Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475

Harold D. Ward, Cabinet Secretary
dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:		R13-3614
Plant ID No.:		011-00243
Applicant:		REO Processing, Inc.
Facility Name:		Huntington
Location:		Huntington
NAICS Code:		493110 - General Warehousing and Storage
Application Type:		Construction
Received Date:		May 23, 2023 (Initial Application) March 29, 2024 (1st Resubmittal) April 12, 2024 (2nd Resubmittal w/Approved Dust Control Plan)
Engineer Assigned:		Edward Andrews
Fee Amount:		$1000.00
Date Received:		May 26, 2023
Original Application Complete Date:		August 9, 2023
Resubmitted Application Complete Date:		August 5, 2024
Due Date:		November 3, 2024
Applicant Ad Date:		May 30, 2023 (Initial Application) April 13, 2024 (Resubmittal Application)
Newspaper:		*The Herald-Dispatch*
UTMs:	Easting: 370.625 km	Northing: 4,252.572 km Zone: 17

ADDITIONAL BACKGROUND

On May 23, 2023, the DAQ received an after-the-fact application to permit an activated carbon bagging and transfer facility from REO Processing, Inc. (REO). The DAQ reviewed this initial application, and developed a draft permit with corresponding evaluation. The DAQ had scheduled to publish a Legal Ad in *The Herald-Dispatch* on September 13, 2023, which began the public review period for the initial application.

On September 12, 2023, the DAQ received a complaint of black dust (particulate matter) fallout from the Huntington Facility. The DAQ conducted an investigation of the alleged complaint on September 14, 2024. On September 18, 2024, the DAQ issued a Notice of Violation (NOV) to REO for their Huntington Facility.

During the scheduled public review period (September 13 - October 13, 2024), the DAQ received six (6) comments (5 emails and 1 letter) from the public. Five of the six commenters requested a public meeting.

The West Virginia Code prohibits the DAQ from issuing a permit if the applicant is in violation of a rule promulgated under the Air Pollution Control Act (WV Code Article 22-5). Therefore, the permitting process was suspended until the violation was resolved. The Commenters were advised of this and that the public review comment period would be publicly noticed, again, once the violations had been resolved.

On November 13, 2024, REO and the DAQ entered into a consent order (CO R13-E-2023-11) to address the violations of 45CSR17 (Rule 17). This consent order outlined a compliance plan to bring the facility back into compliance, which consisted of developing a comprehensive Dust Control Plan for the facility and submitting a revised permit application that incorporates the Dust Control Plan by reference. The initial Dust Control Plan was submitted to the agency review on December 13, 2024. After several iterations, REO's Dust Control Plan was approved on April 12, 2024.

The approved plan requires a combination of additional controls, verification of measures (inspections) by the REO's management team, and training in effort to minimize fugitive dust emission from leaving the facility.

On April 12, 2024, REO submitted a revised application with the approved Dust Control Plan. REO published a class I advertisement in the Herald-Dispatch on April 13, 2024, which is required under Rule 13 (45CSR13).

As result of the received comments and delay in resolving the dust violation, the DAQ sent a status email to all of the individuals that submitted comments on October 12, 2023. A follow-up was sent to these individuals on November 17, 2023, which noted the agreed upon consent order. Detailed instructions on how the public can access, view, and obtain a copy of all related documents (application, NOV, CO, other correspondence) were included in both emails. Further, the DAQ posted all documents on the WVDEP/DAQ website under "Poplar Searches" at:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

One of the commenters, Ms. Linda Blough, President of the Highlawn Neighborhood Association, invited the DAQ to attend one the association's monthly meetings. Mr. Jesse Adkins, P.E., Assistant Director, Mr. James Robinson, P.E., Compliance Supervisor, and this writer attended the Highlawn Neighborhood Association's August Meeting at the Community of Grace Methodist Church, which is located on the corner of 3rd Ave. and 28th Street in Huntington, WV, on August 6, 2024. During this meeting, the writer outlined the events that had taken place, a brief description of measures required under the dust control plan to the audience, which consisted of approximately a dozen individuals.

Most importantly, the writer noted that the DAQ's present at this meeting does not waive any individual's right to request a public meeting on the application under review. THe DAQ answered several questions from the audience and as well as listened to their concerns. Additional information/instruction on how to access the DAQ's records regarding the REO application, NOV, consent order, dust control plan, and how to sign up for the DEP's notification service was made available to the audience.

