EMR Advanced Recycling LLC (50023)

Date: 3/31/2023

New Jersey Department of Environmental Protection
Reason for Application

Permit Being Modified

Permit Class: PCP **Number:** 110005

Description of Modifications: EMR Advanced Recycling LLC (formerly Camden Iron & Metal Inc.) hereby submits this application to revise the preconstruction permit by adding control device equipment to the existing metals shedder. The control equipment will be comprised of multiple units in series, including a cyclone, fabric roll filter, regenerative thermal oxidizer and packed tower scrubber. A new exhaust point (stack) will be required, with the single discharge point on the exhaust side of the packed tower scrubber.

New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): EMR Advanced Recycling LLC **Facility ID (AIMS):** 50023

Street Address: 1400 SOUTH FRONT ST
CAMDEN, NJ 08104

Mailing Address: 201 NORTH FRONT ST
CAMDEN, NJ 08102

State Plane Coordinates:

X-Coordinate:	75
Y-Coordinate:	40
Units:	Dec. Deg.
Datum:	NAD27
Source Org.:	Other/Unknown
Source Type:	Hard Copy Map

County: Camden

Location Description: From I-676 take Atlantic Ave. west to Front Street, turn left into facility.

Industry:

Primary SIC:	
Secondary SIC:	
NAICS:	423930

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: Air Permit Information Contact

Organization: EMR Advanced Recycling LLC
Org. Type: Corporation
Name: Cynthia McKeown
NJ EIN:
Title: EHS Director
Phone: (856) 365-7500 x
Fax: ( ) - x
Other: (609) 209-2942 x
Type: Mobile
Email: cynthia.mckeown@emrgroup.com
Mailing Address: 201 NORTH FRONT STREET
CAMDEN, NJ 08102

Contact Type: Environmental Officer

Organization: EMR Advanced Recycling LLC
Org. Type: Corporation
Name: Cynthia McKeown
NJ EIN:
Title: EHS Director
Phone: (856) 365-7500 x
Fax: ( ) - x
Other: (609) 209-2942 x
Type: Mobile
Email: cynthia.mckeown@emrgroup.com
Mailing Address: 201 NORTH FRONT STREET
CAMDEN, NJ 08102

Contact Type: Fees/Billing Contact

Organization: EMR Advanced Recycling LLC
Org. Type: Corporation
Name: Cynthia McKeown
NJ EIN:
Title: EHS Director
Phone: (856) 365-7500 x
Fax: ( ) - x
Other: (609) 209-2942 x
Type: Mobile
Email: cynthia.mckeown@emrgroup.com
Mailing Address: 201 NORTH FRONT STREET
CAMDEN, NJ 08102

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: **Responsible Official**

Organization: EMR Advanced Recycling LLC

Name: Stephen Deacon

Title: COO

Phone: (856) 365-7500 x

Fax: ( ) - x

Other: ( ) - x

Type:

Email: stephen.deacon@emrgroup.com

Org. Type: Corporation

NJ EIN:

Mailing Address: 201 NORTH FRONT STREET
Camden, NJ 08102

New Jersey Department of Environmental Protection
Facility Profile (Permitting)

1. Is this facility classified as a small business by the USEPA?	No
2. Is this facility subject to N.J.A.C. 7:27-22?	No
3. Are you voluntarily subjecting this facility to the requirements of Subchapter 22?	No
4. Has a copy of this application been sent to the USEPA?	No
5. If not, has the EPA waived the requirement?	Yes
6. Are you claiming any portion of this application to be confidential?	No
7. Is the facility an existing major facility?	No
8. Have you submitted a netting analysis?	No
9. Are emissions of any pollutant above the SOTA threshold?	No
10. Have you submitted a SOTA analysis?	No
11. If you answered "Yes" to Question 9 and "No" to Question 10, explain why a SOTA analysis was not required	
12. Have you provided, or are you planning to provide air contaminant modeling?	No

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E102	Infeed Conv	Hamermill Shredder	Manufacturing and Materials Handling Equipment	PCP110003	2/16/2011	No		

EMR Advanced Recycling LLC (50023) Date: 3/31/2023

New Jersey Department of Environmental Protection
Control Device Inventory

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand-Fathered	Last Mod. (Since 1968)	CD Set ID
CD1	Cyclone	High Eff Cyclone	Cyclone				
CD2	Filter	Filter	Particulate Filter (Other)				
CD3	Shredder RTO	Shredder RTO	Oxidizer (Thermal)				
CD4	Scrubber	Scrubber	Scrubber (Packed Tower)				

EMR Advanced Recycling LLC (50023)

Date: 3/31/2023

New Jersey Department of Environmental Protection
Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT281	Shred Stack	Hammermill Shredder Control Stack	Round	100	72	100	100.0	75.0	125.0	65,000.0	0.0	85,000.0	Up	

EMR Advanced Recycling LLC (50023)

Date: 3/31/2023

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 101 Ferrous Ops Ferrous Metal Operations

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS102	Shredder	Hammermill Shredder	Normal - Steady State	E102	CD1 (P) CD2 (P) CD3 (P) CD4 (P)	PT281	3-99-999-89	2,496.0	5,616.0		0.0	75,000.0	75.0	125.0

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: U101 Ferrous Ops

Operating Scenario: OS0 Summary

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Tetrachloroethane (1,1,2,2-)			0.00707600	0.00707600	tons/yr	No
Dichloroethane (1,2-)			0.00700900	0.00700900	tons/yr	No
Butadiene (1,3-)			0.00704800	0.00704800	tons/yr	No
Trichloroethane (1,1,2)			0.00715800	0.00715800	tons/yr	No
Acrolein			0.00698300	0.00698300	tons/yr	No
Acrylonitrile			0.00701600	0.00701600	tons/yr	No
Allyl chloride			0.00703800	0.00703800	tons/yr	No
Arsenic compounds			0.00095080	0.00095080	tons/yr	No
Benzene			0.04750000	0.04750000	tons/yr	No
Benzyl chloride			0.00703400	0.00703400	tons/yr	No
Beryllium compounds			0.00009966	0.00009966	tons/yr	No
Cadmium compounds			0.00038470	0.00038470	tons/yr	No
Carbon tetrachloride			0.00707400	0.00707400	tons/yr	No
Chloroform			0.00709200	0.00709200	tons/yr	No
Chromium (Hexavalent) Emissions			0.00008958	0.00008958	tons/yr	No
Cobalt compounds			0.00003114	0.00003114	tons/yr	No
CO			1.85000000	1.85000000	tons/yr	No
Dibromo-3-chloropropane (1,2-)			0.00724600	0.00724600	tons/yr	No
Dimethylbenz(a)anthracene (7,12-)			0.00000138	0.00000138	tons/yr	No
Ethylbenzene			0.26790000	0.26790000	tons/yr	No
Ethylene dibromide			0.00720000	0.00720000	tons/yr	No
Formaldehyde			0.58500000	0.58500000	tons/yr	No
Hexachlorobutadiene			0.00699600	0.00699600	tons/yr	No
Hydrogen chloride			0.44930000	0.44930000	tons/yr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: U101 Ferrous Ops

Operating Scenario: OS0 Summary

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Hydrogen fluoride			0.47740000	0.47740000	tons/yr	No
Lead compounds			0.00469800	0.00469800	tons/yr	No
Manganese compounds			0.00825100	0.00825100	tons/yr	No
Mercury compounds			0.00150000	0.00150000	tons/yr	No
Methyl alcohol (Methanol)			3.84200000	3.84200000	tons/yr	No
Naphthalene			0.04832000	0.04832000	tons/yr	No
Nickel compounds			0.01730000	0.01730000	tons/yr	No
NOx (Total)			2.20000000	2.20000000	tons/yr	No
PM-10 (Total)			15.42000000	15.42000000	tons/yr	No
PM-2.5 (Total)			15.42000000	15.42000000	tons/yr	No
Polychlorinated biphenyls (PCBs)			0.00219000	0.00219000	tons/yr	No
Propylene dichloride			0.00692900	0.00692900	tons/yr	No
SO2			D	D	tons/yr	No
Styrene			0.18890000	0.18890000	tons/yr	No
Trichloroethylene			0.05036000	0.05036000	tons/yr	No
Toluene			1.31000000	1.31000000	tons/yr	No
TSP			15.46000000	15.46000000	tons/yr	No
VOC (Total)			15.57000000	15.57000000	tons/yr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS102**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Tetrachloroethane (1,1,2,2-)			0.00161600	0.00161600	lb/hr	No
Dichloroethane (1,2-)			0.00160000	0.00160000	lb/hr	No
Butadiene (1,3-)			0.00160900	0.00160900	lb/hr	No
Trichloroethane (1,1,2)			0.00163400	0.00163400	lb/hr	No
Acrolein			0.00159400	0.00159400	lb/hr	No
Acrylonitrile			0.00160200	0.00160200	lb/hr	No
Allyl chloride			0.00160700	0.00160700	lb/hr	No
Arsenic compounds			0.00021710	0.00021710	lb/hr	No
Benzene			0.01690000	0.01690000	lb/hr	No
Benzyl chloride			0.00160600	0.00160600	lb/hr	No
Beryllium compounds			0.00002275	0.00002275	lb/hr	No
Cadmium compounds			0.00008784	0.00008784	lb/hr	No
Carbon tetrachloride			0.00161500	0.00161500	lb/hr	No
Chloroform			0.00161900	0.00161900	lb/hr	No
Chromium (Hexavalent) Emissions			0.00002045	0.00002045	lb/hr	No
Cobalt compounds			0.00000711	0.00000711	lb/hr	No
CO			0.66000000	0.66000000	lb/hr	No
Dibromo-3-chloropropane (1,2-)			0.00165400	0.00165400	lb/hr	No
Dimethylbenz(a)anthracene (7,12-)			0.00000049	0.00000049	lb/hr	No
Ethylbenzene			0.06116000	0.06116000	lb/hr	No
Ethylene dibromide			0.00164400	0.00164400	lb/hr	No
Formaldehyde			0.20800000	0.20800000	lb/hr	No
Hexachlorobutadiene			0.00159700	0.00159700	lb/hr	No
Hydrogen chloride			0.10260000	0.10260000	lb/hr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS102**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Hydrogen fluoride			0.10900000	0.10900000	lb/hr	No
Lead compounds			0.00107300	0.00107300	lb/hr	No
Manganese compounds			0.00188400	0.00188400	lb/hr	No
Mercury compounds			0.00034250	0.00034250	lb/hr	No
Methyl alcohol (Methanol)			0.87720000	0.87720000	lb/hr	No
Naphthalene			0.01720000	0.01720000	lb/hr	No
Nickel compounds			0.00395000	0.00395000	lb/hr	No
NOx (Total)			0.78000000	0.78000000	lb/hr	No
PM-10 (Total)			5.49000000	5.49000000	lb/hr	No
PM-2.5 (Total)			5.49000000	5.49000000	lb/hr	No
Polychlorinated biphenyls (PCBs)			0.00050010	0.00050010	lb/hr	No
Propylene dichloride			0.00158200	0.00158200	lb/hr	No
SO2			D	D	lb/hr	No
Styrene			0.04312000	0.04312000	lb/hr	No
Trichloroethylene			0.01150000	0.01150000	lb/hr	No
Toluene			0.46600000	0.46600000	lb/hr	No
TSP			5.51000000	5.51000000	lb/hr	No
VOC (Total)			5.54000000	5.54000000	lb/hr	No

000000 CD1 (Cyclone)
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Unit Type:	Single
Description:	
Major Cylinder Diameter, Dc (ft):	13.00
Major Cylinder Length, Lc (ft):	16.00
Gas Outlet Diameter, De (ft):	4.80
Gas Inlet Height, He (ft):	6.50
Gas Inlet Width, Bc (ft):	5.00
Gas Outlet Length, Hc + Sc [usually 5/8 Dc] (ft):	8.00
Cone Length, Zc (ft):	26.00
Dust Outlet, Jc (ft):	4.80
Effective Number of Turns, Ne:	5
Inlet Gas Velocity, Vi (ft/min):	4,500.00
True Particle Density (lbs/ft³):	
Average Particle Size (micrometers):	
Gas Temperature (°F):	125.0
Have you attached a Particle Size Distribution Analysis?	○ Yes ● No
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Comments:	

000000 CD2 (Particulate Filter (Other))
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Filter Description:	Two-stage filter unit using roll filter media
Total Filter Area (ft²):	250.00
Maximum Design Temperature Capability (°F):	135.0
Maximum Design Air Flow Rate (acfm):	75,000.0
Maximum Air Flow Rate to Filter Area Ratio:	
Minimum Operating Pressure Drop (in. H2O):	
Maximum Operating Pressure Drop (in. H2O):	
Maximum Inlet Temperature (°F):	125.0
Maximum Operating Exhaust Gas Flow Rate (acfm):	75,000.0
Method for Determining When Filter Replacement is Required:	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	○ Yes ● No
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No

Comments:

000000 CD2 (Particulate Filter (Other))
Print Date: 3/31/2023

000000 CD3 (Oxidizer (Thermal))
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Minimum Chamber Temperature (°F):	1500.0
Minimum Residence Time (sec):	0.50
Fuel Type:	Natural gas
Description:	
Maximum Rated Gross Heat Input (MMBtu/hr):	21.00
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Comments:	

000000 CD4 (Scrubber (Packed Tower))
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Is the Scrubber Used for Particulate Control?	○ Yes ● No
Is the Scrubber Used for Gas Control?	● Yes ○ No
Is the Scrubber Equipped with a Mist Eliminator?	○ Yes ● No
Minimum Pump Discharge Pressure (in. H20):	
Maximum Pump Discharge Pressure (in. H20):	
Method of Monitoring Pump Discharge Pressure:	
Minimum Pump Current (amps):	
Maximum Pump Current (amps):	
Method of Monitoring Pump Current:	
Minimum Scrubber Medium Inlet Pressure (in. H20):	6.00
Minimum Operating Liquid Flow Rate (gpm):	
Maximum Operating Liquid Flow Rate (gpm):	800.00
Method of Monitoring Liquid Flow Rate:	Flowmeter
Minimum Operating Gas Flow Rate (acfm):	18,750.00
Maximum Operating Gas Flow Rate (acfm):	85,000.00
Method of Monitoring Gas Flow Rate:	
Minimum Operating Pressure Drop (in. H20):	1.00
Maximum Operating Pressure Drop (in. H20):	5.00
Method of Monitoring Pressure Drop:	Manometer
Relative Direction of the Gas-Liquid Flow:	Counter-Current
Description:	
Height of Packed Section (ft):	6.00
Type of Packing Material:	Q-PAC Saddles or Equivalent
Size of Packing Material (in):	
Tower Diameter (ft):	
Total Tower Height (ft):	13.00
Maximum Operating Temperature of the Inlet Gas (°F):	125.0
Maximum Operating Temperature of the Exhuast Gas(°F):	115.0
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No

000000 CD4 (Scrubber (Packed Tower))
Print Date: 3/31/2023

Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?

