Odor Control Plan (OCP)

FORT MYER CONSTRUCTION CORPORATION (Plant 1)
2001 5th Street NE
Washington, DC 20002

Revision 1.1
February 2024

Client # 5633

Project Manager: Kurt Gilliam, Director of Environmental Services

Prepared by:

Cornerstone
ENVIRONMENTAL HEALTH AND SAFETY, INC
ISO 9001:2015 REGISTERED QUALITY SYSTEM

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FOREWORD

The Department of Energy and Environment (DOEE) issued a final rule that requires stationary sources such as asphalt processing plants located in Washington, DC to adopt a DOEE approved Odor Control Plan (OCP). This document has been created to maintain compliance with 20 DCMR § 903, Odorous or Other Nuisance Air Pollutants.

The regulation states that an OCP shall include the information found in this plan.

WARRANTY

The basis for this Odor Control Plan is information provided by the customer for its specific facility. Cornerstone Environmental, Health and Safety, Inc. has exercised due diligence in analyzing the information and compiling the information and recommendations into this plan.

The responsibility and liability for the accuracy and completeness of the input data remains solely with the provider (the customer) of the information.

1 SOURCE INFORMATION

NAME:	Fort Myer Construction (Plant 1)
PHYSICAL ADDRESS:	Fort Myer Construction (Plant 1) 2001 5th Street NE Washington, DC 20002
MAILING ADDRESS:	Fort Myer Construction Corporation (FMCC) 2237 33rd Street NE Washington, DC 20018
TELEPHONE:	(240) 417-4288
CONTACT NAMES:	David Love, General Manager Asphalt Plants dlove@fortmyer.com
LOCATION:	Facility geographic coordinates are Latitude 38° 55' 4.25" N and Longitude 76° 59' 57.30" W.
SOURCE TYPE:	Asphalt processing plant.
DESCRIPTION OF OPERATIONS AND LAYOUT:	The facility produces hot and cold mix asphalt, used primarily for road paving. The SIC/NAICS codes for the operation are 2951/324121, "Asphalt Paving Mixtures and Blocks". Associated with that is the stockpiling of aggregate materials used in the production process and hot asphalt aboveground storage tanks. Attachment 1 provides an aerial photograph of the asphalt processing plant.
HOURS OF OPERATION:	The source can operate at any time every day of the week; however, the air permit limits the total amount of hot mix asphalt production in any twelve-month rolling period. Please note that the plant typically shuts down completely for approximately two months in winter for annual maintenance.
EMERGENCY CONTACT:	David Love, General Manager Asphalt Plants (240) 417-4288 dlove@fortmyer.com

2 GENERATED ODOR

2.1 ODOR GENERATED BY THE SOURCE

2.1.1 FLOOR PLAN

The odor-emitting activities at Plant 1 are associated with the production of hot and cold mix asphalt. The asphalt mix production involves mixing heated asphalt cement, with a hot mixture of kiln dried, size graded aggregate and reclaimed asphalt pavement. Since the activity occurs at an outdoor plant and not within a building, a floor plan is not applicable. Attachment 1 contains an aerial photograph of the asphalt plant and the locations of potential odor emitting equipment/activities.

The asphalt mix process includes storage of liquid asphalt and diesel fuel in aboveground storage tanks. None of the tanks are pressurized, and each is vented to the atmosphere through normal aspiration. A summary of the aboveground tanks is presented below.

- 30,000-gallon horizontal tank, which is divided into two separate cells. One cell has a volume of 20,000-gallons (Tank #1) and the other has a 10,000-gallons (Tank #2) capacity. Both tanks are used to store liquid hot mix asphalt at about 300° F.
- 10,000-gallon vertical tank (Vertical Tank) used to store cold mix asphalt at about 125° F.
- 10,000-gallon No. 2 fuel oil tank (No. 2 Fuel Oil Tank) used to store backup fuel for the rotary kiln at ambient temperature.
- 5,000-gallon overflow tank (Overflow Tank) for hot or cold mix asphalt and is normally empty/not in use.
- 500-gallon diesel tank (Yard Tank) used to store fuel for yard equipment at ambient temperature.

