Inspection Report: J.D. Streett & Company, Inc., Clean Air Act Stationary Source

Facility Name: J.D. Streett & Company, Inc.

Inspection Date(s): September 25, 2023

Facility Address: 3800 South 1st Street, St. Louis, MO 63118

FRS ID #: 110003939551

Federal Facility: No

NCI: Creating Cleaner Air for Communities

Facility size: Synthetic Minor

Activity: PCE

State Referral: No

NAICS code: 424710 – Petroleum Bulk Stations and Terminals

Lead Inspector: Elizabeth Hubbard, ERG Inspector Trainee, (919) 468-7894

Asst. Inspector: Bryan Lange, ERG Inspector, (919) 622-2374

State Inspector: Suzanne Lamb, Missouri Department of Natural Resources (MoDNR)

Facility Contact: Michael Bramell, Terminal Manager, (314) 393-9237, mbramell@jdstreett.com

1. **Plant Description:**

According to the facility's 2018 construction permit, "J. D. Streett & Company, Inc. operates a gasoline, diesel, and fuel additive distribution facility located along the Mississippi River in St. Louis, Missouri. Product is received by pipeline and shipped out by truck." A new source review (NSR) amendment approval issued by MoDNR in 2021 notes, "the city of St. Louis is currently designated a marginal nonattainment area for the 2015 eight-hour ozone national ambient air quality standard (NAAQS). The installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2, Item #22 'Petroleum storage and transfer facilities with a capacity exceeding 300,000 barrels'; therefore, the installation's major source level is 100 tons and fugitive emissions are counted towards major source applicability."

The 2021 NSR amendment approval also mentions that the facility is required to have an activated carbon adsorption system to ensure that the installation remains an existing minor NSR source with a VOC potential to emit (PTE) of less than 100 tons. Removal of this system would result in the installation becoming a major NSR source. As the installation does not wish to be a major NSR source, their permit includes a synthetic minor VOC limit of 100 tons of VOCs in any consecutive 12-month period from the entire installation.

Figure 1: Satellite image of the J.D. Streett & Company, Inc. 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 MoDNR, Suzanne Lamb, arrived at the J. D. Streett and Company, Inc. facility at 3800 South 1ST Street, St. Louis, MO ("J. D. Streett" or "the facility") at approximately 9:15 am. The MoDNR and ERG representatives ("the inspectors") were met at the administration building by Michael Bramell, Terminal Manager. 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 that was part of a national initiative to look at facilities close to residential neighborhoods, 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 the facility representatives inform them of any areas where there could be a potentially explosive atmosphere. Mr. Bramell explained that there were no areas of the facility 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 J.D. Streett and the facility. Mr. Bramell provided an overview of the facility's history, as well as the general operations that take place at the facility. Mr. Bramell explained that the facility operated 24 hours per day, 7 days per week and that 6 terminal operators were employed by the facility. The site of the facility was a former landfill operation, though Mr. Bramell was not sure how far out from the site the landfill previously expanded. J.D. Streett acquired the land in 1970, the first four tanks were built in 1971, and another three tanks were built in 1973. The facility was built around the same time that the pipeline it was connected to, the Explorer Pipeline ("the pipeline"), was constructed. The facility was connected to several companies via the pipeline, which originated in Texas. Mr. Bramell explained that the facility received gasoline and diesel via the pipeline from the Wood River Refinery across the Mississippi River. The facility did not ship out any products via the pipeline and only shipped products out via trucks. Mr. Bramell noted that although the facility was permitted to receive product via barge, it did not use that option because it was more expensive and time consuming.

Mr. Bramell told the inspectors that the equipment at the facility included two diesel storage tanks, one premium gasoline ("PBOB") storage tank, four conventional gasoline ("RBOB") storage tanks, eight ethanol storage tanks, two loading racks, five fuel additive tanks, one biofuel storage tank, and a biofuel loading area. Mr. Bramell noted that the facility did not have any transmix tanks and avoided dealing with transmix to simplify its operations. Transmix operations separate different types of fuel that are delivered by the pipeline.

Mr. Bramell explained that the facility operated around a nomination process for receipt of materials and generally requested materials approximately 45 days before they would like to receive them. The facility then received a schedule of 11 to 15 days outlining what materials they would receive. Based on this schedule, the facility planned which tank would receive which product and prepped the tanks in

advance. Once products were received, the facility notified its customers of what products were available and customers would then pick up the products via truck. J.D. Streett had some internal truck drivers which distributed material to service stations they owned around St. Louis, while some truck drivers were employed by third party customers.

