Inspection Report: Kinder Morgan Transmix Company, Clean Air Act Stationary Source

Facility Name:	Kinder Morgan Transmix Company
Inspection Date(s):	September 26, 2023
Facility Address:	4070 South 1st Street, St. Louis, MO 63118
FRS ID #:	110042337913
Federal Facility:	No
NCI:	Creating Cleaner Air for Communities
Facility size:	Synthetic Minor
Activity:	Partial Compliance Evaluation
State Referral:	No
NAICS code:	424710 – Petroleum Bulk Stations and Terminals
Lead Inspector:	Bryan Lange, ERG Inspector, (919) 622-2374
Asst. Inspector:	Elizabeth Hubbard, ERG Inspector Trainee, (919) 468-7894
State Inspector:	Robert Barnacle, Missouri Department of Natural Resources (MoDNR)
Facility Contact:	Tanner Travis, Superintendent of Operations, (314) 752-0144 Ext. 222, tanner_travis@kindermorgan.com

1. Plant Description:

The facility's 2020 operating permit states, "The Kinder Morgan Transmix Terminal in St. Louis, Missouri is a bulk transport loading facility for Gasoline and Fuel Oil Products….The products are bottom loaded at the loading racks into transport tankers at the Kinder Morgan Transmix terminal. The terminal is equipped to load Regular and Premium Unleaded Gasoline and also various grades of distillate fuels onto transports…The installation is a synthetic minor source of volatile organic compounds (VOCs), and hazardous air pollutants (HAPs) and a minor source of particulate matter less than ten microns in diameter (PM10), sulfur oxides (SOx), nitrogen oxides (NOx), and carbon monoxide (CO)."

Figure 1: Satellite image of the Kinder Morgan Transmix Company facility in St. Louis, MO.

2. Facility Entry:

The representatives of the United States Environmental Protection Agency ("EPA"), Elizabeth Hubbard and Bryan Lange from Eastern Research Group, Inc. ("ERG"), and a representative from the Missouri Department of Natural Resources ("MoDNR"), Robert Barnacle, arrived at the Kinder Morgan Transmix Company facility at 4070 South 1st Street, St. Louis, MO ("Kinder Morgan" or "the facility") at approximately 9:00 am on September 26, 2023. The MoDNR and ERG representatives ("the inspectors") were met at the administration building by Tanner Travis, Superintendent of Operations. The inspectors presented their identification credentials and provided an overview and scope of the inspection. The inspectors explained that ERG worked as contractors to conduct facility inspections for EPA. They provided a copy of EPA's "Small Business Resources Information Sheet."

3. Opening Conference/Technical Discussion:

The inspectors explained that they were at the facility to conduct a routine Clean Air Act ("CAA") inspection, including a focus on volatile organic compounds ("VOCs") and hazardous air pollutants ("HAPs"). The inspectors explained that during the facility walkthrough, they would capture digital images of the facility's processes and emission points using a digital point and shoot camera, as well as an optical gas imaging, forward looking infrared ("FLIR") video camera, model GF320, that were not intrinsically safe. Therefore, they requested that Mr. Travis inform them of any areas where there could be a potentially explosive atmosphere. Mr. Travis explained that there were no areas of the facility they would go where flammability would be a concern. The list of digital images and FLIR videos taken during the inspection are included in Appendix A.

The inspectors asked for background information about Kinder Morgan and the facility. Mr. Travis provided an overview of the facility's history, as well as the general operations that take place at the facility. Kinder Morgan purchased this facility from Buckeye Partners around 2009 or 2010, and the property had been leased from Buckeye Partners since then. The facility was co-located with the Buckeye South St. Louis asphalt terminal. Mr. Travis explained that the facility operated 24 hours a day, 7 days a week and that barge loading usually took place during the day. The materials handled by the facility included transmix, premium gasoline ("PBOB"), conventional gasoline ("CBOB"), diesel, and jet fuel. All the asphalt storage tanks at the site belonged to Buckeye Partners; this Kinder Morgan facility did not handle any asphalt. Kinder Morgan owned 5 transmix facilities, but this was the only transmix facility in the Midwest. The facility had seven employees and used contractors for barge unloading, and Kinder Morgan had more than 50,000 employees companywide.

Mr. Travis described the material handling and storage processes at the facility. The facility received products from the Explorer Pipeline ("the pipeline"), which spanned from Chicago, Illinois to Houston-Pasadena, Texas. Kinder Morgan used the pipeline to ship product to the facility from Houston, TX. On average, the facility produced around 6,000 barrels of product per day from its transmix operation. Gasoline was shipped out via truck, while diesel was shipped out via barge. All the loading at the truck loading racks was sequential loading, meaning the ethanol would be loaded first, followed by the gasoline. Mr. Travis explained that other facilities sometimes used a ratio loading process instead, during which all products would be added at the same time. Mr. Travis showed the inspectors a diagram indicating where all the tanks were located at the facility and what products were stored in each. See photos DSCN7474.JPG and DSCN7475.JPG.