Other potential sources of odor identified on the layout include:

- Truck loading holding/idling area
- Asphalt mixing and truck loading operation
- Diesel-powered crusher/screener operations

2.1.2 SPECIFIC ODOR EMITTING ACTIVITY

The primary odor-emitting activity from the plant is associated with the storage of hot mix asphalt in Tanks #1 and #2. The liquid asphalt is maintained at about 300° F. As the tanks drain, vapors from the heated asphalt fill the headspace in the tank above the liquid. While some vapors may be naturally aspirated through the tank vent, the most significant discharge of vapors occurs during the filling of the tanks. As a tank is filled, the liquid asphalt begins to occupy the head space in the tank, forcing the vapors out through the tank vent. A “Blue Smoke Vent Condenser” is being added to each tank’s vent to reduce odor from this process.

The Vertical Tank is used to store cold mix asphalt. The cold mix asphalt is maintained at about 125° F. Since asphalt condenses to a liquid when vapors cool to less than 250° F, the rate of asphalt evaporation and thus, the concentration in the head space of these tanks is considerably lower than the hot mix tanks. Also, the volume of cold mix asphalt production is significantly less than hot mix. Based on the lower evaporation rate and lower tank turnover rate of the cold mix asphalt tank, compared to the hot mix tanks, this tank is not considered a significant source of odor at the plant.

The Overflow Tank is used infrequently to store excess hot or cold mix asphalt. The tank is normally empty. Given its infrequent use, this tank is not considered a significant source of odor at the plant.

The 10,000-gallon No. 2 Fuel Oil Tank and the 500-gallon Yard Tank represent a potential source of diesel odor. Like the asphalt tanks, organic (diesel) vapors will fill the headspace in the tank that can be released when the tanks are idle and during filling operations. The No. 2 Fuel Oil Tank stores backup fuel for the rotary kiln. The

rotary kiln is normally heated by burning natural gas, backup fuel is only used if natural gas is curtailed by the supplier. The Yard Tank stores fuel for mobile diesel-powered yard equipment, such as a front-end loader. Given the tanks are maintained at ambient temperature, there is limited turnover of the No. 2 Fuel Oil Tank, and the relatively small volume of the Yard Tank, these tanks are not considered a significant source of odor at Plant 1.

During busy periods, it is not unusual to have trucks idling outside the plant along 5th Street NE. The trucks predominantly burn diesel fuel, resulting in a diesel exhaust odor. Plant 1 operates diesel-powered equipment, including front-end loaders and crushing/screening equipment. FMCC has taken steps (see Section 3.1.4) to reduce yard equipment idling time to maintain compliance with 20 DCMR 900.1 and Section II.g. of Plant #1's air permit (Permit No. 028-R1).

Asphalt odors may be released from the hot mix asphalt manufacturing process and during loading of trucks with mixed asphalt. The hot mix asphalt production process involves mixing the dried hot aggregate with hot asphalt cement in a mixer. The exhaust from the mixer is ducted to a baghouse prior to being emitted to the atmosphere. Trucks are loaded by dumping mixed asphalt from a tower through a chute and into an empty dump truck. Cold mix asphalt is mixed and dispensed in the same manner, but at a lower temperature.

Diesel exhaust is generated by two diesel-powered engines. One engine runs the crusher and the other the screener. This equipment is located in the reclaim yard east of the asphalt production area.

2.1.3 PHASES OF ODOR-EMITTING ACTIVITY

The timing and duration of odor-emitting activity are dependent upon the weather and production schedule. Hot mix asphalt is generally not manufactured during precipitation events. Plant 1 normally operates from 6:00 AM to 4:00 PM on weekdays and 6:00 AM to 12:00 PM on Saturdays. Typically, the plant is not continuously producing asphalt mix when open for operation. The plant typically shuts down completely for approximately two months in winter for annual maintenance. Additionally, the air permit limits the total amount of hot mix asphalt production in any twelve-month rolling period.

3 PROPOSED ODOR MITIGATION PROCEDURES AND PRACTICES

3.1 ADMINISTRATIVE CONTROLS

3.1.1 MAINTENANCE, TESTING, AND AUDIT PROCEDURES TO ENSURE THAT CONTROL EQUIPMENT IS FUNCTIONING PROPERLY AND THE OCP IS BEING ADHERED TO.

