December 2022 version

Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at: https://www.eqb.state.mn.us/. The EAW form provides information about a proposed project's potential environmental effects, and used as the basis for scoping an Environmental Impact Statement (EIS). Guidance documents provide additional detail and links to resources for completing the EAW form.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the EQB Monitor. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project Title: Metropolitan Wastewater Treatment Plant Solids Management Improvements Project**

2. **Proposer:** Metropolitan Council Environmental Services
Contact person: Rene Heflin
Title: Manager, Plant Engineering
Address: 390 Robert Street North
City, State, ZIP: Saint Paul, MN 55101
Phone: 651-602-1077
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3. **RGU:** Minnesota Pollution Control Agency
Contact person: Katrina Hapka
Title: Environmental Review Project Manager
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4. **Reason for EAW Preparation: (check one)**

Required:	Discretionary:
□ EIS Scoping	□ Citizen petition
□ Mandatory EAW	□ RGU discretion
☑ Proposer initiated	

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): Not applicable.

5. **Project Location:**
County: Ramsey
City/Township: Saint Paul
PLS Location (¼, ¼, Section, Township, Range): E ½ of the SW ¼-NW ¼ Section 10, 28N, 22W
Watershed (81 major watershed scale):

Watershed	NHD Hydrologic Unit #	NHD Hydrologic Unit Name
HUC 8-	7010206	Twin Cities
HUC 10-	701020608	City of Saint Paul-Mississippi River
HUC 12-	70102060805	Harriet Island-Mississippi River

GPS Coordinates: Longitude = -93.0419, Latitude = 44.9287
Tax Parcel Number: 123-102822230001

The following Figures are attached as part of the EAW:

Figure 1: Site Location Map
Figure 2: Aerial Project Location Map
Figure 3: Existing Site Plan

The following Tables are listed as part of the EAW:

The following Appendices are attached as part of the EAW:

Appendix G: Summary of Applicable Air Permitting Regulations

6. Project Description:

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

Metropolitan Council Environmental Services proposes to increase solids processing capacity at the Metropolitan Wastewater Treatment Plant at 2400 Childs Road, Saint Paul, Ramsey County, Minnesota, by adding a fourth fluidized bed incinerator, associated equipment, and facilities.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipmentor industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

Existing Facility

The Metropolitan Wastewater Treatment Plant (Metro Plant) treats approximately 180 million gallons of wastewater per day from its service area, which is comprised of 66 communities. The Metro Plant processes 75 percent of the Twin Cities region's wastewater solids, including from its own service area and from four other MCES wastewater treatment plants (East Bethel, Eagles Point, Hastings, and St. Croix Valley) that do not process wastewater solids. **Figure 1** shows the location of the Metro Plant.

Metropolitan Council Environmental Services (MCES) has incinerated wastewater solids at the Metro Plant since its original construction in 1938. In 2005, a solids management building (SMB) was constructed to house three fluid bed incinerators. Solids at the Metro Plant are collected in settling tanks, thickened, and then dewatered before being sent to incineration. The existing SMB includes the following facilities:

- **Polymer system**: The polymer system conditions sludge for centrifuge dewatering.
- **Dewatering centrifuges**: Eight dewatering[1] centrifuges dewater thickened sludge from 5 to 28 percent solids.
- **Cake bins and cake feed pumps**: Four cake[2] bins and eight cake pumps, pump dewatered cake to the incineration process or alkaline stabilization process.
- **Incinerator trains**: Three parallel incinerator trains operate inside the SMB. Each train consists of a fluid bed incinerator, energy recovery equipment, air pollution control equipment, and a stack. This is where the sludge from the preceding processes is treated by incineration.
- **Steam:** High-pressure steam generated by the waste heat boilers is used during the winter to heat the plant and during the summer to produce electricity in an existing condensing steam turbine generator. A non-condensing steam turbine generator is also available to extract energy and use steam within the plant. The auxiliary condensers condense excess steam that is not able to be used for plant heat and electricity generation.

1 Dewatering refers to the process of removing water from wastewater solids.

2 Cake refers to dewatered wastewater solids.

- **Ash conveyance equipment**: A dense phase (pressure) ash conveyance system for each incinerator collects ash from the bottom of the waste heat boilers and the baghouses. Ash is collected in SMB and then transported to ash storage and loadout for disposal in an industrial waste landfill.
- **Alkaline stabilization loadout:** As a backup to incineration when solids loadings exceed available storage and incinerator capacity, ash and lime are added to dewatered cake to stabilize solids prior to disposal in an industrial waste landfill.

Proposed Project

MCES proposes to construct a fourth fluidized bed incinerator. The treatment train includes the incinerator, energy recovery (primary and secondary heat exchangers, waste heat boiler), air pollution control equipment (carbon injection, baghouse, wet scrubber, wet electrostatic precipitator), and a flue gas stack (Project). The Project also includes a dewatering facility addition, upgrades to ash handling equipment, a new cake receiving facility, replacing a steam turbine generator, replacing auxiliary steam condensers, changing the backup fuel, and adding a 175-kilowatt engine-driven fire pump.

The Project will expand the SMB to increase the solids processing capacity as follows:

- Construct a fourth fluid bed incinerator train (FBI 4).[3]
- Construct additional dewatering facilities with two centrifuges, one cake bin, and two cake pumps with odor control.
- Replace the existing steam turbine generator with a larger unit in a building addition north of the SMB.
- Replace existing auxiliary condensers with two larger units.
- Construct a new sludge cake receiving facility with odor control.
- Replace the existing carbon storage silo with a new carbon storage silo on the west side of SMB.
- Replace the existing ash conveyance system in the SMB with a new vacuum system for both the existing incinerators and FBI 4.
- Replace the existing SMB housekeeping vacuum system and exhaust emissions externally.
- Exhaust some of the transporters currently exhausting to stack STRU3 (SV023) to existing bins with bin vent filters.
- Change the facility's backup fuel system from fuel oil to propane.
- Add a 175-kilowatt (kW) fire pump with a diesel engine.
- Reconfigure the existing stormwater basin.

Figure 2 shows the Project area including the proposed SMB. **Figure 3** shows the existing site plan and **Figure 4** shows the demolition plan. **Figure 5**, **Figure 6**, and **Figure 7** illustrate the proposed site plan with access road and stormwater basin improvements, building floor plan for the proposed FBI 4, and a visual rendering of the proposed FBI 4 building expansion, respectively. The proposed new FBI 4 train will be the same as the existing FBI trains at the Metro Plant and will require a building expansion.

MCES will construct new dewatering facilities in the building expansion similar to the existing dewatering facilities. Modifications will be made to provide flexibility for existing and new

3 Note: The air emissions permit uses the term fluidized bed reactors. The terms fluid bed incinerator (FBI) and fluidized bed reactors (FBR) are interchangeable.

dewatering facilities to feed all four incinerators. MCES will direct odors from the dewatering facilities to the inlet on the incinerator fluidizing air blowers and incinerated, or to the alkaline stabilization loadout scrubber that provides chemical neutralization.

MCES will construct the new steam generator that is larger in capacity in a new slab-on-grade building addition north of SMB. MCES will install two larger auxiliary steam condensers on the third floor of SMB to support generation of additional steam and to provide redundancy in the steam system.