DESCRIPTION OF PROCESS

REO Processing, Inc. (REO) operates a warehouse, transfer, and re-packaging operation, which is located at 20 26th Street, Huntington, Cabell County, West Virginia. The facility's primary business is focused on warehousing, repackaging, transferring, and shipping of activated carbon for Calgon Carbon. At the 26th Street location, REO provides small bagging and bulk tanker loading/unloading services as well as warehousing space. The bulk tanker loading operations can facilitate either tanker trucks or rail cars.

Bulk Tanker Truck Unloading Operation (1S)

The size of the customer order will determine how much material is available for unloading. The trailer of the bulk tanker truck is positioned to access the ports with the pneumatic pumps, connection seals are verified, hoses are attached from the trailer to the pumps. Then the pumps are activated, which pulls the material from the bulk tanker trailer. This system transfers the material to a funnel shaped hopper, which is located in the storage building. Once the hopper is filled to the desired weight, the hopper is discharged into a flexible intermediate bulk container (FIBC or super sack). This process is repeated until the tanker is completely emptied. The displaced air from the weight bin is vented to a fabric filter dust collector, which is identified as 2C.

Bulk Tanker Truck Loading Operation (2S)

The size of the customer order will determine how much material is staged for loading. This can be using 1,000 or 2,000 lb super sack containers. Sacks are verified for correct batch/lot numbers for the specific order. A funnel is placed on the one of the bulk tanker trailer loading ports (hatch) on top of the tanker. The dust collection hose with mounting flange is placed in another loading port of the tanker.

Utilizing a forklift with a suck sack lifting fixture, a super sack is elevated from the lifting ears and positioned directly above the funnel that is on top of the tanker.

Once the sack is positioned correctly, the drawstring on the loading tube of the super sack is untied manually, which allows the flow of material to pour into the funnel and then the tanker.

Once the material is flowing, the bottom of the sack is lowered down into the funnel to reduce the dust escaping. Once the super sack is empty, the sack is removed and the process is repeated until the tanker is loaded to meet the order or the tanker is loaded to its capacity.

Bagging Operation (3S)
Material is staged and verified to be correct. Once verified the 1,000 or 2,000 lb super sack containers are transferred into a tote bin. Once loaded into the tote bin, the tote is then raised above the bagger machine and placed on the stand. The operator will then open the valve on the bottom of the tote to allow the material to flow into the bagger hopper.

When the bagger hopper is loaded, the operator places a small bag, which is a 50 lb bag, over the spout and activates the bagger machine to fill. The machine fills one bag at a time with the desired weight of the activated carbon. Once filled correctly, the bag is sealed and placed on a pallet. This process is repeated until the bagger hopper is emptied.

The displaced air from the bagging machine is vented to a fabric filter baghouse, which is identified as 1C. This particular baghouse is also used to filter the displaced air during the bulk tanker loading process (2S).

Cover Hopper Railcar Unloading/Loading Operations (4S)
REO has a rail spur line into the Huntington Facility. Covered hopper railcars with activated carbon can be shipped to the facility. This material can be unloaded from the cover hopper railcars into super sacks. Once the railcar is correctly positioned, flexible hoses are connected to the bottom discharge ports on the railcar. A pneumatic pump is operated to create a vacuum (suction) to pneumatically transfer the material from the railcar into a hopper, which weighs the

material. The weigh bin and the station for the super sack is located within the adjacent building next to the rail spur line. Once the weight of the transfer material reaches the desired weight for the super sack, the pneumatic transfer of material is stopped and the hopper is emptied into a super sack. The filled super sack is moved via forklift to a storage area and a new super sack is repositioned to be filled. This process continues until the cover hopper railcar is emptied.

Empty cover hopper railcars can be delivered to the Huntington Facility as well. These empty railcars can be loaded with activated carbon in a similar manner using the same equipment from super sacks. Flexible hoses connected to the loading port on the top railcar which will allow the activated carbon from the super sack to be transferred into the railcar with another hose (return air) is connected to the railcar with the other end connected to a fabric filter baghouse (2C).

Open Top Dump Truck Loading Operations (5S)

Some customers receive granular activated carbon from dump trucks. The station/area used for the Bulk Tanker Loading (2S) is used to load open top dump trucks from super sacks. Once a trailer is positioned in the desired location with the trailer cover retracted, a forklift is used to set a lightweight cover on top of the trailer. This cover has six loading ports/openings.