To limit odor-emitting activity, Plant 1 conducts the following activities:

- Visual inspections of each aboveground storage tanks and associated piping
- Monitor, by plant personnel, the temperature of hot mix and cold mix asphalt tanks to prevent overheating and excess vaporization of asphalt cement.
- Routine inspection and maintenance, per the manufacturer's recommendations, of the Blue Smoke Vent Condenser (to be installed). Unit is vertically maintenance free. The manufacturer recommends cleaning an air filter annually.
- Monitor the idling time of trucks in the loading queue and yard equipment (see Section 3.1.4).
- Routine and emergency Fleet and Nonroad engine maintenance, per manufacturers specifications, to maintain compliance with 20 DCMR 901 and Permit Condition II.h.
- Monitor asphalt shipment to ensure low-odor asphalt mixed with an odor neutralizer is being delivered to Plant 1.
- Maintain the baghouse pressure drop within the manufacturer's specifications (see Section 3.1.5).
- Maintenance of equipment during a scheduled annual shutdown.

3.1.2 STAFF TRAINING

FMCC employees are trained in the proper operation of the plant and its associated equipment. Employees are expected to observe conditions at the plant and stop production whenever a failure occurs that causes excessive emissions or may pose a danger to personnel or the environment. Staff training includes:

- Monitoring the temperature of hot and cold mix asphalt tanks
- Visual inspections of each aboveground storage tank.
- Requirements of 20 DCMR 901 and Permit Condition II.h. concerning engine idling restrictions.
- Equipment maintenance requirements.

3.1.3 RECORDKEEPING PROCEDURES AND FORMS

Most records are kept electronically, such as the asphalt purchase records, the baghouse pressure drop readings, annual shutdown maintenance activities, routine and emergency equipment maintenance, and employee training records. Reports from outside contractors who conduct performance testing, tuning, and process adjustments are also typically filed electronically. These records are maintained for five years.

3.1.4 OTHER WORK PRACTICES NECESSARY TO PREVENT NUISANCE ODORS – TRUCK IDLING

As discussed in Section 2.1.2, Plant 1 has taken steps to reduce the emissions from idling trucks. The plant has posted signs around the facility, in both English and Spanish (See Attachment 2), reminding drivers that District of Columbia regulations limit engine idling to three minutes, or five minutes when ambient temperature is 32° F or below. Plant 1 has also requested that their customers observe the idling requirements of 20 DCMR 900.1 by instructing their drivers to limit truck engine idling to comply with the rule.

FMCC has upgraded 50 of their 64 dump trucks, which included equipping the trucks with electric heaters. The electric heaters help keep the drivers warm during cold weather. This reduces the need to idle the truck engines to generate comfort heat.

3.1.5 OTHER WORK PRACTICES NECESSARY TO PREVENT NUISANCE ODORS – ASPHALT MIXING

As discussed in Section 2.1.2, asphalt odors may be released during the asphalt and aggregate mixing process, and truck loading. To reduce odor from these processes, Plant 1 purchases low-odor asphalt binder mixed with an odor neutralizer (see below). Also, exhaust from the mixing process is vented through a baghouse before being released to the atmosphere.

Plant 1 uses 3 types of asphaltic binders produced by Bitumar: 64H-22, 64S-22 and 64E-22 (rarely used). Each binder is classified as a low-odor binder. The Bill of Lading documents that each asphalt shipment is classified as "Low Odor". The low-odor binders help to reduce asphalt odors from the plant.

In addition to using low-odor binders, an odor neutralizer is added to each batch of liquid asphalt binder. The process of incorporating this additive into the binder is provided below.

- A tanker driver arrives onsite at Bitumar and checks in at the gate.
- Before having any liquid asphalt binder pumped into their tanker truck, an odor neutralizer designed for odor-sensitive areas (see SDS in Attachment 3) is added to the tank by the driver. The driver goes to the odor neutralizer dispensing station, measures out two quarts of neutralizer, and manually places it in the truck's holding tank. Two quarts of neutralizer is the allowed ratio for up to 6,000 gallons of liquid asphalt. This mixing ratio of neutralizer to binder is prescribed by Flavorchem, the manufacturer of the neutralizer.
- For safety and mixing reasons, it is important that the neutralizer be added prior to the addition of the binder into the tanker truck.
- After the neutralizer is added, the binder is pumped into the truck, and normal safety procedures are followed.
- The driver delivers the truck to FMCC and loads its contents into the respective holding tank until such time that the binder is injected into an asphalt mix.

