Michigan Department of Environmental Quality
Air Quality Division – Permit Section

General Permit to Install Applicability Criteria for Anhydrous Ammonia Storage and Handling

Anhydrous ammonia has a variety of industrial uses including metallurgical processes, wastewater treatment and flue gas conditioning at electric power plants. In addition, numerous bulk storage tanks currently exist for agricultural applications and fertilizer sales.

Some anhydrous ammonia storage and handling equipment may be exempt from the requirement to obtain a permit to install. A permit to install (including a general permit) is not required for ammonia tanks which are part of a closed loop refrigeration system pursuant to R 336.1280(a) promulgated pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Rule 280(a)).

The following state and federal requirements are applicable to anhydrous ammonia storage and handling and were considered in the development of the general permit to install. These requirements are addressed in the Special Conditions of the permit.

Citation	Description
R 336.1225	State rule that applies to sources of air toxics. This rule requires the application of Best Available Control Technology for toxics (T-BACT) to sources emitting air toxics, and requires the emissions from the process meet the allowed impact levels. In the case of anhydrous ammonia storage and handling, the process is considered enclosed and requires no pollution control equipment.

In addition, the following standards and regulations were considered in the development of the general permit to install and were used as the basis for the special conditions of the permit.

Citation	Description
ANSI K61.1-1989	American National Standard, Safety Requirements for the Storage and Handling of Anhydrous Ammonia.
MIOSHA – STD - 1155	Requirements for safe construction of ammonia tanks are summarized in the Department Of Labor and Economic Growth General Industry Safety Standards, Part 78. Storage and Handling of Anhydrous Ammonia – (1910.111). A copy of this document may be obtained from the Michigan Occupational Safety and Health Administration, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, MI 48909-8143, or by calling (517) 322-1845. The MIOSHA website is: http://www.michigan.gov/mioshastandards. Under Standards & Legislation, click on Agriculture, then find Part GI 78 in the Agricultural Operations table.

APPLICABILITY CRITERIA

To qualify for the general permit to install, the anhydrous ammonia storage and handling process must meet the following criteria:

- Each general permit to install shall apply to a single anhydrous ammonia storage tank with a nominal tank storage capacity not to exceed 30,000 gallons and any associated handling processes, nurse tanks or applicator tanks. A source may apply for and obtain multiple general permits for multiple tanks.

- The process must comply with the Department Of Labor And Economic Growth General Industry Safety Standards, Part 78. Storage and Handling of Anhydrous Ammonia – (1910.111).
- The process must be located a minimum of 50 feet from the nearest property line; 300 feet from existing places of residence or private or public assembly; 500 feet from a school, apartment building, or institutional occupancy; and not less than 1000 feet from a hospital or nursing home.
- Nurse and applicator tank storage shall be no less than 50 feet from the nearest property line; 150 feet from any existing places of residence or private or public assembly; 250 feet from a school, apartment building, or institutional occupancy; and no less than 1000 feet from a hospital or nursing home.
- An emergency response plan, to be followed in the event of an emergency, must be developed and approved by the local fire department or county emergency response agency before any operation of the process.
- The facility shall have no outstanding unresolved violations of any of the Michigan Department of Environmental Quality Air Pollution Control rules, orders, or permits; or Federal air quality regulations.
- The general permit shall not apply to a source, process, or process equipment that is covered by an existing permit to install pursuant to Rule 201 and is further referenced in an outstanding consent order or consent judgment.

PERMIT CONDITIONS

Attachment A lists the terms and special conditions for this general permit to install. These terms and conditions include the applicable process/operational limits, equipment restrictions, and notification requirements which are necessary to ensure that an anhydrous ammonia storage and handling process subject to a general permit will comply with all state and federal applicable requirements.

ATTACHMENT A
GENERAL CONDITIONS

1. The process or process equipment covered by this general permit to install shall not be reconstructed, relocated, or modified unless a Permit to Install pursuant to Rule 201 authorizing such action is issued by the Department, or an application for coverage under a General Permit to Install pursuant to Rule 201a, is submitted to and approved by the Department. For the purpose of a general permit to install, the permittee is defined as any person who owns or operates a process or process equipment at the source for which coverage under the general permit has been granted.