○ Yes ● No

Comments:

50023 EMR Advanced Recycling LLC PCP000000 U101 OS102 (Efficiency Table - CD1)
Print Date: 3/31/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
HAP (Total)			
Other (Total)			
PM-10			
SO2			
VOC (Total)			
CO			
NOx			
Pb			
PM-2.5			
TSP			

50023 EMR Advanced Recycling LLC PCP000000 U101 OS102 (Oxidizer (Thermal) - CD3)
Print Date: 3/31/2023

Maximum Feed Rate to the Oxidizer (tons/hr):	0.04
Maximum Air Supply Flow Rate (acfm):	75000.0
Minimum Air Supply Flow Rate (acfm):	18750.0
Oxygen Content in Exhuast (%O2):	20.00
CO Concentration in Exhaust (ppmvd):	
Total VOC Concentration in Exhaust (ppmvd):	

50023 EMR Advanced Recycling LLC PCP000000 U101 OS102 (Efficiency Table - CD4)
Print Date: 3/31/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10			
PM-2.5			
SO2			
TSP			
VOC (Total)	95.00		95.00

Dust Management Plan for

EMR Advanced Recycling, LLC

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LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

The purpose of this Dust Management Plan is to document the dust control mechanisms to minimize fugitive dust emissions from the EMR Advanced Recycling, LLC (EMR) facility in Camden, New Jersey. S*pecifically, this plan will address the following: 1. Procedures for visual inspections; 2. Dust management procedures; 3. Corrective actions; and 4. A checklist of sources and areas to be checked for visible emissions. All personnel involved in the implementation of the dust management plan will be trained on the contents of this plan, including the checklist of all items to be inspected, inspection procedures, dust management procedures, and corrective actions for expected malfunctions.*

The EMR facility is a state of the art scrap metal recycling facility which processes end of life consumer products, ferrous and non-ferrous metals to separate and recover ferrous and non-ferrous metals for sale to consumers. As such, the dust management strategies are detailed and consist of a range of proactive and reactive strategies. A significant effort in planning, implementation and monitoring is undertaken to ensure effective dust control is achieved for all components of the plan including the dust emission sources, equipment, stockpiles, and roadways. Specific dust controls employed by EMR to minimize dust generation include:

- *Applying water to infeed and discharge conveyors on the shredding operation;*
- *Injection of foam and water mixture into shredding chamber during process;*
- *Skirting conveyors;*
- *Paved roadway;*
- *Sweeping roadways; and*
- *Watering roadways.*

1. INTRODUCTION

EMR operates a state-of-the-art metal recycling facility located at Front Street and Atlantic Avenue in Camden, New Jersey. The Ferrous Metal Shredding operations will shred and magnetically separate a maximum of 440 tons per hour of end of life consumer products such as automobiles and appliances to produce a shredded ferrous metal product i.e. steel and iron for use as feedstock in steel mills and foundries worldwide. An additional product will be generated from the Ferrous Metal Shredding known as Zorba 10. Zorba 10 contains plastic, cloth, glass, dirt, non-ferrous and ferrous metals that were not removed with the magnetic system. Zorba 10 will be processed in the Non-Ferrous Separation System to produce ferrous and non-ferrous metal products including copper, aluminum and brass for new products worldwide. The remaining material known as automotive shredder residue (ASR) will be shipped to permitted, non-hazardous, solid waste disposal facilities.

The shredder air emissions will be controlled by water sprays and a water and foam injection system. This results in damp shredding operation to minimize air emissions. In addition, the Shredding Operation is equipped with a cyclone with a "Zero Bleed" design. The Zero Bleed component eliminates stack emissions to atmosphere employing a closed loop system. All the operations conveyors will be equipped with high skirts.

The permitted facility also includes the adjacent barge unloading operation located at Front Street and Kaighn Avenue, which is operated by EMR Eastern, LLC and referred to as "Kaighn Avenue" throughout this plan. At this location, materials including shredded iron and steel, prepared plate, structural steel, and number 1 steel are received via barge and stockpiled before being loaded into trucks.

1.1 DUST EMISSIONS

1.1.1. Process Operations

The foam and water injection and water spray dust suppression systems described will be designed and installed to eliminate dust emissions from the shredding process and control dust emissions from the remainder of the process including conveyors and transfer points.

The shredding operation will regulate water and/or foam agent flow from nozzles within the mill and nozzles placed at the infeed conveyor, feed chute, and the vibratory conveyor by monitoring certain process parameters. Water or the expanded foam injected into the mill serves to eliminate emissions that might otherwise be generated by the action in the shredder. The nozzles placed about the mill infeed conveyor, feed chute, and the vibratory conveyor serve to provide additional control of potential fugitive dust at downstream material transfer points.

As described above, these dust suppression systems are designed to eliminate emissions from the shredder. These dust suppression systems are also designed to control the potential for dust emissions to occur elsewhere in the material handling systems (i.e., conveyor transfer points and drops).

At the barge unloading area, incoming materials are unloaded using the Manitowoc crane and wheel loader. This material is typically trucked to the adjacent shredder facility on the same day as arrival. Material is loaded into trucks using wheel loaders and/or material handlers. Potential dust emissions may be generated when material is placed onto the stockpiles or into trucks.

1.1.2. Facility Wide

Equipment traffic on roadways within the facility has the potential to generate dust emissions at the facility. All roadways will be paved and cleaned with a vacuum sweeper or manual sweeping at a minimum of once per operating day to prevent dust from tracking. A water truck will be used on extremely dry days to water roadways to keep dust from becoming airborne.

1.2 PURPOSE OF PLAN

The purpose of this Dust Management Plan is to address and ensure compliance with all New Jersey Department of Environmental Protection (NJDEP) requirements related to fugitive dust emissions and controls.

2. PERMIT REQUIREMENTS

According to EMR's Air Permit PCP230001 and PCP11005 the Dust Management Plan must include the following:

1. Procedures for Visual Inspections;
2. Dust Management Procedures;
3. Corrective Actions; and
4. A Checklist of Sources and Areas to be checked for Visible Emissions.

3. PROCEDURES FOR VISUAL INSPECTIONS

There are three (3) separate forms required to be completed for the daily visual inspections, as applicable based on which operations are occurring that day. Designated individuals will be trained in performing daily visual inspections of the specific areas. The forms are Daily Visual Inspections for Fugitive Dust Emissions Facility Wide Appendix B, Daily Visual Inspections for Fugitive Dust Emissions Ferrous Metal Operations Appendix C, and Daily Visual Inspections for Fugitive Dust Emissions Kaighn Avenue Operations Appendix D.

The three (3) separate forms will be used to conduct a visual inspection of the areas noted on the forms as follows:

The designated individual assigned to conduct a visual inspection once per operating day of the Facility Wide operations will complete the form in Appendix B after observing the following areas 1. Inbound scale and mark the box for satisfactory (S) or unsatisfactory (U); 2. Outbound scale and mark the box for satisfactory (S) or unsatisfactory (U); 3. Site roadways and mark the box for satisfactory(S) or unsatisfactory (U); and 4. Site entrance and mark the box for satisfactory (S) or unsatisfactory (U). All unsatisfactory (U) boxes checked require corrective actions see Section 5 Corrective Actions for information to be complete. Finally the form should be signed and dated with time of the inspection.

The designated individual assigned to conduct a visual inspection once per operating day of the Ferrous Metal Operations will complete the form in Appendix C after observing the following equipment, conveyors or systems E101 – E117 and mark the boxes for satisfactory (S) or unsatisfactory (U). All unsatisfactory (U) boxes checked require corrective actions see Section 5 Corrective Actions for information to be completed. Finally the form should be signed and dated with time of the inspection.

The designated individual assigned to conduct a visual inspection once per operating day of the Kaighn Avenue Operations will complete the form in Appendix D after observing the following areas: Barge Unloading, Truck Loading, Roadways, Stone Pad, and Stockpile Area. The assigned inspector will answer each question on the form and any deficiencies identified will be reported to the Supervisor for corrective action as described in Section 5. The form will be signed and dated by the inspector.

4. DUST MANAGEMENT PROCEDURES

EMR employs specific dust procedures and controls to minimize dust generation. These include:

4.1 Water Sprays;
4.2 Foam and Water Injection;
4.3 High Skirts on Conveyors;
4.4 Barge Unloading Operations (Kaighn Avenue)
4.5 Vehicle Loading Operations
4.6 Material Handling and Stockpiling
4.7 Vacuum Sweeper or Manual Sweeping;
4.8 Water Truck
4.9 Paved Roadways
4.10 Other Operational Controls

Further discussion on these methods is provided in this section.

4.1 Water Sprays

High pressurized sprays will be used on the infeed conveyor (E101) of the Ferrous Metal Operations shredder to wet down infeed material before it's shredded, within the shredding chamber and on the discharge vibrating conveyor (E103). The permit required flow rate will be a minimum of 10 gallons per minute and a maximum of 20 gallons per minute. Flow rate will be monitored by manual logging of the data or computer data system once per shift during operation. The water sprays will provide a minimum moisture content of 11% for the non-metal material at E103 which will be measured with a digital grain moisture meter once per calendar day and recorded by manual logging of the measure parameter or computer data system.

At Kaighn Avenue, prior to any barge unloading or vehicle loading operation, water cannons and/or misters will be staged in the area and ready to provide dust suppression to prevent visible dust emissions from leaving the Facility. Additionally, the stockpiles are wetted at the beginning of each shift on dry days and periodically throughout the day if visible dust emissions are observed. If visible dust emissions with the potential to leave the Facility are observed from any source, either by the equipment operator or during the daily visual inspection, the Supervisor will be notified and the operation causing those emissions will be immediately halted until adequate dust suppression can be provided.

4.2 Foam and Water Injection

EMR will be installing a state-of-the-art computer controlled Midwest Shredder Foam Suppression System to control particulate emissions from the metal shredding process. The Foam Suppression System mixes water and foam then injects the expanded foam into the shredding chamber. The water and foam once mixed and injected will expand and fill the airspace within the shredding chamber reducing temperatures, minimizing the volume of oxygen and potentially combustible gases. The expanded foam also chemically attracts to particulate molecules suppressing particulate emissions. The flow rate of the foam and water mixture will be computer regulated. The computer controlled systems will continuously analyze all of the data including shredder

motor amperage, ambient air temperature and magnetic flow meter to determine the optimum water and/or foam flow rate. The system can also be over-ridden by the operator who can redirect any spray and adjust the rate of water and/or foam flow based on visual observations of the process operations. The permit required flow rate is a minimum of 12 gallons per minute and a maximum of 20 gallons per minute. The flow rate recordkeeping will be maintained by manual logging of the parameter or computer data system once per shift during operation.

4.3 High Skirts on Conveyors

All equipment conveyors will be equipped with high skirts to prevent spillage of materials being processed and to minimize fugitive dust emissions. All conveyors will be inspected once per month and repairs to worn or damaged skirts will be done promptly.

4.4 Barge Unloading Operations (Kaighn Avenue)

Potential dust emissions from barge unloading operations at Kaighn Avenue are controlled by limiting the drop height onto the stockpile or truck to the greatest degree practicable. Water sprays are employed during unloading if dust emissions with the potential to leave the Facility are observed by the equipment operator or during the daily visual inspection.

4.5 Vehicle Loading Operations

Potential dust emissions from vehicle loading operations at Kaighn Avenue are controlled by limiting the drop height into the vehicle to the greatest degree practicable. Water sprays are employed during vehicle loading if dust emissions with the potential to leave the Facility are observed by the equipment operator or during the daily visual inspection.

4.6 Material Handling and Stockpiling

Potential dust emissions from the stockpiles are controlled by limiting the stockpile footprints to the extent practicable and through periodic wetting of the stockpiled material. Water sprays are applied to the stockpiles at the beginning of each shift on dry days and periodically throughout the operating day as necessary to prevent visible dust emissions from leaving the Facility. The condition of the stockpiles and material handling within the stockpile area is continuously observed by the equipment operators and during the daily visual inspection.

4.7 Vacuum Sweeper or Manual Sweeping

EMR will utilize a vacuum sweeper truck with water sprays to clean all paved roadways once per operating day to prevent tracking of dirt and debris from the facility. When the vacuum sweeper is being repaired manual sweeping will be used to prevent tracking.

4.8 Water Truck

During dry seasons a water truck will be used in conjunction with the vacuum sweeper or manual sweeping to control dust on paved roadways, inbound and outbound scales, and Facility entrances.

A water truck will also be used to wet the roadways at Kaighn Avenue prior to barge unloading.

4.9 Paved Roadways

Potential dust emissions from equipment traffic are controlled by limiting vehicle speeds to less than 5 miles per hour. Speed limit signs will be posted at the entrance and various locations throughout the Facility. All roadways that equipment and trucks will be operated on will be paved to allow vacuum sweeper or manually sweeping on a daily basis to prevent dirt and debris from accumulating or from becoming airborne. Inspections of the roadways will be conducted at a minimum of once per day using the Daily Visual Inspection Forms.

To limit "track-out" of material onto Front Street, a stone pad has been installed at the Kaighn Avenue exit. The pad is approximately 50 feet long and 20 feet wide and is constructed of at least 6 inches of ASTM C-33 No. 2 or No. 3 clean crushed angular stone. The condition and efficacy of the stone pad is monitored during the daily visual inspection of Kaighn Avenue and is maintained in a condition which will prevent track-out of sediment onto the roadway. Maintenance may include periodic top dressing with additional stone, installation of additional pad length, or removal and replacement of the stone pad, as necessary to prevent track-out.

4.10 Other Operational Controls

EMR is constantly improving operations and is dedicated to minimizing our impact on the environment. To this end we will be researching and investigating future methods to control or minimize fugitive dust emissions. The Dust Management Plan will be revised as necessary to include new technologies.