While baghouses are not designed to control volatile organic compound emissions, the process does cool the air stream containing volatilized asphalt. Asphalt vapors will condense when the temperature drops below 250° F. Therefore, some asphalt vapor is expected to condense around dust in the baghouse, reducing the odor from the mixing process.

3.2 PROPOSAL CONCERNING ENGINEER CONTROLS

Plant 1 has identified the primary source of odors from the operation is air vented from the heated 20,000-gallon (Tank #1) and 10,000-gallon (Tank #2) hot mix liquid asphalt tanks, primarily during tank loading. As heated liquid asphalt is drained from each tank for hot mix asphalt production, the head space above the liquid asphalt fills with asphalt vapor. When the tank is filled, these vapors are displaced and flow out of the tank through a vent.

FMCC Plant 1 is in the process of adding a Blue Smoke Vent Condenser to the Tank #1 and Tank #2 tank vents. Air from each tank vent will flow through a condenser before being vented to the atmosphere. As the hot asphalt vapor flows through the condenser, it is cooled to below 250° F causing the oil to condense on filter media and drain back into the tank. This greatly minimizes the release of asphalt vapors (and odor) to the atmosphere.

The condenser is cooled by ambient air, has no moving parts, and is virtually maintenance-free. Periodic cleaning of the coalescing filter media is required. This will be performed on a routine basis, per the manufacturer's recommendations, to help prevent the release of blue smoke (odors) from the unit. Attachment 4 provides more information concerning the Blue Smoke Vent Condenser.

The cold mix asphalt tanks are maintained at a much lower temperature (about 125° F) than Tanks #1 and #2 and are not considered a significant source of odor.

Hot mix asphalt plants have been in operation for over 100 years and are designed to comply with the Clean Air Act and local regulations without additional engineering controls. Typical industry-specific best practices include burner tuning, operation of the plant in accordance with the manufacturer's specifications, and equipment maintenance. Plant 1 conducts stack tests to determine emissions as required by its air permit, typically every five years.

3.3 TIMELINE FOR IMPLEMENTATION OF ODOR MITIGATION PRACTICES

With the exception of the Blue Smoke Vent Condensers on Tanks #1 and #2, Plant 1 has implemented odor mitigation practices discussed in the plan. Plant 1 plans to install the two Blue Smoke Vent Condensers by June 30, 2024. Much of this work is being completed during the 2024 Winter plant maintenance shutdown.

3.4 PROCEDURES FOR RECEIVING, RESPONDING TO, AND TRACKING COMPLAINTS

Complaints can be made to the General Manager, Asphalt Plants, at 202-269-0400 x3011. If a complaint is received, the General Manager or designee will listen to the complaint and let the caller know that someone from our company will return the call within 24 hours. Once the caller's contact information and reason for the complaint has been obtained, the information will be forwarded to the FMCC Environmental Compliance Manager. If necessary, the issue can be escalated to the FMCC Vice President of Operations. The Office Manager will maintain a log of complaints.

Based on the type of complaint, an FMCC employee with be designated by the Environmental Compliance Manager to investigate the issue to determine a cause of the odor and develop a solution. The investigation, findings, and corrective action (if necessary) will be documented and maintained by the Office Manager. The Environmental Compliance Manager or a designee will then relay this information to the person who made the complaint.

4 PROFESSIONAL ENGINEER STATEMENT

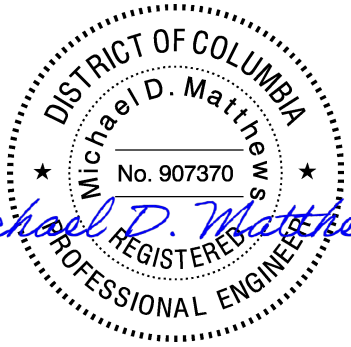
I have reviewed the proposal concerning the Blue Smoke Condenser System and believe it to be sufficient to reduce asphalt odors from FMCC Plant 1. I am a professional engineer licensed with the Department of Licensing and Consumer Protection.