A loading funnel is positioned on one of the loading ports and a flexible hose fixture is placed on one of the other loading ports. A flexible hose is connected to the fixture with the other end connected to Baghouse 1C. The baghouse induced draft fan is used to create a negative pressure draft on the open top dump truck to pull the displaced air from the trailer during the loading process.

The selected super sacks are staged. Using a forklift, the selected super sack is raised above the loading funnel. Once the super sack is in the proper position, an operator unties the drawstring on the super sack. Then the super sack is lower so the nozzle or bottom outlet of the super sack is completely inserted into the loading funnel. Once the super sack is emptied, the sack is raised to a height that allows an operator to retie the drawstring on the bottom of the sack. The forklift lowers the super sack so that the emptied sack can be discarded. These process steps are repeated until the trailer is filled.

Once the trailer is filled, a forklift is used to remove the cover and the trailer cover is placed over the payload area of the trailer.

Pneumatic Transfer Operations (6S and 7S)

REO can transfer activated carbon from a covered hopper railcar to bulk tanker trucks and vice versa. The bulk tanker is staged by the railcar to be unloaded into the bulk tanker truck. A compressed air line is connected to the rail car. An exhaust hose is attached to a hatch on the bulk tanker truck with the opposite end of the exhaust hose connected to fabric filter baghouse, which has been identified as 3C.

A product hose is hooked up to the railcar valve and a bulk tanker truck hatch. A valve for the air hose is opened, and pressure is allowed to build to 10 - 13 psig. Then, the product valve is opened, and the product is pneumatically transferred to the bulk tanker truck. Once the pressure falls off and product quits flowing, the process is repeated until the bulk tanker truck is filled.

Once the tanker is filled, the valves are closed, the hoses are removed.

This operation is reversed for transferring activated carbon from bulk tanker trucks to covered hopper railcars.

A diesel engine is used to drive the compressor/pneumatic pump that is used to pneumatically convey the material for pneumatic transfer operations.

SITE INSPECTION

The writer conducted a site visit of the Huntington Facility on July 13, 2023, with Mr. Gene Coccari and Sydney Johnson of the Small Business Assistance Program of the DAQ. Due to the changes required by the consent order and dust control plan, the writer conducted another site inspection of the facility with Ms. Bronwyn Harrison, an inspector with the Enforcement and Compliance Section of the DAQ on July 17, 2024. This visit consisted of a walk through the Huntington facility with Mr. Greggy Frazier, President of REO, Ms. Hailie Orr, plant manager, and Ms. Lisa Schweder, P.E. with Terracon (REO's consultant), during this visit.

The facility is currently in operation. The facility consists of a loading/unloading dock, storage areas, and re-packing areas located in two structures that are connected by a covered walkway. The warehouse and re-packing areas in these structures are not heated. Most of the area within the structure is used for storage of product and contains.

Bagging machine vents a dedicated fabric filter baghouse, which is located next to the bagging machine. Each of these baghouses are equipped with pressure differential instruments.

The residue from the baghouse collection hopper is transferred to drums and disposed of as waste material. Before switching to bag a different product, the bagging machine which includes the baghouse is cleaned of any residual product before switching products.

The discharges (vents) from baghouses at the facility are horizontal and fairly close to the ground elevation. The vent from baghouse 2C can be seen in the picture below.

Figure 1 - 2S Tanker Truck Loading Baghouse and Emission Point 2E

From the loading dock, a forklift is used to lift a single super sack at a time above the tanker, which can be seen in the above picture.

The Huntington facility is at the north end of 26th Street. There are several other light industrial and commercial businesses to the west and north side of the facility. Single family dwellings are adjacent to the facility on the east and south sides of the facility.

