

CAA112(r) INSPECTION REPORT

Name: Manor Chemical Company Inc.	
Address: 6901 Heege Road St Louis, MO 63123	Date of Inspection: 6/8-9/2021
County: St. Louis	Case No: 21MO0609
Phone: 314-351-2343	RMP No: General Duty Clause
High Risk: No	FRS No: 110021156817
CAA Title V: No	Program Level: General Duty Clause
Mailing Address: 6901 Heege Rd., St. Louis, MO, 63123	
Process: NAICS Code: 422690 Other Chemical and Allied Products Wholesalers. The April 29, 2021, fire occurred in a paper adhesive mixing process.	

SUMMARY OF OBSERVATIONS

A review of the Manor Chemical Company Inc. documents and facility revealed the following deficiencies:

- 1. Manor Chemical Company Inc. failed to identify hazards which may result from releases using appropriate hazard assessment techniques, per CAA Section 112(r)(1).**
- 2. Manor Chemical Company Inc. failed to design and maintain a safe facility free of ignition hazards while handling flammable substances, per CAA Section 112(r)(1)..**
- 3. By not having a formal mechanical integrity program, Manor Chemical Company Inc. failed to and maintain a safe facility taking such steps as are necessary to prevent releases, per CAA Section 112(r)(1)..**

INTRODUCTION

I, Dave Hensley, a Compliance Inspector with the U.S. Environmental Protection Agency (EPA), Region VII, inspected Manor Chemical Company Inc. (Manor) located in St. Louis, Missouri on June 8 and 9, 2021. Mr. Lorenzo Sena accompanied me as an EPA inspector in training. Ms. Dedriel Gardner an EPA Resource Conservation and Recovery Act (RCRA) inspector conducted a multi-media inspection. Ms. Cheyenne Bure and Mr. Kevin Thomeczek, from Missouri Department of Natural Resources Hazardous Waste Program, also accompanied EPA on this inspection.

I arranged for the inspection on June 1, 2021 with Ms. Tracey Lindloff, Vice President via a phone call with Ms. Gardner. I followed up this conversation with an email providing some

information on CAA 112(r) and CERCLA non 313. In this email I also asked that employees be notified of the inspection and informed they can participate. Manor was selected for inspection because on April 29, 2021 a fire occurred that caused the evacuation of surrounding residences.

We conducted the multi-media inspection to determine if the facility complies with Section 112(r) of the Clean Air Act (CAA), as amended in 1990, the reporting provisions of the Emergency Planning and Community Right to Know Act (EPCRA), the release reporting provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Resource Conservation and Recovery Act (RCRA).

EPA has published a document, EPA 550-B00-002, dated May 2000 titled “Guidance for Implementation of General Duty Clause Clean Air Act Section 112(r)(1)”. This publication is intended solely for the guidance of government personnel but is available to the public at the EPA’s website.

All attachments mentioned in this inspection report are also in a folder on the accompanying DVD. The folder numbers on the DVD correspond to the attachment numbers. As an example, Attachment #2 is in Folder #2. Attachments may not contain all documents or parts of documents collected at the time of the inspection, however the accompanying folder on the DVD will have the complete document(s). The DVD itself is Attachment #9 and contains a copy of this inspection report, copies of the original documents obtained, photographs taken during the inspection, the RMP current at the time of the inspection, emails between Manor Chemical Company Inc. and the compliance inspector, checklists, and completed forms.

HISTORY OF BUSINESS

Manor is a small family owned chemical wholesale distributor that repackages and custom blends chemicals. They make two mixes, paper adhesives and lacquer thinners. They have been business since 1972. Manor is classified by the North American Industry Classification system (NAICS) as 422690 Other Chemical and Allied Products Wholesalers.

Manor is located in St. Louis, Missouri. Based on the 2010 U.S. Census 120,921 residents live within 3 miles of the facility.