PROFESSIONAL ENGINEER SIGNATURE: Michael D. Matthews

PRINTED NAME: Michael D. Matthews

LICENSE # / EXPIRATION DATE P.E. # 907370 (exp. 8/31/2024) **STATE:** D.C.

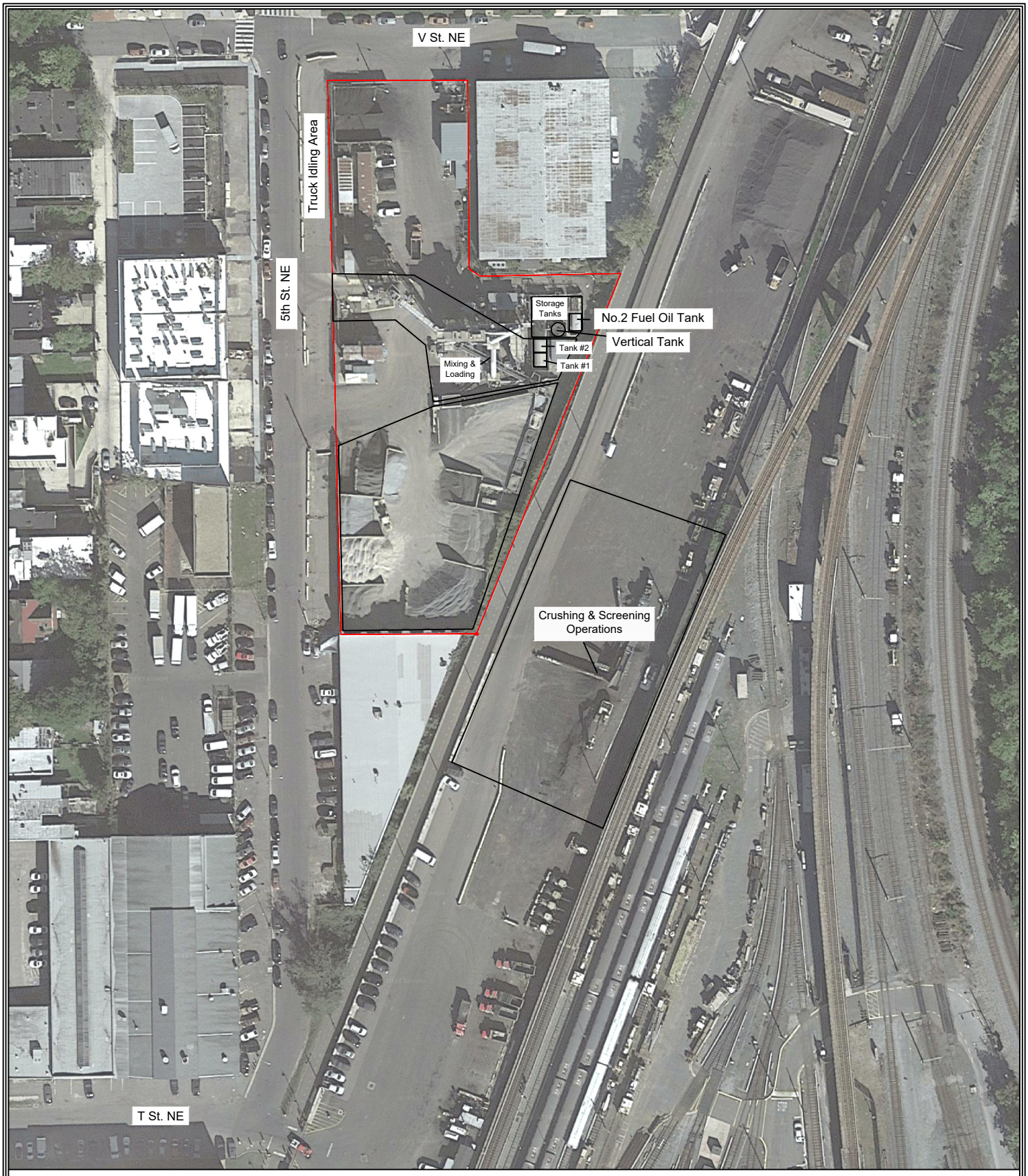
DATE: 11/1/2023



Michael D. Matthews

11/1/2023

ATTACHMENT 1 ASPHALT PLANT AERIAL PHOTOGRAPH



Cornerstone
ENVIRONMENTAL HEALTH AND SAFETY, INC
ISO 9001:2015 REGISTERED QUALITY SYSTEM

880 LENNOX COURT
ZIONSVILLE, INDIANA 46077

LEGEND

SITE BOUNDARY

N

Facility Layout

COMPANY:	Fort Myer Construction Corp.		
ADDRESS:	2001 5th Street NE (Plant 1)		
CITY:	Washington	STATE:	DC
COUNTY:	District Of Columbia	REV:	1.0
DATE:	02/12/2024	ACCT#:	5633

ATTACHMENT 2 IDLING INSTRUCTION SIGNS

PHOTOGRAPHS

Photos of Idling Rule Signage FMCC Plant 1

ATTACHMENT 3 ODOR NEUTRALIZER SDS

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/17/2020 Reviewed on 06/17/2020

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1 Identification

· **Product identifier**

· **Trade name: Roof Odor Solutions Additive**

· **Article number:** 180125

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Flavorchem Corporation
1525 Brook Drive
Downers Grove, IL 60515
USA
800.435.2867

· **Information department:** Regulatory department
· **Emergency telephone number:**
During normal opening times: Call Chemtrec Day or Night
Domestic North America 800.424.9300/International 703.527.3887 (Collect calls accepted)

2 Hazard(s) identification

· **Classification of the substance or mixture**
Flam. Liq. 4 H227 Combustible liquid.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** Void
· **Signal word** Warning
· **Hazard statements**
Combustible liquid.
· **Precautionary statements**
Dispose of contents/container in accordance with local/regional/national/international regulations.
Keep away from flames and hot surfaces. – No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 2
Reactivity = 0

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· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

100-52-7	BENZALDHYDE Acute Tox. 4, H302; Flam. Liq. 4, H227	10-25%
140-11-4	BENZYL ACETATE Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	2.5-10%
134-20-3	METHYL ANTHRANILATE Skin Irrit. 2, H315; Eye Irrit. 2A, H319	2.5-10%
121-33-5	VANILLIN Acute Tox. 4, H302	≥0.1-<2.5%

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** No special precautions are necessary if used correctly.
· **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in tightly sealed containers in a cool, dry place that is well ventilated. Away from heat, spark, and open flame.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep container tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