5. CORRECTIVE ACTIONS

All unsatisfactory conditions observed during the Daily Visual Inspection need to be reported to the site operations supervisor and require a corrective action. The EMR facility corrective actions are described below for the two (2) operational areas:

5.1 Facility Wide Corrective Actions (including at Kaighn Avenue)

Immediate corrective actions for facility operations include sweeping of paved roadways and other areas to prevent the dirt and debris from becoming airborne and applying water with the water truck, or halting the operation when necessary. Follow-up corrective actions may include equipment maintenance, maintenance of the stone pad, additional employee training, or other corrective actions deemed necessary by Facility supervisor.

5.2 Ferrous Metal Operations

Corrective actions for the Ferrous Metal Operations include determining which equipment E101 – E117 are the source(s) of the unsatisfactory condition(s) and employing the specific methods below.

If E101 is the source check the operation of High Pressure Water Spray System (CD102) to ensure that is operating at correct flow rate which is a minimum of 10 gallons per minute and maximum of 20 gallons per minute. Correct flow rate and re-inspect the source to ensure that the visual inspection is satisfactory.

If E102 is the source check the operation of High Pressure Water Spray System to ensure that is operating at correct flow rate which is a minimum of 12 gallons per minute and maximum of 20 gallons per minute. If this system is operating correctly check the operation of the Foam Suppression System (CD101). Make corrections to the corresponding flow rates and then re-inspect the source to ensure that the visual inspection is satisfactory.

If E103 is the source check the operation of High Pressure Water Spray System (CD102) to ensure that is operating at correct flow rate which is a minimum of 10 gallons per minute and maximum of 20 gallons per minute. Correct flow rate and re-inspect the source to ensure that the visual inspection is satisfactory.

If E104-E117 is the source check conveyor high skirts to ensure that they are not damaged or worn. Make necessary repairs and re-inspect the source to ensure that the visual inspection is satisfactory. If skirts are satisfactory check the moisture content of the material was at least 2.88% to ensure that the High Pressurized Water Spray and Foam Suppression System are functioning properly.

6. TRAINING

All site personnel responsible for implementation of the Dust Management Plan include supervising operations and for conducting the Daily Visual Inspection for Fugitive Dust will be trained on the contents of this plan. All personnel above will be provided with Daily Visual Inspections for Fugitive Dust forms which include a checklist of areas to be inspected and a review of corrective actions for each emission source. Refresher training will be conducted once every two years or when changes are made to the Dust Management Plan. Training documentation can be found in Appendix A of the Dust Management Plan logbook and includes names of individuals trained and the dates that training occurred.

Appendix A

VERIFICATION OF TRAINING

DUST MANAGEMENT PLAN

Date _____

I have received the training on the Dust Management Plan visual inspection procedures, dust management procedures and corrective actions as conducted by Cynthia McKeown of **EMR Advanced Recycling, LLC.** I understand the importance of the procedures and have received an answer to all questions I have asked. I understand the training I have received is essential in protecting the environment.

Printed Name	Signature	Department

CAMDEN IRON & METAL INC
DAILY VISUAL INSPECTION FOR FUGITIVE DUST
FACILITY WIDE

(S=Satisfactory, U=Unsatisfactory –requires comment and immediate corrective action)

This form must be completed and signed with date and time on a daily basis. The areas listed below will be visually inspected for fugitive dust and results will be noted. All areas noted U=Unsatisfactory requires a comment and corrective action. All areas where unsatisfactory conditions are noted should be reported to Supervisor or Designated Employee immediately. Please file completed form in the Dust Management Plan logbook. A copy of the completed form must be sent to the EHS manager via interoffice.

	S	U
1. INBOUND SCALE	❑	❑
2. OUTBOUND SCALE	❑	❑
3. SITE ROADWAYS	❑	❑
4. FACILITY ENTRANCE	❑	❑
5. RAIL SIDING	❑	❑

COMMENTS: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

CORRECTIVE ACTIONS: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Signature: _____ **Date:** _____ **Time:** _____

CAMDEN IRON & METAL INC
DAILY VISUAL INSPECTION FOR FUGITIVE DUST
FERROUS METAL OPERATIONS

(S=Satisfactory, U=Unsatisfactory –requires comment and immediate corrective action)

This form must be completed and signed with date and time once per operating day. The areas listed below will be visually inspected for fugitive dust and results will be noted. All areas noted U=Unsatisfactory requires a comment and corrective action. All areas where unsatisfactory conditions are noted should be reported to Supervisor or Designated Employee immediately. Please file completed form in the Dust Management Plan Logbook. A copy of the completed form must be sent to the EHS manager via interoffice.

		S	U
1.	**Infeed Conveyor – (M1) E101**	❑	❑
2.	**Shredder E102**	❑	❑
3.	**Vibrating Conveyor (UMO M15) E103**	❑	❑
4.	**Magnetic Separator (1&2 Magnetic Drum)E104**	❑	❑
5.	**Non-Ferrous Transfer Conveyor (M40) E105**	❑	❑
6.	**Cascade System Feed Conveyor (M22) E106**	❑	❑
7.	**Reclaim Ferrous Conveyor (M 43) E107**	❑	❑
8.	**Cascade Separation System (M25) E108**	❑	❑
9.	**Transfer Conveyor (M16) E109**	❑	❑
10.	**Flow Splitter No. 1 E110**	❑	❑
11.	**Flow Splitter No. 2 (M29)E111**	❑	❑
12.	**Flow Splitter No. 3 (M30)E111**	❑	❑
13.	**Inspection Conveyor No. 1 (M31)E113**	❑	❑
14.	**Inspection Conveyor No. 2 (M32)E114**	❑	❑
15.	**Inspection Conveyor No. 3 (M33)E115**	❑	❑
16.	**Inspection Conveyor No. 4 (M34) E116**	❑	❑
17.	**Ferrous Product Stacker Conveyor (M36/M38) E112/E117**	❑	❑

COMMENTS:_____
_____
_____

CORRECTIVE ACTIONS:_____
_____
_____
_____
_____
_____
_____

Signature: _____**Date:** _____ **Time:** _____

Appendix D - Visual Inspections for Fugitive Dust Emissions (Kaighn Avenue)

Inspector Name: **Inspection Date:**

Barge Unloading				
1. Is any barge unloading occurring this day? If yes, perform a visual inspection of the operation. If no, move to next area and mark remaining items "N/A"	Yes	No		
2. Is dust suppression equipment (water sprays) available in the area? If no, immediately notify supervisor.	Yes	No	N/A	Supervisor Notified:
3. Are water sprays being used to control visible dust emissions from barge unloading?	Yes	No	N/A	
4. Are uncontrolled visible dust emissions occurring from barge unloading? If yes, immediately notify supervisor and halt unloading until water sprays are applied.	Yes	No	N/A	Supervisor Notified:
5. Are any visible dust emissions passing outside of the Facility? If yes, immediately notify supervisor and halt unloading until water sprays are applied.	Yes	No	N/A	Supervisor Notified:

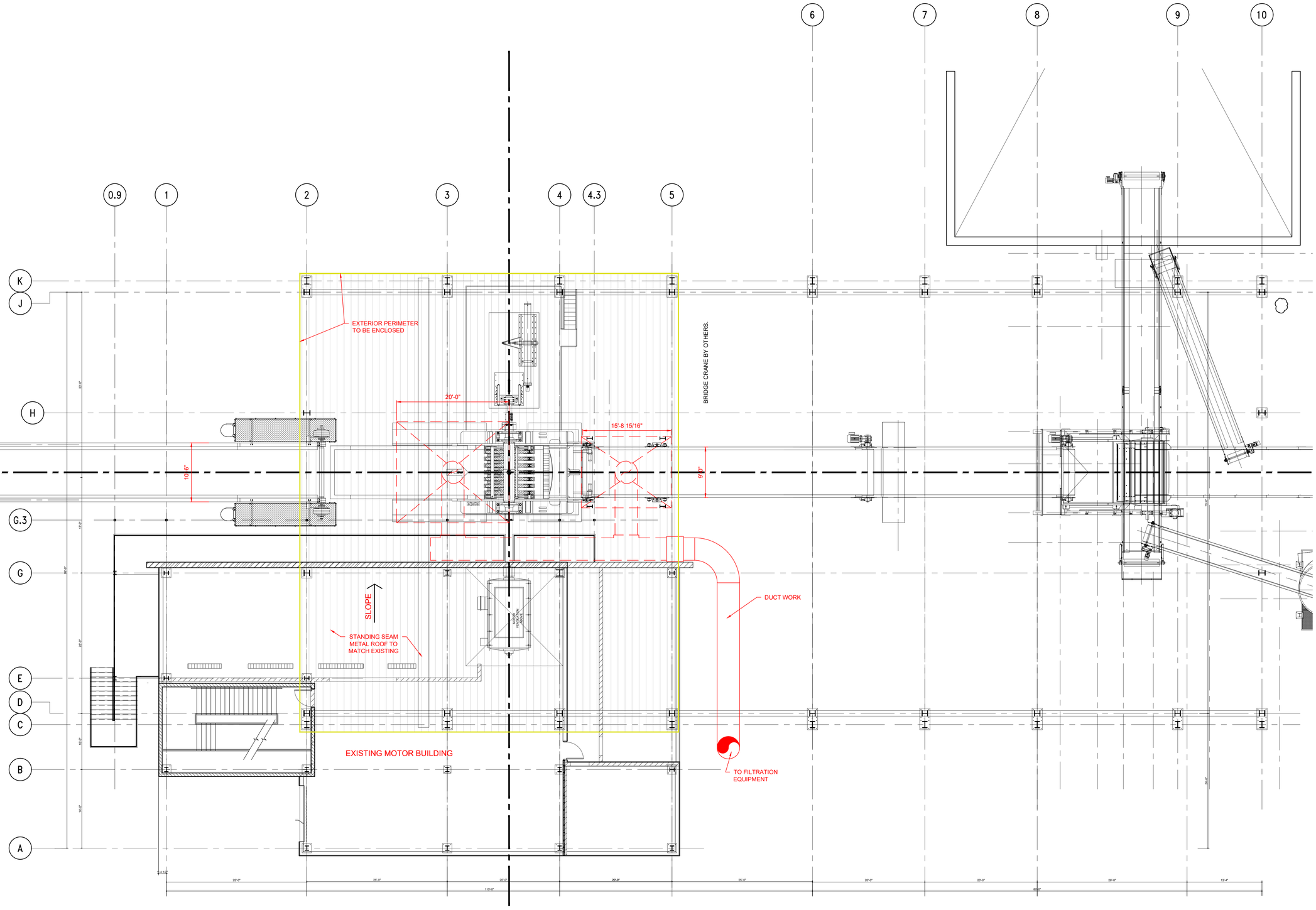
Truck Loading				
1. Is truck loading occurring this day? If yes, perform a visual inspection of the operation. If no, move to next area and mark remaining items "N/A"	Yes	No		
2. Is dust suppression equipment (water sprays) available in the area? If no, immediately notify supervisor.	Yes	No	N/A	Supervisor Notified:
3. Are water sprays being used to control visible dust emissions from truck loading?	Yes	No	N/A	
4. Are uncontrolled visible dust emissions occurring from truck loading? If yes, immediately notify supervisor and halt unloading until water sprays are applied.	Yes	No	N/A	Supervisor Notified:
5. Are any visible dust emissions passing outside of the Facility? If yes, immediately notify supervisor and halt loading until water sprays are applied.	Yes	No	N/A	Supervisor Notified:

Roadways				
1. Have the paved roadways been swept this day? If no, notify supervisor of the need for sweeping.	Yes	No		Supervisor Notified:
2. If temperatures are above freezing, have the paved roadways been watted today? If no, notify the supervisor of the need for wetting.	Yes	No	N/A	Supervisor Notified:
3. Are visible dust emissions occurring from roadway traffic? If yes, immediately notify supervisor and document corrective actions below.	Yes	No		Supervisor Notified:
4. Are any visible dust emissions passing outside of the Facility? If yes, immediately notify supervisor and document corrective actions below.	Yes	No		Supervisor Notified:
Corrective Actions Taken:				

Stone Pad				
1. Is the stone pad preventing track-out of material onto Front Street? If no, immediately notify supervisor of the need for sweeping on Front Street.	Yes	No		Supervisor Notified:
2. Does the stone pad require maintenance? If yes, immediately notify supervisor.	Yes	No		Supervisor Notified:

Stockpile Area				
1. Have the stockpiles been wetted this day? If no, notify supervisor of the need for wetting.	Yes	No		Supervisor Notified:
2. Are visible dust emissions occurring from stockpiles or equipment in the stockpile area? If yes, immediately notify the supervisor of the need for wetting.	Yes	No		Supervisor Notified:
3. Are any visible dust emissions passing outside of the Facility? If yes, immediately notify supervisor and document corrective actions below.	Yes	No		Supervisor Notified:
Corrective Actions Taken:				

Provide the completed inspection checklist to the supervisor for inclusion with the Dust Management Plan



Building Plan View

Scale: 1/8" = 1'-0"

Moench Engineering

4000 Clarks Creek Road
Plainfield, Indiana 46168
(317) 837-2767
(317) 837-7266 (Fax)

1 2 3 4 5 6

EXISTING BRIDGE CRANE

EXISTING STEEL STRUCTURE

NEW SHROUD

5'-4"
1'-8"
7'-0"
14'-2 1/16"
20'-0"

RUBBER BELTING AT SHROUD = 206 sf

TO FILTRATION EQUIPMENT

DUCT WORK

NEW SHROUD

RUBBER BELTING AT SHROUD = 180 sf

16'-0"
4'-2 13/16"
13'-9 1/8"
2'-0"
8'-8 15/16"
20'-3"

REFERENCE ELEVATION = +100'-0"

CENTERLINE OF ROTOR

47'-6 3/8"
38'-4 3/4"
28'-4 13/16"

31'-0" 15'-0" 10'-1" 18'-10" 4'-2" 3'-10" 8'-6 1/2" 1'-10 1/2" 6'-0"

16'-0" 12'-0"

MATCH LINE "A"

(Foreground)
Existing Motor Building

Capture System Elevation @ Line G.2

Scale: 1/4" = 1'-0"