Manor handles flammable liquids including but not limited to the following: 100 Solvent, 140 Solvent, 150 Solvent, Acetone, Butyl Acetate, Butyl Alcohol, Ethanol, Glycol Ether, Isopropyl Alcohol (IPA), Methyl Ethyl Ketone (MEK), Methanol, Mineral Spirits, Nitrocellulose, Toluol (toluene), and Xylol (xylene).

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

Tracy Lindloff	Vice President
Pat O'Brian	Plant Manager
Tony Manor	Salesman and Assistant Dock Worker
Sam Lancaster	Operator

OPENING CONFERENCE

Ms. Bure, Ms. Gardner, Mr. Sena, Mr. Thomeczek, and I arrived at the facility at 09:00 on June 8th, 2021. We were meet by Ms. Lindloff, Ms. Stephanie Deery, Sr. Project Manager TRC Environmental, and Ms. Sara Chamberlain, Attorney, Thompson Coburn, LLP. We each introduced ourselves then, proceeded with a joint opening conference. Ms. Gardner provided the RCRA information and I covered the CAA 112(r)/EPCRA non-313 information. I provided a notice of inspection form (Attachment #1). We discussed confidential business information (CBI). I provided Ms. Chamberlain with contact information for Erin Weekley, Chemical Branch Chief, Office of Regional Counsel, U.S. Environmental Protection Agency, Region 7. Ms. Lindloff and I signed a Notice of Inspection form that states the reason for the inspection (Attachment #1).

Ms. Lindloff described the general processes of the facility both before and after the April 29th, 2021 fire.

The facility receives its chemicals via trucks (both tanker and box trucks). Bulk chemicals are pumped into the bulk tanks on the property. Totes and drums are off loaded onto the Dock Area. Chemicals are stored, repackaged, used for adhesive/ lacquer thinner mixing, and/or sold as is. Manor makes some bulk deliveries and ships chemicals to customers. The delivery, shipping and receiving operations were not affected by the fire.

Prior to the fire, paper adhesive and lacquer thinner were mixed in the Mixing Building, which was located on the north end of the facility. The Mixing Building was also referred to as the Butler Building. This building contained two mixers, chemical storage, mixing preparation, and hazardous waste storage. The Mixing building was destroyed by the April 29th, 2021 fire.

Currently, paper adhesive is mixed off-site and lacquer thinner is mixed in the Garage using a smaller mixer which the facility installed after the fire.

Fire

As mentioned above, a fire occurred at Manor on April 29, 2021. I asked Ms. Lindloff if a determination had been made as to the cause of the fire. Ms. Lindloff stated that the “cause of the fire was static electricity”.

On June 9, 2021, I interviewed Mr. Lancaster who was operating a mixer to make paper adhesive at the time of the fire. Mr. Lancaster asserts: that he was transferring solvent into the mixer; He was preparing to switch to a new solvent drum, heard two clicks, looked up, and saw fire coming from the solvent line; that he activated a fire suppression system, but it did not extinguish the fire; and that he tried to get to a fire extinguisher but was forced to evacuate the area due to the fire.

At 16:10 Central Time, on April 29, 2021, St. Louis County Hazmat called the National Response Center making Incident Report # 1303829 reporting a release of paint solvents of unknown quantity. They stated *“Fire in the facility due to unknown causes released an unknown*

amount of paint solvents to the ground. The neighborhood was evacuated for a ½ mile radius. Roads are closed but the names could not be provided at the time of the report.”

HAZARD IDENTIFICATION

I asked Ms. Lindloff if Manor had a hazard assessment, process hazard analysis, or hazard review, she replied that they did not. NFPA 30 Flammable and Combustible Liquids Code section 6.4.1 states *“operations involving ignitable (flammable or combustible) liquids shall be reviews to ensure that fire and explosion hazards are addressed by fire prevention, fire control, and emergency action plans, except as provided in 6.4.1.1”* 6.4.1.1 exempts operations where liquids are used solely for on-site consumption as fuels, where Class II or Class III liquids are stored in atmospheric tanks or transferred at temperatures below their flash points, mercantile operations, crude petroleum exploration, drillings, and well service operations, and normally unoccupied facilities in remote locations. NFPA 30 3.3.40.9 defines mercantile occupancy as *“an occupancy used for the display and sale of merchandise.”*

I asked if they had information on the chemical hazards of the facility. They did have SDS for all the chemicals they have onsite. Ms. Gardner and I collected a sample of these SDSs. The SDSs I collected are included in Attachment #2, the SDSs Ms. Gardner collected are attached to her report. The SDSs listed the hazards of the chemicals handled. For example, the toluene SDS has the following hazard statement.

“Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin irritation. May cause damage to organs (central nervous system, kidney, peripheral nervous system) through prolonged or repeated exposure. Toxic to aquatic life.”

Manor’s toluene SDS also has a *Handling and Storage* section that says:

“Do not handle until all safety precautions have been read and understood. Consult with applicable standards such as NFPA 30, ‘Flammable and Combustible Liquids Code’”

Manor appears to have recognized that flammability is a hazard at the site By: not allowing smoking onsite and labeling most chemicals with the National Fire Protection Association 704: Standard System for the Identification of the Hazards of Materials for Emergency Response hazard diamond. Seen in inspection photographs 4, 6, 8, 10, 11, and 12 (Attachment #3). Photograph 8, below, shows a flammable danger sign in the Dock area.



Figure 1: Photograph 8 – Flammable Danger sign in Dock Area

Static electricity can build up during transfer of flammable liquids. The National Fire Protection Association (NFPA) has recognized this hazard in NFPA 30. Stating:

“All equipment such as tanks, machinery, and piping shall be designed and operated to prevent electrostatic ignitions. All metallic equipment where an ignitable mixture could be present shall be bonded or grounded. The bond or ground or both shall be physically applied or shall be inherently present by the nature of the installation. Any electrically isolated section of metallic piping or equipment shall be bonded or grounded to prevent hazardous accumulation of static electricity. All nonmetallic equipment and piping where an ignitable mixture could be present shall be given special consideration.” (NFPA 30 section 4.5.3.4)

Manor’s paper adhesive safety data sheet (SDS) (collected by Ms. Gardner, part claimed CBI, Attached to RCRA Inspection Report) has the language:

“Ground/bond container and receiving equipment. Use explosion proof equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Wear protective gloves/protective clothing and eye/face protection.”

Manor’s toluene, methanol, methyl ethyl ketone, and phenolic SDSs have similar grounding language.

Substances being handled at the time of the fire include:

Chemical Name	Flammable Liquid Classification
Toluol (toluene)	Flammable Liquids Category 2
MEK (methyl ethyl ketone)	Flammable Liquids Category 2
Methanol	Flammable Liquids Category 2
Ethanol	Flammable Liquids Category 1B
Phenolic Resin	Flammable Liquids Category 1

NFPA 77 *Recommended Practice on Static Electricity* was adopted in 1946. *Chapter 8 Flammable and Combustible Liquids and Their vapors* discusses specific precautions that apply to Manor’s operations.

Manor has an inventory program that includes maximum intended inventory of 24 bulk vessels. Eight (8) of which were out of service and empty. Total flammable liquid storage is about 190,200 gallons. The most recent inventory at Manor was done on June 1, 2021 and showed about 70,000 gallons of bulk flammable liquids. Ms. Gardner collected a copy of this and two previous inventories.

Under the Clean Air Act Section 112(r)(1), the General Duty Clause states:

“The owners and operators of stationary sources producing, processing, handling or storing such substances [i.e., a chemical in 40 CFR part 68 or any other extremely hazardous substance] have a general duty [in the same manner and to the same extent as the general duty clause in the Occupational Safety and Health Act (OSHA)] to identify hazards which may result from (such) releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur.”

1) Manor Chemical Company Inc. failed to identify hazards which may result from releases using appropriate hazard assessment techniques.

FACILITY DESIGN AND MAINTENANCE

Design

I asked if the facility had any intrinsically safe area or if they had an electrical classification done. Ms. Lindloff was unable to provide either and stated that the entire facility was non-smoking, and they were aware of the hazards of flammable liquids they handle.

