

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

P070437623

FACILITY: Roger Betz Farm		SRN / ID: P0704
LOCATION: Sec 35 Hamlin Twp., EATON RAPIDS		DISTRICT: Lansing
CITY: EATON RAPIDS		COUNTY: EATON
CONTACT: Roger Betz, Owner		ACTIVITY DATE: 11/10/2016
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled inspection to determine compliance with PTI 68-16. First time the facility has been inspected.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow  
Personnel Present: Roger Betz, owner (betz@msu.edu)

**Purpose:** Conduct an announced, scheduled compliance inspection by determining Roger Betz Farms' compliance with Permit to Install (PTI) No. 68-16 for Anhydrous Ammonia Storage and Handling. This will be the first time the facility has been inspected since the permit was issued on April 18, 2016.

**Facility Background/Regulatory Overview:** Roger Betz Farms is a private company who applies anhydrous ammonia to their own farmland. The General PTI special conditions are created based on consideration of Best Available Control Technology for toxics (T-BACT), the American National Standard (ANSI) for Safety Requirements for the Storage and Handling of Anhydrous Ammonia, and MIOSHA requirements summarized in the Department of Labor and Economic Growth General Industry Safety Standards, Part 78 for Storage and Handling of Anhydrous Ammonia (1910.111).

The tank is located on a property located off of Tucker Rd in Hamlin Township/Eaton Rapids (see attached maps for pin-point locations). The nurse tanks, at the end of application season, are stored in a pole barn located at 9524 Tucker Rd (also pinpointed on the attached map).

**Inspection:** This was an announced compliance inspection. At approximately 2:40 p.m. on November 10, 2016 I met with Roger Betz, owner, at his barn located at 11203 Griffith Rd in Eaton Rapids; from there I followed him via car to the location of anhydrous ammonia storage tank. Upon arrival I provided him with a July 2014 Permit to Install Exemptions Handbook.

R. Betz said that his application season runs from late April/early May through July. He said the tank installation was completed at the end of May 2016. During the inspection, I noted that the anhydrous ammonia tank was ~42% full. Although not required by the permit, R. Betz plans to install a wind direction flag for safety purposes.

#### **EU-AMMONIA – Special Conditions (SC)**

General PTI No. 68-16 is for a single anhydrous ammonia tank with no more than a 30,000 gallon capacity and any associated nurse tanks. The tank, according to the PTI application, is 12,000 water gallons. R. Betz said he owns 6 nurse tanks that are stored at one of his rental house properties less than ¼ mile from the permanent storage tank. This is the closest residence to the tank, and at ~1000 feet from the tank it meets the permit requirement to be located a minimum distance of 300 feet from a place of residence.

#### **Process/Operational Restrictions**

##### **SC III.1**

This condition requires compliance with the Michigan Department of Labor regulations as defined in the American National Standards Institute (ANSI) manual K61.1-1972 (second edition). The most recent updated version of this ANSI standard is K61.1-1999 (fifth edition).

ANSI K61.1-1999 Section 3.4 (3.4.1.1 – 3.4.1.6) requires various forms of Personal Protective Equipment (PPE) be kept on-hand, such as a full face respirator or full-faced gas mask; ammonia-impervious protective gloves; ammonia-impervious protective boots; at least 100 gallons of clean water in an open-top container; and chemical splash goggles.

Section 11.6 on safety equipment also states that "Any person making, breaking or testing any ammonia connection, transferring ammonia, or performing maintenance or repair on an ammonia system under pressure shall wear protective gloves impervious to ammonia and chemical splash goggles. A full face shield may be worn over the goggles, but the face shield shall not be worn as a substitute for a primary eye protection device (goggles)."

As these PPE requirements (except for the safety wash water basin) are OSHA-enforceable, I will simply make R. Betz aware of these requirements. R. Betz is required by this standard to have at least 100-gallon open top container for safety. He has a 110 gallon container, which is sufficient for meeting this requirement.

ANSI K61.1-1999 Section 6.4 references installation of storage containers. According to 6.4.1 the aboveground containers should be reinforced with concrete footings and foundations or structural steel supports mounted on reinforced concrete, and the lowest point of the tank should not be less than 18 inches above ground. R. Betz said that his permanent storage tank has concrete footings for each steel leg and saddle and that each footing is cold concrete measuring 2' wide, 8' long, 4' deep. The distance between the ground and lowest point of the tank is greater than 18 inches. R. Betz Farms is in compliance with this ANSI standard.