Moench Engineering
4000 Clarke Creek Road
Plainfield, Indiana 46168
(317) 837-2767
(317) 837-7266 (Fax)

EMR (Camden) - RTO NDO / Emission Source

	Width (ft)	Height (ft)	Area (ft^2)
Infeed Wall - NDO			
Overall wall opening	12.58	11.5	144.67
Conveyor space			0.00
Equivalent Diameter - NDO (ft^2)	13.57		
(4) Equivalent Diameters	54.29		
Distance - NDO to Source (ft)	54.94		
Difference (ft)	0.65	>0, OK	

	Width (ft)	Height (ft)	Area (ft^2)
Take away wall - NDO			
Overall wall opening	9	4.78	43.02
Conveyor space			0
Equivalent Diameter - NDO (ft^2)	7.40		
(4) Equivalent Diameters	29.60		
Distance - NDO to Source (ft)	45.81		
Difference (ft)	16.21	>0, OK	

Total Enclosure Wall Surface Area (ft^2)	22,066	
Total NDO Area (ft^2)	187.69	
NDO to Surface Area Ratio	0.009	less than 0.05

EMR (Camden) - Capture Volume/Face Velocity

	Operating Variations			
Footprint of Enclosure (ft^2)	3,508	3,508	3,508	3,508
Total Enclosure Volume (ft^3)	312,620	312,620	312,620	312,620
Air changes per hour - Operating	10.00	12.00	12.61	15.35
Air Volumetric Flowrate (cfm)	52,103	62,524	65,692	80,000
Method 204 Evaluation Minimum air velocity (200 fpm) at NDO				
Natural Draft Openings (NDO)				
Infeed conveyor (ft^2) - 11.5' (w) x 12.58' (h)	144.67	144.67	144.67	144.67
UMO Discharge conveyor (ft^2) - 9' (w) x 4.78' (h)	43.02	43.02	43.02	43.02
Total NDO (ft^2)	187.69	187.69	187.69	187.69
Air flowrate to control system (cfm)	52,103	62,524	65,692	80,000
Force air make up (cfm)	0	0	0	0
Air face velocity (fpm)	278	333	350	426

EMR Advanced Recycling, LLC

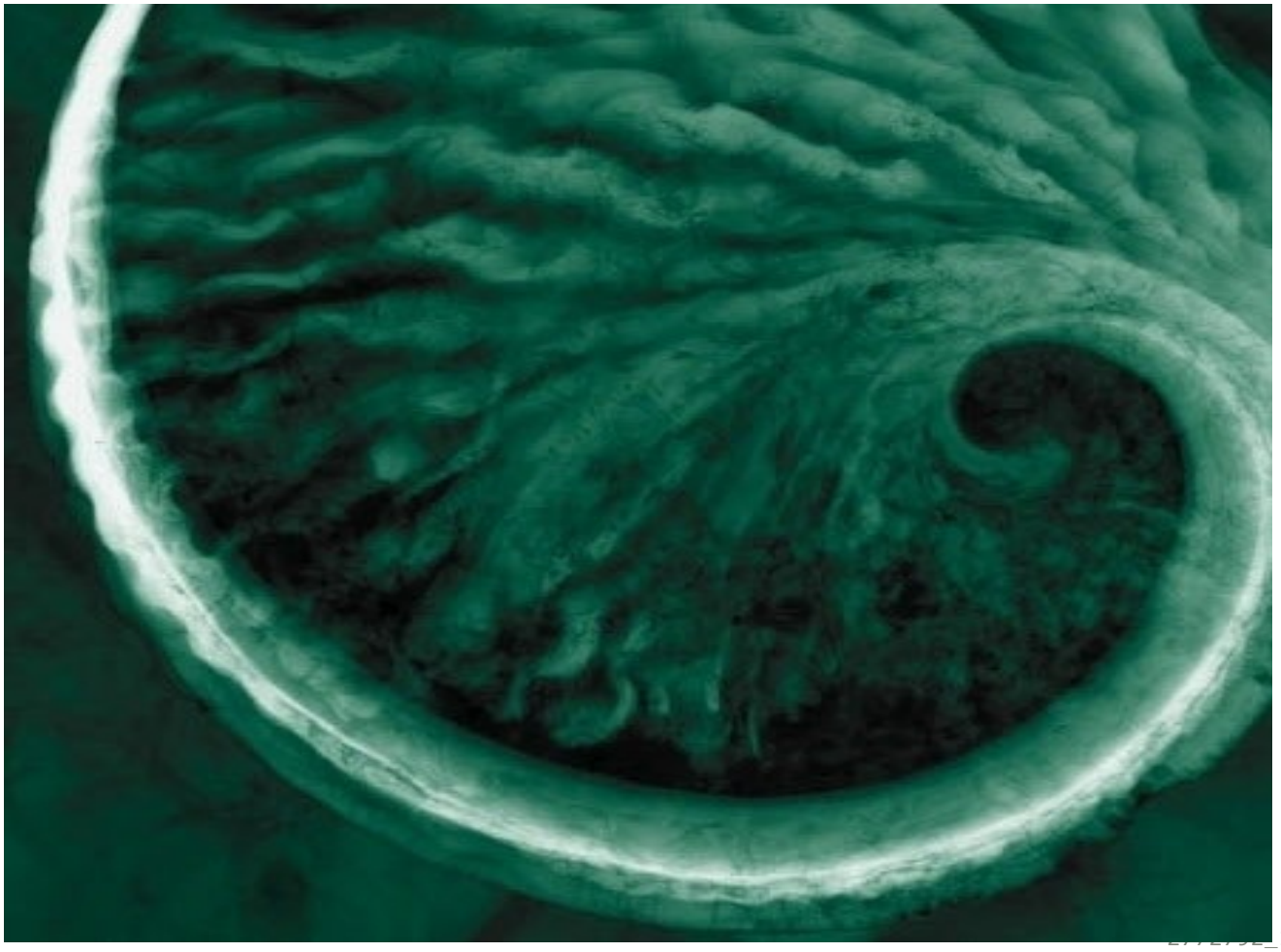
EMR – Camden, Health Risk Assessment Modeling Protocol

PREPARED FOR

EMR

DATE
29 February 2024

REFERENCE
0649636



CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

Environmental Resources Management (ERM), on behalf of EMR Advanced Recycling, LLC (EMR), presents this air toxics risk assessment modeling protocol to the New Jersey Department of Environmental Protection (NJDEP) for review and approval. EMR is conducting an air quality modeling analysis for applicable Hazardous Air Pollutants (HAPs) to determine impacts at locations outside the facility boundary as part of the application process for installation of air pollution control equipment. The assumptions detailed in this protocol are based on established NJDEP and Federal guidance regarding air quality dispersion modeling.

The HAPs emissions from the shredder operation will be analyzed using the air quality modeling methodologies described in this protocol. The model results will be compared to the NJDEP Reference Concentrations (RfC) for the appropriate averaging periods, and to the benchmark cancer concentration thresholds (corresponding to a cancer risk of 1 in a million) in accordance with NJDEP risk assessment policies.

This protocol will satisfy the requirements for the refined risk analysis for HAPs in accordance with the NJDEP Technical Manual 1003, "Guidance on Preparing a Risk Assessment for Air Contaminant Emissions" (NJDEP, December 2018). In a refined risk analysis, if a maximum off-site cancer risk of less than 1 in a million is predicted anywhere on the receptor grid, no further analysis is required. Alternatively, if the maximum off-site predicted cancer risk is greater than 1 in a million at any location on the receptor grid, further evaluation will be conducted to determine cancer risk due to the emissions at sensitive receptors including residences, schools, hospitals, retirement homes, etc. If the cancer risk is then predicted to be less than 1 in a million at sensitive receptors, no additional analysis is required.

The HAPs that exceed the reporting thresholds in N.J.A.C. 7:27-17.9 are listed in Table 1-1, along with their applicable short and/or long-term Reference Concentration(s) (RfC) and Unit Risk Factors (URF). The pollutants that require refined modeling are also listed in Table 1-1; these are determined from non-negligible impacts in NJDEP's risk screening worksheet. This worksheet is included in Appendix A. 7,12-Dimethylbenz(a)anthracene is not listed in the risk screening worksheet but will be included in the modeling analysis because it has a specified URF. Only two pollutants had short-term emission rates above reportable levels - Benzene and Trichloroethene.

TABLE 1-1 SUMMARY OF HAPS TO BE MODELED AND APPLICABLE RISK FACTORS

HAP	CAS #	Short-Term RfC (µg/m³)	Short-Term Averaging Period	Long-term RfC (µg/m³)	Unit Risk Factor (URF, /µg/m³)	Refined Modeling Needed?
1,1,2,2-Tetrachloroethane	79345	--	--	--	5.80E-05	Yes
1,1,2-Trichloroethane	79005	200	24-hour	--	1.60E-05	No
1,2-Dibromo-3-chloropropane	96128	--	--	2.00E-01	2.00E-03	Yes
1,2-Dibromoethane	106934	--	--	8.00E-01	6.00E-04	Yes
1,2-Dichloroethane	107062	--	--	4.00E+02	2.60E-05	No
1,2-Dichloropropane	78875	--	--	4.00E+00	1.00E-05	No
1,3-Butadiene	106990	660	1-hour	2.00E+00	3.00E-05	Yes
3-Chloro-1-propene	107051	--	--	1.00E+00	6.00E-06	No
7,12-Dimethylbenz(a)anthracene	57976	--	--	--	7.10E-02	Yes
Acrolein	107028	2.5	1-hour	2.00E-02	--	Yes
Acrylonitrile	107131	--	--	2.00E+00	6.80E-05	Yes
Arsenic	7440382	0.2	1-hour	1.50E-02	4.30E-03	Yes
Benzene	71432	27	1-hour	3.00E+00	7.80E-06	Yes
Benzyl chloride	100447	240	1-hour	--	4.90E-05	Yes
Beryllium	7440417	--	--	2.00E-02	2.40E-03	Yes
Cadmium	7440439	--	--	2.00E-02	4.20E-03	Yes
Carbon Tetrachloride	56235	1900	1-hour	4.00E+01	6.00E-06	No
Chloroform	67663	150	1-hour	3.00E+02	2.30E-05	No
Chromium (hexavalent)	7440473	--	--	0.008	1.20E-02	Yes
Cobalt	7440508	--	--	6.00E-03	7.70E-03	Yes
Ethylbenzene	100414	1000	24-hour	--	2.50E-06	Yes
Formaldehyde	50000	55	1-hour	9.00E+00	1.30E-05	Yes
Hexachlorobutadiene	87683	--	--	--	2.20E-05	No
Hydrofluoric Acid	7664393	240	1-hour	1.40E+01	--	Yes
Hydrochloric Acid	7647010	2100	1-hour	2.00E+01	--	Yes
Lead	7439921	0.1	24-hour	--	1.20E-05	No
Manganese	7439965	0.17	8-hour	5.00E-02	--	No
Mercury	7439976	0.6	1-hour	3.00E-02	--	No
Methanol	67561	28000	1-hour	4.00E+03	--	No
Naphthalene	91203	--	--	3.00E+00	3.40E-05	Yes
Nickel	7440020	0.2	1-hour	1.40E-02	4.80E-04	Yes
PCBs (total)	1336363	--	--	--	1.00E-04	Yes
Styrene	100425	21000	1-hour	1.00E+03	5.70E-07	No
Toluene	108883	5000	1-hour	3.76E+03	--	No
Trichloroethylene	79016	2	24-hour	2.00E+00	4.80E-06	Yes

1.1 OVERVIEW OF METHODOLOGY

The methodology proposed in this protocol is based on policies and procedures contained in the United States Environmental Protection Agency (USEPA) Guideline on Air Quality Models (GAQM, 40 CFR 60 Appendix W), and in the NJDEP Technical Manual 1002, "Guidance on Preparing an Air Quality Modeling Protocol" (NJDEP, May 2021). A summary of the key elements of the proposed air quality impact analysis is provided below:

- Use the latest version of AERMOD (version 23132);
- Use surface meteorological data collected at the National Weather Service (NWS) station at Philadelphia International Airport (WBAN 13739) and upper air data from the NWS station in Sterling, VA (WBAN No. 93734) for the period 2016-2020;
- Compile information on the stack parameters and emission rates for the list of emission units;
- Develop a comprehensive receptor grid designed to identify maximum modeled concentrations;
- Use of ELEV option in AERMOD for receptor and source elevations;
- Complete air quality modeling to determine the magnitude and location of ambient concentrations due to emissions of HAPs;
- Summarize the results in graphical and tabular format; and
- Determine the cancer risk associated with the applicable HAP emissions from these emissions units, and also compare maximum predicted concentrations with short-term (1-hour, 8-hour or 24-hour) and long-term (annual) RfC in order to define a Hazard Quotient.

Section 2 describes the location, source parameters and emission rates for the emission unit. Section 3 describes the project site characteristics (land use), meteorological data sources and processing, and development of the receptor grid used in the modeling analysis. Section 4 describes the presentation of the modeling results.

2. FACILITY DESCRIPTION AND SOURCE CHARACTERIZATION

2.1 FACILITY LOCATION

The EMR Camden facility is located at Front Street and Atlantic Avenue in Camden, New Jersey. Figure 2-1 displays an aerial photograph showing the facility, fence line, and the surrounding area. The area surrounding the facility is very flat, with the Delaware River along the facility's western border. Accordingly, land use surrounding the facility is dominated by low, medium and high-intensity developed land, large areas of open water, and some small forested areas. A facility plot plan is included in Appendix B.