I requested the following documents:

1. Documentation of foam fire suppression system install or design
2. Documentation of an intrinsically safe/explosion proof electrical system in the Mixing Building
3. Mechanical integrity inspection documentation of a bulk storage tank
4. Mixer design documentation for the mixer involved in the fire
5. 2019 EPCRA Tier II Form

For 1., Ms. Lindloff provided an invoice for five 10-pound ABC Dry Chemical fire extinguishers purchased for the mixing building on November 23, 2020. She also provided an invoice for the installation of a carbon dioxide fire suppression system to a 25 hp mixer on September 23, 2005.

For 2., Ms. Lindloff provided an invoice for the installation of two explosion proof motors and associated electrical dated June 11, 1990. She also provided a photo of the Mixing Building being constructed about this same time.

For 3., Ms. Lindloff provided, an Industrial Stormwater Monthly Inspection Report checklist which Manor uses to inspect the bulk tanks. They do not have formal mechanical integrity inspections done by an outside person.

For 4., Ms. Lindloff informed me that her father found a folder containing information on the mixer and will send it to her. She will transmit it to me when she receives it.

For 5., Ms. Lindloff provided an email from Lana Nelson stating, *“Yes you filed it, but not showing we’ve got the paper copy of the report.”* (Attachment #4)

I interviewed Mr. O’Brian about the process on June 9, 2021. I asked him if they had any flammable gas monitoring in the Mixing Building, he said they did not. I then asked him about ventilation of the building, he stated that it had two “whirly birds” [standard building ventilation] on top and the doors stayed open during operations. I inquired about precautions taken to address flammability hazards in the Mixing Building. Mr. O’Brian said they used non-sparking brass tools and had 800-amp explosion proof wiring. I then proceeded to ask him if the mixer was grounded and if they had ever tested or verified the ground. He said that there was a grounding strap installed and said the ground strap was maintained at the same time Manor had an outside company do maintenance on the mixer. Last maintenance on the mixer was in August 2020, documented via invoice, however the invoice does not verify if the grounding was checked during the maintenance call.

On June 8, 2021, at about 10:30 am we took a tour of the facility during which I observed the following:

I observed a non-intrinsically safe propane powered forklift parked in the Dock area. As seen in inspection photograph 8. The taillights were open and not intrinsically safe. NFPA 70 National Electric Code defines an intrinsically safe apparatus as *“Apparatus in which all circuits are intrinsically safe.”* (NFPA 70, Article 100 Definitions).

In the Dock area, there were rags in 5-gallon plastic buckets. Mr. Manor indicated they were used with mineral spirits on the Main Dock to clean labels from containers. However, Mr. O’Brian later corrected that the rags were used with MEK to clean labels from containers. Rags soaked in mineral spirits (as well as several other organic solvents) can spontaneously heat up to their ignition temperature and combust posing an ignition hazard. *NFPA 30, 6.5 Control of Ignition Sources* lists spontaneous ignition as an ignition source to take precautions to prevent.

In the Garage Building, Manor installed a temporary mixer to make lacquer thinner. The mixer was wired into a non-explosion proof/ non-intrinsically safe wiring system. That was open with exposed wiring at the time of the inspection as seen in Photographs 13, 14, and 15. NFPA 30 Chapter 7 Electrical Systems applies to areas where Class I, II, or II flammable liquids are stored, handled, or used at or above their flash points. In the Garage Building, Manor was using toluene, a Class II flammable liquid, at ambient temperatures above its flash point of 39.2 °F. NFPA 30 7.3.1 *“Electrical utilization equipment and wiring shall not constitute a source of ignition. For any ignitable vapor that might be present under normal operation or because of a spill.”*

The mixer was grounded with a pair of automotive jumper cables as seen in Photographs 14 and 15. NFPA 77: *Recommended Practice on Static Electricity* Chapter 7 Section 7.4.1.5 says “Although grounding conductors can be insulated (e.g., a jacketed or plastic-coated cable) or uninsulated (i.e., bare conductors), uninsulated conductors should be used because defects are easier to detect.”

