must have an Emergency Response Assistance Plan (ERAP) registered with Transport Canada.	Mandatory	
G1.8	Grid map indicating the location of businesses, residences and other affected occupancies relative to the anhydrous ammonia operation.	Mandatory	
G1.9	A site plan indicating emergency equipment locations.	Mandatory	
G1.10	The list of events that trigger the emergency response plan.	Mandatory	
G1.11	Location of emergency shut-off locations for electricity, gas, and ammonia.	Mandatory	
G1.12	Management plan for contaminated run-off water resulting from an emergency (See Protocol A3).	Mandatory	
	<i>Compliance will be indicated through examination of the completed emergency response plan to ensure it complies with the listed requirements.</i>		

G2 COMMUNICATION OF EMERGENCY RESPONSE PLAN

The contents of the emergency response plan have been reviewed annually with emergency responders and any other person involved in or affected by execution of the plan.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G2	<p>Minimum Requirements</p> <p>There is documentation of contact with local emergency responders to discuss and review the updated emergency response plan within the last 12 months.</p> <p><i>Compliance will be indicated by an appropriately dated and signed letter from the person responsible inviting emergency services to the site.</i></p>	Mandatory	

G3 RISK ASSESSMENT

The ammonia operation must prepare and annually review a risk assessment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G3	<p>Minimum Requirements</p> <p>The ammonia operation has conducted a risk assessment of the operation that identifies significant risks and has reviewed it within the last twelve months.</p> <p><i>Compliance will be indicated by inspection of a copy of the risk assessment.</i></p>	20	

G4 COPIES OF EMERGENCY RESPONSE PLAN

Copies of the updated emergency response plan for the anhydrous ammonia operation are kept at secure on-site and off-site locations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G4	<p>Minimum Requirements</p>		
G4.1	A copy of the emergency response plan is kept at the anhydrous ammonia operation.	Mandatory	
G4.2	A copy of the emergency response plan is kept at a secure off-site location.	20	
G4.3	A copy of the emergency response plan must be in a blue	Mandatory	

	<p>weather-proof container near the entrance to the ammonia operation.</p> <p><i>Compliance will be indicated in two parts. First, a copy of the emergency response plan located at the anhydrous ammonia operation will be examined. Second, indication of the location of the off-site plan is included in the Emergency Response Plan.</i></p>			
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G5 ANNUAL REVIEW AND UPDATE OF EMERGENCY RESPONSE PLAN

NO.	PROTOCOL	Full Compliance Score	Actual Score
G5	<p>Minimum Requirements</p> <p>The emergency response plan for the anhydrous ammonia operation has been reviewed, had its contents verified and updated within the past 12 months.</p> <p><i>Compliance will be indicated through examination of the emergency response plan to verify that the last review date has not exceeded 12 months.</i></p>	Mandatory	

G6 EMERGENCY CONTACT LIST

NO.	PROTOCOL	Full Compliance Score	Actual Score
G6	<p>Minimum Requirements</p> <p>A list of emergency contact numbers for local emergency responders, operation management and employees has been prepared and posted at the operation with:</p>		
G6.1	<p>A phone list of critical contact numbers is posted at the operation in a prominent location.</p> <p><i>Compliance will be indicated through examination of the posted emergency response contact list at the operation.</i></p>	20	
G6.2	<p>A phone list of critical contact numbers must be carried in each transport vehicle.</p> <p><i>Compliance will be indicated through examination of the emergency response contact list in each transport vehicle.</i></p>	20	
G6.3	<p>Within the last 12 months, emergency response phone lists are verified and updated as required.</p> <p><i>Compliance will be indicated by examination of checklists or records of the verification exercise.</i></p>	20	

G7 EMERGENCY RESPONSE DRILL

The anhydrous ammonia operation has conducted at least one exercise of the emergency response plan annually.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G7	<p>Minimum Requirements</p> <p>An exercise has been conducted on the emergency response plan in order to enhance the plan, familiarize participants with their duties and identify any gaps in the plan within the past 12 months.</p> <p><i>Compliance will be indicated through examination of records of the emergency response exercises for the operation to determine that an emergency response drill has been done.</i></p>	Mandatory	

