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

B365631541

FACILITY: DETROIT STREET MAINT & CONST		SRN / ID: B3656
LOCATION: 2633 MICHIGAN AVE, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT:		ACTIVITY DATE: 08/14/2015
STAFF: Stephen Weis	COMPLIANCE STATUS: Compliance	SOURCE CLASS: Minor
SUBJECT: Compliance inspection of the Detroit DPW Street Maintenance Division facility. The DPW facility is scheduled for inspection in FY 2015.		
RESOLVED COMPLAINTS:		

Location:

Detroit Department of Public Works (SRN B3656)
Street Maintenance Division and Traffic Engineering
2633 Michigan Avenue
Detroit

Date of Activity:

Friday, August 14, 2015

Personnel Present:

Steve Weis, DEQ-AQD Detroit Office
Wonda Fuller, Detroit DPW

Purpose of Activity

A self-initiated inspection of the City of Detroit Department of Public Works Street Maintenance Division and Traffic Engineering facility (hereinafter "DPW facility") was conducted on Friday, August 14, 2015. The DPW facility was on my list of sources targeted for an inspection during FY 2015. The purpose of this inspection was to determine compliance of operations at the DPW facility with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control), and Federal standards. The facility also has some active Wayne County air permits that address operations at the facility.

Facility Description

The DPW facility is located along the south side of Michigan Avenue at 19th Street, which runs south from Michigan Ave. into the facility. The area around the facility consists primarily of commercial and light industrial type properties. The area on the north side of Michigan Avenue is the right-of-way for Interstate 75, which extends over 220 yards to the north of Michigan. The area to the south consists of a wide railroad right-of-way. The properties to the west along 20th Street are primarily vacant at this time. There are currently no residential properties in close proximity to the DPW facility.

The DPW facility serves to support the operations of the Street Maintenance Division and Traffic Engineering group. DPW staff working at the facility repair sidewalks, streets and potholes in the City of Detroit with asphalt; clean viaducts; place barricades; install and replace guardrails and attenuators; and maintain rights of way. DPW vehicles and equipment that are used for these purposes are stored and maintained at the DPW facility, and asphalt cold patch is delivered and stored on site for use in road maintenance activities.

The DPW facility consists of nine buildings. One of the buildings is an office building; according to the nameplate at the entrance, it is named the Yavruin and Rhodes Building, and it was built in 1999. There are two boilers located on the second floor of the office building that are used for space heating. Both of the boilers were manufactured by Ajax Boiler, Inc. (Model WNG 450), are natural gas fired, and are both rated at 450,000

BTU/hour maximum heat input capacity. The other buildings at the facility are used for either storage or maintenance activities related to DPW street maintenance work. Among these buildings are:

- A machine shop that is currently not in use. There is a boiler located in this building that is referred to as Boiler No. 2. It is a Clever Brooks Model 4 natural gas-fired water tube boiler rated at 800,000 BTU/hour. I was told that this boiler is not currently in use, and that it has not been used for some time. There are still natural gas lines leading to the boiler, but the boiler unit and the gas lines look to be in disrepair.
- A large building referred to as the Asphalt/Construction plant. This building houses part of the asphalt plant that used to operate at the facility. The asphalt plant is no longer in operation. The aggregate drying kiln no longer has drive belts, and the conveyors no longer have drive belts or motors. The building is currently used to store cold patch, which is placed in a pile at the west end of the building.
- A building referred to as the boiler building. The building is located at the southwest corner of the property, and is currently used for storage. There are two boilers in the building; they are both natural gas-fired Combustion Engineering boilers, and their boiler plates indicate that they were built in 1967, and are rated at 12,000 lb/hour steam output. Neither boiler is currently in operation, and they look to have been out of operation for some time. The building is heated via four ceiling mounted radiant heaters. There is also a natural gas-fired Winco standby generator located inside of this building.
- There is a salt dome that contains rock salt.
- A vehicle maintenance building. There is a boiler in the upstairs portion of this building that is referred to as Boiler #1. It is a Clever Brooks Model M4500 water tube boilers; according to its boilerplate, it was built in 1997, and it is rated at 4.5 MMBTU/hour maximum rated heat input capacity. There is also parts washing equipment in this building that utilizes citrus-based cleaners.
- A building associated with the fuel distribution operations. The facility has three 5,000 gallon capacity underground storage tanks, one used to store gasoline and the other used to store diesel. Each tank has a fuel pump associated with it that is used to fuel DPW vehicles and equipment. I was told that the three tanks are regularly inspected, and that vapor recovery is used when delivery trucks fill the storage tanks.
- A building at the north end of the facility, north of the fuel distribution area, that I was told is going to be demolished. The building contains a boiler (Ajax) that is no longer in use.