100-52-7 BENZALDHYDE	
WEEL	Short-term value: 4 ppm Long-term value: 2 ppm DSEN
140-11-4 BENZYL ACETATE	
TLV	Long-term value: 61 mg/m³, 10 ppm

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121-33-5 VANILLIN	
WEEL	Long-term value: 10 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
· **Breathing equipment:**
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Yellow
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	82.2 °C (180 °F)
· **Flammability (solid, gaseous):**	Not applicable.

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· **Ignition temperature:**	190 °C (374 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Not determined.
· **Explosion limits:**	
Lower:	1.4 Vol %
Upper:	60 Vol %
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	0.92453 g/cm³ (7.7152 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	0.7 %
VOC content:	0.68 % 6.3 g/l / 0.05 lb/gl
Solids content:	4.2 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
100-52-7 BENZALDHYDE		
Oral	LD50	1,300 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
140-11-4	BENZYL ACETATE	3

· NTP (National Toxicology Program)
None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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Trade name: Roof Odor Solutions Additive

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13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name**	
· **DOT, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)**	
· **DOT, ADN, IMDG, IATA**	
· **Class**	not regulated
· **Packing group**	
· **DOT, IMDG, IATA**	not regulated
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: - On cargo aircraft only: -
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

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acc. to OSHA HCS

Trade name: Roof Odor Solutions Additive

(Contd. of page 7)

· **Section 313 (Specific toxic chemical listings):**

98-86-2	acetophenone

· **TSCA (Toxic Substances Control Act) (Substances not listed):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

98-86-2	acetophenone	D

· **TLV (Threshold Limit Value established by ACGIH)**

140-11-4	BENZYL ACETATE	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** Void
· **Signal word** Warning
· **Hazard statements**
Combustible liquid.
· **Precautionary statements**
Keep away from flames and hot surfaces. – No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H227 Combustible liquid.