The nearest residential area is approximately just 50 feet away from the fence line of the Huntington facility. The nearest emission point from these residences is approximately 150 feet away. Taking into consideration the type of activities, the location of the horizontal discharge emissions and control devices proposed, the writer determined that the site is appropriate for the proposed activities utilizing the proposed control measures/devices.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

REO based the potential emissions on the unloading operation having two transfer points; tanker loading operation having two transfer points, bagging machine having four transferred points, which are Sack to Tote; Tote to Hopper; Hopper to Chute; and Chute to Bag; and the pneumatic transfer having two transfer points. Using a particulate matter (PM) emission factor from Chapter 10.7 of AP-42 for charcoal briquetting, particulate matter emissions for each transfer point of each bagging machine were determined using the bagging machine's maximum process rate multiplied by the PM emission factor for briquetting. For PM less than ten (10) microns (PM_{10}) emissions, the PM rate was divided by two to account for the fraction of PM that is PM_{10}. It is assumed that 100% of this PM_{10} fraction is PM less than 2.5 microns ($PM_{2.5}$). Each of these bagging machines will be controlled using a fabric filter control device with a minimum collection efficiency of 99% for filterable particulate matter. The following table is a breakdown of the potential emissions from these source operations.

Table 1 - PM Emissions Totals by Operation

Operation	Source IDs	Max Processing Rate (tph)		Hourly PM Emissions (lb/hr)	Annual PM Emissions (ton/yr)
		tph	tpy		
Unloading Tankers	1S	10.7	27,820	11.98	15.58
Loading Tankers	2S	10.7	27,820	11.98	15.58
Bagging Machine	3S	0.75	6,570	1.26	5.52
Unloading/Loading of Railcars	4S	10.7	1,920	5.99	0.54
Loading of Open Top Dump Truck	5S	40	13,000	22.40	3.64
Pneumatic	6S & 7S	10.7	3,840	5.99	1.08

Transferring					
			Total	59.60	41.94

Table 2 - PM_{10} Emissions Totals by Operation

Operation	Source IDs	Max Processing Rate (tph)		Hourly PM_{10} Emissions (lb/hr)	Annual PM_{10} Emissions (ton/yr)
		tph	tpy		
Unloading Tankers	1S	10.7	27,820	5.99	7.79
Loading Tankers	2S	10.7	27,820	5.99	7.79
Bagging Machine	3S	0.75	6,570	0.63	2.76
Unloading/Loading of Railcars	4S	10.7	1,920	3.00	0.27
Loading of Open Top Dump Truck	5S	40	13,000	11.20	1.82
Pneumatic Transferring	6S & 7S	10.7	3,840	3.00	0.54
			Total	29.81	20.97

Table 3 - $PM_{2.5}$ Emissions Totals by Operation

Operation	Source IDs	Max Processing Rate (tph)		Hourly $PM_{2.5}$ Emissions (lb/hr)	Annual $PM_{2.5}$ Emissions (ton/yr)
		tph	tpy		
Unloading Tankers	1S	10.7	27,820	5.99	7.79
Loading Tankers	2S	10.7	27,820	5.99	7.79
Bagging Machine	3S	0.75	6,570	0.63	2.76
Unloading/Loading of Railcars	4S	10.7	1,920	3.00	0.27
Loading of Open Top Dump Truck	5S	40	13,000	11.20	1.82
Pneumatic Transferring	6S & 7S	10.7	3,840	3.00	0.54
			Total	29.81	20.97

The total hourly emissions are over predicted because the loading of tankers and loading open top dump trucks utilizes the same area and common equipment, therefore these three operations cannot occur at the same time. Also, the bagging machine and the two loading operations vent to a common dust collector (Control Device 1C), which discharges through Emission Point 1E. Thus, the maximum hourly emissions from these sources would be 35.64 lb/hr of PM, 17.83 lb/hr of PM_{10}, and 17.83 lb/hr of $PM_{2.5}$.

The pneumatic transfer system uses a 99 hp (74 kW), diesel-fired engine to generate the air flow to pneumatically convey the activated carbon for emission sources 6S and 7S. This engine is a Cummins Inc. Model B4.5T-P99, which has been certified by EPA with the non-road compression ignition engine emission standards. The emission estimates in the following table were based on certified emissions provided to the EPA and emission factors published in AP-42, Chapter

Emissions for the engine were based on annual throughput of pneumatically conveyed activated carbon (3,840 tons/year) through the pneumatic transfer operations (6S & 7S) divided by the maximum hourly throughput rate of the pneumatic system (10.7 tons per hour), which equated to 359 hours per year. To account for startup time, this annual operating time was rounded up to 500 hours per year, which was used to estimate the annual emissions from the engine.

