

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N826457981

FACILITY: PIDD BROTHERS FARM		SRN / ID: N8264
LOCATION: 5221 SWAN RD, STOCKBRIDGE		DISTRICT: Lansing
CITY: STOCKBRIDGE		COUNTY: INGHAM
CONTACT: Travis Pidd , Partner		ACTIVITY DATE: 05/06/2021
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Onsite inspection of permanent storage anhydrous ammonia tank		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow

Personnel Present: Travis Pidd, Partner (piddfamilyfarm@hotmail.com)

Purpose

Conduct an announced, scheduled onsite compliance inspection by determining Pidd Brothers' (Pidd Family Farms) compliance with General Permit to Install (PTI) No. 90-09 for Anhydrous Ammonia Storage and Handling. This facility was last inspected for the first time in August 2016. Particular attention was paid to whether violations cited in 2016 had been addressed.

Facility Background/Regulatory Overview

Pidd Brothers owns 2 permanent storage anhydrous ammonia tanks. One is installed, the other is currently on a trailer until Pidd Brothers can submit an application to install this additional permanent storage tank. T. Pidd said that they are currently working on the application for this unit. Pidd Brothers owns 2 single nurse tanks, 2 double nurse tanks, and 1 applicator tank. They currently only have a spring planting season that typically starts in April. T. Pidd said that this year's spring planting season began on April 15, 2021.

The 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).

During the 2016 inspection, Pidd Brothers was cited in violation of the following requirements: installation of a second anhydrous ammonia tank without a permit, failure to have the emergency response plan reviewed and approved (with associated documentation), and failure to have an emergency contact sign. The unpermitted anhydrous ammonia tank was removed and sits on a trailer near the back of their property; an emergency contact sign has since been posted, and a records review shows the emergency response plan has been reviewed and approved.

Inspection

This was an announced onsite compliance inspection due to COVID-19 safety concerns. A pre-inspection call was held on May 5, 2021 to discuss compliance items in an effort to minimize time spent onsite in person. At ~10:30 a.m. on 5/6/21 I met with Travis Pidd to conduct the inspection.

EU-AMMONIA

General PTI No. 90-09 is for a single anhydrous ammonia tank with no more than a 30,000 gallon capacity and any associated nurse and applicator tanks.

SC 1.1

Pidd Brothers is required to comply with the MIOSHA 1910.111 (Part 78, Storage and Handling of Anhydrous Ammonia) and the American National Standards Institute (ANSI) manual K61.1-1972 (second edition), adopted by reference within 1910.111. The most recent updated version of this ANSI standard is K61.1-1999 (fifth edition).

ANSI K61.1-1999 Section 3.4

The following items are required to be on-hand for emergency and rescue purposes:

(3.4.1.1) Two full-faced gas masks jointly approved by NIOSH and MSHA, each with one spare canister in a readily accessible location, OR two high visibility full head hoods each with a minimum of 5 minute pressurized air supply (this includes full face respirators or self-contained breathing apparatuses as alternatives)

(3.4.1.2) One pair of protective gloves impervious to ammonia

(3.4.1.3) One pair of protective boots impervious to ammonia

(3.4.1.5) Easily accessible emergency shower and a plumbed eyewash unit or at least 100 gal of clean water in an open top container

(3.4.1.6) Chemical splash goggles

During the inspection, T. Pidd showed me a box located between the anhydrous ammonia and propane tanks that contained chemical splash goggles and gloves. He informed me that he would order the gas masks designed for anhydrous ammonia, as the masks they had onsite were rated for ammonia, but did not have canisters. A 100-gallon emergency water tub is kept nearby to be used in the event of an emergency.

ANSI K61.1-1999 Section 5.12 – Painting of containers

This standard requires the tank to have a reflective surface maintained in good condition. White or other colors with similar reflecting characteristics are acceptable. Pidd Brothers has painted the entire tank white and is therefore in compliance with this standard.

ANSI K61.1-1999 Section 6.4 – 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. Pidd Brothers' permanent storage tank has concrete footings and foundations. Additionally, the tank is at least 2 feet above the ground.

ANSI K61.1-1999 Section 6.6 – Marking containers

NH3 storage tanks are required to 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. Each container should also be marked on at least 2 sides with the words “INHALATION HAZARD” in sharply contrasting colors with letters not less than 2 inches high. Pidd Brothers tank is correctly labeled on 2 sides with the words, “ANHYDROUS AMMONIA” and 2 sides are labeled with “INHALATION HAZARD.”