ANSI K61.1-1999 Section 5.12 references painting of containers. Betz Farms is required, per this standard, to have a reflective surface maintained in good condition on the anhydrous ammonia tank. White or other colors with similar reflecting characteristics are acceptable. R. Betz has painted the tank white, meeting this ANSI requirement.

ANSI K61.1-1999 Section 6.6 references appropriate marking of the storage containers. This standard requires that each container be marked on at least 2 sides, which are visible with the words "ANHYDROUS AMMONIA" in sharply contrasting colors with letters not less than 3.9 inches high. The container should also be marked on each end and on each side with the words "INHALATION HAZARD" in sharply contrasting colors with letters not less than 2 inches high. The container is appropriately marked on both sides, as required by this ANSI standard.

Post-inspection, I also sent R. Betz the electronic copy of "Are You In Compliance: Anhydrous Ammonia Fertilizer" brochure to ensure he is aware of all regulatory aspects of owning and operating an anhydrous ammonia tank.

### **SC III.2**

According to this condition, the permittee must implement and maintain the inspection and maintenance program specified in Appendix A of the permit for the nurse and permanent storage tanks. Permanent storage tanks must be inspected at least twice per year, prior to spring and fall application seasons. R. Betz said that he only has a spring application season, therefore, inspections of the permanent storage tank must be done prior to the start of the spring application season which starts at the end of April at the earliest. I reminded R. Betz that this must be done for next season. The nurse tanks are required to be inspected daily, and documentation of these inspections is left up to the permittee's discretion. Maintenance work, and repairs, however, are required to be documented. I informed R. Betz of this as well. Because this is a new installation, records will not be expected until next year's inspection.

### **SC III.3**

R. Betz Farms is required under this condition to have an emergency response plan, to be followed in the event of an emergency, which has been approved by the local fire department or county emergency response agency and has been implemented and maintained. R. Betz said that in early spring 2016 he contacted the local fire department to inform them that he was installing an NH3 tank. He said they came out to the location where it was to be installed. I informed R. Betz that this was a good start in achieving compliance with the permit, but that he must draft a written emergency response plan that the fire department can approve, and that he should record the date of when the fire department approved the plan. I urged him to do this before his next application season started.

### **SC III.4**

This condition addresses setback distances from the permanent storage tank to the property line, nearby residents, hospitals, schools, apartments and nursing homes. As previously stated, the permanent storage tank meets the 300' setback distance from existing residences. The tank must also be at least 50' from the property line, which is also met. There are no schools, apartments, hospitals or nursing homes within a 2 square mile radius (set back distance for these is 1000').

### **SC III.5**

Roger Betz Farms is required to conduct all transfer operations using a person that is properly trained and made responsible for proper compliance with all applicable procedures. R. Betz said that DHT Trucking, located in Reese, MI, transports and transfers anhydrous ammonia into his storage tank. I contacted DHT Trucking and spoke with DHT's Safety Director, Jean Crawford, who verified that their staff are trained for anhydrous ammonia transport/transfer. She said their drivers are trained on delivering propane for an extended amount of time before receiving paperwork and field training on NH3 deliveries. The delivery of propane and NH3 are the same (pressure systems, valves, etc). Training includes PPE, hazard communication, safe handling procedures, process safety management and first aid for NH3. Field training consists of ride-alongs with experienced drivers. She said training is renewed every 3 years.

### **SC III.6**

As mentioned previously, the 6 nurse tanks are currently stored at a R. Betz residential rental property located at 9524 Turner Rd. They are stored, empty, inside a pole barn. This building is approximately 55 feet from the rental residence, which is less than the 150 feet required by the permit. After discussion with other AQD staff it was determined that the 150' setback distance applies to full and empty tanks alike. I will request that R. Betz relocate these tanks to the other farm he said he could store them at during the off-season. The tanks are currently stored greater than 50' from the property line. During the application season the tanks are stored in fields where they are being used.

### **SC III.7**

All nurse tank filling is required to be done only from the permanent storage tank. Although transfer operations were not currently taking place during the inspection, R. Betz showed me where the bulkhead of the permanent storage tank was and that the nurse tanks are filled from that point.

#### **SC III.8**

Nurse tanks are only allowed to be filled up to 85% and permanent, uninsulated storage tanks up to 87.5% (per Rule 7801(b) (11)). The permanent storage tank was ~42% full, and according to R. Betz, the nurse tanks were also empty during the time of inspection. This requirement is necessary to provide a sufficient volume for the NH<sub>3</sub> to expand when ambient temperatures are warm.