Table 4 - Emission Potential from a single Cummins B4.5T-P99 Engine

Pollutant	Emission Factor	Hourly Emissions	Annual Emissions
		lb/hr	tons/year
Oxides of Nitrogen (NO_x)	4.9 g/kW-hr	0.80	0.20
Carbon Monoxide (CO)	1.41 g/kW-hr	0.23	0.06
Particulate Matter (PM_{10} & $PM_{2.5}$)	0.205 g/kW-hr	0.03	<0.01
Sulfur Dioxide (SO_2)	1.21e-5 lb/hr-hr	<0.01	<0.01
Volatile Organic Compounds[1] (VOCs)	0.23 g/kW-hr	0.04	0.01
Total HAPs	0.00379 lb/MMBtu	0.01	<0.01

The facility's roadways are paved. Paved roadway has the potential to emit PM/PM_{10}/$PM_{2.5}$ emissions. Annual emissions from roadways were based on vehicle traffic (trucks) to support the annual throughput: 27,820 tons per year for the unloading, 40,820 tons per year loading of tanker & open top trucks operations, and 3,840 tons per year for pneumatic transfer operations.

The plant roadways at the facility are fairly short and paved. The paved roadway consists of the 2 parking/loading dock areas next to the main building, and access roadway around the main building to tanker truck unloading/loading area and loading dock. The two (2) paved parking areas can only be accessed directly from 26th Street (public roadway) and are less than 100 feet in total length. Due to the configuration of this parking lot, delivery trucks must be backed into the load dock from 26th Street. Thus, no fugitive dust from these paved parking areas were estimated.

The roadway up to and around the main building to the tanker truck unloading/loading area is paved. The applicant determined the fugitive PM emissions due to vehicle traffic on this unpaved roadway segment based on the following.

The estimated number of vehicles needed to support maximum production rates at the facility would require 8 trucks per day with a round trip road distance of 0.70 miles per truck. The permittee uses forklifts at the facility to load these tanker trucks, which consist of 160 forklift trips to support loading 8 tanker trucks per day. The transfer operations area is adjacent to the unloading/loading area. For estimating the fugitive emissions from the transfer operations, 8 BFT trailers are needed to support loading 2 rail cars on a daily basis. The same roadway distance for the unloading/loading operations was used for the transfer operations.

The fugitive emissions from paved roadways for the proposed facility is presented in the following table, which includes trucks and forklift traffic on these paved roadways necessary to support the proposed operations at the annual proposed throughputs:

Table 4 - Uncontrolled Fugitive Emissions from Paved Roadways

Pollutant	Daily Emission Rate (lb/day)	Annual Emissions (TPY)
PM	41.40	3.26
PM_{10}	8.28	0.65
$PM_{2.5}$	2.03	0.16

The storage buildings at the facility are un-heated. Thus, no combustion related emissions were estimated.

The following table is a summary of the emissions from the facility, which does not include haul roads.

Table 5 - Summary of the Emission from the Facility (Point Source Emissions)		
Pollutant	Hourly Emission (lb/hr)	Annual Emissions (tpy)
Oxides of Nitrogen (NOx)	0.80	0.20
Carbon Monoxide (CO)	0.23	0.06
Sulfur Dioxide (SO_2)	<0.01	<0.01
PM	59.63	41.95
PM_{10}	29.84	20.98
$PM_{2.5}$	29.84	20.98
Volatile Organic Compounds (VOCs)	0.04	0.01
Total HAPs	0.01	0.01

REGULATORY APPLICABILITY

REO's proposed Huntington Facility is not engaging in activities that meet the definition of manufacturing process under Rule 7 and therefore the bagging and tanker truck loading operations are not subject to Rule 7. Therefore, the facility is subject to Rule 17.

Rule 17 requires that fugitive particulate matter is not discharged beyond the boundary lines of the facility. The applicant is currently under a dust control plan in accordance with 45CSR17-4.1.

The plan calls for the installation of filters on the five (5) building ventilation fans (3-wall units and 2 roof units) in the main warehouse. These filters for these fan units will have a minimum efficiency reporting value (MERV) of no less than 8. MERV 8 rating has to remove 20% or more of particles with a diameter between 1.0 to 3.0 microns and 70% or more of particles with a diameter between 3.0 and 10.0 microns. These filters will be inspected monthly and replaced if necessary.

It was a practice to use compressed air lances to improve the flow of activated carbon during the loading process. The plan replaced this practice by installing hopper style vibrators on the funnel/hopper used to load the tanker trucks. This vibrator will vibrate the hopper to assist in the gravity feeding of activated carbon from the super sack into the funnel/hopper during the loading operation. The use of compressed air lances pressurized the super sack and fugitive dust would be emitted at point of least resistance (e.g., gaps between the super sack and funnel, funnel/hopper and the tanker loading hatch).