FIGURE 2-1 EMR CAMDEN LOCATION

2.2 SOURCE CHARACTERIZATION

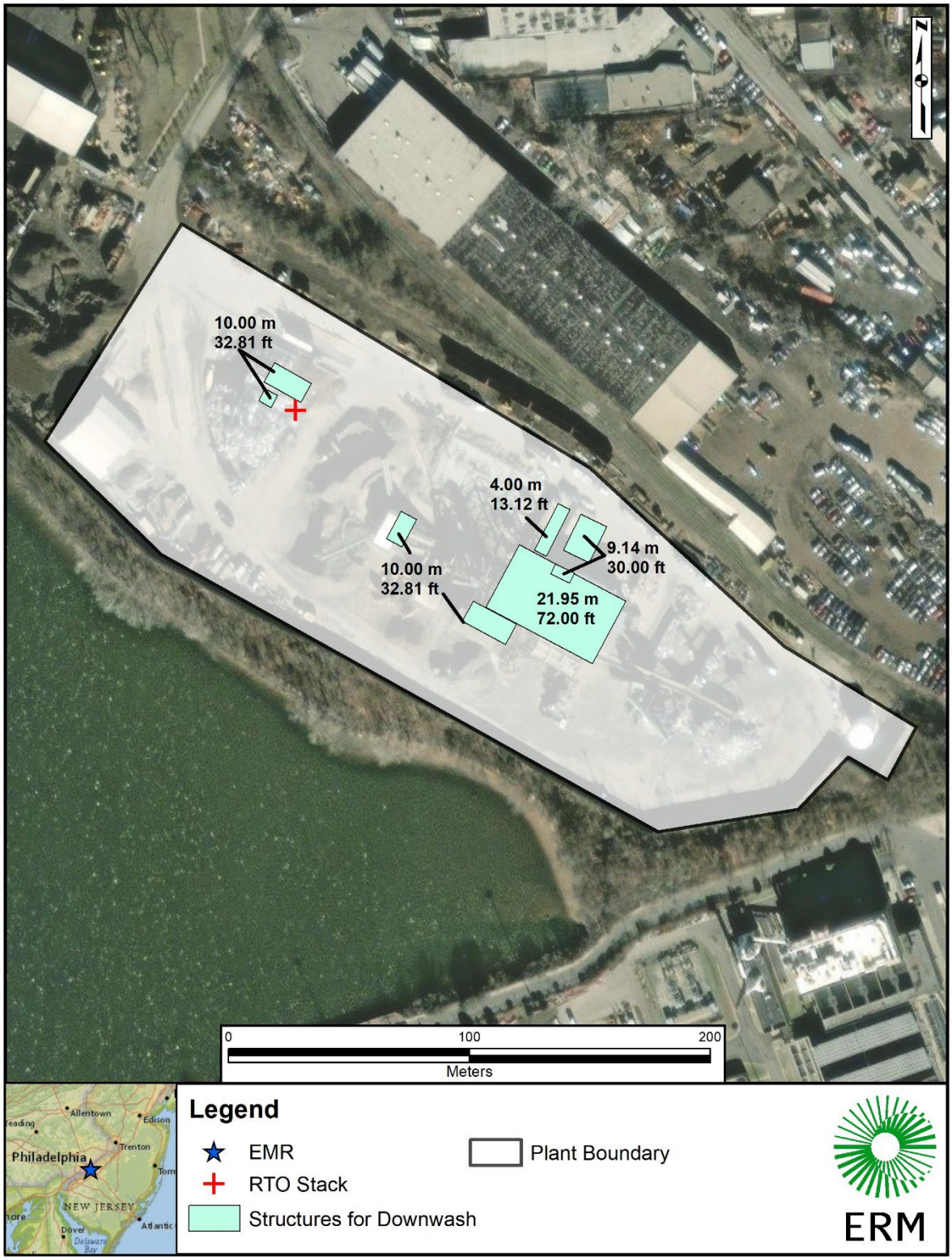
The shredder operation will be enclosed with emissions captured and conveyed to an air pollution control system with a single point of discharge. The air pollution control system is comprised of particulate controls via a cyclone and dual-stage fabric roll filter, VOC controls through a Regenerative Thermal Oxidizer (RTO) and acid gas control in a packed tower wet scrubber. The stack for the system will be located at the outlet of the scrubber, and the stack details as provided in the permit application are summarized in Table 2-1.

TABLE 2-1 SUMMARY OF HAPS TO BE MODELED AND APPLICABLE RISK FACTORS

Stack Type	Temperature (F)	Diameter (ft)	Flow (SCFM)	Height (ft)
Point	108	8.33	80000	72

Potential emissions for the shredder operation at the stack level, post control, were presented in Attachment C of the permit application submitted to NJDEP in March 2023.

FIGURE 2-2 SOURCE AND STRUCTURE LAYOUT



3. MODELING METHODOLOGY

3.1 MODEL SELECTION AND APPLICATION

The latest version of USEPA's AERMOD (version 23132) model will be used for predicting ambient impacts from emissions. Regulatory default options will be used in the analysis. The maximum modeled concentration of each HAP at all receptors and at the selected sensitive receptors will be used along with the long and/or short-term RfC for a non-cancer risk assessment, detailed in Section 3.5. The URF will be used to determine the cancer risk associated with the emissions from the facility, based on the maximum annual average modeled result. The maximum predicted concentrations and further risk assessments for all applicable averaging periods will be summarized in tabular and contour format.

3.2 GEOGRAPHIC SETTING

3.2.1 TERRAIN AND LAND USE CHARACTERISTICS

The facility and surrounding area is generally characterized by very flat terrain on the banks of the Delaware River. The land use surrounding the facility is a combination of water, small to medium sized industrial areas, and residential areas. Guidance on determining whether an air quality model is run in an "urban" or "rural" mode specifies that the land use within three kilometers of the facility should be classified in accordance with Auer, A.H. (Auer 1978). This selection affects dispersion parameters used by the model. As specified in Section 7.2.1.1(b)(i) of 40 CFR 51 Appendix W (The Guideline on Air Quality Models), if more than 50% of the land use falls within the Auer urban categories (i.e., I1 (heavy industrial), I2 (light-moderate industrial), C1 (commercial), or R2/R3 (compact residential)), then the model should be run in the urban mode; if urban categories are less than 50% of the land use, the model should be run in the rural mode.

The National Land Cover Data 2016 (NLCD 2016) was used to determine the land use surrounding the facility. A summary of the percentage of all land use within 3 km of the facility is presented in Table 3-1. Figures 2-3 of Appendix E presents a graphical representation of this analysis. The NLCD 2016 code 23 (Developed, Medium Intensity) and code 24 (Developed, High Intensity) account for 69.4% of the land use within 3 km of the facility. These classifications in the NLCD 2016 data set are the codes that would capture the I1, I2, C1, and R2/R3 classifications used in the Auer methodology. Given this large percentage of urban landmass surrounding the facility, the urban option is the appropriate assumption for this analysis.

A second method for determining whether a source should be modeled as urban or rural is by the population density for the surrounding area. If the population density for the area surrounding the facility is greater than 750 people per square kilometer, urban dispersion coefficients can be applied. According to 2020 U.S. Census Bureau data, the population for the City of Camden is 71,791.[1] With a land area of 8.92 square miles (~23.1 km^2), the resulting population of the City of Camden is 8,047.4 per square mile, or approximately 3,107 per square kilometer, which is greater than 750/km^2, and additional justification for using the urban option. Considering that the

[1] U.S. Census Bureau QuickFacts: Camden city, New Jersey

City of Philadelphia, PA, with a population of 1,603,797, is just to the west, a population of 500,000 for input to the model in association with using 'urban' dispersion coefficients is a conservative estimate.

TABLE 3-1 NLCD 2016 LAND USE CLASSIFICATIONS – 3 KM RADIUS

EMR - Camden, NJ			
NLCD 2016 (3km Radius)			
Grid Code	**Grid Code Description**	**Area (km^2)**	**Area (%)**
11	Open Water:	4.40	15.57%
21	Developed, Open Space:	1.08	3.82%
22	Developed, Low Intensity:	2.49	8.80%
23	Developed, Medium Intensity:	9.92	35.09%
24	Developed, High Intensity:	9.71	34.34%
31	Barren Land (Rock/Sand/Clay):	0.06	0.22%
41	Deciduous Forest:	0.13	0.46%
52	Shrub/Scrub:	0.01	0.04%
71	Grasslands/Herbaceous:	0.15	0.53%
82	Cultivated Crops:	0.02	0.06%
90	Woody Wetlands:	0.13	0.47%
95	Emergent Herbaceous Wetland:	0.17	0.61%
TOTAL		**28.27**	**100.00%**
URBAN AREA		19.63	69.43%

3.3 METEOROLOGICAL DATA

Guidance for air quality modeling recommends the use of one year of onsite meteorological data or five years of representative off-site meteorological data. Since onsite data are not available for the facility, meteorological data from the National Weather Service (NWS) will be used in this analysis.

The Philadelphia International Airport (KPHL) NWS Automated Surface Observing Station (ASOS) is located about 10.3 km to the southwest of the project site. Given this short distance, as well as the similar terrain and land use characteristics along the Delaware River, EMR proposes to use the KPHL ASOS as the source of representative surface meteorological data. The relative location of the ASOS station and the EMR Camden facility is shown in Figure 3-1.

NJDEP has processed the meteorological data for EWR with 5 years of recent data (2016-2020) with corresponding upper air data from the NWS station in Sterling, VA, (WBAN 93734). USEPA AERMET (version 21112) meteorological data processor was used. The ADJ_U* option in AERMET was also used to process the data, which addresses a known bias towards underprediction of friction velocity under stable, low wind speed conditions. ADJ_U* is a regulatory option in the default application of AERMET for use in AERMOD. A 5-year wind rose for EWR is presented in Figure 3-2, which shows the data characteristics of the PHL meteorological data.

As stated previously, the EWR meteorological data were processed by NJDEP using the AERMET meteorological processor for AERMOD. Therefore, the specific settings utilized by NJDEP in the processing of the meteorological data are not included as part of this protocol.

FIGURE 3-1 RELATIVE LOCATION OF FACILITY AND NEARBY ASOS STATION

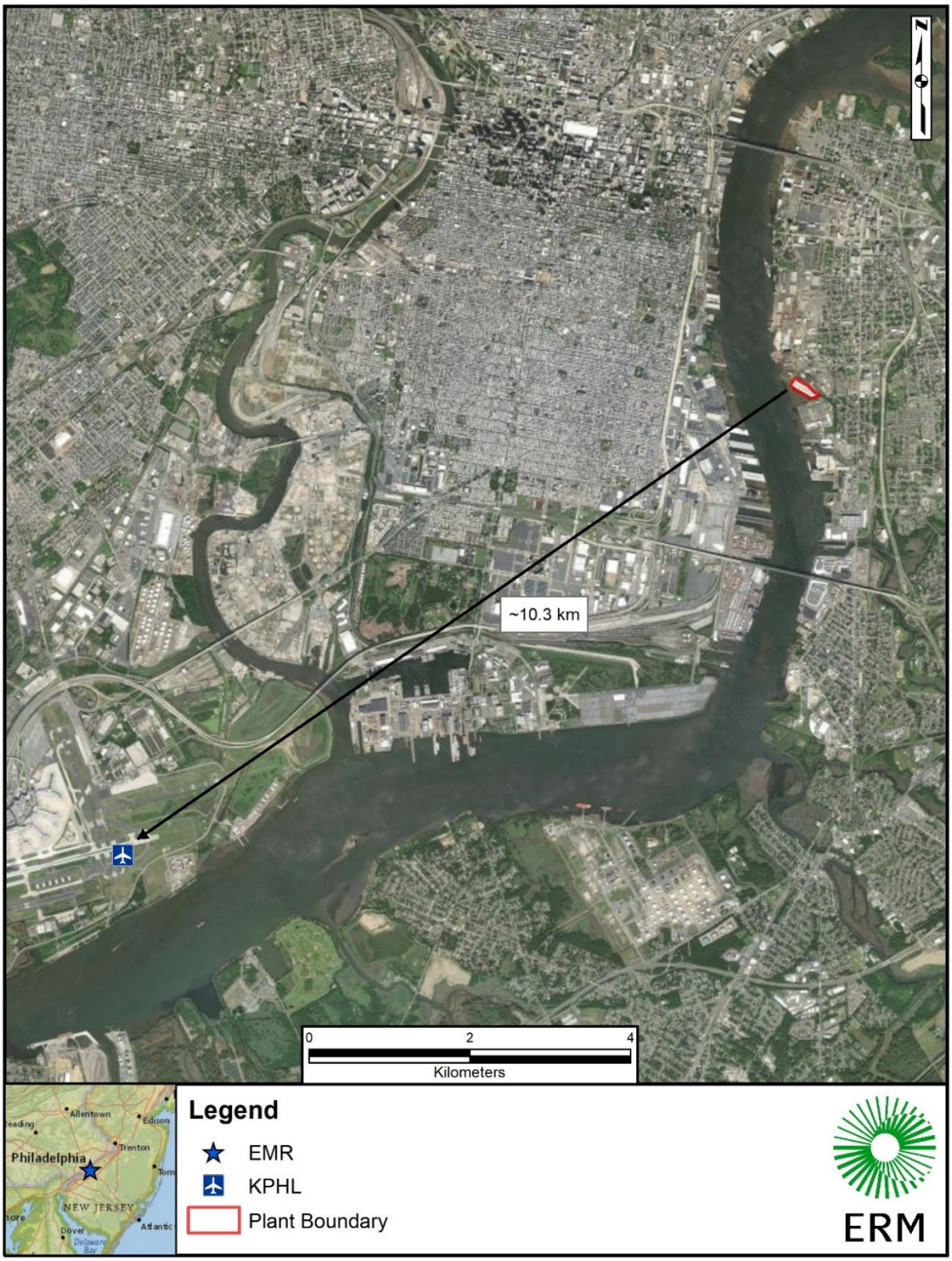
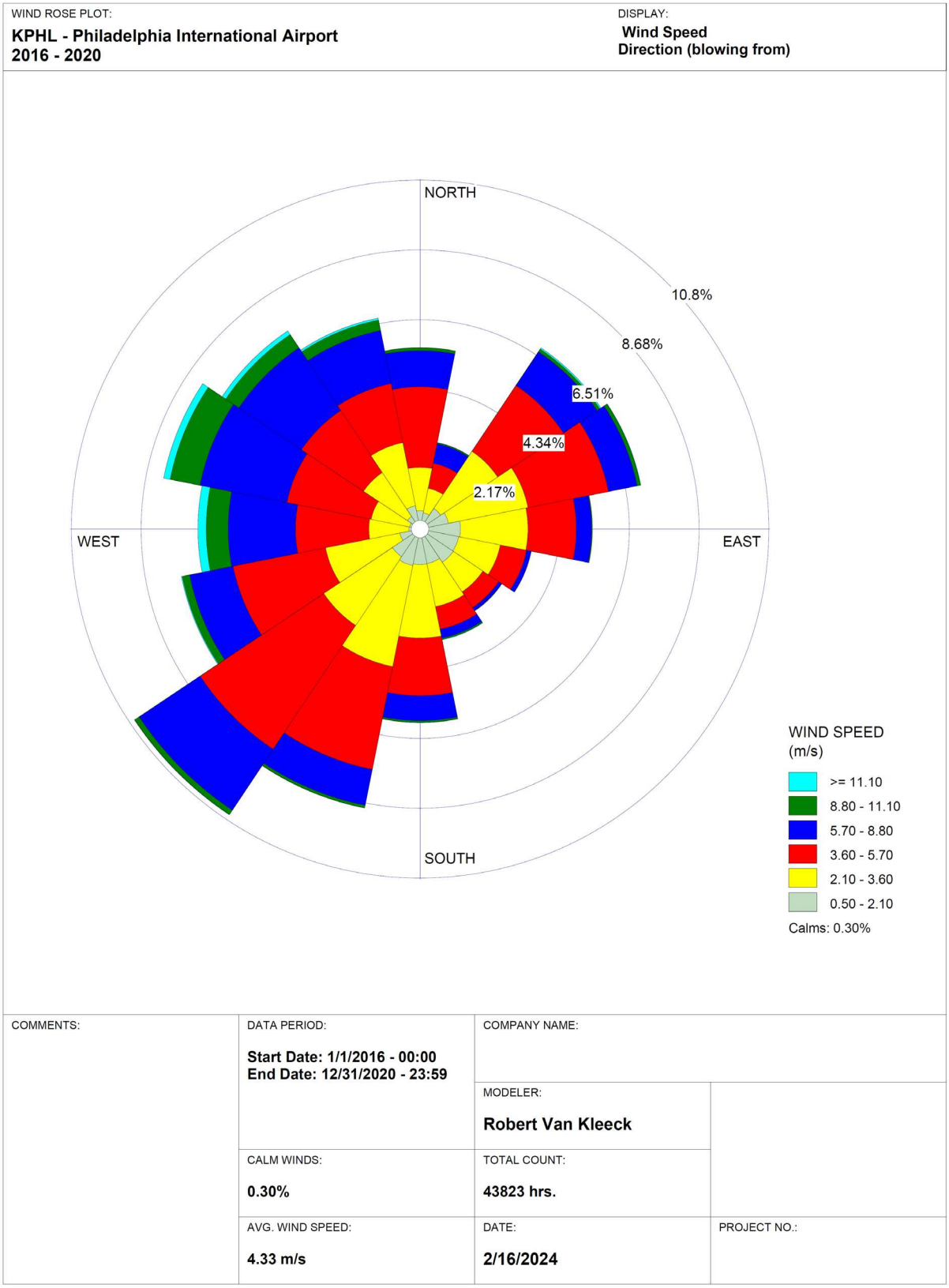