MCES will construct the new cake receiving facility within the footprint of the building expansion. The cake receiving facility will be available to receive dewatered cake from other MCES wastewater treatment plants (Seneca, Blue Lake, and Empire) so that the Metro Plant incineration can serve as backup solids processing. MCES will direct odors from the cake receiving to the inlet on the fluidizing air blowers and incinerated, or to the alkaline stabilization loadout scrubber which provides chemical neutralization.

MCES will replace the existing dense phase pressure ash conveyance system for the existing incinerators in the SMB with a vacuum ash conveyance system, which will serve all four incinerators. The stack will vent through the roof. The existing SMB housekeeping vacuum system will be replaced with a larger capacity system and vented outside.

Exhaust from some existing transporters in the 408 building will be modified to exhaust to bin vent filters rather than stack STRU3.

MCES will install a new backup fuel system south of the SMB that includes installation of two 60,000-gallon propane tanks, a new building to house associated feed equipment, and piping. The existing fuel oil storage tanks and backup fuel system will be abandoned.

The new 175-kW fire pump engine will include a 300-gallon subbase fuel tank added to the existing site with no need for a building expansion.

MCES will expand an existing stormwater basin south of the SMB to provide additional volume control. To accommodate expansion of the stormwater basin, MCES will remove and reconstruct the existing access roadway. A storm sewer north of SMB will be rerouted to allow for construction of the fourth incinerator. MCES will reroute existing building drains to the east of SMB to the reconfigured stormwater basin. A third electrical feed will be installed in an existing buried duck bank from the main substation to the fourth incinerator.

Construction

Construction will occur within the existing Metro Plant levee and floodwall system. The building expansion will require excavation, dewatering, and demolition (see 10.b and 12.b.iii for details); MCES will use excavated materials on site if deemed suitable. Options for recycling of construction demolition debris will be evaluated. Demolition will include 6,300 square feet of asphalt. MCES will recycle asphalt and steel tanks removed during the demolition.

Construction is anticipated to occur between 2024 and 2026 pending receipt of applicable permits. Construction sequencing will be appropriately timed to allow for removal of existing equipment, addition of new equipment, and installation of the appropriate tie-ins while minimizing disruption to current operations of the Metro Plant.

It is anticipated that alkaline stabilization loadout, used as a backup solids stabilization process, will increase during construction due to down time required for tie-ins of the new equipment. These stabilized solids will be disposed of in an industrial waste landfill.

c. Project magnitude:

Table 1: Summary of Project Magnitude

Description	Number
Total Project Acreage	7.3 acres
Linear project length	N/A
Number and type of residential units	0
Residential building area (in square feet)	0
Commercial building area (in square feet)	0
Industrial building area (in square feet)	24,325
Institutional building area (in square feet)	0
Other uses – specify (in square feet)	0
Structure height(s)	
Building (feet)	68
FBI 4 Stack (feet)	105

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

Project Purpose
The purpose of the Project is to increase solids processing capacity at the Metro Plant to continue treatment of wastewater solids through a 30-year planning window.

Project Need
The Metro Plant needs additional solids processing capacity to preserve existing wastewater treatment plant infrastructure and serve regional population growth. In 2025, the existing incinerators will be 20 years old and in need of significant renewal. Additional solids processing capacity is needed to take the existing incinerators down for extended periods of time to renew them. MCES expects 500,000 new residents to join the Metro Plant service area by 2050. The solids generated will increase with population growth. MCES expects wastewater solids loading in the Metro Plant service area to increase from 240 dry tons per day (dtpd) in 2020 to 300 dtpd in 2050.

The addition of cake receiving facilities and FBI 4 will improve the reliability of the regional wastewater treatment system by allowing the Metro Plant to provide emergency back-up operations for other MCES wastewater treatment plants that process wastewater solids.

Project Beneficiaries
The Project will benefit all residents within the Twin Cities region and the communities served by MCES.

e. Are future stages of this development including development on any other property planned or likely to happen? □ Yes ☑ No

If yes, briefly describe future stages, relationship to present project, timeline and plans forenvironmental review.

f. Is this project a subsequent stage of an earlier project? □ Yes ☑ No

If yes, briefly describe the past development, timeline and any past environmental review.

7. Climate Adaptation and Resilience

a. Describe the climate trends in the general location of the project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location during the life of the project.

Table 1: Summary of reported climate trends

Climate Trends and Future Projections	Minnesota	Ramsey County
Temperature Avg Temperature – increasing Extreme heat waves – increasing Seasonality – increasing Growing Season - longer	Annual average temperatures have risen 2 degrees Fahrenheit (°F) over the past century and up to 3°F for the entire state. The highest average temperature increases have occurred during the winter. Since 1895, average daily minimum or low temperatures have risen at more than twice the rate of average daily maximum or high temperatures.	Ramsey County experienced an average annual temperature increase of 0.2°F per decade (1895-2021).[4]
	The winter season (December through February) has warmed 2 to 3 times faster than summer (June through August). In particular, winter warming rates have risen more sharply since 1970.[5] Current climate warming trends, most notably during the winter, are anticipated to continue.[6] Rising temperatures may interfere with winter recreation, extend the growing season, change the composition of trees, and increase water pollution problems in lakes and rivers. The state will have more extremely hot days, which may harm public health in urban areas.	Representative Concentration Pathway (RCP) 4.5 scenario, temperature anticipated to increase in from modeled present mean of 45.9°F degrees Fahrenheit (1980-1999) to a mid-century (2040-2059) model mean of 49.5°F and a late-century (2080-2099) model mean of 51.9°F. RCP 8.5 worst-case scenario, late-century (2080-2099) model mean temperature of 55.7°F. RCP is a greenhouse gas concentration scenario used by the Intergovernmental Panel on Climate Change in the fifth assessment report. RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040 and RCP 8.5 represents a worst-case scenario in which emissions continue rising through the 21st century.

4 Minnesota Department of Natural Resources. Minnesota Climate Explorer. https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical

5 DNR. Climate Trends. https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html

6 MnDOT. Minnesota Go Climate Change Report. 2021. https://www.minnesotago.org/trends/climate-change

Climate Trends and Future Projections	Minnesota	Ramsey County
Avg Precipitation – Increasing	Average annual precipitation is expected to increase and become more intense, however available moisture is expected to decrease by 87 percent due to increases in evapotranspiration.[7] The 10 warmest and wettest years have all occurred since 1998.	Ramsey County experienced an average annual precipitation increase of 0.32 inches per decade (1895-2021).
Extreme Precipitation Events – increasing now and expected to continue with greater frequency and severity alternating with drought	From 1973 to 2021, Minnesota experienced 16 mega-rain events[8] with a notable increase since 2000. Of these 16 events, three occurred in the 1970s, one in the 1980s, one in the 1990s, six mega-rain events occurred in the 2000s, four in the 2010s, and one in 2020. Heavy rain events have become more frequent in Minnesota and more intense. In the past 21 years (2000 to 2020), almost twice as many mega rain events occurred compared to the prior 27 years (1973 to 1999). [9] The number of extreme storms has also been increasing and is likely to continue this trend for the foreseeable future.	Increases in precipitation and mega-rain events are anticipated to contribute to an increase in flood events in Ramsey County.[10] The Metro Plant's area has a moderate risk of flooding over the next 30 years with a 19% chance of 1 inch of flood water reaching the building at least once. Infrastructure facilities in Ramsey County are at the greatest risk. Flood hazards on the property as defined by FEMA indicate a 0.2 percent annual chance of flood. While the above projections consider the levee reduction, risks may substantially increase in the event of the levee being overtopped or breached. However, MCES is surrounded by an existing floodwall and is contained in a levee which makes the plant resilient to 500-year flood events as accredited by the Federal Emergency Management Agency (FEMA) and meeting the requirements of 44 CFR, Section 65.10 (Mapping of Areas Protected by Levee Systems). The FEMA flood insurance map 27123C0116H revised September 16, 2015 shows the Metro Plant protected by a levee accredited in 2012. AA 500-year standard significantly decreases the chance of flooding over the next 30 years. The flood wall elevation is approximately 716 feet which exceeds the 500-year