G8 CONTAMINATED RUN-OFF WATER

The anhydrous ammonia operation has developed a plan for the containment of contaminated run-off water produced from emergency response activities.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G8	<p>Minimum Requirements</p> <p>Contaminated run-off plan needs to consist of the following elements:</p>		
G8.1	An analysis of the topography of the operation to identify run-off direction.	10	
G8.2	Identification of potential at-risk water sources within 1 kilometre of the operation.	10	
G8.3	Identification of measures to be taken in advance of an incident (e.g. construction of retention berm).	10	
G8.4	Measures to be taken at the time of an incident (i.e. plugging of culverts with sand bags).	10	
	<i>Compliance will be indicated by a visual inspection of the emergency plan.</i>		

G9 INCIDENT REPORTING

The anhydrous ammonia operation has an incident reporting system.

NO.	PROTOCOL	Full Compliance Score	Actual Score
G9	Minimum Requirements		
G9.1	The operation has an active incident reporting program including a written procedure and record keeping. <i>Compliance will be indicated by an examination of the written procedure and records of incidents.</i>	Mandatory	
G9.2	The incident reporting program shall include near misses. <i>Compliance will be indicated by a review of the program and by examination of records of incidents.</i>	10	

SUMMARY SCORE FOR SECTION G

TO BE COMPLETED BY THE AUDITOR

SECTION G	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	18	18	(must be 100% compliant on Mandatory Items)
Points Items	150 points	120 points	(must be 80% compliant on Point Items)

SECTION H – RAILCARS AND EQUIPMENT

This section contains the standards for managing risks associated with anhydrous ammonia and railcars.

H1 RAILCAR DESIGN AND CONSTRUCTION

All anhydrous ammonia transport railcars are constructed, operated and maintained in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H1	<p>Minimum Requirements</p> <p>Railcars have been designed, constructed, operated and maintained in accordance with the applicable Canadian Codes and Standards.</p> <p><i>Compliance will be indicated through a visual inspection of the nameplate or markings.</i></p>	Mandatory	

H2 RAILCAR LOADING AND UNLOADING OPERATIONS

Railcar loading and unloading operations comply with applicable Federal and/or Provincial Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H2	<p>Minimum Requirements</p>		
H2.1	<p>Railcar loading and unloading must have emergency shut-off capability located at both the railcar end and the filling/ unloading point. Emergency shut-off capability may be provided by excess flow valves, check valves, control valves or emergency shut-off valves.</p> <p>Best practice is to use a “snappy joe” or equivalent at the railcar to stop the flow from the railcar in the event of an emergency.</p> <p><i>Compliance will be indicated through a visual inspection of the equipment.</i></p>	Mandatory	
H2.2	<p>All valves are suitable for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of the valves.</i></p>	Mandatory	
H2.3	<p>Hose-end valves have been constructed to prevent accidental opening. This may include the configuration of the valve opening</p>	10	

	<p>mechanism or the installation of a guard to prevent accidental opening.</p> <p><i>Compliance will be indicated through a visual inspection of hose-end valves.</i></p>		
H2.4	<p>Fall protection must be provided for personnel working at the top of the railcar.</p> <p><i>Compliance will be indicated through a visual inspection of fall arrest or fall protection equipment or a written operating procedure.</i></p>	Mandatory	