Mr. Travis explained that transmix is a blend of various types of fuel that is created when the same pipeline is used to transfer multiple products. For example, if a pipeline was used to ship diesel and subsequently used to ship gasoline, the interface of the two products where the diesel and gasoline blend together would be transmix. Transmix does not meet the specifications of any individual fuel product, so it must be separated before it can be sold. Mr. Travis explained that the transmix process involved heating the transmix in a distillation tower. The distillation column at the facility used diesel as a heating oil which was heated to 500°F. Transmix was added to the column and the gasoline or "light ends" would evaporate out, leaving diesel behind. The gasoline could then be re-condensed and pumped to a gasoline storage tank, and the diesel from the transmix would be sent to a diesel storage tank.

The inspectors asked how much product the facility received each day. Mr. Travis said the amount of product the facility received each day fluctuated, but on average they would receive around 15,000 to 30,000 barrels of product every 5 to 6 days. The inspectors asked which of the facility's storage tanks were submerged fill. Mr. Travis informed the inspectors that all the facility's tanks were bottom filled. The inspectors asked how frequently the facility's internal floating roof ("IFR") storage tanks were inspected. Mr. Travis responded that the IFR tanks were inspected every 10 years following American Petroleum Institute ("API") Standard 653.[1]

The inspectors asked how much product was shipped out each day via barge and truck. Mr. Travis responded that the facility usually filled around 10 barges per month. A barge would hold around 10,000 barrels of diesel and would take approximately 5 hours to fill. Mr. Travis said the number of trucks filled per day varied significantly but estimated that around 3,000 barrels of product per day were shipped out via truck. The inspectors asked if all the trucks were external customers or if any of them were internal to Kinder Morgan. Mr. Travis said that the trucks all belonged to the same external company that was a customer.

The inspectors asked if the truck drivers that loaded at the facility received any type of certification. Mr. Travis said that all the drivers were required to have 10 days of on-site training with another certified driver and must have a Transportation Worker Identification Credential ("TWIC") card.

The inspectors asked Mr. Travis to describe the truck loading process. Mr. Travis explained that drivers were required to scan in at the gate to the facility, and if either their TWIC card or the vapor certification for the truck was expired, then the truck would not be allowed to enter. If the driver was new, they would meet with the facility operator and a trained driver for their training. To load, a driver would input the desired product into a computer, and the loading equipment would prevent the truck from overfilling once it reached a high level.

The inspectors asked how the facility calculated emissions. Mr. Travis said that emissions calculations were contracted out or were completed by Kinder Morgan's corporate compliance team. Mr. Travis provided contact information for the person with Kinder Morgan's corporate office who would be

[1] https://www.api.org/~/media/files/publications/whats%20new/653_e5%20pa.pdf

responsible for emissions calculations. The inspectors explained that EPA might reach out to ask further questions about how the facility's emissions were calculated.

The inspectors asked how frequently inspections were conducted on the facility's gasoline handling equipment. Mr. Travis responded that the facility conducted daily checks of all of the gasoline equipment and performed more thorough leak detection and repair ("LDAR") monitoring once per month. The inspectors reviewed daily air compliance inspection logs for August 25 through September 25, 2023, and took photos of a few inspection logs. See photos DSCN7476.JPG through DSCN7481.JPG. The inspectors inquired about two days during this time period (September 11, 2023, and September 19, 2023) when the vapor recovery unit was not running. Mr. Tanner explained that the unit was down because they were changing out the pump those days.

The inspectors reviewed daily Spill Prevention Control and Countermeasure ("SPCC") inspection sheets for August and September of 2023 and took photos of a few inspection sheets. See photos DSCN7482.JPG through DSCN7485.JPG. The inspectors noted there were no issues indicated on any of the SPCC inspection sheets they reviewed.

The inspectors noted that a carbon adsorption vapor recovery unit ("VRU") was permitted at the facility. They asked Mr. Travis how often the carbon was replaced in the VRU. Mr. Travis said that the VRU had two 2,000-gallon carbon vessels and that the carbon was last replaced in 2015. That was the only time it had been changed since Kinder Morgan had owned the facility, and Mr. Travis was not sure how long the carbon was in service prior to the acquisition. Mr. Travis informed the inspectors that an outside contractor did preventative maintenance on a quarterly basis. Relative accuracy test audits ("RATA") are performed annually, and a carbon sample is taken from the unit annually, as well. Performance tests on the VRU are completed every five years. The inspectors asked if the facility regularly measured pressure drop on the VRU. Mr. Travis said yes, there are pressure and temperature gauges on the VRU to make sure it stays within the permitted range.