Mr. Bramell stated that all trucks loaded at the facility had to pass annual vapor tightness certification tests. He explained that the facility had an automated system in which drivers were required to input both a driver pin and a trailer number before they could load a trailer. If the driver was not registered, or the trailer number entered did not have a current vapor tightness certification, then the system locked them out and they were unable to load. At the request of the inspectors, Mr. Bramell presented an example of a truck vapor tightness certification, of which the inspectors took a photo. See photo DSCN7407.JPG. Mr. Bramell explained that drivers received training on how to load trucks, including how to properly connect the hose to the vapor recovery system while loading. Drivers that did not load properly or had faulty fugitive controls could be banned from the site until the issues were resolved. Mr. Bramell noted that drivers sometimes forgot to connect the vapor hose, in which case emissions would be vented to the atmosphere. If facility staff noticed this happening, the driver was reprimanded and, in some cases, would be locked out of the system and prevented from loading future trucks.

Mr. Bramell explained that all blending of materials was done at the loading racks. The facility had a total of four loading bays and 16 meters. A typical truck loaded at the facility had a total capacity of 9,800 gallons and as many as four separate compartments, and a typical load was around 9,100 gallons of product. Drivers entered the information for the blend they wanted to receive into a computer at the loading rack, then the meters loaded the product via sequential blending. The sequential blending process involved loading the ethanol first, followed by additives and gasoline; additives were injected as the gasoline was filling. Mr. Bramell explained that other facilities sometimes used a ratio loading process instead, during which all products would be added at the same time. J.D. Streett preferred sequential loading because in a ratio process, if a valve is stuck open, it can be more difficult to notice. The computers at the loading racks had loadout presets that were designed to prevent an overfill, as well as sensors that would stop a truck from being filled past a certain level. Biofuel loading was the only loading operation that was not automated at the time of the inspection, though Mr. Bramell said that the facility would be automating biofuel loading by March or April of 2024. The facility did not refine or process any materials apart from the blending that occurred at the loading racks.

The inspectors asked how much of each product was typically shipped from the facility each day. Mr. Bramell said that the facility typically shipped approximately 25,000 barrels per day (BPD) of all final products combined, with PBOB and diesel each accounting for approximately 2,000 BPD, ethanol accounting for approximately 2,500 BPD, and RBOB accounting for the remaining approximately 18,500 BPD. The facility typically shipped between 300 and 400 million gallons per year of all products combined, but Mr. Bramell said this could vary between years. In 2022, the facility shipped 300 million gallons of RBOB, 34 million gallons of PBOB, 43 million gallons of diesel, and 37 million gallons of ethanol.

The inspectors noted that the facility's 2021 New Source Review permit modification mentioned that the facility had gasoline storage tanks with internal floating roofs ("IFRs") and asked whether all of the gasoline storage tanks at the facility were IFR tanks. Mr. Bramell explained that all of the gasoline tanks had IFRs as well as one of the diesel tanks. The inspectors asked what other types of storage tanks were at the facility, to which Mr. Bramell responded that all other tanks were fixed roof tanks, including the largest diesel storage tank and all eight ethanol storage tanks. The only heated tank at the facility was

the biofuel storage tank, which Mr. Bramell said was maintained at 80 degrees Fahrenheit with an electric probe. Mr. Bramell noted that the facility previously had only four ethanol storage tanks and recently added four more ethanol storage tanks, which were not yet in service as of the time of the inspection. All eight ethanol storage tanks had a capacity of 30,000 gallons. The four new ethanol tanks needed to have safety equipment and gauges installed before they could be put into service. The inspectors asked whether storage tanks were typically fully emptied before being filled again. Mr. Bramell said no, that the tanks typically still had some product in them when they were refilled. He explained that the IFR tanks always had enough product in them to ensure that the roofs remained floating.

The inspectors asked how frequently the facility's storage tanks were inspected. Mr. Bramell responded that the IFR tanks were inspected every 10 years following American Petroleum Institute ("API") Standard 653.[1] Mr. Bramell explained that API Standard 653 was an industry standard for tank inspections, not a requirement, but insurance companies recognized the value of following the standard. API Standard 653 specified levels of repair such that future inspections could be delayed depending on the extensiveness of repairs and upgrades. These IFR inspections involved fully draining the tanks, identifying and repairing rips or tears in the fabric or leaks in the shoe seal, and performing tank floor scans. For shop-built tanks, which are those that were erected on site with a crane such as the facility's ethanol tanks, the facility followed the Steel Tank Institute ("STI") SP001 Standard inspection procedures.[2] Mr. Bramell noted that the facility had done repair work on all of its tanks within the past 10 years.