H3 RAILCAR VESSEL HOSES

All hoses used with railcars have been installed and tested in accordance with Federal and/or Provincial Boiler and Pressure Vessel Regulations.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H3	Minimum Requirements		
H3.1	<p>All hoses used with railcars are clearly marked as approved for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses to ensure proper markings indicating approval for anhydrous ammonia service.</i></p>	Mandatory	
H3.2	<p>All hoses are marked with their Maximum Allowable Working Pressure (MAWP).</p> <p><i>Compliance will be indicated through a visual inspection of all hoses to ensure proper markings indicating the Maximum Allowable Working Pressure.</i></p>	Mandatory	
H3.3	<p>All hoses have not exceeded their manufacturer's "remove from service" date.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure the manufacturer's labelled "remove from service" date on hoses has not been exceeded.</i></p>	Mandatory	
H3.4	<p>All hoses have been equipped with crimp-on or bolt-on hose couplings designed for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of all hoses on the vessel to ensure all hose couplings are either of the bolt-on or crimp-on type.</i></p>	Mandatory	

H3.5	<p>All hoses have been annually inspected, tested and marked in accordance with the CSA standards.</p> <p><i>Compliance will be indicated in two parts. First, all hoses on the vessel will be visually inspected to determine if they have been marked in accordance with CSA standards. Second, the hose testing records will be reviewed to ensure hose testing has been documented and conducted at the appropriate frequency.</i></p>	Mandatory	
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H4 TRANSFER PUMPS OR COMPRESSORS

The transfer pump or compressor used with the railcar has been designed and approved for use with anhydrous ammonia.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H4	Minimum Requirements		
H4.1	<p>The transfer pump or compressor must be approved by the manufacturer for anhydrous ammonia service.</p> <p><i>Compliance will be indicated through a visual inspection of the pump or compressor to ensure it is approved for anhydrous ammonia service.</i></p>	Mandatory	
H4.2	<p>The transfer pump or compressor used with the railcar has been equipped with guards to prevent contact with drive pulleys and belts.</p> <p><i>Compliance will be indicated through a visual inspection of all transfer pumps or compressors to ensure they are equipped with guards to prevent contact with drive pulleys and belts.</i></p>	Mandatory	
H4.3	<p>The transfer pump or compressor must be securely mounted on a non-combustible base.</p> <p><i>Compliance will be indicated through a visual inspection of the transfer pump mount to ensure it is secured.</i></p>	Mandatory	

H5 RAILCAR LABELS AND MARKINGS

Railcars have the required labels and markings as designated by regulatory requirements.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H5	Minimum Requirements		
H5.1	<p>The railcar must be clearly marked with “ANHYDROUS AMMONIA” in contrasting colour. Signage must appear on two sides of the railcar.</p>	Mandatory	

H5.2	The railcar must be clearly marked with the words “INHALATION HAZARD” on the two long sides of the railcar in a contrasting colour. Letters must be a minimum of 4 inches in height.	Mandatory	
H5.3	Transportation of Dangerous Goods placards must be mounted on all four sides of the railcar.	Mandatory	
H5.4	Pressure test and retest dates are on the railcar.	Mandatory	
	<i>Compliance will be indicated through a visual inspection of signage on the vessel to ensure signage meets requirements.</i>		

H6 PERSONAL PROTECTIVE EQUIPMENT

The anhydrous ammonia railcar transfer operation is equipped with the required personal protective equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H6	Minimum Requirements Each employee working at an anhydrous ammonia railcar transfer operation must have the following:		
H6.1	Full-face cartridge style respirator complete with extra cartridges.	Mandatory	
H6.2	One- or two-piece anhydrous ammonia resistant suit.	Mandatory	
H6.3	Gauntlet style anhydrous ammonia resistant gloves.	Mandatory	
H6.4	CSA approved safety boot with a minimum six inch upper.	Mandatory	
H6.5	Individual water bottle filled with clean fresh water.	Mandatory	
	<i>Compliance will be indicated through a visual inspection of safety equipment to ensure proper type and quantity for personnel at the operation.</i>		

H7 EMERGENCY EQUIPMENT

The anhydrous ammonia railcar transfer operation is equipped with the required emergency equipment.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H7	Minimum Requirements In addition to all personal protective equipment, the following additional equipment is required:		