4. Facility Tour/Walkthrough:

At approximately 10:50 am, Mr. Travis led the inspectors on a walkthrough of the facility. They started at the transmix area, proceeded past the truck loading area, then visited the storage tank area and the VRU.

At the transmix area, the inspectors observed that the natural gas boiler used to heat diesel for the transmix distillation column was running. Mr. Travis pointed out that the number on the natural gas meter for the diesel heater should have been rising since it was running, but it was stable. The inspectors observed apparent emissions from the diesel heater stack using the FLIR camera. See photos DSCN7486.JPG through DSCN7488.JPG, DSCN7490.JPG, DSCN7491.JPG, and DSCN7493.JPG and video MOV_2758.mp4.

Mr. Travis informed the inspectors that the heat exchanger for the transmix column uses 500°F diesel to raise the temperature of the transmix to approximately 275°F. Gasoline that evaporates from the transmix goes to the condenser and is then sent to the subcooler to be cooled further before being sent

to a gasoline storage tank. Mr. Travis informed the inspectors that the overpressure valve on the distillation tower has a pipe that feeds back into a transmix tank in case of an overpressure event. The inspectors observed apparent emissions from the condenser using the FLIR camera. See photos DSCN7494.JPG and DSCN7495.JPG and video MOV_2759.mp4.

At the truck loading rack, the inspectors noted a slight gasoline smell while a truck was loading. The inspectors did not observe any apparent emissions with the FLIR camera at the loading rack. See photos DSCN7496.JPG through DSCN7500.JPG and video MOV_2760.mp4.

At the VRU, Mr. Travis informed the inspectors that the VRU had a probe that measured hydrocarbon emissions that was connected to a continuous emission monitoring system ("CEMS") unit. The inspectors observed apparent emissions from VRU Bed A using the FLIR camera. See photos DSCN7503.JPG through DSCN7505.JPG and video MOV_2761.mp4.

The inspectors observed indications of slight emissions from Tank 88, an IFR tank which contained PBOB, and Tank 89, an IFR tank which contained a blend of gasoline products. See photos DSCN7503.JPG and DSCN7507.JPG and videos MOV_2762.mp4 and MOV_2763.mp4.

Mr. Travis led the inspectors to the CEMS monitoring unit which is used to measure hydrocarbon emissions from the VRU. See photos DSCN7508.JPG through DSCN7510.JPG.

At approximately 12:00 pm, the group returned to the administrative building, and the inspectors provided the facility representatives with a closing conference.

5. Closing Conference:

The inspectors thanked Mr. Travis for his time and cooperation during the inspection. The inspectors explained that EPA would provide Kinder Morgan with an inspection report in approximately 60 days. They explained that the report would be available to the public through the Freedom of Information Act, and therefore, if the company wanted to claim any notes or digital images as confidential business information (CBI), they could do so today or within 10 days following the inspection. They provided Mr. Travis with EPA's confidentiality notice form. Mr. Travis signed the form. See Appendix B.

The inspectors summarized questions and concerns raised during the inspection. They noted that during the facility walkthrough, they observed indications of VOC emissions from several locations, including the diesel heater, the condenser for the transmix distillation column, one of the VRU carbon beds, and two of the IFR storage tanks. They also noted that there were outstanding questions about how the facility calculated emissions and informed Mr. Travis that EPA may reach out to the corporate contact he provided. The inspectors provided Mr. Travis with a Notice of Preliminary Findings form and explained that EPA may follow up with additional questions. See Appendix C.

The inspectors did not take copies of any documents.

At approximately 12:25 pm, the inspectors departed from the facility.

6. Appendices

A. Digital Image Log
B. Confidentiality Notice Form
C. Notice of Preliminary Findings Form

Inspection Report Sign-Off

Lead Inspector's Name: Bryan Lange, ERG

Signed by Jason Sese for Bryan Lange

X Jason Sese Digitally signed by Jason Sese Date: 2023.12.05 13:13:47 -05'00'

Lead Inspector

Assisting Inspector's Name: Elizabeth Hubbard, ERG

X Elizabeth Hubbard Digitally signed by Elizabeth Hubbard Date: 2023.12.05 10:50:30 -05'00'

Assisting Inspector

Supervisor's Name: Tracey Casburn, Air Branch Chief, ECAD

X TRACEY CASBURN Digitally signed by TRACEY CASBURN Date: 2023.12.07 15:11:25 -06'00'

Supervisor