The inspectors asked Mr. Bramell to describe the vapor recovery system that was used during gasoline loading operations. Mr. Bramell explained that the vapor recovery system was an activated carbon adsorption system with two vessels of carbon, each of which contained approximately 80,000 pounds of carbon. While one carbon chamber was operating in adsorption, the other chamber was operating in suction, and the system cycled between the chambers approximately every 15 minutes. The gasoline vapor captured by the system was then cooled and condensed into a liquid and then pumped back into one of the fuel storage tanks. Mr. Bramell noted that during the summer, less gasoline vapor was recovered because of the lower Reid Vapor Pressure ("RVP") required for gasoline in the summer, but during the winter months (October through March) the vapor recovery system could recover as much as 40,000 to 65,000 gallons of gasoline monthly. Mr. Bramell explained that in the summer, the RVP limit for gasoline was a maximum of 7.4 psi, while in the winter, the RVP had to be in the range of 13.5 to 15 psi. On average, Mr. Bramell said that the vapor recovery system recovered approximately one gallon of vapor for every 1,000 gallons of gasoline loaded. The recovered gasoline is treated as surplus and is distributed to the facility's customers based on purchase records.

The inspectors asked how the facility verified the vapor pressures of its products. Mr. Bramell explained that once per month the facility sent samples of diesel, RBOB, ethanol, and PBOB to the state to be tested for octane rating and flash temperature. The inspectors asked how the facility ensured representative samples of its materials. Mr. Bramell responded that samples were collected from the tops of tanks through a thief hatch or from a location near the pump where material was sent to the loading racks.

[1] https://www.api.org/~/media/files/publications/whats%20new/653_e5%20pa.pdf
[2] https://stispfa.org/sp001/

The inspectors asked what maintenance was typically done on the vapor recovery system. Mr. Bramell said that preventative maintenance was done on the vapor recovery system three times per year. Additionally, a sample of the carbon in the system was tested for adsorption once per year to ensure that it was still capturing vapor efficiently, and it was replaced approximately once every 10 years. While the carbon in the vapor recovery system was being replaced, a separate vapor combustion unit was brought into the facility so the facility could continue operating. A stack test on the vapor recovery system was also performed once every five years to confirm that it met the permitted emission limit. Mr. Bramell showed the inspectors the results of the most recent stack test from July 2019, which showed that 0.77 milligrams of VOCs were emitted per liter of gasoline loaded; this was within the regulatory limit of 10 milligrams of VOCs per liter of gasoline loaded.[3] The inspectors took a photo of the page of the stack test report with the summary of results. See photo DSCN7403.JPG.

The inspectors asked Mr. Bramell to describe the facility's inspection procedures to check for leaks in the vapor recovery system, loading racks, and vapor processing system. Mr. Bramell said that the facility conducted daily leak detection inspections and checked the operation of the vapor system daily. He presented records of daily operating logs for the vapor recovery system. The inspectors took a photo of the log for September 24, 2023, which indicated no issues. See photo DSCN7406.JPG.

The inspectors noted that the facility was subject to 40 CFR Part 63 Subpart BBBBBB, *National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities* according to its construction permit and that Subpart BBBBBB required monthly leak inspections of all of its equipment in gasoline service. The inspectors requested to see records of these inspections. Mr. Bramell presented a logbook of monthly inspections, from which the inspectors reviewed a few months' worth of logs. The inspectors noted that no leaks were recorded on any of the inspection logs they reviewed. The inspectors took a photo of a page of the logbook with inspection results for August 2017. See photo DSCN7412.JPG. The inspectors asked how frequently leaks typically occurred. Mr. Bramell responded that the facility did not typically see any leaks from the bulk storage tanks, but sometimes they would see or hear leaks at the loading rack, typically from a tear or kink in a hose or a bad hose connection point. Mr. Bramell said that repairs for these leaks would involve replacing the hose or replacing the clamp on the vapor coupler to ensure a tight seal.

The inspectors noted that, according to the facility's 2018 construction permit, 40 CFR Part 60 Subpart XX, *Standards of Performance for Bulk Gasoline Terminals* applied to the facility. The inspectors asked how the facility ensured that it did not exceed the maximum pressure limit per Subpart XX of 4,500 pascals (450 mm of water) during product loading. Mr. Bramell responded that the facility did not monitor the tank pressures but that there was likely a manufacturer specification for the tanks that ensured they did not reach this limit. The inspectors asked what the set points were for any pressure relief devices on the vapor recovery system or on the tanks. Mr. Bramell said that the design pressure for the bulk storage tanks was atmospheric pressure and that the tanks had vents on the top. He also said there was a pressure relief vent on the vapor line between the loading rack and the vapor recovery system, but did not know what the set point pressure was for this vent. Mr. Bramell noted that the pressure relief vent on the vapor line used to be tested during the five-year stack tests and historically, the vent required replacement in order to pass. However, Mr. Bramell noted that testing the vent on the vapor line was no longer a stack testing requirement.