There is also an asphalt emulsion tank that was installed in April 2015. This tank is located on the south side of the boiler building.

Facility Operations

The Detroit DPW facility typically operates Monday through Friday, from 7:00am until 3:30pm. There are 156 maintenance staff working for the Street Maintenance Division, 30 staff working with the traffic engineering group, and 20 staff working in vehicle/equipment maintenance.

Inspection Narrative

I arrived at the facility at 2:45pm. I checked in at the main office building, where I introduced myself and stated the purpose of my visit. I was met by Wonda Fuller of DPW, who showed me around the facility.

We began by discussing the operations at the DPW facility. Wonda told me the Street Maintenance Division does, and how the facility supports that work. I told her the types of equipment/processes that I would like to see, and when I mentioned boilers, she told me that there are a couple of boilers in the office building, which made our first stop the second floor of the office building.

We then walked outside, and began to tour the other buildings at the DPW facility. We stopped at the Machine Shop, which is currently not being used, and we looked at the boiler. Wonda said that it has not been used for some time. The boiler looked older, and in some disrepair. The gas line was still connected, but it did not look to

be in good shape. I asked if the boiler had been decommissioned, or if it had been rendered physically inoperable. Wonda replied that she was unsure of the status of the older boilers, but she knows that they have not operated for some time. We then stopped at the asphalt/construction plant. The DPW facility used to operate an asphalt production operation on site, which included material conveyors, aggregate dryers, rotary mixers and heaters, asphalt storage tanks, and associated air pollution control equipment (i.e. baghouses, dust collectors). The asphalt production equipment has not operated in a long time, and it is now physically incapable of operating. Wonda told me that the drive belts on the kilns and conveyors are gone, as well as the motors.

We proceeded to the boiler building. We looked at the two boilers, which are not operating, and the four radiant heaters. As well, a new natural gas-fired standby engine generator was installed in April 2015 for the purpose of generating electricity to heat the asphalt emulsion tank outside of the boiler building. Wonda told me that DTE comes out to the building periodically to inspect the gas lines. Regarding the asphalt emulsion tank, Wonda told me that the emulsion is used to fill pot holes. The emulsion is placed in the tank in anticipation of need, so there is not always material in the tank. I looked at the name plate information associated with the natural gas-fired generator. It is identified as a Winco generator, Model PSS20B4W, serial number 175067F15. The unit is equipped with a Briggs and Stratton Vanguard engine, and is equipped with a non-resettable hours meter that reads 6 hours of operation. I inquired if the engines are certified for emissions, and Wonda was not sure.

We walked by the salt dome, and proceeded to the vehicle maintenance building. Wonda led me to the boiler on the second floor of this building. We walked through the maintenance area, and Wonda pointed out the parts cleaners, which used a citrus-based cleaning material.

We then stopped at the fuel distribution area. I was told that there are three underground storage tanks, and three pumps – one for gasoline, and two for diesel. I inquired how fuel usage is tracked. The fuel dispatcher keeps records when vehicles or equipment take fuel from the pumps. There is a computer tracking system/database, but I was told that the system is down often.

We took a look at the building to the north of the fuel distribution area. This building was old and in disrepair. There is an Ajax boiler inside, but due to the building being deemed structurally unsound, we did not enter the building to look at the boiler. Wonda told me that there are plans to demolish this building. I advised that DPW should contact staff with DEQ-AQD's Asbestos NESHAP group to ensure that proper notifications are submitted. I asked about dust control at the facility. Wonda told me that roads are swept to remove dust, often every day, and that the paved areas are wetted. During my site visit, I observed that all of the road/paved surfaces at the DPW facility were clean and free of dust, and there was no evidence of track out leaving the facility.

I told Wonda that I had some questions based on the site visit, and that I would send her an e-mail on Monday, August 17. A copy of the August 17, 2015 e-mail that includes Wonda's initial response from August 18 is attached to this report.