FIGURE 3-2 KPHL WINDROSE



3.4 RECEPTOR GRID

A comprehensive Cartesian receptor grid extending to approximately 5 kilometers (km) from the facility will be used in the air quality modeling analysis to assess maximum ground-level pollutant concentrations. The Cartesian receptor grid will consist of the following receptor spacing:

- 25-m spacing along the fence line;
- 50-m spacing from the fence line to 500 m from the facility property line;
- 100-m spacing from 500m to 1.5 km;
- 250-m spacing from 1.5 km to 3.0 km;
- 500-m spacing from 3.0 km to 5 km.

Figures 3-3 and 3-4 summarize the locations of the receptors. Receptor elevations will be extracted using AERMAP Version 18081.

Nearby sensitive receptors will be also analyzed. Figure 3-5 summarizes the locations of the nearest sensitive receptors, including schools/day care centers, nursing homes, and hospitals. Table 3-3 provides a list of the sensitive receptors selected for the analysis.

TABLE 4-3 SENSITIVE RECEPTOR SUMMARY

Receptor #	Category	Name	UTMx (meters)	UTMy (meters)	Distance (km)
1	School	Hope Community Charter School	489548.06	4420558.71	1.12
2	School	Furness Horace HS	487104.91	4419310.72	1.96
3	School	Sacred Heart School	489639.01	4419139.26	0.72
4	Hospital	Virtua Camden Wellness Center	490761.39	4419839.27	1.74
5	Hospital	Virtua Our Lady of Lourdes Hospital	491932.94	4419807.97	2.90
6	Hospital	Cooper University Hospital	490051.1	4421247.51	1.97
7	Daycare	Ward Center for Children	489774.55	4420230.1	0.99
8	Daycare	The Neighborhood Center in Camden	489346.0	4420010.5	
9	Nursing Home	Majestic Care Center	490225.12	4421310.55	2.11
10	Residence	1620 Ferry Ave	489526.42	4419404.8	0.50
11	Residence	1449 South 4th Street	489587.88	4419765.84	0.58
12	Residence	1701 South 4th Street	489612.82	4419268.21	0.63
13	Residence	302 Mechanic Street	489459.21	4419876.39	0.52

FIGURE 3-3 RECEPTOR GRID (NEAR FIELD)

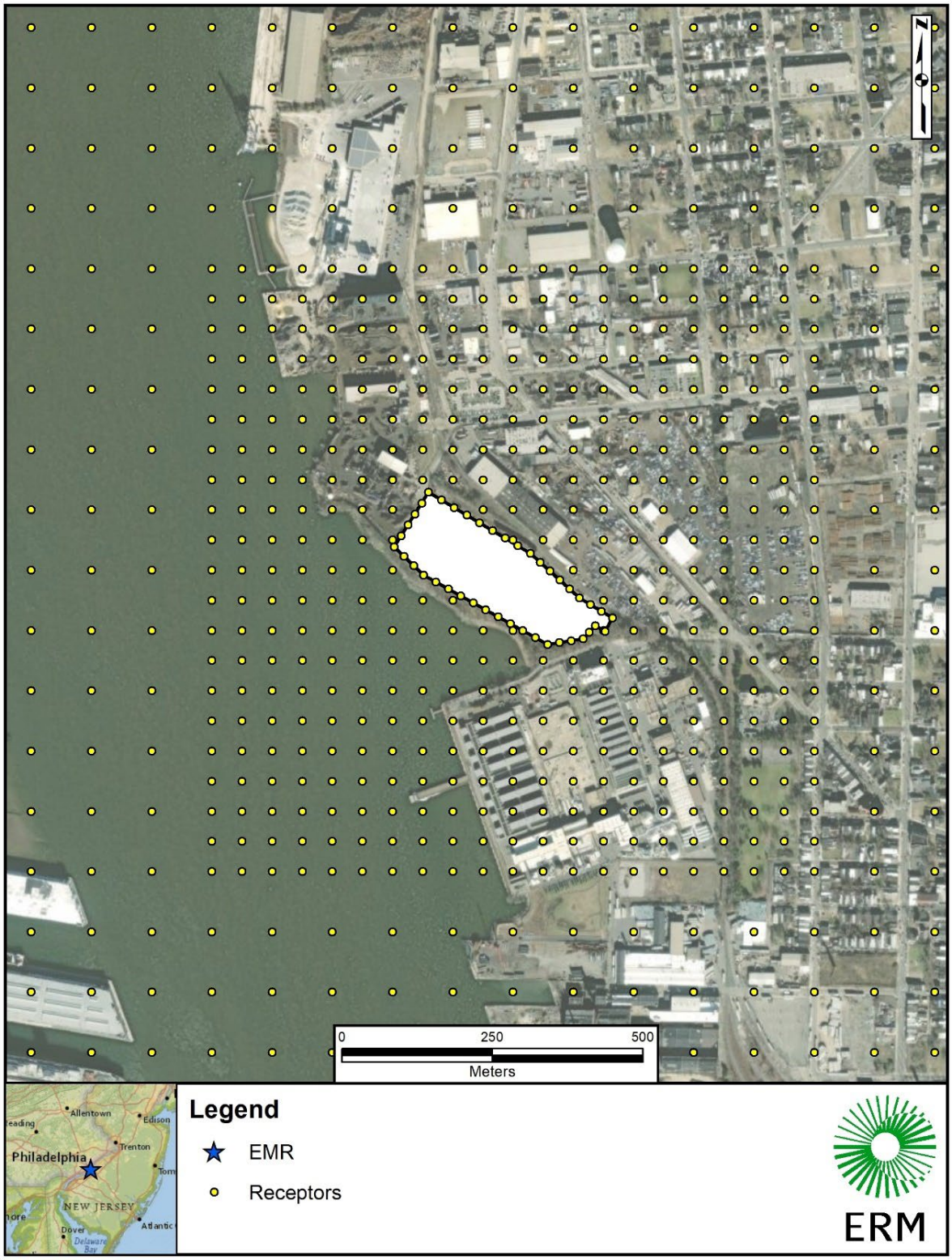


FIGURE 3-4 RECEPTOR GRID (FAR FIELD)

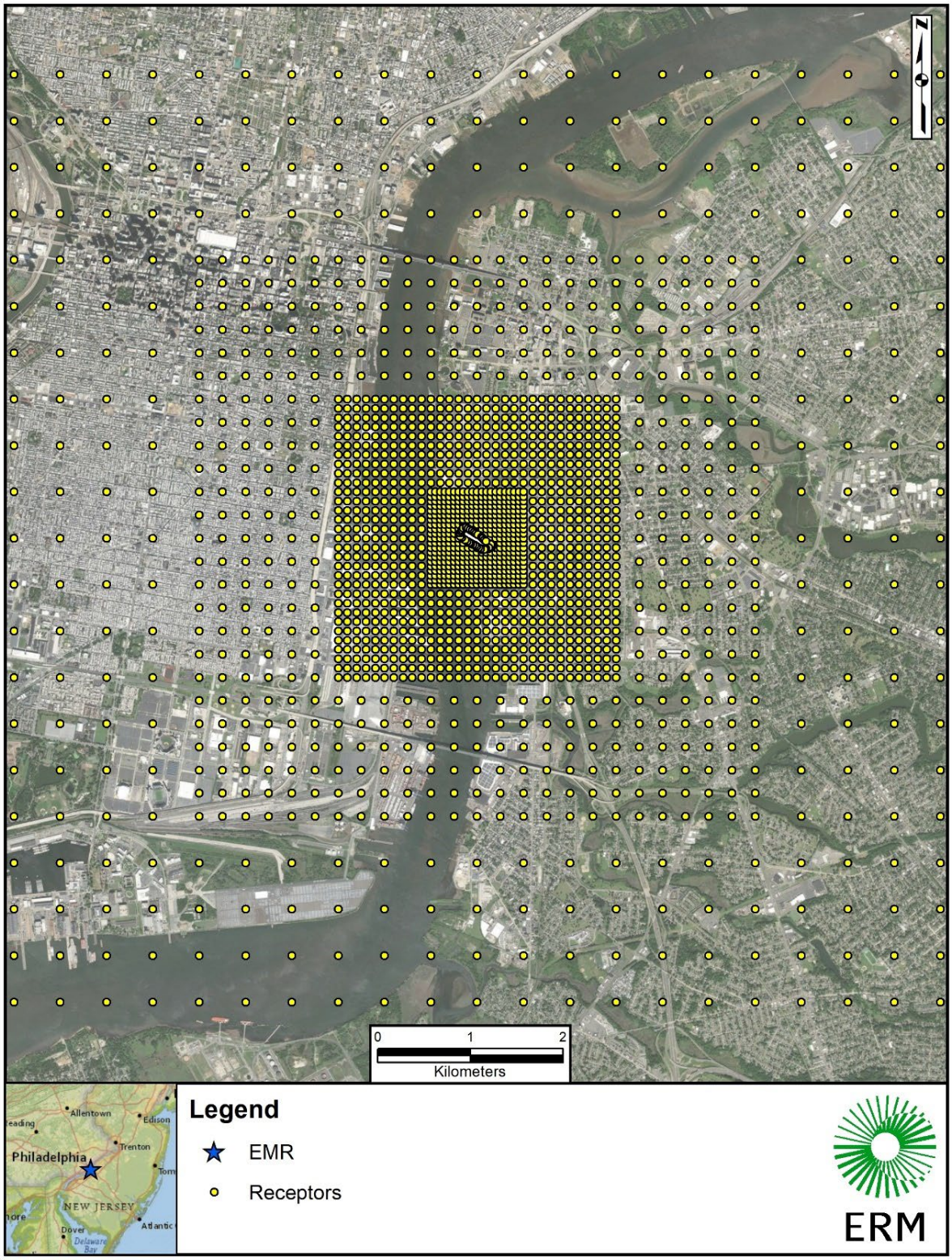
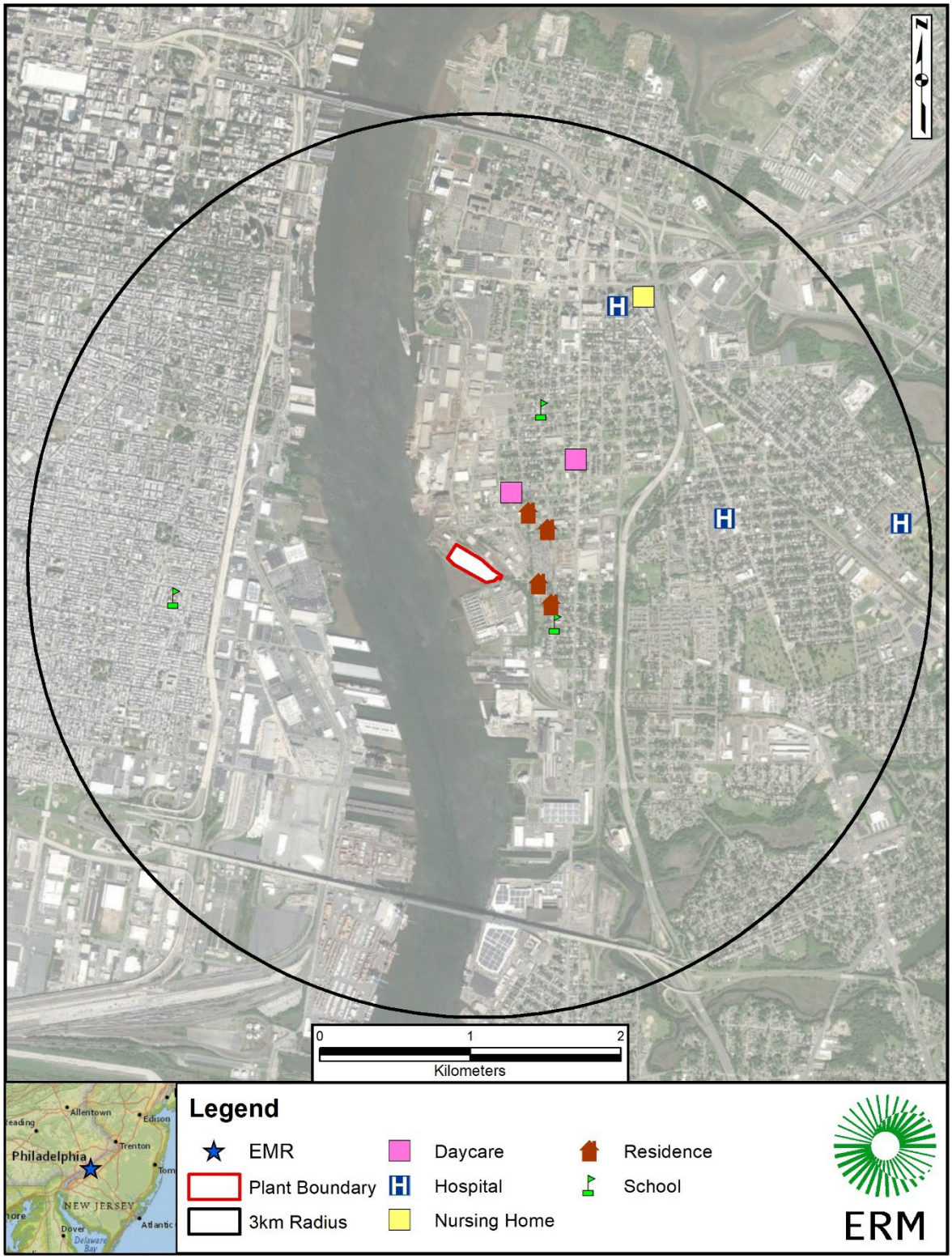