SC 1.2

Pidd Brothers is also required to implement and maintain the inspection and maintenance program specified in Appendix A of the permit for the nurse/applicator and permanent storage tanks. Permanent storage tanks must be inspected at least twice per year, prior to spring and fall application seasons. Nurse and applicator tanks are required to be inspected daily and documented at the permittee’s discretion. They are also required to document all maintenance and repairs for the nurse and applicator tanks. T. Pidd said that Pidd Brothers only applies anhydrous ammonia in the spring, therefore the permanent storage tank inspections are required prior only to the spring application season.

T. Pidd said the nurse tanks are inspected every day that they are using the tanks. T. Pidd provided me with the nurse and applicator tank and permanent storage tank completed inspection forms for the 2021 spring planting season (see attached).

I reviewed the Appendix A permanent storage tank inspection checklist while onsite and observed the following:

- Tank supports are in good condition
- The main piping valve was unlocked; however, T. Pidd sent me photo evidence, attached, that he equipped the main piping valve with a locked box to prevent unauthorized access.
- The piping is supported and guards are in place (I consider “guards” as any type of physical barrier that prevents accidental collision of a moving vehicle, etc, with the tank). Physical barriers are present for the tank, but I requested that Pidd Brothers also install physical barriers around the bulkhead for the vapor and liquid transport lines to prevent accidental collisions. T. Pidd followed up with photos 2 days after the inspection, on May 7, 2021, showing the placement of large boulders on either side to protect the bulkhead.
- Pipes are free of physical damage and there appears only to be surface rust on pipes
- Valves are labeled for liquid and vapor
- Rain caps are present on the safety relief valves

SC 1.3 & 1.20

Pidd Brothers is required under these conditions 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. Records for the date of annual review and approval of the plan with the local fire department or county emergency response agency are required to be maintained. I requested the date of annual approval of the emergency response plan for the 2020 and 2021 planting season. T. Pidd provided me copies of documentation showing that Mark Armstrong, Assistant Fire Chief for the Stockbridge Area Emergency Services, reviewed the site, as described in their emergency response plan on October 2, 2019 (2020 spring planting season) and May 5, 2021 (2021 spring planting season).

SC 1.4

All transfer operations are required to be conducted using a person that is properly trained and made responsible for proper compliance with all applicable procedures. T. Pidd said that D.H.T out of Bay City delivers Pidd Brothers anhydrous ammonia. An internet search revealed that D.H.T does deliver pressurized gasses like anhydrous ammonia (<https://dht-inc.com/related-companies/#x-section-2>). It may be beneficial during a future inspection to verify with D.H.T what their handling and delivery safety protocols and training program for anhydrous ammonia consist of.

SC 1.5

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. I was not able to verify nurse tank storage distances while onsite because the nurse tanks were not onsite during the inspection. The nurse and applicator tank storage area appears to be just north of the permanent anhydrous ammonia storage tank. Pidd Brothers own 1 applicator tank, 2 single nurse tanks, and 2 double nurse tanks. The closest residence, based on the location of the tanks during the inspection, is greater than 700 feet. There are no schools, apartments, institutions, hospitals or nursing homes within the specified distances of the permit.

SC 1.6

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, T. Pidd confirmed that the nurse tanks are only filled from the permanent storage tank.

SC 1.7

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)). T. Pidd said that the permanent storage tank is uninsulated. The permanent storage tank was 37% full. I conducted a spot check on the fill level of one of the nurse tanks. The nurse tank was filled to 80%.

SC 1.8

Vapor return lines are required to be employed when necessary to ensure an accidental release will not occur from the pressure relief valves during ammonia transfer operations. T. Pidd showed me the vapor return line on the tank, which connects to the delivery truck and runs up the side of the tank to the top to ensure vapor pressure is balanced.

SC 1.9

Per this condition, nitrogen stabilizers shall not be added to the permanent storage tank. T. Pidd confirmed with me that no nitrogen stabilizers are added to the anhydrous ammonia in the permanent storage tank.

SC.10

A safety relief valve is required to be installed with a manufacture date stamp so as to establish the replacement date of the valve (permit requires replacement, re-tested or recertified every 5 years). T. Pidd climbed to the top of the tank to take a photo of the manufacture date stamp on the valve. Date stamp read "8/2017." Pidd Brothers will need to replace, retest or recertify this valve by the end of 2022.