7 Minnesota Department of Natural Resources. Climate's impact on water availability.

https://www.dnr.state.mn.us/climate/water_availability.html

8 Mega-rain events are defined as events in which six inches of rain covers more than 1,000 square miles and the core of the event tops eight inches.

9 Minnesota Department of Natural Resources. Historic Mega-Rain Events in Minnesota.

https://www.dnr.state.mn.us/climate/summaries_and_publications/mega_rain_events.html

10 Flood Factor. https://floodfactor.com/property/address/274560804_fsid

Climate Trends and Future Projections	Minnesota	Ramsey County
		flood elevation of 713 feet. In April 2001, 103 buildings in St. Paul were impacted by a river flood, however MCES was adequately protected by a levee.
Drought	Drought conditions are most likely to occur in the western and northwestern portions of Minnesota as a result of being further from the Gulf of Mexico moisture.[11] According to data from the U.S. Drought Monitor, as of May 9, 2023, five counties in southwest Minnesota were experiencing a moderate drought, and much of the western and southwestern portions of the state were experiencing abnormally dry conditions.[12] While Minnesota recently experienced a severe drought in 2021, PDSI values from 1895 to 2022 indicate that the state as a whole is seeing wetter conditions over time.[13]	The Palmer Drought Severity Index (PDSI) utilizes temperature and precipitation data to estimate relative soil moisture conditions and serve as an indicator of long-term drought conditions. The index ranges from -5 to +5 indicating dry and wet conditions, respectively. PDSI values are reported on a monthly basis. Historic PDSI values for the month of August[14] from 1895 to 2021 indicate an increase of 0.24 per decade. Generally, the PDSI historical data indicates that the region is experiencing a wetter climate.[15]

11 DNR. 2023. Drought in Minnesota. Available at: https://www.dnr.state.mn.us/climate/drought/index.html. Accessed May 2023.

12 National Drought Mitigation Center. University of Nebraska – Lincoln. 2023. U.S. Drought Monitor. Available at: https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?MN. Accessed May 2023.

13 DNR. 2022. Minnesota Climate Trends – PDSI. Available at: https://arcgis.dnr.state.mn.us/ewr/climatetrends/. Accessed May 2023.

14 Available only as single monthly value per year; multi-month aggregations not available.

15 Flood Factor. https://floodfactor.com/property/address/274560804_fsid

b. For each Resource Category in the table below: Describe how the project's proposed activitiesand how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

Table 2: Climate Adaptation and Resilience

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	Increased heavy rainfall events and flooding affecting levee, floodwall, and stormwater retention basin. Minnesota is trending towards warmer temperatures. Urban heat islands occur when impervious surfaces, such as roofs and paved surfaces, absorb heat during the day and release it at night, amplifying the warming trend.	The Project is located within a levee and is surrounded by a floodwall. The site is bordered by a Zone AE as defined by FEMA to its west, which carries a 1% chance of flooding annually. Increased rainfall rates may increase the risk for localized and riverine flooding . The Project is largely sited within an existing paved, impervious area at the Metro Plant. The Project would increase impervious surface area by approximately 1.3 acres, resulting in a minimal contribution to the urban heat island.	MCES has an extensive flood manual for maintaining their site including a road closure plan and levee patrol. MCES will continue to monitor and maintain its floodwall and levee to ensure resiliency to 500-year flood events. The existing flood wall mitigates the potential for riverine flooding. MCES has proposed improvements to expand the capacity of the existing stormwater pond to mitigate the potential risk of localized flooding during heavy rainfall events. The proposed infiltration basin will include an overflow to the storm sewer to prevent basin overflow due to flooding. The infiltration expands capacity and incorporates conservative precipitation levels in the design. Additional details regarding stormwater management improvements are described in Item 12.b.ii. As described in Item 14, MCES will consider opportunities consistent with the Metro WWTP Sustainable Landscape Master Plan which is being implemented with various capital projects. The heat recovery system reduces heat loss and recovers energy. This system would reduce the potential minor heat contribution of the proposed FBI 4.
Greenhouse Gas (GHG) Emissions	GHGs trap heat in the atmosphere resulting in climate change. Carbon dioxide (CO2) is the primary GHG emitted through anthropogenic activities.	Carbon dioxide emissions generated from sludge treatment at Metro Plant are biogenic (naturally occurring). These emissions would be expected to occur regardless of how the sludge is treated. Anthropogenic greenhouse gas emissions	MCES is recovering heat and electricity from sludge incineration and reducing fossil fuel use to support wastewater treatment operations at the plant with the incinerators. The auxiliary boilers backup fuel change from fuel oil to propane

		would increase with the addition of FBI 4. However, total anthropogenic greenhouse gas emissions from the Project are anticipated to decrease as a result of the change in auxiliary boilers back-up fuel type from fuel oil to propane.	results in a small overall greenhouse gas reduction.
Land Use	Heavier rainfall expected to bring a higher risk of localized flooding	Impervious surfaces will increase by approximately 1.3 acres.	The Project will reconfigure the existing stormwater basin to increase its capacity to collect and treat stormwater from the additional impervious area. The improvements will exceed requirements by the Ramsey-Washington Metro such as design standards conforming to an increase of 10% for rainfall intensity to consider climate trends.
Water Resources	Addressed in item 12		
Contamination/ Hazardous Materials/Wastes	Heavier rainfall expected to bring a higher risk of localized flooding	Hazardous materials associated with the Project are listed in item 13.c. Tables 10 and 11. Tanks will be double-walled or have necessary containment. Other hazardous materials will continue to be stored indoors.	The plant's hazardous wastes are managed in compliance with Minn. R. ch. 7045, which minimize the adverse effects from the storage of the hazardous wastes. Hazardous materials and solid wastes stored within the Project area are protected from flood events by the existing floodwall and levee. A flood plan is in-place which establishes temporary measures to enact during a flood in addition to permanent flood protection measures, including the flood wall. Flood adaptation strategies include backup pumps to pump flood water over the flood wall and dewatering pumps to protect infrastructure.
Fish, wildlife, plant communities, and sensitive ecological resources (rare features)	Addressed in item 14		

8. Cover Types

Estimate the acreage of the site with each of the following cover types before and after development.