FIGURE 3-5 SENSITIVE RECEPTORS



3.5 RISK ASSESSMENT

The air toxics modeling analysis will follow guidance provided in the NJDEP Technical Manual 1003 (NJDEP 2018). The cancer risk will be calculated using Equation 3.1 below. Cancer risk will be calculated for the annual averaging period.

$$CancerRisk = C * URF$$

Equation 3 1

Where:

C = maximum annual average ambient air concentration of a pollutant, µg/m3

URF = pollutant-specific inhalation unit risk factor, (µg/m3)-1

In order to assess the potential for detrimental non-cancer health effects, the hazard quotient will also be calculated using Equation 3.2 below. The hazard quotient calculation will be applied to short-term and long-term concentrations, as applicable.

$$Hazard\ Quotient = C/RfC$$

Equation 3 2

Where:

C = maximum ambient air concentration for appropriate averaging period, µg/m3

RfC = pollutant-specific Reference Concentration for a certain averaging period, µg/m3

All risk assessments will be conducted on the full receptor grid, including the sensitive receptors described in Section 3.4. Carcinogenic pollutants with a cancer risk below 1 in a million (1x10-6) are determined to have a negligible risk, and no further assessment is needed. Similarly, pollutants with a hazard quotient less than or equal to 1 are also determined to have a negligible risk. If modeled concentrations of any of the HAPs are found to have a non-negligible risk, a further modeling analysis will be conducted on sensitive receptors. If the sensitive receptor analysis shows a cancer risk or hazard quotient below their respective thresholds, no additional analysis is required.

4. MODEL RESULTS PRESENTATION

The maximum ground-level modeled concentration values will be identified for the appropriate averaging periods, and compliance with applicable risk thresholds will be determined. Results will be presented in a tabular format, supplemented with contoured graphics of pollutant impacts where beneficial. Electronic modeling files will be provided with the report.

5. REFERENCES

Auer, A.H. (1978): "Correlation of Land Use and Cover with Meteorological Anomalies", Journal of Applied Meteorology, 17:636-643.

California Air Resources Board, California Air Toxics Emission Factors. August 1996.

New Jersey Department of Environmental Protection (NJDEP 2021) NJDEP Technical Manual 1002, "Guidance on Preparing an Air Quality Modeling Protocol" (May 2021).

New Jersey Department of Environmental Protection (NJDEP 2018) NJDEP Technical Manual 1003, "Guidance on Preparing a Risk Assessment for Air Contaminant Emissions" (December 2018).

U.S. Census Bureau Quickfacts: Camden City, New Jersey, United States Census Bureau, www.census.gov/quickfacts/fact/table/camdencitynewjersey/PST045222. Accessed 22 Feb. 2024.

U.S. Environmental Protection Agency. (USEPA 2000) Contract No. 68-D7-0070, Alpha-Gamma Technologies Inc. Emission Factor Documentation of AP-42 Section 3.1, Stationary Combustion Turbines, April 2000.

U.S. Environmental Protection Agency. (USEPA 2015) AERMOD Implementation Guide, AERMOD Implementation Workgroup. August 3, 2015.

APPENDIX A RISK SCREENING WORKSHEET

NJDEP DIVISION OF AIR QUALITY RISK SCREENING WORKSHEET
For Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects

April 2023

Read the Instructions tab carefully before completing this spreadsheet.

Date	2/21/2024
Facility ID No.	PI 50023
Activity ID No.	PCP 230001
Facility name	EMR Camden
Facility location	Camden NJ
File name (.xls)	EMR_Risk_worksheet

Emission Unit/Batch Process ID No.	RTO	Stack height[1]	72.0 ft
Emission Point ID No.		Distance to property line	138 ft
Equipment ID No(s).		**Annual air impact value, C'**	5.085058 **(ug/m^3)/(ton/yr)**
Operating Scenario(s)	Normal	**1-hour air impact value, C'$_{st}$**	359.8625 **(ug/m^3)/(lb/hr)**

KEY:

Long-Term Effects

- **Q =** Annual emission rate (in tons per year) contributed from the source
- **C =** C' x Q = Annual average ambient air concentration
- **URF =** Unit risk factor (for carcinogenic risk)
- **IR =** C x URF = Incremental risk (for carcinogen)
- **RfC =** Reference concentration (for noncarcinogenic effects)
- **HQ =** C/RfC = Hazard quotient (for noncarcinogenic risk)
- **RsIt =** The result of comparing the IR or HQ to the negligible threshold (FER if > threshold, Negl. if <= threshold)
- **FER =** Further Evaluation Required (See Notes for thresholds)
- **Negl. =** Negligible (See Notes for thresholds)

Short-Term Effects

- **Q_h =** Hourly emission rate (in pounds per hour)
- **C_{st} =** C'_{st} x Q_h = Short-term average ambient air concentration
- **RfC_{st} =** Short-term reference concentration (for noncarcinogenic effects)
- **HQ_{st} =** C_{st}/RfC_{st} = Hazard quotient for short-term noncarcinogenic effects
- **RsIt =** The result of comparing the HQ_{st} to the negligible threshold (FER if > threshold, Negl. if <= threshold)
- **FER =** Further Evaluation Required (See Notes for thresholds)
- **Negl. =** Negligible (See Notes for thresholds)

[1] When evaluating risk for diesel engines, use the equivalent stack height consistent with the memo dated June 10, 2009.
Click here to view the "Stack Height Equivalents for Use in First Level Screening Analyses for Diesel Engines" memo.

				LONG-TERM EFFECTS								SHORT-TERM EFFECTS				
	HAP	CAS No.	Air Toxic	Q (ton/yr)	C (ug/m^3)	URF [(ug/m^3)$^{-1}$]	IR	RsIt	RfC (ug/m^3)	HQ	RsIt	Q_h (lb/hr)	C_{st} (ug/m^3)	RfC_{st} (ug/m^3)	HQ_{st}	RsIt
1	*	75070	Acetaldehyde			2.2E-06			9					470		
2	*	60355	Acetamide			2.0E-05										
3		67641	Acetone						31000					62000		
4		75865	Acetone cyanohydrin						2							
5	*	75058	Acetonitrile						60							
6	*	98862	Acetophenone						0.02							
7	*	53963	Acetylaminofluorene (2-)			1.3E-03										
8	*	107028	Acrolein	7.0E-03	3.6E-02				0.02	**1.8E+00**	**FER**			2.5		
9	*	79061	Acrylamide			1.0E-04			6							
10	*	79107	Acrylic acid						1					6000		
11	*	107131	Acrylonitrile	7.0E-03	3.6E-02	6.8E-05	**2.4E-06**	**FER**	2	**1.8E-02**	**Negl.**					
12		309002	Aldrin			4.9E-03										
13	*	107051	Allyl chloride	7.0E-03	3.6E-02	6.0E-06	**2.1E-07**	**Negl.**	1	**3.6E-02**	**Negl.**					
14		117793	Aminoanthraquinone (2-)			9.4E-06										
15	*	92671	Aminobiphenyl (4-)			6.0E-03										
16		7664417	Ammonia						100					3200		
17	*	62533	Aniline			1.6E-06			1					3000		
18	*	90040	Anisidine (o-)			4.0E-05										
19	**	1309644	Antimony trioxide						0.2							
20		140578	Aramite			7.1E-06										
21	*		Arsenic (inorganic)	9.5E-04	4.8E-03	4.3E-03	**2.1E-05**	**FER**	0.015	**3.2E-01**	**Negl.**			0.2		
22	**	7784421	Arsine						0.05							
23	*	1332214	Asbestos			7.7E-03										
24		103333	Azobenzene			3.1E-05										
25			Barium											0.5		
26	*	71432	Benzene	4.7E-02	2.4E-01	7.8E-06	**1.9E-06**	**FER**	3	**8.0E-02**	**Negl.**	2.5E-02	9.104521	27	**3.4E-01**	**Negl.**
27	*	92875	Benzidine			6.7E-02										
28	**	50328	Benzo(a)pyrene			6.0E-04			0.002							
29	*	98077	Benzotrichloride			3.7E-03										
30	*	100447	Benzyl chloride	7.0E-03	3.6E-02	4.9E-05	**1.8E-06**	**FER**						240		
31	*		Beryllium	1.0E-04	5.1E-04	2.4E-03	**1.2E-06**	**FER**	0.02	**2.5E-02**	**Negl.**					
32	*	92524	Biphenyl (1,1-)						0.4							
33		108601	Bis(2-chloroisopropyl)ether			1.0E-05										
34	*	117817	Bis(2-ethylhexyl)phthalate			2.4E-06										
35	*	542881	Bis(chloromethyl)ether			6.2E-02										
36		7440428	Boron (elemental)						20							
37		7637072	Boron trifluoride						0.7							
38		74975	Bromochloromethane						40							
39		75274	Bromodichloromethane			3.7E-05										
40	*	75252	Bromoform			1.1E-06										
41		106945	Bromopropane (1-)						101					5030		
42	*	106990	Butadiene (1,3-)	7.0E-03	3.6E-02	3.0E-05	**1.1E-06**	**FER**	2	**1.8E-02**	**Negl.**			660		
43	*		Cadmium	3.8E-04	2.0E-03	4.2E-03	**8.2E-06**	**FER**	0.02	**9.8E-02**	**Negl.**					
44		105602	Caprolactam						2.2					50		
45	*	133062	Captan			6.6E-07										
46	*	75150	Carbon disulfide						700					6200		
47	*	56235	Carbon tetrachloride	7.1E-03	3.6E-02	6.0E-06	**2.2E-07**	**Negl.**	40	**9.0E-04**	**Negl.**			1900		
48	*	463581	Carbonyl sulfide						10					660		
49	*	57749	Chlordane			1.0E-04			0.02							
50		108171262	Chlorinated paraffins			2.0E-05										
51	*	7782505	Chlorine						0.2					210		
52		10049044	Chlorine dioxide						0.2					28		
53		75683	Chloro-1,1-difluoroethane (1-) *(HCFC-142b)*						50000							
54	*	532274	Chloroacetophenone (2-)						0.03							
55	*	108907	Chlorobenzene						1000							
56	*	510156	Chlorobenzilate			3.1E-05										
57		75456	Chlorodifluoromethane *(HCFC-22)*						50000							
58	*	67663	Chloroform	7.1E-03	3.6E-02	2.3E-05	**8.3E-07**	**Negl.**	300	**1.2E-04**	**Negl.**			150		
59	*	107302	Chloromethyl methyl ether			6.9E-04										
60		95830	Chloro-o-phenylenediamine (4-)			4.6E-06										
61		95692	Chloro-o-toluidine (p-)			7.7E-05										
62		76062	Chloropicrin						0.4					29		
63	*	126998	Chloroprene			5.0E-04			20							
64		75296	Chloropropane (2-)						100							
65	**		Chromic acid mists (Cr VI)						0.008							
66	**	18540299	Chromium VI (total)	9.0E-05	4.6E-04	1.2E-02	**5.5E-06**	**FER**								
67	**		Chromium VI dissolved aerosols						0.008							
68	**		Chromium VI particulates						0.1							
69	*		Cobalt	3.1E-05	1.6E-04	7.7E-03	**1.2E-06**	**FER**	0.006	**2.6E-02**	**Negl.**					
70	*	8007452	Coke oven emissions			6.2E-04										
71			Copper											100		
72		120718	Cresidine (p-)			4.3E-05										
73	*		Cresol mixtures						600							
74		98828	Cumene						400							
75		135206	Cupferron			6.3E-05										