SC.11

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. T. Pidd showed me the remotely-operated shut-off valve mechanism that shuts off the flow in the liquid lines in the event of an emergency. The device operates using a series of springs and wires that are attached to the liquid lines post-bulkhead. It appears, based on the set-up of the system, that the liquid line valve will trigger to shut off if one of the vapor or liquid lines is ripped from off the bulkhead. I expressed my concerns with this setup. T. Pidd said that he was considering replacing this remote shut off valve with an upgraded version, similar to the one they have set up on their propane tank, which can be activated at the rear of the tank instead of near the vapor, liquid, and delivery lines. I recommended that they proceed to replace the existing external shut off system with something improved. T. Pidd said he would work on getting a new system installed this summer.

SC.12

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 while leaving valves and piping on the tankside of the transfer area intact. There is a bulkhead present through which the liquid and vapor lines run and through which the nurse tanks are filled and the permanent storage tank is filled. It appears that additions to the original bulkhead were made to ensure the "liquid out" line was supported by the bulkhead, as well as the vapor return line. These lines appeared to stand on their own, without anchorage to a bulkhead or other support until the additions were made. Pidd Brothers' is in compliance with this condition.

SC.13

Back pressure check valves are required to be installed in the liquid lines of the transport transfer area. T. Pidd showed me the back pressure check valve. This valve controls both the liquid entering and leaving the tank.

SC.14

Hoses are required to be replaced 5 years after the date of manufacture or more often if there is evidence of damage or deterioration. T. Pidd had 2 hoses attached to the bulkhead lines during the inspection. He stated that these hoses stay attached to the tank year-round. There were no signs of damage or deterioration were present. Both hoses were dated 2017. Hoses should be replaced by the end of calendar year 2022 to meet the 5-year replacement date.

SC.15

All vapor or liquid lines required to be vented after anhydrous ammonia transfer are to be vented into 55 gallons minimum of water. Pidd Brothers has vapor and liquid lines that, during the inspection, were noted to vent to a 5-10 gallon tub. I pointed out to T. Pidd that the minimum size of this tub must be 55 gallons. After the inspection, on May 7, 2021, T. Pidd sent me photos showing me that Pidd Brothers switched out the small tub to a larger tub that meets the 55-gallon requirement.

SC.16

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. I verified that a sign is conspicuously placed on the barn to the right of the storage tank.

SC.17

The permanent storage tank is required to 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' from a hospital or nursing home. Using Bing aerial maps and its associated measuring tool, the closest residence is located approximately 390 feet south of the anhydrous ammonia tank, across the street. There are no schools, apartments, institutions, hospitals or nursing homes located within the permitted respective distances from the permanent storage tank.

SC.18

Pidd Brothers is required to notify the Pollution Emergency Alert System (PEAS) and/or the AQD District Supervisor immediately of any abnormal release of anhydrous ammonia from the permanent storage tank. T. Pidd said that he doesn't believe they've had any abnormal releases. I reminded him that in the event an abnormal release occurs, that they must report it through PEAS.

SC.19

Records of date, duration and description of any malfunction or spill from the permanent storage tank, including estimated amount released must be kept. To date T. Pidd said there have been no malfunctions or spills from Pidd Brothers anhydrous ammonia tank.

Compliance Statement: At this time, Pidd Brothers is found to be in compliance with General PTI 90-09.



Image 1(Barrier 1) : Barrier installed on north side to protect pipes from accidental damage. Photo Credit: Travis Pidd



Image 2(Barriers 2) : South side barriers to protect anhydrous ammonia piping from accidental impact. Photo Credit: Travis Pidd



Image 3(Nurse Tank Location) : Red square indicates the general location of where the anhydrous ammonia nurse tanks and applicator tank are stored.



Image 4(Contact sign) : Emergency contact sign located on red barn, south of the anhydrous ammonia tank.



Image 5(Contact Sign Closeup) : Emergency contact information on emergency contact sign.



Image 6(Tank - full view) : Full view of the permanent storage anhydrous ammonia tank. Area to the right of the tank is where an unpermitted anhydrous ammonia tank (cited for Violation in 2016) has since been removed.



Image 7(Safety Relief Valves) : Safety Relief "pop-off" valves located on top of tank to the rear.



Image 8(Emergency shut off) : Remotely operated emergency shut-off system. Note: wire T's at the two lines on the bulk head, runs back to a spring system which is hooked to a lever-action valve.