2. Operation of any process or process equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

3. Operation of this equipment shall not interfere with the attainment or maintenance of the air quality standard for any air contaminant. **(R 336.1207(1)(b))**

4. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5).

5. Coverage under this general permit to install does not exempt the permittee from complying with any future regulation, which may be promulgated under Part 55 of 1994 PA 451.

6. Coverage under this general permit to install does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

7. The permittee shall notify any public utility of any excavation, tunneling and discharging of explosives or demolition of buildings which may affect said utility's facilities in accordance with Act 53 of the Public Acts of 1974, being sections 460.701 to 460.718 of the Michigan Compiled laws and comply with each of the requirements of that Act.

8. The restrictions and conditions of this general permit to install shall apply to any person or legal entity which now or shall hereafter own or operate the equipment for which coverage under this general permit to install is issued. A written request to the Department for a change in ownership or operational control of the process or process equipment shall be made pursuant to Rule 219.

9. If the installation of the equipment for which coverage under this general permit to install has been issued, has not commenced within, or has been interrupted for, 18 months, then the general permit to install shall become void unless otherwise authorized by the Department as a condition of the permit. Furthermore, the permittee shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Natural Resources and Environment, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation or construction of the equipment allowed by this general permit to install. **(R 336.1201(4))**

10. Except as provided in subrules (2) and (3) or unless the special conditions of the general permit to install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301(1))**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this general permit to install.

11. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

12. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

13. Any required testing protocol shall conform to a format acceptable to the AQD. **(R 336.2003(1))**

14. Any required test results, which must be submitted to the AQD, shall conform to a format acceptable to the AQD. **(R 336.2001(4))**

15. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

16. For a stationary source that becomes a major source, as defined by R 336.1211(1)(a), upon receipt of approval for coverage under this general permit to install, an administratively complete application for a renewable operating permit shall be submitted not more than 12 months after the stationary source commences operation as a major source. Commencing operation as a major source occurs upon commencement of trial operation of the new or modified process or process equipment that increased the potential to emit of the stationary source to more than or equal to the applicable major source definition specified in R 336.1211(1)(a).

17. For a stationary source that is already a major source with an existing renewable operating permit, the source shall notify the Department of the installation of the process or process equipment covered by this general permit, pursuant to R 336.1215(3) or apply for a modification pursuant to R 336.1216(2) prior to commencing operation. The notification or application to modify the renewable operating permit shall be made using a form approved by the Department.

ATTACHMENT A
SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)
EU-AMMONIA	A single anhydrous ammonia storage tank and any associated handling process, nurse tanks or applicator tanks. The nominal tank storage capacity shall not exceed 30,000 gallons. For multiple storage tanks at a source: Each tank shall be covered by a separate general permit and shall have an identification number assigned from the application (identified on the Process Information form).
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.	

The following conditions apply to EU-AMMONIA

I. EMISSION LIMITS Not Applicable (N/A)

II. MATERIAL LIMITS N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. Except where specific requirements of these special conditions are applicable and more stringent, EU-AMMONIA shall comply with the Department Of Labor and Economic Growth General Industry Safety Standards, Part 78. Storage and Handling of Anhydrous Ammonia – (1910.111) hereinafter Rule 7801. A copy of this document, which may be obtained by contacting the Michigan Occupational Safety and Health Administration, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, MI 48909-8143, shall be maintained for inspection at the facility. **(R 336.1901)**

2. The permittee shall not operate EU-AMMONIA unless the inspection and maintenance program specified in Appendix A has been implemented and maintained. **(R 336.1901)**

3. The permittee shall not operate EU-AMMONIA unless an emergency response plan, to be followed in the event of an emergency, has been approved by the local fire department or county emergency response agency and is implemented and maintained. Prior to each spring season, the permittee shall review this plan with the local fire department or emergency response agency and make any necessary updates. **(R 336.1901)**

4. EU-AMMONIA shall be located a minimum of 50 feet from the property line; 300 feet from any existing places of residence or private or public assembly; 500 feet from a school, apartment building, or institutional occupancy; and not less than 1000 feet from a hospital or nursing home. **(R 336.1901)**