#### **SC III.9**

Vapor return lines are required to be employed whenever necessary to ensure there is no accidental release from pressure relief valves during ammonia transfer operations. R. Betz explained the entire liquid-vapor system to me. Vapor return lines, which R. Betz labeled, are utilized when the nurse tanks are being filled (valve is opened), as well as when the transport truck is filling the permanent storage tank.

#### **SC III.10**

Nitrogen stabilizers are not allowed to be added to the permanent storage tank. I informed R. Betz of this and he verified that he currently does not use them, but was thinking about using them in the future. I pointed out to him in the permit that nitrogen stabilizers cannot be added.

### **Design/Equipment Parameters**

#### **SC IV.1**

Safety relief valves are required to be installed with a manufacture date stamp so as to establish the replacement date of the valve (permit requires replacement every 5 years). Betz Farms' permanent storage tank and nurse tanks have safety relief valves located on the top of the tanks. R. Betz said that the NH<sub>3</sub> suppliers will not fill the tanks unless the safety relief valves are up to date. R. Betz said he then replaced the safety relief valves. I will verify the manufacturer dates on the valves during a future inspection.

#### **SC IV.2**

A remotely operated internal or external positive shut-off valve must be installed to allow for emergency shut-off of all flow from the permanent storage tank. R. Betz showed me that cord attached to the shut-off valve at the bottom of the tank. The cord is currently functional and extends past the end of the tank, but R. Betz said he plans to also install an apparatus from which the cord can be pulled in the event of an emergency.

#### **SC IV.3**

This condition requires that a bulkhead, anchorage, or equivalent system be used at the transfer area so that any break resulting from a pull will break at a predictable location. There is a bulkhead present through which the liquid and vapor lines run. R. Betz explained that this bulkhead reaches 4 feet below ground into concrete. The valves above the bulkhead frame are locked within a box so that unauthorized persons do not have access to the NH<sub>3</sub>.

#### **SC IV.4**

Back pressure check valves are required to be installed in the liquid lines of the transport transfer area. R. Betz explained that the liquid lines have a backup mechanism (in addition to a remotely operated positive shutoff valve) which recirculates the liquid within the system if blockages are detected within the bulkhead or at points within the liquid lines, but also individual back check flow valves not part of the recirculation system are also installed throughout the liquid lines. Vapor line excess flow valves are required to be installed on the main container side of the bulkhead. R. Betz explained that there are excess flow valves present just below the bulkhead frame for the vapor lines.

#### **SC IV.5**

Hoses are required to be replaced 5 years after the date of manufacture. There were no hoses present on the tank during the inspection; hoses are used for transport operations only. R. Betz did show me the hoses from the nurse tanks, which all had manufacture dates of 2016.

#### **SC IV.6**

All vapor or liquid lines required to be vented after anhydrous ammonia transfer are to be vented into 55 gallons minimum of water trap. I informed R. Betz of this requirement. He has a 110 gallon tub that is used for safety wash water, but I informed him he needs a separate tub for NH<sub>3</sub> venting, which he agreed he will have for the next application season. He currently does not have the NH<sub>3</sub> system designed to bleed off the excess NH<sub>3</sub>, but plans to install the bleed-down valves soon.

#### **SC IV.7**

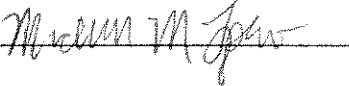
A sign is required to be conspicuously placed at the entrance of the facility with emergency contact information containing the owner, primary operator, local and state police, local fire department and ambulance service. While this sign was not present on the property, it is acceptable by the AQD that Betz Farms place a sign prior to their spring planting season. R. Betz preferred not to have the emergency contact sign out near the road, as he did not want to advertise that an NH<sub>3</sub> tank was

present. I agreed with this and will allow him to post the emergency contact sign on the dirt road that leads to the tank, just before the tank's location. I will verify that the sign is posted during a follow-up inspection.

**Monitoring/Recordkeeping****SC VI.1**

Records of date, duration and description of any malfunction or spill from the permanent storage tank, including estimated amount released must be kept. I informed R. Betz of this, and also that if there is a malfunction or spill that results in an abnormal release of NH<sub>3</sub> that he also must call the PEAS hotline or call me directly to report the release. To date R. Betz verified that there have been no malfunctions or spills from Betz Farms' anhydrous ammonia tank. The only release he said he had was a small leak from the fittings on the liquid lines. He replaced the fittings to fix this issue.

**Compliance Statement:** At this time, Roger Betz Farms is found to be in compliance with PTI 68-16. A follow-up inspection will occur for any outstanding compliance checks.

NAME DATE 12-2-16SUPERVISOR 