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Safety Data Sheet
acc. to OSHA HCS

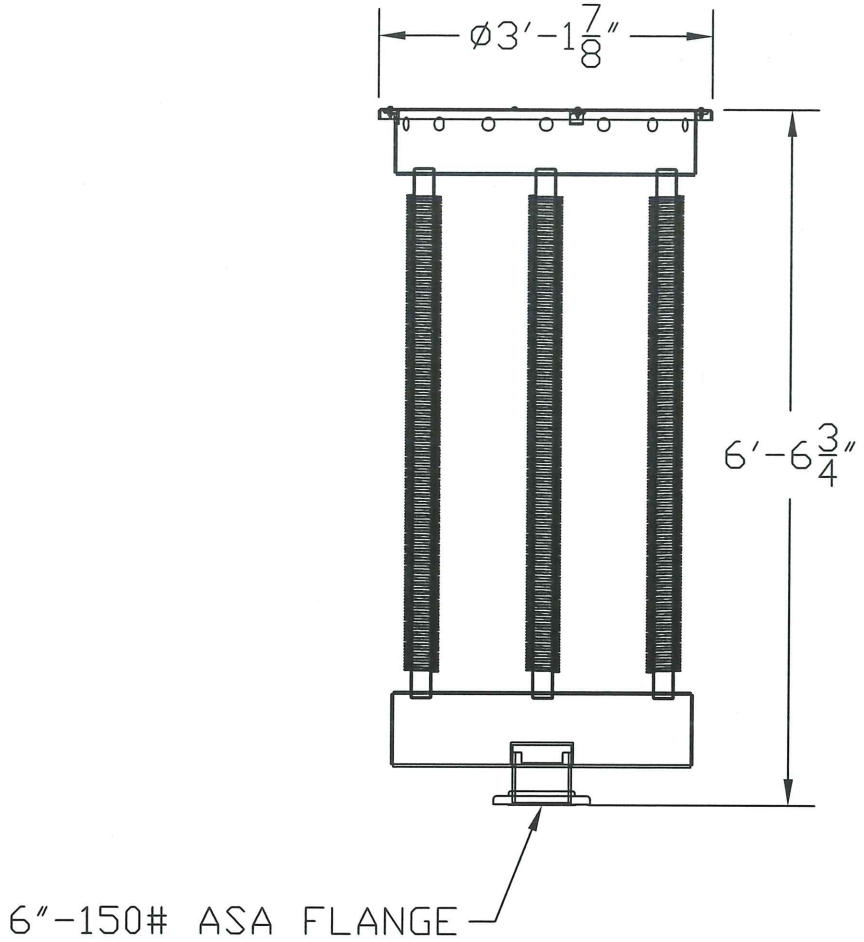
Trade name: Roof Odor Solutions Additive

(Contd. of page 8)

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

· **Department issuing SDS:** Regulatory department
· **Contact:** Stacie Obman
· **Date of preparation / last revision** 06/17/2020 / 15
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 4: Flammable liquids – Category 4
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

ATTACHMENT 4 BLUE SMOKE VENT CONDENSER



BLUE SMOKE CONDENSER

WEIGHT: 1,200 lbs

THE BLUE SMOKE VENT CONDENSER IS AN AIR OVER AIR HEAT EXCHANGER. VAPORS FROM THE ASPHALT TANK PASS THROUGH MULTIPLE PIPES COVERED BY STEEL SPIRAL WOUND FINNING. AMBIENT AIR PASSES OVER THE FINNED TUBING LOWERING THE TEMPERATURE OF THE VAPORS, CHANGING THE ASPHALT VAPOR BACK INTO A LIQUID FORM. THE LIQUID ASPHALT THEN DRAINS BACK INTO THE TANK BY GRAVITY.

PHOTOGRAPHS

Photos of one of the Blue Smoke Condenser to be installed at FMCC Plant 1