76		110827	Cyclohexane										6000			
77	*	72559	DDE			9.7E-05										
78		50293	DDT			9.7E-05										
79		615054	Diaminoanisole (2,4-)			6.6E-06										
80		124481	Dibromochloromethane			2.7E-05										
81	*	96128	Dibromo-3-chloropropane (1,2-)	7.2E-03	3.7E-02	2.0E-03	**7.4E-05**	**FER**	0.2	**1.8E-01**	**Negl.**					
82		764410	Dichloro-2-butene (1,4-)			4.2E-03										
83		95501	Dichlorobenzene (1,2-)						200							
84	*	106467	Dichlorobenzene (1,4-)			1.1E-05			800							
85	*	91941	Dichlorobenzidine (3,3'-)			3.4E-04										
86		75718	Dichlorodifluoromethane						100							
87	*	111444	Dichloroethyl ether			3.3E-04										
88	*	542756	Dichloropropene (1,3-)			4.0E-06			20							
89	*	62737	Dichlorvos			8.3E-05			0.5							
90		77736	Dicyclopentadiene						0.3							
91		60571	Dieldrin			4.6E-03										
92			Diesel particulate matter			3.0E-04			5							
93	*	111422	Diethanolamine						3							
94		112345	Diethylene glycol monobutyl ether						0.1							
95		75376	Difluoroethane (1,1-)						40000							
96	*	77781	Dimethyl sulfate			4.0E-03										
97	*	60117	Dimethylaminoazobenzene (4-)			1.3E-03										
98	*	79447	Dimethylcarbamyl chloride			3.7E-03										
99	*	68122	Dimethylformamide (N,N-)						30							
100	*	57147	Dimethylhydrazine (1,1-)						0.002							
101		540738	Dimethylhydrazine (1,2-)			1.6E-01										
102	*	121142	Dinitrotoluene (2,4-)			8.9E-05										
103	*	123911	Dioxane (1,4-)			5.0E-06			30				3000			
104	*		Dioxin						See footnote "a"							
105	*	122667	Diphenylhydrazine (1,2-)			2.2E-04										
106	*	106898	Epichlorohydrin			1.2E-06			1				1300			
107	*	106887	Epoxybutane (1,2-)						20							
108	*	140885	Ethyl acrylate						8							
109	*	100414	Ethylbenzene	2.7E-01	1.4E+00	2.5E-06	**3.4E-06**	**FER**					1000			
110	*	51796	Ethyl carbamate			2.9E-04										
111	*	75003	Ethyl chloride										10000			
112	*	106934	Ethylene dibromide	7.2E-03	3.7E-02	6.0E-04	**2.2E-05**	**FER**	0.8	**4.6E-02**	**Negl.**					
113	*	107062	Ethylene dichloride	7.0E-03	3.6E-02	2.6E-05	**9.3E-07**	**Negl.**	400	**8.9E-05**	**Negl.**					
114	*	107211	Ethylene glycol						400							
115		111762	Ethylene glycol monobutyl ether						82				4700			
116	**	110805	Ethylene glycol monoethyl ether						200				370			
117	**	111159	Ethylene glycol monoethyl ether acetate						300				140			
118	**	109864	Ethylene glycol monomethyl ether						20				93			
119	**	110496	Ethylene glycol monomethyl ether acetate						90							
120	*	75218	Ethylene oxide			5.0E-03			30				42			
121	*	96457	Ethylene thiourea			1.3E-05										
122	*	151564	Ethyleneimine			1.9E-02										
123	*	75343	Ethylidene dichloride			1.6E-06			500							
124		16984488	Fluoride						13							
125	*	50000	Formaldehyde	5.8E-01	3.0E+00	1.3E-05	**3.9E-05**	**FER**	9	**3.3E-01**	**Negl.**		55			
126		98011	Furfural						50							
127			Gasoline vapors			1.0E-06			15							
128		111308	Glutaraldehyde						0.08				4.1			
129		765344	Glycidaldehyde						1							
130	*	76448	Heptachlor			1.3E-03										
131		1024573	Heptachlor epoxide			2.6E-03										
132	*	118741	Hexachlorobenzene			4.6E-04										
133	*	87683	Hexachlorobutadiene	7.0E-03	3.6E-02	2.2E-05	**7.8E-07**	**Negl.**								
134	**	319846	Hexachlorocyclohexane (alpha-)			1.8E-03										
135	**	319857	Hexachlorocyclohexane (beta-)			5.3E-04										
136	*	58899	Hexachlorocyclohexane (gamma-)			3.1E-04										
137	**	608731	Hexachlorocyclohexane (technical grade)			5.1E-04										
138	*	77474	Hexachlorocyclopentadiene						0.2							
139		19408743	Hexachlorodibenzo-p-dioxin, mixture			1.3E+00										
140	*	67721	Hexachloroethane			1.1E-05			30							
141	*	822060	Hexamethylene diisocyanate						0.03				0.3			
142	*	110543	Hexane (N-)						700							
143	*	302012	Hydrazine			4.9E-03			0.2				10			
144		10034932	Hydrazine sulfate			4.9E-03										
145	*	7647010	Hydrogen chloride	9.0E+00	4.6E+01				20	**2.3E+00**	**FER**		2100			
146	**	74908	Hydrogen cyanide						0.8				340			
147	*	7664393	Hydrogen fluoride	9.5E+00	4.9E+01				14	**3.5E+00**	**FER**		240			
148	**	7783075	Hydrogen selenide										5			
149		7783064	Hydrogen sulfide						2				98			
150	*	78591	Isophorone						2000							
151		67630	Isopropanol										3200			
152	*		Lead	4.7E-03	2.4E-02	1.2E-05	**2.9E-07**	**Negl.**					0.1			
153	*	108316	Maleic anhydride						0.7							
154	*		Manganese	8.3E-03	4.2E-02				0.05	**8.4E-01**	**Negl.**		0.17			
155	*		Mercury (elemental)						0.3							
156	*	7439976	Mercury (inorganic)	1.5E-03	7.6E-03				0.03	**2.5E-01**	**Negl.**		0.6			
157		126987	Methacrylonitrile						0.7							
158	*	67561	Methanol	3.8E+00	2.0E+01				4000	**4.9E-03**	**Negl.**		28000			
159	*	74839	Methyl bromide						5				31000			
160	*	74873	Methyl chloride			1.8E-06			90							
161	*	71556	Methyl chloroform						1000				9000			
162		78933	Methyl ethyl ketone						5000				13000			
163	*	108101	Methyl isobutyl ketone										3000			
164	*	624839	Methyl isocyanate						1							
165	*	80626	Methyl methacrylate						700							
166		25013154	Methyl styrene (mixed isomers)						40							
167	*	1634044	Methyl tert butyl ether			2.6E-07			3000							
168		108872	Methylcyclohexane						3000							
169	*	101144	Methylene bis(2-chloroaniline) (4,4'-)			4.3E-04										
170	*	75092	Methylene chloride			1.3E-08			600				14000			
171	*	101779	Methylenedianiline (4,4-)			4.6E-04			20							
172	*	101688	Methylenediphenyl diisocyanate (4,4'-)						1				12			
173	*	60344	Methylhydrazine			1.0E-03			0.02							
174		90948	Michler's ketone			2.5E-04										
175	*		Mineral fibers (<1% free silica)						24							
176	*	91203	Naphthalene	4.8E-02	2.5E-01	3.4E-05	**8.4E-06**	**FER**	3	**8.2E-02**	**Negl.**					
177	*		Nickel and compounds	1.7E-02	8.8E-02	4.8E-04	**4.2E-05**	**FER**	0.014	**6.3E+00**	**FER**		0.2			
178	**	1313991	Nickel oxide						0.02							
179	**		Nickel refinery dust			2.4E-04										
180	**		Nickel, soluble salts						0.2							
181	**	12035722	Nickel subsulfide			4.8E-04										
182		7697372	Nitric acid										86			
183		88744	Nitroaniline (o-)						0.05							
184	*	98953	Nitrobenzene			4.0E-05			9							

185	*	79469	Nitropropane (2-)			2.7E-03			20								
186		55185	Nitrosodiethylamine (N-)			4.3E-02											
187	*	62759	Nitrosodimethylamine (N-)			1.4E-02											
188		924163	Nitrosodi-n-butylamine (N-)			1.6E-03											
189		621647	Nitrosodi-n-propylamine (N-)			2.0E-03											
190		86306	Nitrosodiphenylamine (N-)			2.6E-06											
191		156105	Nitrosodiphenylamine (p-)			6.3E-06											
192		10595956	Nitrosomethylethylamine (N-)			6.3E-03											
193	*	59892	Nitrosomorpholine (N-)			1.9E-03											
194		759739	Nitroso-n-ethylurea (N-)			7.7E-03											
195	*	684935	Nitroso-n-methylurea (N-)			3.4E-02											
196		100754	Nitrosopiperidine (N-)			2.7E-03											
197		930552	Nitrosopyrrolidine (N-)			6.1E-04											
198	*	87865	Pentachlorophenol			5.1E-06											
199	*	108952	Phenol						200					5800			
200	*	75445	Phosgene						0.3					4			
201	*	7803512	Phosphine						0.3					70			
202	*	7664382	Phosphoric acid						10								
203	*		Phosphorus (white)						0.07								
204	*	85449	Phthalic anhydride						20								
205	*	1336363	Polychlorinated biphenyls (PCBs)	2.2E-03	1.1E-02	1.0E-04	**1.1E-06**	**FER**									
206	*		Polycylic aromatic hydrocarbons (PAHs)	See footnote "b"													
207	*		Polycylic organic matter (POM)														
208		7758012	Potassium bromate			1.4E-04											
209	*	1120714	Propane sultone (1,3-)			6.9E-04											
210	*	57578	Propiolactone (beta-)			4.0E-03											
211	*	123386	Propionaldehyde						8								
212		115071	Propylene						3000								
213	*	78875	Propylene dichloride	6.9E-03	3.5E-02	1.0E-05	**3.5E-07**	**Negl.**	4	**8.8E-03**	**Negl.**						
214		107982	Propylene glycol monomethyl ether						2000								
215	*	75569	Propylene oxide			3.7E-06			30					3100			
216	**		Selenium and compounds						20								
217		7631869	Silica (crystalline, respirable)						3								
218		1310732	Sodium hydroxide											8			
219	*	100425	Styrene	1.9E-01	9.6E-01	5.7E-07	**5.5E-07**	**Negl.**	1000	**9.6E-04**	**Negl.**			21000			
220	*	96093	Styrene oxide			4.6E-05											
221			Sulfates											120			
222		7664939	Sulfuric acid						1					120			
223	***	2699798	Sulfuryl fluoride						150					4170			
224	*	1746016	Tetrachlorodibenzo(p)dioxin (2,3,7,8-)			3.8E+01			0.00004								
225		630206	Tetrachloroethane (1,1,1,2-)			7.4E-06											
226	*	79345	Tetrachloroethane (1,1,2,2-)	7.1E-03	3.6E-02	5.8E-05	**2.1E-06**	**FER**									
227	*	127184	Tetrachloroethylene			6.1E-06			40					40			
228		811972	Tetrafluoroethane (1,1,1,2-)						80000								
229		109999	Tetrahydrofuran						2000								
230		62555	Thioacetamide			1.7E-03											
231	*	7550450	Titanium tetrachloride						0.1								
232	*	108883	Toluene	1.3E+00	6.7E+00				420	**1.6E-02**	**Negl.**			5000			
233	*	584849	Toluene diisocyanate (2,4-)			1.1E-05			0.02					0.07			
234	*	26471625	Toluene diisocyanate (2,4-/2,6-)			1.1E-05			0.02					0.07			
235	*	91087	Toluene diisocyanate (2,6-)			1.1E-05			0.02					0.07			
236	*	95807	Toluene-2,4-diamine			1.1E-03											
237	*	95534	Toluidine (o-)			5.1E-05											
238	*	8001352	Toxaphene			3.2E-04											
239		76131	Trichloro-1,2,2-trifluoroethane (1,1,2-)						30000								
240	*	120821	Trichlorobenzene (1,2,4-)						2								
241	*	79005	Trichloroethane (1,1,2-)	7.2E-03	3.6E-02	1.6E-05	**5.8E-07**	**Negl.**						200			
242	*	79016	Trichloroethylene	5.0E-02	2.6E-01	4.8E-06	**1.2E-06**	**FER**	2	**1.3E-01**	**Negl.**	2.7E-02	3.872084	2	**1.9E+00**	**FER**	
243		75694	Trichlorofluoromethane						700								
244	*	88062	Trichlorophenol (2,4,6-)			3.1E-06											
245	*	121448	Triethylamine						7					2800			
246	*	1582098	Trifluralin			2.2E-06											
247		526738	Trimethylbenzene (1,2,3-)						60								
248		95636	Trimethylbenzene (1,2,4-)						60								
249		108678	Trimethylbenzene (1,3,5-)						60								
250		25551137	Trimethylbenzene (1,2,3-/1,2,4-/1,3,5-)						60								
251		7440622	Vanadium						0.1					0.8			
252		1314621	Vanadium pentoxide											30			
253	*	108054	Vinyl acetate						200								
254	*	593602	Vinyl bromide			3.2E-05			3								
255	*	75014	Vinyl chloride			8.8E-06			100					180000			
256	*	75354	Vinylidene chloride						200								
257	*		Xylene (m-,o-,p-, or mixed isomers)						100					22000			

If any calculated long-term or short-term effects for an air toxic result in "Further Evaluation Required" (FER) on this Risk Screening Worksheet, a Refined Risk Assessment is required for that air toxic.

NOTE:

* **Clean Air Act hazardous air pollutant**

** **Clean Air Act hazardous air pollutant, but not listed individually (part of a group)**

*** **In addition to the Federally listed HAPs, the Department proposes to regulate hydrogen sulfide (H2S), 1-Bromopropane (1-BP), otherwise known as n-propyl bromide (n-PB), and sulfuryl fluoride, as State-specific hazardous air pollutants**

a Dioxins may be considered to be all 2,3,7,8-tetrachlorodibenzo(p)dioxin), or separated into congeners (contact AQEv)

b PAH or POM may be considered to be all benzo(a)pyrene, or separated into individual PAHs (contact AQEv)

The results are determined by comparing the long-term and short-term effects to the single-source thresholds, listed below
The threshold value of negligible risk for incremental risk (IR) is 1 in a million (1.0E-06). An IR value less than or equal to 1 in million is considered negligible
The threshold value of negligible risk for long-term hazard quotient (HQ) for non-carcinogenic risk is 1.0. An HQ less than or equal to 1.0 is considered negligible
The threshold value of negligible risk for short-term hazard quotient (HQ_s) for non-carcinogenic risk is 1.0. An HQ_{st} less than or equal to 1.0 is considered negligible.

APPENDIX B FACILITY PLOT PLAN


Google Earth
200 ft
PROPOSED SHED (BIN)
DRYER UNITS (32' x 40')
2" COMMUNICATION LINE
STRM
SAN
REPRESENTATIVE PERIMETER DESCRIPTION
FILTER
CYCLONE
BUILDING
N
W
E
S
40 0 40 80
GRAPHIC SCALE: 1" = 40'
Moench Engineering

Site Plan