5. The permittee shall not operate EU-AMMONIA unless all transfer operations including transport deliveries are performed by a reliable person properly trained and made responsible for proper compliance with all applicable procedures. **(R 336.1901)**

6. Nurse and applicator tank storage shall be no less than 50 feet from the property line; 150 feet from any existing places of residence or private or public assembly; 250 feet from a school, apartment building, or institutional occupancy; and no less than 1000 feet from a hospital or nursing home. **(R 336.1901)**

7. Nurse tank filling shall be done only from a permanent stationary storage tank. **(R 336.1901)**

8. Nurse and applicator tanks shall be filled to no more than 85 percent of liquid capacity by volume. Storage tanks may be filled according to temperature density correction tables in Rule 7801(b)(11) where tanks have a thermometer well and suitable level gauge. **(R 336.1901)**

9. Vapor return lines shall be employed whenever necessary to ensure an accidental release from pressure relief valves will not occur during ammonia transfer operations. **(R 336.1901)**

10. Nitrogen stabilizer shall not be added to any permanent stationary storage tank or to rail or truck transport tanks. **(R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. All containers shall be fitted with safety relief valves in accordance with Rule 7801(b)(9). Such valves shall be stamped with the date manufactured, and shall be replaced, or re-tested and re-certified, at least every five years or more often if there is evidence of damage or deterioration. **(R 336.1225, R 336.1901)**

2. The permittee shall not operate EU-AMMONIA unless a remotely operated internal or external positive shut-off valve is installed to allow access for emergency shut-off of all flow from stationary storage containers. **(R 336.1225, R 336.1901)**

3. The permittee shall not operate EU-AMMONIA unless a bulkhead, anchorage, or equivalent system is used at each transfer area so that any break resulting from a pull will occur at a predictable location while retaining intact the valves and piping on the plant side of the transfer area. **(R 336.1225, R 336.1901)**

4. The permittee shall not operate EU-AMMONIA unless any liquid lines in rail and transport transfer areas are equipped with back pressure check valves and all liquid lines not requiring a back check valve and all vapor lines are equipped with properly sized excess flow valves. These valves shall be installed on the main container side of the predictable break point at the bulkhead. **(R 336.1225, R 336.1901)**

5. All hoses shall be replaced five years after date of manufacture or more often if there is evidence of damage or deterioration. **(R 336.1225, R 336.1901)**

6. Any vapor or liquid line, exclusive of couplings, requiring venting after ammonia transfer shall be vented through a water trap of 55 gallons minimum size. Safety water shall not be used for this purpose. **(R 336.1225, R 336.1901)**

7. A sign shall be present and conspicuously placed at the facility entrance stating the emergency phone numbers for the owner, primary operator, local and state police, local fire department, and ambulance service. **(R 336.1901)**

V. TESTING/SAMPLING N/A

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep, in a satisfactory manner, records of the date, duration, and description of any malfunction or spill occurring from EU-AMMONIA, including the estimated amount of ammonia released into the atmosphere. Do not include trace amounts from normal hose coupling bleed downs. All records shall be kept on file and made available to the Department upon request. **(R 336.1201(3))**

2. The permittee shall keep, in a satisfactory manner, records of the date of annual review and approval of the emergency response plan with the local fire department. All records shall be kept on file and made available to the Department upon request. **(R 336.1201(3))**

VII. REPORTING

1. The permittee shall notify the Pollution Emergency Alert System (PEAS) 1-800-292-4706 and/or the AQD District Supervisor immediately of any abnormal release of anhydrous ammonia from EU-AMMONIA. A normal release includes only hose coupling bleed downs, operation of hydrostatic relief valves, and normal pressure relief from the safety relief valve(s). Relief due to overfilling is not normal. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1201(3), R 336.1901)**

VIII. STACK/VENT RESTRICTIONS N/A

IX. OTHER REQUIREMENTS

1. The permittee shall not replace or modify any portion of EU-AMMONIA, nor install new equipment unless all of the following conditions are met: **(R 336.1201)**

   a) The permittee shall update the general permit by submitting a new Process Information Form (EQP5731) to the Permit Section and District Supervisor, identifying the existing and new equipment a minimum of 10 days before the replacement, modification, or installation of new equipment.

   b) The permittee shall continue to meet all general permit to install applicability criteria after the replacement, modification or installation of new equipment is complete.

   c) The permittee shall keep records of the date and description of any replacement, modification, or installation of new equipment at the source. All records shall be kept on file for a period of at least five years and made available to the Department upon request.