Table 3: Estimated Project Site Cover Types

Cover Types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)	-	-
Deep lakes (>2 meters deep)	-	-
Wooded/forest	-	-
Rivers/streams	-	-
Brush/Grassland	-	-
Cropland	-	-
Livestock rangeland/pastureland	-	-
Lawn/landscaping	4.0	2.5
Green infrastructure TOTAL (from table below*)	-	0.4
Impervious surface	3.1	4.4
Stormwater Basin (wet sedimentation basin)	0.2	-
Other (describe)	-	-
TOTAL	**7.3**	**7.3**

Green Infrastructure*	Before (acreage)	After (acreage)
Constructed infiltration systems (infiltration basins/infiltration trenches/rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	-	0.4
Constructed tree trenches and tree boxes	-	-
Constructed wetlands	-	-
Constructed green roofs	-	-
Constructed permeable pavements	-	-
Other (describe)	-	-
TOTAL*	-	0.4

Trees	Percent	Number
Percent tree canopy removed or number of mature trees removed during development	0	0
Number of new trees planted	New tree planting amount will be evaluated during final design.	

9. Permits and Approvals Required

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. ***All of these final decisions are prohibiteduntil all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.***

Table 4: Summary of Project Permits and Approvals Required

Unit of Government	Type of Application	Status
Federal Aviation Administration	Notification of Proposed Construction or Alteration	To be applied for
National Park Service	Plan review and coordination under Mississippi National River and Recreation Area	To be submitted
MPCA	National Pollutant Discharge Elimination System (NPDES) Permit plan and specification approval	To be submitted
MPCA	Major amendment to Title V Air Permit	Application complete August 25, 2021
MPCA	Construction Stormwater Permit	To be applied for
MPCA	Stormwater Pollution Prevention Plan	To be amended, if required
MPCA/U.S. Environmental Protection Agency (EPA)	Spill, Prevention, Control, and Countermeasure Plan and Minnesota Spill Bill	To be amended, if required
MPCA	Tank Registration/Deregistration	To be applied for, if required
MPCA/Minnesota Department of Health (MDH)	Asbestos Notifications	To be applied for, if required
Minnesota Emergency Response Commission and Local Fire Department	SARA Title III Chemical Notification, Planning, and Reporting	To be amended, if required
DNR	Construction Dewatering Permit may be required if more than 10,000 gallons per day	To be applied for, if required
Ramsey County	Hazardous Waste Generator License	To be amended, if required
Ramsey County	Hazardous Waste Contingency Plan	To be amended, if required
Ramsey-Washington County Watershed District	Grading Permit	To be applied for
City of Saint Paul	Plan review coordination regarding compliance with Saint Paul Critical Area River Corridor Plan and Ordinance	To be submitted
City of Saint Paul	Building Permit	To be applied for

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No. 22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land Use

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, prime or unique farmlands.

Land Use

Existing land uses to the north the Project area include industrial oil and gas terminals and a recycling facility. To the east is primarily park and recreation land and several sections of open water including Pig's Eye Lake. Residential areas are approximately one mile east of the Project area and are separated by Pig's Eye Lake, Highway 10, and the railroad. The Mississippi River is immediately west. On the western bank of the Mississippi River, the land use is a combination of industrial uses, parkland, residential, and the Saint Paul Airport approximately one mile away. Land use areas are shown on **Figure 8**.

No cemeteries are present within or in the vicinity of the Project area. The nearest daycare is approximately 1.5 miles to the west and southwest, the nearest nursing home is approximately 1.5 miles to the north, and the nearest school (Humboldt Senior/Junior High) is approximately 2 miles to the west.

The Project will not alter land use at the Metro Plant or adjacent properties by remaining consistent with existing and planned land uses.

Parks, Trails, and Recreational Areas

Several parks are near the Project area including Pig's Eye Regional Park immediately east/northeast and Battle Creek Regional Park about 1 mile to the east/northeast. Pig's Eye and Battle Creek Regional Parks include hiking and biking trails. There are also several smaller local parks in residential areas to the east and west including Kaposia, Port Crosby Thompson County, Pleasantview, Henry, Lower Landing, Harmon, and Northview Pool. Sam Morgan Regional Trail is within one mile to the northeast.

Protected areas around the Project area include the Mississippi National River and Recreation Area (explained more in item 10.a.iii), Fish Creek (Ramsey County), Bluff Preservation Area (City of St. Paul), Highwood Preserve (City of St. Paul), Applewood Preserve (City of Maplewood), and Bruce Vento Nature Sanctuary (City of St. Paul).

To the southeast approximately 1.5 miles is Pig's Eye Island Heron Rookery Scientific and Natural Area (SNA). SNAs are public land designated by the Department of Natural Resources (DNR) to protect natural features of exceptional scientific or educational value. The Pig's Eye Island Rookery SNA encompasses 80 acres and provides suitable nesting habitat for colonial waterbirds. The Metro Plant meets all National Ambient Air Quality Standards (NAAQS) at its ambient boundary and the modeling predicts that they will continue to meet NAAQs after construction of the Project. The secondary NAAQS are established for protection of public welfare including animals. Air dispersion modeling results are lower in the Pig's Eye Island Heron Rookery SNA than at the Metro Plant ambient boundary. Modeling is only a prediction

based on past meteorological data and cannot guarantee future compliance only predict that it is likely too with a margin of safety. Item 17 describes the air modeling conducted in greater depth.

Prime or Unique Farmland
The Metro Plant is in an urban environment with no prime or unique farmland within or near the Project.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The Metro Plant is in the City of Saint Paul. The 2040 Comprehensive Plan[16] for Saint Paul was updated and adopted in November 2020. The plan is intended to guide land use and development for the next 20 years. The plan divides the city into smaller area planning districts where the Metro Plant is in the Southeast Sector. **Figure 8** depicts the existing land uses around the Metro Plant and **Figure 9** shows the planned land use. For the Metro Plant and surrounding area, the land use will remain industrial/utility along with the existing nearby water, community park and recreation spaces.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

MCES property surrounding the Metro Plant is zoned for industrial use (**Figure 11**).
The Metro Plant is within the Mississippi River Corridor Critical Area (MRCCA) and the Mississippi National River and Recreation Area corridor, a unit of the National Park Service. The MRCCA is a state, regional, and local government program that provides coordinated land planning and regulation for the 72-mile stretch of the Mississippi River through the Twin Cities Metropolitan Area. The MRCCA rules (Minn. R. 6106.0070) establish minimum standards to protect the corridor's natural, cultural, and scenic resources during land development and land alteration activities. MCES currently complies with MRCCA's structure setback and height standards and will continue to after Project construction.

The Metro Plant property falls within the 100-year floodplain, defined as the areas adjoining a watercourse that have been or may be covered by a regional flood. **Figure 10** shows the FEMA Flood Insurance Rate Map. Several flood protection measures are maintained at the Metro Plant to mitigate flood risk. The primary protection includes a levee/floodwall and active groundwater relief wells constructed around the Metro Plant. The Metro Plant is not within the City of Saint Paul's Floodplain Management Overlay Zoning Districts, although the adjacent areas outside of the levee/floodwall are.

The location of the Metro Plant within the 100-year floodplain and MRCCA requires compliance with the City of Saint Paul River Corridor Overlay District Zoning Code. MCES is subject to applicable River Corridor ordinance provisions and standards. These include obtaining permits for building alterations, approval of site plans, adhering to building setbacks, grading and filling provisions, and the protection of wildlife, vegetation, and water quality.