[3] See 10 CSR 10-5.220(3)(B)2.A. https://www.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c10-5.pdf#page=9

The inspectors noted that the facility's 2018 construction permit stated that the facility was not subject to 40 CFR 63 Subpart R, *National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)* because it was a minor source for hazardous air pollutants ("HAPs"). The inspectors asked how the facility determined HAP emissions. Mr. Bramell responded that the facility sent information to Trinity Consultants for calculating emissions for the Emissions Inventory Questionnaire ("EIQ"). He said the facility did not use EPA's TANKS program because they were told the software used conservative assumptions and that stricter California standards played a role in its development. The facility maintained a spreadsheet designed by Trinity Consultants that included monthly tank throughput for each tank and material speciation which was used to calculate emissions. Mr. Bramell said that he believed the facility was not currently a synthetic minor facility, but when it was, it would also share the spreadsheet with regulators each month for the EIQ. The inspectors took photos of a few tabs of the spreadsheet. See photos DSCN7409.JPG, DSCN7410.JPG, and DSCN7411.JPG. The inspectors asked how this information was used to calculate emissions. Mr. Bramell said that he was not certain how emissions were calculated since the work was performed by a contractor, but he believed the material speciation was based on Safety Data Sheets ("SDSs") and that emissions were calculated using the speciation, throughput data, and emission factors from AP-42. The inspectors noted that EPA does not recommend the use of AP-42 emission factors for demonstrating compliance because such factors represent industry-wide averages, which means that if tested, approximately half the facilities would have emissions higher than the factor.[4] Therefore, measured site-specific information is recommended.

The inspectors noted that they were unable to obtain a current operating permit from MoDNR, and Mr. Bramell explained that an updated permit application had been submitted to MoDNR but was still pending approval at the time of the inspection.

4. Facility Tour/Walkthrough:

At approximately 11:20 am, Mr. Bramell led the inspectors on a walkthrough of the facility. They started at the outdoor storage tank area where fuel storage tanks 1 through 4 were located, then proceeded to the pipeline manifold, the lubricity additive storage tank, fuel storage tanks 5 through 7, the vapor recovery unit, the ethanol storage tanks, the south loading rack, the remaining fuel additive storage tanks, the biofuel loading area, and the north loading rack.

At fuel storage tanks 1 through 4, Mr. Bramell informed the inspectors that Tank 2, which typically stores RBOB, was undergoing maintenance work and was therefore out of service. The inspectors noted some indications of corrosion on the piping leading to and from the storage tanks and that there was a slight gasoline smell near the tanks. See photos DSCN7417.JPG and DSCN7418.JPG. The inspectors observed apparent emissions with the FLIR camera coming from the vents near the roofs of Tank 3, an IFR tank containing PBOB, and Tank 4, an IFR tank containing diesel. See videos MOV_2742.mp4, MOV_2743.mp4, and photo DSCN7419.JPG.

While walking from Tanks 1 through 4 to the pipeline manifold, Mr. Bramell informed the inspectors that sometimes the pipeline had sent diesel when the facility's inlet valve for diesel was closed, which can cause the line to build pressure. The facility was not receiving any products from the pipeline at the time of the walkthrough. The inspectors did not see any indications of emissions from the pipeline manifold with the FLIR camera. See photo DSCN7420.JPG.

[4] https://www.epa.gov/sites/default/files/2021-01/documents/ap42-enforcementalert.pdf

Mr. Bramell then led the inspectors past the lubricity diesel additive storage tank and fuel storage tanks 5 through 7. See photos DSCN7421.JPG to DSCN7423.JPG. The inspectors observed apparent emissions with the FLIR camera coming from the vents near the roofs of Tank 5 and Tank 6, both of which were IFR tanks containing RBOB. See video MOV_2744.mp4. The inspectors did not see any indications of emissions from Tank 7, a fixed roof tank containing diesel.

The group then proceeded to the vapor recovery unit, which was located between fuel storage tanks 5 through 7 and the ethanol tanks. The inspectors noted a sharp smell when standing between the vapor recovery unit and the ethanol tanks. The ethanol tanks were actively being painted during the walkthrough, and Mr. Bramell reiterated to the inspectors that four of the ethanol tanks were recently constructed and were not yet in service. See photos DSCN7424.JPG and DSCN7426.JPG.