I left the facility at 4:10pm.

Permits/Orders/Regulations

The DPW was issued several Wayne County permits that addressed the operation of the aforementioned asphalt production equipment. I found the following permit information in the files for the DPW facility:

- Permit 2220 – for a furnace cyclone system. The permit information is dated 1949.
- Permit 16369 – for a 7-way dust collector for the west side asphalt plant. The permit information is dated 1959.
- Permit 25753 – for a dust collector at the asphalt plant. This permit was issued on 10/31/1967.
- Permit C-2314 – for two rotary dryers and a baghouse. This permit was issued on 11/15/1972.
- Permit C-4841 – for an aggregate dryer. This permit was issued on 8/22/1978.

- Permit C-6502 – for an asphalt plant aggregate dryer equipped with a baghouse. This permit was issued on 10/28/1983.
- Permit C-8598 – for a 300 ton asphalt storage system. This permit was issued on 9/11/1989, but it was cancelled on 12/14/1994, apparently because the equipment was no longer in use.

Since the asphalt production equipment is no longer in operation, any permits associated with this process will be voided.

In addition to the asphalt production equipment, I came across other equipment at the DPW facility that needs to be evaluated for regulatory applicability. The equipment/processes, and a regulatory analysis of each, are listed in the paragraphs that follow.

1) Boilers

As described earlier in this report, I encountered some boilers in various buildings throughout the DPW facility during my site visit. In a follow-up phone conversation with Wonda on September 25, 2015, she confirmed that the two boilers in the administration building and the one in the maintenance garage are the only two boilers that are currently in operation. In addition, Wonda contacted DTE Energy to get their assistance in determining the operating status of the remaining boilers.

Assuming that there are only three boilers in operation, the potential NO_x emissions from these three can be estimated as follows:

- 2 boilers rated at 450,000 BTU/hour + one boiler rated at 4.5 MMBTU/hour = 5.4 MMBTU/hour total boiler capacity at the DPW facility.
- Extrapolating this over 8,760 hours results in 47,304 MMBTU over the course of a year, which equates to 45.05 million cubic feet of natural gas usage (using the 1,050 BTU/ft³ of natural gas conversion factor).
- Applying a standard emissions factor for NO_x of 100 lbs. NO_x/MMft³ of natural gas results in an estimate of potential NO_x emissions from these three boilers of 4,505 lbs., or 2.25 tons per year.

The estimated potential NO_x emissions are well below the Title V applicability threshold of 100 tons per year. If the other 4 boilers that are on-site are capable of running (they were all relatively small, presumably around 1 MMBTU/hour maximum heat input capacity), potential NO_x should be no more than 10 tons per year.

All of the boilers that I observed at the DPW facility had maximum rated design heat input capacities of less than 10 MMBTU/hour, so none of them are subject to **40 CFR Part 60, Subpart Dc** (Standards of Performance for Small-Industrial-Commercial-Institutional Steam Generating Units). The DPW facility is not a major source of hazardous air pollutants (HAPs), so the boilers are not subject to the Boiler MACT.

All of the boilers are exempt from the requirement to obtain a DEQ-AQD Permit to Install per the provisions of Michigan Administrative Rule 282(b)(i), which exempts natural gas-fired boilers with a maximum rated heat input capacity of less than 50 MMBTU/hour.

2) The Winco Generator

The Winco generator is located in the boiler building. It is a model PSS20B4W unit that is natural gas fired, and is listed as having a maximum continuous output of 15 kW when firing natural gas. According to Wonda, the unit was purchased and installed in April 2015. This unit is exempt from the requirement to obtain a Permit to Install per the provisions of Michigan Administrative Rule 285(g), which exempts internal combustion engines with a maximum rated heat input capacity of less than 10 MMBTU/hour.

However, the engine is subject to the requirements of **40 CFR Part 60, Subpart JJJJ** (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines). I contacted Winco on September 25, 2015, and spoke with Ryan Clancy, Industrial Sales. I asked him if the Briggs and Stratton engine used in the Winco generator at the DPW facility is EPA certified to be compliant with applicable regulations, including Subpart JJJJ. Ryan replied that the engine is certified as compliant, and he e-mailed me a copy of the Certificate

of Conformity for the engine. A print out of the Certificate, as well as some information about the generator from Winco's website, is attached to this report.