16 https://www.stpaul.gov/departments/planning-and-economic-development/planning/citywide-plans/2040-comprehensive-plan

Portions of the MCES property is in shoreland, however the Project is not. The Project area is approximately 1,500 feet east of the Mississippi River and approximately 1,700 feet west of Pig's Eye Lake. The proposed improvements at the SMB exceed minimum setback requirements and will adhere to applicable grading, filling, and vegetation removal provisions.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

Refer to the above discussion in Item 10.a.iii regarding flood protection measures maintained at the Metro Plant, a critical facility, to mitigate flood risk. MRCCA plans provide measures to ensure that floodwaters do not back up onto the Project area from stormwater drainage systems. MCES has established a flood plan to ensure the safe operation of the Metro Plant during a flood event including temporary and permanent flood protection measures. As previously described, backup pumps are available to pump flood waters over the flood wall and groundwater pumps have been installed to maintain groundwater levels to protect underground wastewater infrastructure. Emergency generators are available to ensure operation of effluent and stormwater pumps in the case of power loss during flood events. MCES stocks reserve fuel at facilities during period of known flood risk and stockpiles gravel to allow for construction of temporary road access during floods. Additionally, procedures are in place to allow for use of contracted helicopters in case staff require emergency access.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The Project will occur within the existing developed area of the Metro Plant site and will not substantially change the nature of the Metro Plant in terms of its effects on nearby adjacent lands. The Metro Plant will remain industrial land use and the Project will be consistent with the City of Saint Paul 2040 Comprehensive Plan.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

Not applicable.

11. Geology, Soils and Topography/Land Forms

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The surficial geology is documented by the Minnesota Geologic Survey (MGS) in the Geologic Atlas of Ramsey County (1992) as stream deposits comprised of sand and gravel with areas of fine sediment and organic material (slack-water deposits). An environmental boring hole (unique Well ID: 342541) measured in 2019 approximately 300 feet southwest of the Project area indicated that the surficial deposits are comprised of at least 91 feet of the stream deposits.

The bedrock geology as mapped by the MGS in the Geologic Atlas of Ramsey County (1992) is composed of a layer of St. Peter Sandstone underlying most of the MCES property. The St. Peter

Sandstone is underlain by the Prairie du Chien Group with a bedrock valley eroded to the Jordan Sandstone to the east and northeast.

The industrial well log for the Metro Waste Control Well No. 3 (Unique Well ID: 151554) over 1,400 feet southwest of the SMB indicates the presence of 31 feet of silt overlying the 10 feet of St. Peter Sandstone, which appears to be underlain by approximately 150 feet of Prairie du Chien Group bedrock. The static water level in this industrial well was noted as approximately 30 feet below grade near the contact of the stream deposits and the St. Peter Sandstone.

Two wells were used to evaluate the geology of the site and karst potential, Well ID: 151554 and Well ID: 342541, an environmental boring hole. These wells and other known wells based on the MDH County Well Index are shown in **Figure 15**. This data was evaluated to understand the depth to water level in relation to the Prairie du Chien and determine the likelihood of the Prairie du Chien being saturated, which would indicate conditions for karst development is less likely to happen.

Figure 12 identifies geological features near the Project area including regions prone to karst feature development within 50 feet of the surface. The nearest identified surface karst features are over one mile to the west on the other side of the Mississippi River. The Prairie du Chien Group bedrock is more susceptible to the formation of karst features. However, according to MGS staff, to have a higher likelihood of karst developing, the Prairie du Chien Group must usually be within 50 to 100 feet of the land surface and have the top of the water table within the Prairie du Chien Group. These conditions do not exist within the Project area, given that the Prairie du Chien Group is at least 91 feet below the land surface near the SMB (as indicated by Well ID: 342541) and nearby well logs indicate that it appears to be fully saturated, e.g. the top of the water table is above the Prairie du Chien. As discussed in Item 12.a.ii, depth to groundwater has been measured as less than 20 feet from land surface based on monitoring data (refer to **Table 7**). Therefore, geologic features such as sinkholes, shallow limestone, or karst features do not appear to be present on the MCES property.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed inresponse to Item 12.b.ii.

Based on a review of the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) web soil survey database the soil within the Project area consists of Udorthents-wet substratum. Soils are generally fine-grained, including silty sand, silt, clay, and organic materials. It is assumed that the buildings would require pilings to an estimated depth of 100 feet. **Table 5** lists hydrologic soil groups found in the Project area. **Figure 13** illustrates NRCS soil types within and near the Project area.

Table 5. NRCS Soil Classifications within the Project Area

Map Symbol	Name	Percent Slopes	Approx. Percent of Project Area
1027	Udorthents, wet substratum	0 to 6	100

The MCES property is at an elevation of approximately 700 feet and is generally flat with no steep slopes or highly erodible soils.

Approximately 9,000 cubic yards of excavation and 0.15 acres of grading is expected for the Project. MCES will use excavated soils that are deemed suitable for backfilling. Soils deemed not suitable will be exported from the site and properly disposed. MCES will use a geotechnical exploration program to further define underground soils. Results of this exploration will be used to further define engineering and construction details for the Project.

MCES will implement temporary sediment and erosion controls to curtail erosion and sediment transport and to maintain slope stability until permanent erosion controls have been adequately established. MCES will maintain erosion control throughout the construction period by removing accumulated sediment, and by repairing or replacing damaged and deteriorated sediment and erosion control devices. Temporary sediment and erosion control devices typically include silt fence, straw bales, and storm sewer inlet protection. MCES will manage water from temporary groundwater dewatering during construction in accordance with the requirements of a NPDES/SDS Construction Stormwater (CSW) general permit.

After construction is completed, existing grassy areas that have been disturbed by construction are anticipated to undergo turf establishment. Turf establishment will primarily consist of seeding and mulching. Sod may be placed to restore areas adjacent to maintained lawns, and in areas determined to be particularly susceptible to erosion. Suitable temporary sediment and erosion control devices will be placed and maintained until permanent turf has been adequately established.

12.Water Resources

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

DNR Public Waters
No DNR Public Waters (PWI) are present within the Metro Plant site. Pigs Eye Lake (PWI: 62000400) and Little Pigs Eye (PWI: 62023400) are east and north of the Metro Plant, respectively. The Mississippi River and Battle Creek are DNR Public Watercourses. The Mississippi River is adjacent to the western boundary of the Metro Plant site. Battle Creek is east of the Metro Plant site and connects to Pigs Eye Lake. **Figure 14** identifies DNR Public Waters near the Metro Plant.

Wetlands and Other Aquatic Resources
Based on a review of the National Wetland Inventory (NWI) data and time-lapsed aerial imagery, NWI features present within the Metro Plant levee consist of constructed industrial/municipal ponds associated with the WWTP processes and stormwater features. No natural wetland features are present within the Metro Plant site. Wetland complexes associated with the Mississippi River and Pig's Eye Lake are present in the vicinity of the Metro Plant site as identified in **Figure 14**.