Near the south overhead door to the Garage Building there was a battery charger, oxy-acetylene torch, welding/cutting slag and used shielded metal arc welding electrodes which can be seen in Photographs 16, 17, and 18. I asked Mr. Manor if they welded in the Garage Building, He stated that they did not, they weld outside the Garage Building with the overhead door closed. Cutting and welding are ignition sources that need to be controlled per NFPA 30.

2) Manor Chemical Company Inc. failed to design and maintain a safe facility free of ignition hazards while handling flammable substances.

Maintenance

Manor conducts inspections per an industrial stormwater monthly inspection report (Attachment #5). I inquired about the facility inspections with regards to mechanical integrity of the bulk tanks, mixers and process equipment. Ms. Lindloff said that the facility does not have a third party do mechanical integrity inspections of its bulk tanks and said that Manor has outside companies come in to maintain the mixers and process equipment (Attachment #5).

In a June 22, 2021 email Ms. Lindloff said “In regards to mechanical integrity inspection documentation of a bulk storage tank we do not have formal inspections by an outside company of the tanks but we do follow the SPCC rule that requires us to inspect each container for integrity on a regular schedule.” An Industrial Stormwater Monthly Inspection is done monthly, and a checklist report is kept on file Attachment #5).

NFPA 30, 21.6.6.3 says, “Ground areas around tank storage facilities shall be kept free of weeds, trash, or other unnecessary combustible materials.” Some weeds were present near Manors bulk storage tanks as can be seen in Photographs 11 and 12. Shown below in a cropped version of photographs 11 and 12.



Figure 2: Photographs 11 & 12 – Note Weeds Between Bulk Tanks

NFPA 30, 21.8 *Inspection and Maintenance of Storage Tanks and Storage Tank Appurtenances*, requires that each tank constructed of steel be inspected and maintained per *API* [American Petroleum Institute] *Standard 653 Tank Inspections, Repairs, Alterations, and Reconstructions*, or *STI* [Steel Tank Institute] *SP001, Standard for the Inspection of Aboveground Storage Tanks*. Both standards require formal reoccurring in service inspection, external inspections, and internal inspections.

For example, API 653 requires a visual external inspection by an authorized inspector at least every five years. Unless the number of years determined by the difference between the measured shell thickness and the minimum required thickness, and the shell corrosion rate is less than five years. API 653, 6.4.2.1.1 states, *“The interval from initial service date until the first internal inspection shall not exceed 10 years unless a tank has one or more of the leak prevention, detection, corrosion mitigation, or containment safeguards listed in Table 6.1.”*

3) By not having a formal mechanical integrity program, Manor Chemical Company Inc. failed to and maintain a safe facility taking such steps as are necessary to prevent releases.

Operations

Ms. Lindloff and Mr. O’Brian said they had a written procedure for mixing the paper adhesive that was lost in the fire. It was stored near the process in a binder. I interviewed Mr. O’Brian on June 9, 2021 to discuss this operation.

The basic mixing operation is to: weigh out materials (dry and liquid), pump solvent into mixer, turn on the mixer then add the dry components. Then the product is tested in an onsite lab for quality control. If the batch passes the quality control requirements, the adhesive is drained (by gravity) into totes appropriate to the order.

Training

I asked Ms. Lindloff if they train employees on the hazards of the chemicals. She said they do. It covers the flammability of their chemicals and handling processes. I asked if they documented this training. She provided a sign off sheet that has the four employees handling chemical that had been signed from November 21, 2019 and March 14, 2020.

Managing Change

Manor does not have a management of change program. Change has been limited during the facilities history. NFPA 30, 6.4.2 says *“The hazard analysis shall be repeated whenever the hazards leading to a fire or explosion change significantly.”* Ms. Lindloff and Mr. O’Brian stated, that there had not been any major changes at Manor “for a good while”.