Image 9(Close-up Shut off) : Close up of the hand level that, when triggered by the spring system, can shut off flow to the liquid lines.



Image 10(Vapor Return Line) : Vapor return line runs vertically up the side of the tank to ensure vapor equilibrium during transfers.



Image 11(Emergency water tub) : T. Pidd moved this tub to a location further away than the location pictured here. This was done per my recommendation to ensure, in the event of an emergency, those impacted would be away from the source of the hazard.



Image 12(Bulkhead Mods) : Modifications to bulkhead to ensure that, for example, the "Liquid Out" line was

attached to the bulkhead rather than freely hanging - this is to ensure a predictable break point in the event there is a pull-away break.



Image 13(Hose Date) : 2017 manufacture date on one of the permanent storage tank hoses.



Image 14(Other Tank) : Photo - center is another anhydrous ammonia storage tank on a trailer. This tank was removed from its location as the result of the R 201 violation in 2016.



Image 15(Double Nurse Tank) : Double nurse tanks onsite.

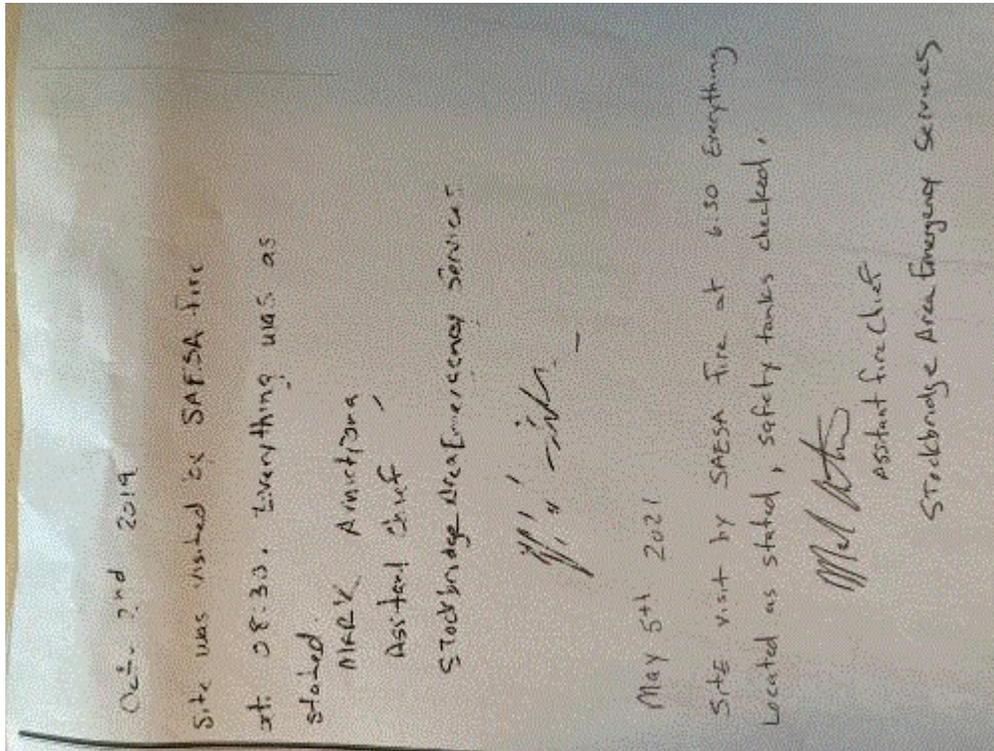


Image 16(Plan Approval) : Emergency response plan approval documentation

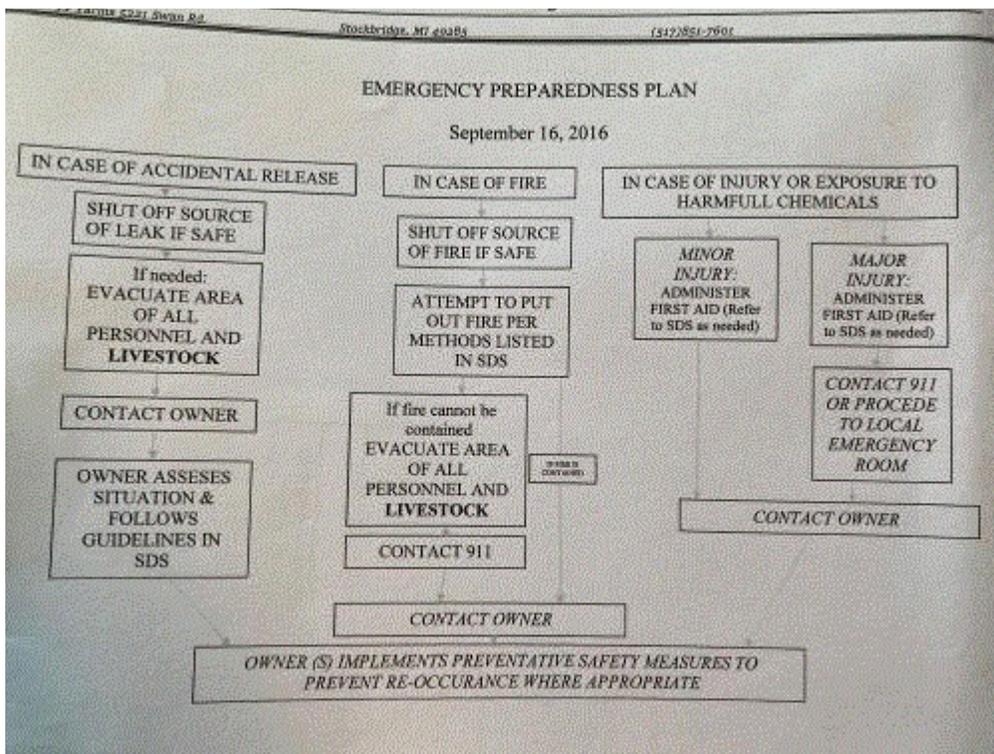


Image 17(Page 1 ERP) : Page 1 of the emergency response plan

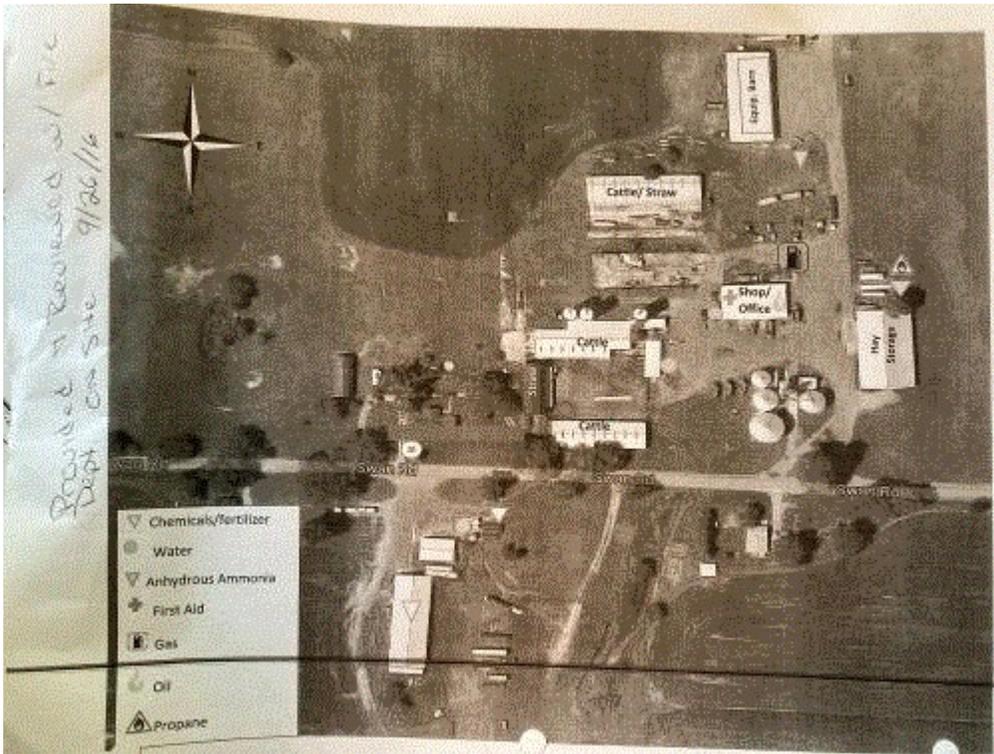


Image 18(Page 2 - ERP) : Page 2 of the Emergency Response Plan



image 19(Replacement Tub): Tub replaced on 5/7/21 to 55 gallons from the 5-10 gallon tub onsite during inspection. Tub is used for bleeding off lines after transfer. Photo Credit: Travis Pidd

NAME Michelle Lypkow

DATE 6/2/21

SUPERVISOR B.M.