MPCA 303d Impaired Waters

The section of the Mississippi River from Upper Saint Anthony Falls to the Saint Croix River, Assessment Unit Identification (AUID) 07010206-814, is impaired for aquatic consumption, aquatic life, and aquatic recreation. Total Maximum Daily Loads (TMDLs) are approved for mercury in fish tissue, mercury in water, nutrients, and total suspended solids (TSS). Battle Creek (AUID 07010206-592) is an impaired water within one mile to the northeast of the Metro Plant impaired for aquatic life. **Table 6** summarizes impairments for both waterbodies and targeted TMDL year completion dates.

Table 6. Designated Impaired Waters and TMDL Target Completion Years

Water body name	AUID	Pollutant or stressor	Affected designated use	Year added to List	Year TMDL Plan Approved	TMDL target completion year
Mississippi River	07010206-814	PCBs in fish tissue	Aquatic Consumption	1998	NA	2035
		Perfluorooctane sulfonate (PFOS)	Aquatic Consumption	2014	NA	2027
		Perfluorooctane sulfonate (PFOS) in fish tissue	Aquatic Consumption	2008	NA	2035
		Aluminum	Aquatic Life	2020	NA	2033
		Fecal coliform	Aquatic Recreation	1994	NA	2035
		Mercury in fish tissue	Aquatic Consumption	1998	2007	NA
		Mercury in water column	Aquatic Consumption	1998	2007	NA
		Nutrients	Aquatic Life	2016	2021	NA
		Total suspended solids (TSS)	Aquatic Life	2014	2016	NA
Battle Creek	07010206-592	Benthic macroinvertebrates bioassessments	Aquatic Life	2014	2017	NA
		Chloride	Aquatic Life	2008	2016	NA
		Fish bioassessments	Aquatic Life	2014	2017	NA

Floodplain

The Metro Plant's existing levee/floodwall are FEMA accredited and designed to protect the Metro Plant from a 500-year flood. The Metro Plant site is designated as a Zone X - Area that has a 0.2% chance of flooding annually. Areas adjacent to the Metro Plant outside of the levee/floodwall are designed as Zone AE within the 100-year floodplain. All Project activity will be within the existing levee and floodwall.

Special Designations

Pig's Eye Lake is rated as a "High" area in the Wildlife Action Network (WAN) developed by the DNR, representing quality aquatic and terrestrial habitat. Adjacent areas such as the Mississippi River and Metro Plant property, are rated "Medium-High" or "Medium." The WAN identifies

significant aquatic and terrestrial biological areas across the state with the intent of aiding conservation efforts to address large scale threats, including climate change, invasive species, habitat loss, and others. Large areas and connections that facilitate species movement will support biological diversity. Targeting conservation within the network will increase the effectiveness and efficiency of actions to reduce the primary causes of population declines.

This stretch of the Mississippi River (DOW #19000599) is also considered an outstanding water of biological significance. This designation from the DNR is based on the presence of unique plant or animal communities (including aquatic plants, fish, birds, and amphibians). The Mississippi is also a State Water Trail.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

MDH's Minnesota County Well Index was reviewed for the Project site and surrounding area. There are seven monitoring wells, five groundwater relief wells, and three water supply wells at the Metro Plant site. Several piezometers have been used to monitor groundwater levels at the Metro Plant. **Table 7** lists monitoring wells, groundwater wells, water supply wells, and three piezometers closest to the Project site based on monitoring data recorded by MCES. **Table 8** identifies wells within one-half mile of the Project based on the MDH Minnesota County Well Index database. **Figure 15** identifies wells within the vicinity of the Project. **Appendix A** includes the MDH well log reports.

Table 7: Metro Plant Wells

MDH Well ID	MCES ID	Use	Static Water Level (ft)	Groundwater Elevation	2020 Annual Usage (gal)
807954	MW-1	Monitoring	20.66	685.88	N/A
807953	MW-2	Monitoring	22.82	682.42	N/A
807956	MW-3	Monitoring	20.76	686.31	N/A
807955	MW-4	Monitoring	19.89	686.42	N/A
807959	MW-5	Monitoring	28.8	677.61	N/A
807958	MW-6	Monitoring	24.07	679.85	N/A
807952	MW-7	Monitoring	23.15	681.58	N/A
603089	ARW-1	Dewatering	17.5	702	N/A
603090	ARW-2	Dewatering	18.6	702	N/A
603091	ARW-3	Dewatering	17.5	702	N/A
603092	ARW-4	Dewatering	16.58	702	N/A
603094	ARW-6	Dewatering	27.5	702	N/A
226583	Well No. 1	Supply	19	703	195,007,844
226584	Well No. 2	Supply	Not reported	703	247,717,092
151554	Well No. 3	Supply	30	703	22,986,092
851561*	P408	Observation	10.15	689.4	N/A
851562*	P409	Observation	12.38	687.17	N/A

MDH Well ID	MCES ID	Use	Static Water Level (ft)	Groundwater Elevation	2020 Annual Usage (gal)
655905*	P114	Observation	14.8	688.6	N/A

**October 26, 2021, piezometer measurement.*

Table 8: Known Wells within One-Half Mile of the Project

MDH Well ID	Use	Static Water Level (ft.)	Groundwater Elevation
200052	Commercial	20	700
342541	Environmental bore hole	8	699
342638	Environmental bore hole	15	702
343401	Environmental bore hole	14	702
501657	Monitor well	14	695
501658	Monitor well	16	700
501659	Monitor well	8	690
506893	Monitor well	11	703
506894	Monitor well	8	701
533381	Monitor well	Not reported	692
603098	Piezometer	18	702
655901	Piezometer	24	702
655905	Piezometer	17	Not reported
655933	Piezometer	16	702
752310	Monitor well	11	702
752311	Monitor well	7	699
752312	Monitor well	7	705
752313	Monitor well	7	699
752320	Monitor well	14	702
807952	Monitor well	19	702
807953	Monitor well	21	702
807954	Monitor well	21	702
807955	Monitor well	20	702
807956	Monitor well	20	702
807958	Monitor well	22	702

Source: MDH Well Log Reports

Three wells serve as water supply sources for the Metro Plant. These wells will not be impacted by the Project. The Project is not within a MDH wellhead protection area or drinking supply management area.

Based on the piezometer groundwater data from October 26, 2021, the groundwater elevation ranges from 677.26 to 694.85 which corresponds to 8.15 to 37.75 feet below the ground surface. The piezometer measurements closest to the Project area (P408 and P409) indicate a Static Water Level ranging from approximately 10 to 12.5 feet below grade. The depth to groundwater on the property varies from 0 to 20 feet based on GIS data from the DNR. The sensitivity to

pollution of near-surface materials is an estimate of the time it takes for water to infiltrate the land surface to a depth of 10 feet. It is intended to estimate the time of travel through the unsaturated zone to reach the water table, assumed to be 10 feet below land surface everywhere for the purposes of this method. As discussed earlier, **Figure 12** identifies geological features prone to karst feature development within 50 feet of the surface. The rest of the MCES property is rated to have "moderate" sensitivity (vertical travel time of 170 to 430 hours) to pollution of near-surface materials.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

The Project has the potential to produce additional wastewater recycle streams of approximately 1600 gallons per minute (gpm) from the new wet scrubber and the wet electrostatic precipitator. These recycle streams will combine with recycle streams from the existing wet scrubbers and wet electrostatic precipitators and flow to the existing aeration basins for treatment and secondary clarifiers to remove soluble and insoluble constituents. No expansions of any wastewater infrastructure will be required. Effluent is discharged to the Mississippi River in accordance with the Metro Plant NPDES/State Disposal System (SDS) Permit Number MN0029815 and the MCES System-Wide Phosphorus NPDES/SDS Permit Number MN0070629. Climate interactions are not expected with the Project's potential increase in wastewater quantity or the negligible difference in composition. The Project will not impact the plant's ability to continue to comply with NPDES/SDS discharge limits.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for sucha system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.