H7.1	Two canister type anhydrous ammonia full-face respirators complete with spare canisters/cartridges.	Mandatory	
H7.2	If required by provincial regulations, two Self-Contained Breathing Apparatuses (SCBA).	Mandatory	
H7.3	Two one- or two-piece anhydrous ammonia resistant suits (protected from the weather).	Mandatory	
H7.4	First Aid kit of a size appropriate for the number of employees at the operation.	Mandatory	
H7.5	At minimum, a 5 lb 3 A 10BC fire extinguisher (one located near each anhydrous ammonia transfer point).	10	
H7.6	Two water supplies are required for emergency requirements. Water supplies may be either a safety shower or a minimum of two 200 gallon water troughs filled with clean, fresh water and labelled with a red cross to designate it as emergency response water. Troughs must be located within 10 metres of the anhydrous ammonia transfer points. Water troughs must be located opposite to each other considering prevailing wind direction. Water troughs must be heated to prevent freezing in the colder months of spring and fall.	Mandatory	
H7.7	The transfer operation has emergency eyewash capability at the water troughs.	Mandatory	
H7.8	(a) A wind indicator must be located at the anhydrous ammonia transfer operation in order to determine wind direction for emergency response purposes.	Mandatory	
Compliance will be indicated through a visual inspection of all required emergency response equipment.			

H8 RAILCAR SECURITY

All anhydrous ammonia railcars must comply with the requirements of the anhydrous ammonia railcar security standard.

NO.	PROTOCOL	Full Compliance Score	Actual Score
H8	Minimum Requirements		
H8.1	Railway cars must be sealed while in transit, both to and from the destination, using a steel cable type seal. <i>Compliance will be indicated through a visual inspection of devices used for securing the railcar.</i>	Mandatory	

H8.2	<p>Pre-release inspection is to be completed prior to shipping, and a receiving inspection must be conducted on receipt of the rail car.</p> <p><i>Compliance will be indicated through a visual inspection of completed pre-release inspection forms.</i></p>	Mandatory	
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SUMMARY SCORE FOR SECTION H

TO BE COMPLETED BY THE AUDITOR

SECTION H	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	30	30	(must be 100% compliant on Mandatory Items)
Points Items	20 points	16 points	(must be 80% compliant on Point Items)

SECTION I – INSURANCE

This section contains the insurance requirements for an anhydrous ammonia handling operation.

I1 INSURANCE

The ammonia operation has documentation of insurance coverage.

NO.	PROTOCOL	Full Compliance Score	Actual Score
I1	<p>Minimum Requirements</p> <p>The facility has documentation that gives evidence of current policies of insurance covering the following areas of risk exposure:</p> <ol style="list-style-type: none"> 1. Environmental impairment liability (EIL) in the minimum amount of \$1 million covering third party bodily injury and property damage and off-premises clean up expenses with \$1 million policy aggregate for all occurrences; and \$1 million covering on-premises clean up with \$1 million policy aggregate for all occurrences. 2. Owned automobile liability (applicable to any and all vehicles that are owned, or leased or operated by the facility in connection with the facility's business) covering bodily injury or property damage to third party interests in the minimum amount of \$5 million per loss occurrence. 3. Non-owned automobile liability in the minimum amount of \$5 million per loss occurrence. 4. Comprehensive General Liability (CGL) in the minimum amount of \$5 million per loss occurrence. <p>Note:</p> <ol style="list-style-type: none"> a) Any endorsement or other policy wording that directly or indirectly selects fertilizers as specifically excluded from coverage, or that selects fertilizers for diminished coverage, is NOT acceptable. b) No deductibles more than \$25,000 are permitted. <p><i>Compliance will be indicated through examination of the confirmation of coverage form*.</i></p>	Mandatory	

****NOTE: A COPY OF THE INSURANCE CONFIRMATION FORM CAN BE FOUND AT THE BACK OF THIS BOOK.***

SUMMARY SCORE FOR SECTION I

TO BE COMPLETED BY THE AUDITOR

SECTION I	Items/Points	Pass Mark Items/Points	Actual Score
Mandatory Items	1	1	(must be 100% compliant on Mandatory Items)
Points Items	0 points	0 points	