Appendix A – Page 1 of 2
Inspection and Maintenance Program
Nurse and Applicator Tanks

Inspections to be performed daily and documented at the permittee's discretion. Permittee shall document all maintenance and repairs.

Tank Identification:									
	Satisfactory?			Satisfactory?			Satisfactory?		
	Yes	No	Date *	Yes	No	Date *	Yes	No	Date *
1. Tank free of leaks									
2. Paint in good condition									
3. Valves and fittings free from leaks and in good condition									
4. Protective guards in place and in good condition									
5. Outlet openings on valves and lines free of dirt and rust with protective caps in place									
6. Safety relief valves free of debris with rain caps installed									
7. Gages, pressure and liquid level, are operable									
8. Excess flow valves installed and in good condition									
9. Valves properly labeled "liquid" and "vapor"									
10. Vapor and liquid hoses are proper ammonia-type and free of damage or deterioration									
11. Hoses, including those on nurse tanks, securely clamped to the nipples									
12. Hoses suitably racked to prevent kinking and hose on delivery tanks securely fastened to prevent dragging									
13. Tanks securely attached									
14. Trailer tongues, hitches, and safety chains in sound condition									
15. Nurse tank valves locked or capped if site is unattended or not fenced in									
16. Nurse tanks properly labeled									
17. Five gallon or larger can filled with clean water for transport vehicles									
18. Quick disconnects annually reconditioned									

Date Inspected: _____ Inspector: _____

* For each tank, check if condition is satisfactory or not satisfactory. If condition is not satisfactory, include date when corrected. If condition is not applicable, write NA.

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Inspection and Maintenance Program
Permanent Ammonia Storage Tank

Permittee shall conduct inspections and complete form at least twice per year, prior to spring and fall application seasons.

Tank Identification:	Satisfactory?		
	Yes	No	Date*
1. Tank free of leaks			
2. Tank supports in good condition (no cracked or crumbled concrete, etc.)			
3. Paint in good condition			
4. Equipment locked when not in use			
5. Tank properly labeled			
6. Valves and fittings free from leaks and in good condition			
7. Piping properly supported and guards in place			
8. Pipes free of physical damage and rust and properly painted			
9. Employees trained in proper filling procedures			
10. Provisions provided for bleeding of transfer hose from the transport truck			
11. Wheels properly chocked on the transport truck or rail tank car while unloading			
12. Information and warning signs displayed and in good condition			
13. Area free of weeds, trash and other unsafe conditions			
14. Unused equipment stored out of the way			
15. Chemical safety goggles available and in good condition			

	Satisfactory?		
	Yes	No	Date*
16. Protective gloves, boots, suits or slickers available and in good condition			
17. Gas masks with ammonia type canisters and refill canisters within date limits available			
18. Emergency clean water, shower or 75 gallon tank available nearby			
19. Hoses in good condition			
20. Hoses no older than 5 years from date of manufacture and marked			
21. Vapor and liquid hoses are proper ammonia-type and free of damage or deterioration			
22. Hoses suitably racked to prevent kinking			
23. Hoses, including those on nurse tanks, securely clamped to the nipples			
24. Gages, pressure and liquid level, operable			
25. Valves properly labeled “liquid” and “vapor”			
26. Safety relief valves within 5 years of manufacture or recertification and marked			
27. Outlet openings on valves and lines free of dirt and rust with protective caps in place			
28. Safety relief valves free of debris with rain caps installed			
29. Safety relief valve manifold operable			
30. Remote shut-off valve in working order			

Date Inspected: _____ Inspector: _____

* For each item, check if condition is satisfactory or not satisfactory. If condition is not satisfactory, include date when corrected. If condition is not applicable, write NA.