Effluent from the Metro Plant does not discharge to a subsurface sewage treatment system. No septic systems are part of the Project.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

Discharge to Surface Waters

The Project will produce wastewater recycle streams that are treated internally. The Metro Plant influent flow is directed to the pretreatment process. Following this,

influent flow is treated in eight primary clarifiers and then treated in two activated sludge systems that operate a single stage nitrification process with biological phosphorus removal. Treated effluent that is not recycled for in-plant processes is discharged to the Mississippi River, which is an impaired water, as described previously. Effluent limitations for MCES in the NPDES/SDS Permit (Permit No. MN0029815) are designed to mitigate impacts. Multiple seasonal limits and monitoring conditions apply to the discharge of effluent from the Metro Plant to the Mississippi River. From April 1 to October 31, Metro Plant effluent is disinfected with bleach and dechlorinated with sodium bisulfite. Effluent is aerated with a cascade aerator during conditions of low flow, as defined by the permit. Additionally, the Metro Plant adheres to the Mississippi Basin Total Phosphorus Permit (Permit No. MN0070629) that establishes a total phosphorous water quality based effluent limit.

PFAS

Per- and polyfluoroalkyl substances (PFAS) compounds have been used for decades in a wide variety of industrial processes and commercial products. Not all uses of PFAS in industrial settings are known. New PFAS are being invented, used in industry, and incorporated into commercial products, and released into the environment every day. Some PFAS are extremely stable and do not break down in the environment. PFAS have been found in the groundwater and surface water in Minnesota. PFAS pollution is present in the influent to municipal wastewater treatment plants at varying levels dependent on the contributions from industrial, commercial, and household sources. PFAS are emerging contaminants, which have a new awareness or understanding about how they move in the environment or affect public health. The fate and transport of PFAS through the wastewater treatment process is currently unknown.

Based on current knowledge there are PFAS in the wastewater influent, but the processes at Metro Plant do not add PFAS into the wastewater recycle stream. The level of PFAS in the wastewater recycle stream, and ultimately in the air, from the incineration process is currently unknown. Because the Project will not be processing additional wastewater until the population increases, it is not expected that additional PFAS will be introduced into the wastewater recycle stream in the immediate future.

PFAS are unique in that they are difficult to destroy and do not break down in the environment. If released into the air, they can impact soil, surface water and groundwater. MDH has a goal to test all community water systems for PFAS, although PFAS are not yet regulated under the Safe Drinking Water Act. The drinking water test results compare exposure to PFAS levels to health-based guidance values in drinking water. The nearest community drinking water systems to the Project (Woodbury and St. Paul Regional Water Services) did not detect PFAS above the guidance values.[17]

Just as PFAS are currently transitioning from unregulated to regulated contaminants in drinking water, the same transition is occurring in surface waters regulated by the Clean Water Act. MPCA has found Perfluorooctane sulfonic acid (PFOS) in fish tissue collected throughout Minnesota and has developed site-specific water quality criteria to protect fish consumers.

17 https://mdh.maps.arcgis.com/apps/MapSeries/index.html?appid=63515695237f425ea7120d1aac1fd09a

The MPCA's Minnesota PFAS Blueprint (February 2021) outlines the state's plan to protect communities and the environment from PFAS pollution. The plan presents approaches to pollution prevention, investigation of PFAS discharges, environmental monitoring, toxicity research, and regulatory development. The MPCA PFAS Monitoring Plan (March 2022) outlines a plan to gather PFAS data at manufacturing and industrial facilities, airports, landfills, and wastewater treatment plants, which will include MCES and serve as a basis for the MPCA's PFAS reduction program(s). MCES will continue to work with the MPCA to address PFAS at the Metro Plant as the regulatory framework evolves.

Climate Trends

As described in item 7, Minnesota is anticipated to experience an increase in precipitation, temperature, and more frequent extreme precipitation events. Regional climate trends may adversely affect the water quality of the Mississippi River from more severe flooding, prolonged drought, and warmer temperatures. For example, increased heavy rains and flood events could increase stormwater runoff. The Metro Plant's existing levee/floodwall protects the Metro Plant from a 500-year flood. Climate interactions are not expected with the Project's potential increase in wastewater quantity or the negligible difference in composition.

ii. Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants.Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments orare classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

Project area site runoff is governed by NPDES/SDS Permit numbers MN0029815 and MN0070629. The Stormwater Pollution Prevention Plan (SWPPP) will be updated and developed in accordance with the requirements of that permit, to be approved by the MPCA. The CSW Permit is discussed in item 12.b.iii.

The Project area is a wastewater treatment plant enclosed within a levee and floodwall. Stormwater from inside the levee and floodwall discharges into several stormwater management features within the Metro Plant and ultimately to the Mississippi River. Currently, rooftop and impervious areas around the existing incineration building are routed to a stormwater retention basin immediately south of the building.

No change in stormwater flow direction is expected. Stormwater flows will continue to be directed to and treated by the stormwater basin. The Project will result in a net increase in

impervious area of approximately 1.3 acres. Under existing conditions, the total runoff volume of stormwater over the entire site is approximately 0.67 acre-feet during a 10-year storm event and approximately 1.28 acre-feet during a 100-year storm event. Under proposed conditions, the total runoff volume of stormwater over the entire site is approximately 1.46 acre-feet during a 10-year storm event and approximately 2.82 acre-feet during a 100-year storm event.

Due to the increase in impervious area, MCES will expand and modify the existing stormwater basin from a retention basin to an infiltration basin to provide additional volume control. MCES will remove the existing access roadway and relocate it to the south to accommodate expansion of this stormwater basin. The infiltration basin will have an infiltration rate (0.10 inches per hour) suitable to keep the basin bottom dry following a 2-year storm after 48 hours. The basin will have sufficient volume to contain a 10-year storm and will limit outlet flow to 10.5 cubic feet per second during a 100-year event. The stormwater basin has been designed to accommodate heavier rain events resulting from climate change as described in item 7. The Project design will adhere the City of Saint Paul's stormwater management and Ramsey-Washington Metro Watershed District regulations.