Mr. Bramell walked the inspectors through the function of the vapor recovery unit. He informed the inspectors that the carbon is contained in the large columns of the unit, which is where stack tests and carbon tests are performed. He also told the inspectors that he took monthly emissions readings at the top of the carbon vessels as part of the monthly leak inspections. Gasoline vapor is captured by the carbon in one of the vessels at any given time and is then purged, condensed into a liquid, and pumped back into the storage tanks. While the inspectors were standing near the vapor recovery unit, Mr. Bramell informed them that a cycle changeover was occurring (i.e., the vessel that had been operating in adsorption would switch to being purged, and vice versa). While the changeover was occurring, the inspectors observed apparent emissions from Vessel 1 on the vapor recovery unit. See photos DSCN7425.JPG, DSCN7427.JPG, DSCN7428.JPG, DSCN7429.JPG, and video MOV_2746.mp4.

At the south loading rack, Mr. Bramell showed the inspectors the AccuLoad computers where drivers would input their ID number and the truck trailer number. No trucks were loading at the south loading rack while the inspectors were there. The inspectors noted a strong gasoline smell while standing near the south loading rack. They also saw that Gas Meter #7 had a plastic bag tied to it and could see apparent emissions when looking at the meter with the FLIR camera. See photos DSCN7432.JPG to DSCN7436.JPG and video MOV_2747.mp4. Mr. Bramell acknowledged that the facility was aware of the leak at Gas Meter #7 and was working on getting it fixed. The inspectors told Mr. Bramell they would like to see records of the leak when they returned to the office.

The inspectors noted a pressure gauge protruding from the ground as the group was walking away from the south loading rack. Mr. Bramell informed the inspectors that this was for an underground vapor knockout tank and that each of the loading racks had one. See photo DSCN7437.JPG.

The group then proceeded past the gasoline additive tanks, the cold flow diesel additive tank, the biofuel tank, and the biofuel loading area. See photos DSCN7438.JPG to DSCN7440.JPG. While walking toward the north loading rack, the inspectors saw further apparent emissions from the vents near the roof of Tank 6 with the FLIR camera. See video MOV_2748.mp4.

Two trucks were loading at the north loading rack while the group was there. The inspectors saw apparent emissions from a hatch on top of one of the trucks that was loading, from the cap for the underground vapor knockout tank, and from a seal on one of the vapor hoses using the FLIR camera. See videos MOV_2750.mp4 to MOV_2753.mp4 and photos DSCN7441.JPG to DSCN7443.JPG. While the inspectors were taking a video of the apparent emissions coming from the cap for the underground vapor knockout tank, a facility employee walked over to resecure the cap, which was loose. The

employee noted that he had already had to resecure the cap earlier in the day, and that it was likely coming off so frequently because it was old, and the threads were worn out. No further emissions could be seen from the cap once it had been resecured.

At approximately 1:00 pm, the group returned to the office for a closing conference.

5. Closing Conference

The inspectors explained that they had follow-up questions related to observations made during the facility walkthrough. The following is a summary of the discussion.

- The inspectors asked whether any preventative maintenance was performed on the vapor hoses at the loading racks or on the seals for the vapor hose connection points. Mr. Bramell told them no, that maintenance on the hoses was typically performed on an as-needed basis if leaks were seen or heard. He noted that the hoses were expensive, so the facility did not want to replace them more than necessary.
- The inspectors requested to see records of the leak at Gas Meter #7, and Mr. Bramell presented an operator checklist from September 12, 2023, which noted a leak at the meter. The inspectors took a photo of the form. See photo DSCN7444.JPG.

The inspectors thanked Mr. Bramell for his time and cooperation during the inspection. The inspectors explained to Mr. Bramell that EPA would provide J.D. Streett 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. Bramell with the EPA's confidentiality notice form. Mr. Bramell signed the form. See Appendix B.

The inspectors summarized questions and concerns raised during the inspection. They noted that they had seen indications of emissions with the FLIR camera at several locations throughout the facility, which raised questions about the effectiveness of the facility's existing preventative maintenance plan. The inspectors provided Mr. Bramell with a copy of a Notice of Preliminary Findings form and explained that EPA may follow up with additional questions. See Appendix C.

At approximately 1:15 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: Elizabeth Hubbard, ERG

X Elizabeth Hubbard

Digitally signed by Elizabeth Hubbard
Date: 2023.12.05 10:37:33 -05'00'

Lead Inspector

Assisting 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 13:14:25 -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 15:10:32 -06'00'

Supervisor