The facility loads open top dump trucks with granulated activated carbon. A removable cover has been manufactured which has six loading ports. This cover will be positioned on the open payload area of the dump trailer prior to loading. This cover allows the flexible hose for the fabric filter baghouse to be temporarily connected to the cover, which will pull a draft on the payload area of the trailer in effort to collect dust generated during the loading of the open top dump trucks.

The plan calls for the truck loading area to be cleaned daily. In addition, the plan requires any spills greater than five (5) pounds to be cleaned up immediately at the facility even if the clean up activities require a work-stoppable event.

The following inspection schedule will be implemented to verify the working conditions of the dust control measures.

Table 6 - Dust Control Inspection Schedule

Source	**Verification Method**
Exhaust fans located on the roof and eastern exterior wall of the warehouse building	Monthly inspection
Exterior truck loading/unloading area and small bag filling areas	Weekly inspection Monthly inspection
Exterior railcar loading/unloading area	Monthly inspection
Exterior super sack filling area	Monthly inspection
Plant Grounds	Daily inspection Any spill greater than 5lbs. requires a stop work action until the spill is cleaned up

The engine for the pneumatic transfer system was manufactured on December 18, 2007. This engine was originally classified as a non-road engine by the manufacturer. REO has no plans or intentions to relocate or move the skid for this pneumatic system with engine within 12 months. Therefore, the engine becomes classified as a stationary non-emergency engine and therefore is subject to Subpart IIII of 40CFR60.

Under Subpart IIII, non-emergency stationary engines for 2007 model year and later must meet the emission standards for new nonroad compression ignition engines. Cummins had certified this particular 2007 model year engine to the new nonroad, which EPA issued a certificate # CEX-NRCI-07-23 and Engine Family No. 7CEXL0275AAC for this model engine. EPA has recognized this particular model year meets the emission standards for new nonroad engines (e.g., certified compliant engine). The emission standards for stationary non-emergency engines in Subpart IIII refers to the emission standards of new nonroad engines. Thus, this particular engine meets the applicable emission standard in Subpart IIII.

Subpart IIII encourages sources to purchase certified engines as a compliance option within the regulation, which this particular engine has been certified by the EPA. Other requirements that the regulation requires is maintenance be performed in accordance with the manufacturer recommendation; engine shall only use ultra low sulfur diesel; and no adjustment of any emission-related setting beyond the manufacturer specifications.

There are no other applicable rules and regulations that pertain to the activities or equipment proposed in this application.

The annual emissions are less than major source threshold levels under the Title V Operating Permit Program, and therefore, the facility is a minor source and subject to the fee program under 45CSR22 as a “9M” source.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The applicant noted that the activated carbon which may contact trace amounts up to 0.00037% of cobalt, which is classified under the Clean Air Act as a hazardous air pollutant (HAP), in the activated carbon. Assuming that the PM emitted contains this trace amount of cobalt , the potential to emit of cobalt is 0.3 pounds per year. Currently, EPA has not made its evaluation of cobalt under the Integrated Risk Information System available. EPA is anticipated to review their findings for the public to review and comment sometime the fourth quarter of 2024. Therefore, no discussion of toxicity of these HAPs is presented in this evaluation.

There are HAP pollutants emitted from the burning of diesel in the compression ignition engine for the pneumatic system,which are: 1,3-butadiene, acetaldehyde, acrolein, benzene, formaldehyde, naphthalene, toluene, and xylenes. The following summary table was developed from the EPA IRIS system of these HAP for inhalation exposure.