Incident Investigation

Manor does not have an incident investigation process. OSHA, Afton Fire Protection District, St. Louis County Hazardous Materials Response Team, Manor's insurance company, and EPA are looking into the April 29, 2021 fire. Manor provided copies of reports from the Afton Fire Protection District, St. Louis County Hazardous Materials Response Team (Attachment #6).

Self-Audits

Manor did not have any records of self-audits.

PLANNING

Manor does send their EPCRA Tier II chemical inventory to the State, local emergency planning committee, and fire department.

The fire department does annual inspections of Manor. Ms. Lindloff provide three Afton Fire Protection District checklist reports (Attachment #7). These were dated November 22, 2017, August 27, 2016, and September 16, 2015. Ms. Lindloff said these were the most recent fire department inspections.

EPCRA

Manor's 2020 EPCRA Tier II Emergency and Hazardous Chemical Inventory listed (Attachment # 8); 100 Solvent, 150 Solvent, Acetone, Butyl Acetate, Denatured Alcohol, Isopropyl Alcohol, Methyl Ethyl Ketone, Mineral Spirits, Xylene, VM&P Naphtha, Toluene, Methanol, and n-Propyl Alcohol, with maximum and average daily quantities between 10,000 and 24,999 pounds. This inventory does not appear consistent with the inventory collected during this inspection. For example, the Acetone quantity in the June 2021 inventory is 8,550 gallons, with a density of 6.58 pounds per gallon, equivalent to 56,245 pounds, above last year's maximum inventory. However, this EPCRA Tier II inventory is for the 2020 calendar year, and Ms. Gardner collected inventories done in February, March, and June 2021.

CLOSING CONFERENCE

On June 9, 2021, at the conclusion of the inspection, Ms. Gardner and I summarized our findings and recommendations during a closing conference. Participants included Ms. Lindloff, Ms. Chamberlain, Ms. Deery, Mr. Sena and me. I provided a receipt for samples and documents recording the 11 documents that I collected during the inspection. Ms. Lindloff and I signed it. I went over the remaining requested documents:

1. Documentation of foam fire suppression system Install or design
2. Documentation of an intrinsically safe / explosion proof electrical system in the Mixing Building
3. Mechanical integrity inspection documentation of a bulk storage tank
4. Mixer design documentation for the mixer involved in the fire
5. 2019 EPCRA Tier II

I provided a Notice of Preliminary Findings (See Attachment #1), with two findings.

1) EPCRA section 312 – not submitting a 2019 Tier II chemical inventory form. Ms. Lindloff sent an email from Lana Nelson at the Missouri Emergency Response Commission that indicates they submitted a 2019 Tier II.

2) Not identifying intrinsically safe areas, main loading dock, lacquer thinner mixing area. Not having electrical classification documented, and lack of control of ignition sources. This was modified by the review of documents collected and industry standards to the observations recorded here in.

Ms. Lindloff signed the Notice of Preliminary Findings. I provided a Confidentiality Notice. Ms. Lindloff chose to claim the formulation part of the Phenolic Resin in Solvent SDS as CBI. I marked that section of the SDS with a red CONFIDENTIAL stamp and maintained this document as CBI with appropriate protections. I provided a Notice of Opportunity to Substantiate CBI Claim that Ms. Lindloff signed. All the inspections forms are in Attachment #1.

FOLLOW UP

Manor has continued to provide documents post inspection. Currently the only outstanding documents are the fire involved mixer design documentation that Ms. Lindloff indicated are coming from her father's files. Manor also started taking steps toward compliance by working to improve the wiring at the temporary mixer location, and stating a commitment to build the new Mixer Building to address NFPA 30, hazard assessment, design, etc.

Hensley,
Dave

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Dave Hensley
Compliance Inspector

TRACEY CASBURN

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Tracey Casburn
Air Branch Chief

ATTACHMENTS

- 1 – Inspection Forms
- 2 – Safety Data Sheet
- 3 – Photo Log
- 4 – Emails
- 5 – Maintenance
- 6 – April 29, 2021 Fire Reports
- 7 – Fire Inspection Reports
- 8 – EPCRA Tier II
- 9 – DVD – Attached to Report