3) The asphalt emulsion tank

The asphalt emulsion tank was installed in April 2015. It is manufactured by Duraco, Inc. The tank at the DPW facility has an 8,000 gallon capacity, and the material is heated electronically. Recall that the heater is powered by the Winco generator.

One of the questions that I had regarding the tank involved how it operated; I specifically wanted to know if there are any emission controls to capture any vapors that might be generated by the tank. Michigan Administrative Rule 289 exempts liquid asphalt storage tanks that are controlled by an appropriately designed and operated vapor condensation and recovery system or an equivalent control system from DEQ-AQD permitting requirements. I was referred to Duraco for further information regarding the asphalt emulsion tank.

I spoke with David Sitton, Duraco General Manager, on Friday, September 25, 2015. David is based out of Duraco's facility in Pearl, MS, and he told me that staff from his facility sold and installed the tank at the DPW facility. David described the tank, as well as the emulsion, to me in detail. He provided the following:

- The asphalt emulsion material, CRS-2, does not contain volatiles. It is an emulsion suspended in water; it is a molecule of asphalt that is suspended in a soap bubble that is suspended in water.
- When the emulsion is applied, the emulsion breaks, leaving a tacky asphalt surface. It is often used for "chip sealing", through which the material is applied to a road surface, and chipped rock is added to it.
- The heat is applied to the bottom of the tank indirectly (i.e. the shell is heated, and no direct heat is applied to the emulsion). The tank is typically heated to 110-120°F. There is an agitator powered by an electrical motor located at the top of the tank to stir the material. The material should not be stored in the tank for too long prior to use. Thus, there should be no long term storage of the CRS-2 emulsion in the tank.

David told me that the agitator's electrical motor is not sealed, which allows heat and water vapor to vent from tank. David provided that if there were vapors associated with the material, they would be ignited by the electrical motor as they vented from the top of the tank.

I printed out a CRS-2 Product Data Sheet for reference that states that the percent volatiles of the material is zero. The asphalt emulsion storage tank appears to be exempt from DEQ-AQD permitting requirements per the provisions of Michigan Administrative Rule 284(i).

4) Fuel distribution

The DPW yard has three 5,000 underground fuel storage tanks and three corresponding fuel pumps. Two of the tanks store diesel, while the third stores gasoline. The fuel dispensing facility is potentially subject to State and Federal regulations, including:

- Michigan Administrative **Rule 606**, which applies to gasoline storage tanks with a gasoline throughput of more than 120,000 gallons per year that have tanks of more than 2,000 gallons capacity.
- **Rule 703**, which applies to dispensing operations at which gasoline is loaded into tanks of more than 2,000 gallons capacity.
- **40 CFR Part 63, Subpart CCCCCC** (National Emission Standards for Hazardous Air Pollutants for Gasoline Distribution Bulk Terminals, Bulk Plants and Pipeline Facilities; and Gasoline Dispensing Facilities). This Federal regulation is applicable to all gasoline dispensing facilities, regardless of size and fuel throughput. However, the requirements are very basic for facilities with a throughput of less than 10,000 gallons per calendar month.

To this point, I have not gotten specific fuel throughput information from DPW. The computer tracking system is currently down, but the dispatched is still maintaining hard copy records. Wonda tried to e-mail some of the records to me, but they were in a format (GroupWise file) that I am not able to access. The throughput is

presumably relative small at this facility, but this information still needs to be confirmed in order to accurately assess the regulatory requirements for the fuel distribution operations.

Compliance Determination

Based upon the results of the August 14, 2015 site visit, subsequent records review and various technical communications with equipment manufacturers, the Detroit Department of Public Works Street Maintenance Division facility appears to be in compliance with applicable State and Federal regulations. I will assess the boiler information and fuel distribution records when they are made available to me by DPW.

Attachments to this report: a print out of an information request related e-mail exchange; the Certificate of Conformity for the Winco engine; information relating to the Winco engine; the Product Data Sheet for the CRS-2 asphalt emulsion.



Image 1(asphalt production) : Idled, permanently shut down asphalt production facility.



Image 2(emulsion tank) : New 8,000 gallon capacity asphalt emulsion tank (electrically heated).

NAME Steve Wells

DATE 9/29/15

SUPERVISOR JK