Table 6 - Summary IRIS Assessment of the HAPs from the Combustion of Diesel Fuel

Chemical Name	**Exposure Route**	**Assessment Type**	**Critical Effect Tumor Type**	**Weight of Evidence Characterization**
Acetaldehyde	Inhalation	Cancer	Nasal squamous cell carcinoma or adenocarcinoma	B2 (Poale human carcinogen - based on sufficient evidence of carcinogenicity in animals) (1986 guidelines)
Acetaldehyde	Inhalation	Noncancer	Degeneration of olfactory epithelium	NA
Acrolein	Inhalation	Noncancer	Nasal lesions	NA
Benzene	Inhalation	Cancer	Leukemia	A (Human carcinogen) (1986 guidelines) Known likely human carcinogen (1996 guidelines)
Benzene	Inhalation	Noncancer	Decreased lymphocyte count	NA
1,3-Butadiene	Inhalation	Cancer	Leukemia	Carcinogenic to humans (1999 guidelines)
1,3-Butadiene	Inhalation	Noncancer	Ovarian atrophy	NA
Formaldehyde	Inhalation	Cancer	Squamous cell carcinoma	B1 (Poale human cacinogen - ased on limited evidence of carcinogenicity in humans) (1986 guidelines)
Naphthalene	Inhalation	Noncancer	Nasal effects: hyperplasia and metaplasia in respiratory and	NA

Chemical Name	Exposure Route	Assessment Type	Critical Effect Tumor Type	Weight of Evidence Characterization
			olfactory epithelium, respectively	
Toluene	Inhalation	Noncancer	Neurological effects in occupationally-exposed workers	NA
Xylenes	Inhalation	Noncancer	Impaired motor coordination (decreased rotarod performance)	NA

MONITORING

The permit will focus on operating and maintaining the fabric filter baghouses and process rate for each operation. Monitoring these control devices will focus on checking the pressure drop across the bag house once per operating day and conducting visual emission observation once per quarter. The hourly emission rates are based on hourly processing rate for operation. Annual emissions are based on anticipated utilization of these operations. Thus, compliance with the emission limits can be demonstrated by tracking the hours of operation and material processed for each operating day. From these records, the permittee can determine the hourly average bagging rate for each bagging machine for the operating day.

The loading of tanker and open top dump truck operation needs to be focused on work practices, proper operation/maintenance of closed vent system with control device (baghouse), and tracking the amount of material loaded out per loading event. The concern with loading the tanker trucks is that the loaded material has to displace the volume of air within the tanker. Thus the tanker must be vented. REO uses a dust collector with an induced draft fan to control the emissions from this operation. Also, spillage is a concern during the entire process and when removing the super sack spout from the tanker once the loading is complete. The writer recommends the following measures be incorporated into the permit.

a. During the loading process, only two loading hatches shall be open at any given time. One hatch shall be used for loading with the other hatch shall be connected to a fabric filter bag house via a flexible ductwork.

b. Only super sacks with tube and tie (draw rope) shall be loaded out at.

c. Prior to completely removing the bottom spout of each super sack from the tanker, the tie closure shall be re-tie off to prevent flow of residual material from spilling out of the super sack.

d. The permittee is prohibited from loading power activated carbon into open top dump trucks.

e. The permittee is prohibited from using compressed air to aid in the flow of activated carbon from the FIBC (super sack).

In addition, the permit will require the permittee to develop and implement a written procedure for each proposed operation. Each of these operations are unique and need to have specific procedures that take the unique characteristics of operation into account in effort to minimize emissions.

During the writer's visits to the facility, the writer observed empty/used super sacks being disposed of in an open top dumpster. REO does not re-used or recycle these discarded super sacks. The discarding of these used super sacks poses a potential source of fugitive PM emissions if any residual material is left in the sack. Any compression of the used sack could generate fugitive emissions. The permit will require additional measures to control fugitive PM from the disposal of the used super sacks.

Due to the dust from activated carbon, the use of dry sweeping methods should only be utilized within an enclosed area (e.g. within a structure or building). Thus, the permit will prohibit dry sweeping of plant control roadways as a control measure due to the nature of activated carbon being easily entrained into open air.

Further, the permit will require recording of certain occurrences at the facility which includes busted bags and super sacks; and over-filling portable containers (e.g., tanker trucks, open top dump trucks, railcars). These records will give the DAQ key information with dates/times to aid in investigating any future dust compliances from the facility.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed facility will meet all the requirements of the applicable rules and regulations when operated in accordance with the permit application. Therefore, the writer recommends granting REO Processing, Inc. a Rule 13 construction permit for the Huntington facility in Huntington, Cabell County, West Virginia.

Edward S. Andrews, P.E.

Digitally signed by: Edward S. Andrews, P.E.
DN: CN = Edward S. Andrews, P.E. email = edward.s.andrews@wv.gov C = AD O = WVDEP/Division of Air Quality OU = Permitting
Date: 2024.08.21 14:32:49 -04'00'

Edward Andrews, P.E.
Engineer

Date: August 21, 2024