MCES will implement temporary sediment and erosion controls during construction to curtail erosion and sediment transport and to maintain slope stability until permanent erosion controls have been adequately established. Sediment and erosion control will be maintained throughout the construction period by removing accumulated sediment, and by repairing or replacing damaged and deteriorated sediment and erosion control devices. Temporary sediment and erosion control devices typically include silt fence, straw bales, and storm sewer inlet protection.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe anywell abandonment. If connecting to an existing municipal water supply, identify the wells tobe used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should theappropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

Dewatering during Construction

A Water Appropriation Permit from the DNR is required for all users withdrawing more than 10,000 gallons of water per day or 1 million gallons per year. MCES anticipates dewatering during construction and that a temporary DNR Water Appropriation Permit will be required. The design elevation of the basement floor for the SMB is approximately 684 feet, 15 feet below ground surface. Allowing for a four-foot-thick floor slab, supporting gravel and some extra allowance, site dewatering can be expected to approximate an elevation of 670 feet or about 30 feet below ground surface. The anticipated construction schedule may require 6 to 12 months of dewatering. Water from dewatering during construction will be managed in accordance with the DNR Water Appropriation Permit and the MPCA CSW permit. Dewatering is expected to be discharged to the Metro Plant's existing stormwater system. A SWPPP for construction activities

will also be developed and implemented to control sediment and other pollutant discharges from the site. Dewatering is not anticipated to be required following completion of construction.

Onsite Water Supply Wells

Three existing water supply wells serve the combined needs of ongoing operations at the Metro Plant and are authorized by an existing DNR Water Appropriation Permit (Permit No. 1965-0271) which allows for water appropriation of up to 1,500 million gallons per year. MCES appropriates approximately 464 million gallons per year from the Prairie Du Chien aquifer per MCES well usage data (refer to **Table 7**). The authorized pumping rates for all three water supply wells is 2,200 gpm. The projected water use from the existing water supply wells at the Metro Plant would have an increase with the Project, from 524 gpm to 636 gpm. This represents an increase of 58 million gallons per year, well within the permit limits.

The Project will not require substantial changes to the existing Metro Plant infrastructure. The Project will not require an amendment of the existing DNR Water Appropriation Permit to accommodate the anticipated increase in water usage. No impacts to local service or groundwater resources are expected to result from the increases in water use at the Metro Plant. The DNR Water Appropriation Permit limits are designed to protect water resources. The Project will not impact groundwater or groundwater dependent features such as nearby wetlands.

Municipal Water and Effluent Water Recycling

City water and effluent water are used for domestic purposes and support processes such as waste heat boilers, wet scrubbers, wet electrostatic precipitators, auxiliary condensers, and steam turbine generators. City water is supplied to the Metro Plant via a main feed near the main parking lot. A distribution system is used to provide the water around the plant. City water usage for the SMB is expected to increase from 121 gpm to 150 gpm after construction of the Project. This represents a potential increase of 15 million gallons per year of City water.

Effluent water is pulled from the wastewater treatment process by four effluent pumps prior to chlorination. The effluent water is pumped via a distribution network throughout the plant. MCES uses effluent water for non-potable needs to offset demand for city and groundwater. Potential effluent water usage is expected to increase from 10,490 gpm to 12,315 gpm after construction of the Project. This represents a potential increase of pumping an additional 959 million gallons per year of effluent water.

Climate Impacts and Resiliency

Climate change trends may affect surface water and groundwater interactions that may lead to long-term uncertainty regarding surface and groundwater levels, aquifer recharge, and groundwater flow, resulting in impacts to groundwater supply availability, quality, and quantity. Surface and groundwater quantity is driven by the balance of atmospheric input from precipitation (recharge) and losses due to evapotranspiration.[18] The DNR Water Appropriation Plan requires that all permittees adhere to the Statewide Drought Plan in accordance with M.S. 103G.293 and that all practical and feasible water conservation methods and practices are employed, including reuse and recycling of water. As previously discussed, MCES utilizes treated effluent for in-plant processes that reduce the demand for groundwater resources. MCES is committed to pursuing wastewater reuse where economically feasible to promote sustainable

18 DNR. *Climate's Impact on Water Availability*. Updated October 19, 2021 https://www.dnr.state.mn.us/climate/water_availability.html

water resource practices. Climate change impacts to groundwater levels may require alterations to pumping schedules to maintain groundwater levels at the Metro Plant. MCES closely monitors groundwater levels and would alter pumping schedules as needed and in compliance with the requirements of the Water Appropriation Permit.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigationfor unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

The Project will not result in physical effects or alterations to wetlands. No wetlands are inside the Metro Plant floodwall and berm area, where the Project will be constructed. The Project will not require conversion of natural areas to industrial uses. Adjacent wetlands associated with the Mississippi River and the Pig's Eye Lake area are not expected to be impacted by the Project.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering thewater features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The Project would not result in physical impacts or alterations to surface waters.

13.Contamination/Hazardous Materials/Wastes

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The MPCA "What's in My Neighborhood" (WIMN) database was reviewed to determine environmental hazards in proximity to the site. **Table 9** summarizes the results of the MPCA WIMN database review. **Figure 16** identifies potentially contaminated sites in the MPCA WIMN database.

Table 9: MPCA Potentially Contaminated Sites

Site ID	Site Name	MPCA Program
2595	Metropolitan WWTP	Hazardous waste – small quantity generator (MND000819383, active)
		Investigation and cleanup - integrated remediation (LS0012275, inactive). Site closed in 1999.
		Petroleum remediation – leak site (LS0019819, inactive). A leak was discovered in 2015. A remedial investigation report and response action plan was prepared. The site was closed in 2017.
		Petroleum remediation – leak site (LS0020423, inactive). A leak was discovered in 2017. Remediation was completed and the site was closed in 2017.
		Petroleum remediation – leak site (LS0004071, inactive). Leak reported in 1994, site closed in 1994. Gasoline additive assessment completed in 2020 and closed in 2021.
		Petroleum remediation -leak site (LS0003096, inactive). Leak reported in 1990, site closed in 1993. Gasoline additive assessment completed in 2020 and closed in 2021.
		Petroleum remediation – leak site (LS0017085, inactive). Leak discovered in 2007, site closed 2008.
		Aboveground tank (TS0004017, active)
		Underground tank (TS0004017, active)
197401	Pig's Eye Landfill	Comprehensive Environmental Response, Compensation and Liability Information System site, meaning that they were suspected of being contaminated. (MND980609085, inactive). Listed 1987 to 2005.
		Superfund site (SR0000117, active)
4015	BWC Terminals – Saint Paul 2	Hazardous waste – minimal quantity generator (MND045974185, active)
		Investigation and cleanup – (Brownfield VP4900, inactive)
		Emergency response – spill incident, closed 2017
		Integrated remediation (LS0012283, LS0012282 – inactive; LS0017093 - active)
		Petroleum remediation – leak site (LS0006648, inactive)
		Aboveground tanks (TS0003849, TS0014440 – active; TS0123322 – inactive)
		Underground tanks (TS0003849, TS0014440 – active)
196368	MCES Metropolitan Wastewater Plant Sediment Site	Superfund Program Non-listed Sites (SR0000247, active)
824	Flint Hills Resources Pine Bend LLC	Hazardous waste – very small quantity generator (MND000686063, active)
		Integrated remediation (LS0005560 – inactive; IR0000028 – active)
		Pollution prevention (Toxics Reduction via the federal toxics release inventory)
		Aboveground tanks (TS0050736, active)
		Underground tanks (TS0003697, inactive)

Site ID	Site Name	MPCA Program
2000	Bulk Silos	Hazardous waste - very small quantity generator (MND985690635, active)
24696	BWC Terminals – Saint Paul 1	Hazardous waste – large quantity generator (MNR000116640, MND981778343 - active)
		Aboveground tanks (TS0121795, 14440 – inactive)

The Metro Plant is not under any remediation status with the MPCA and therefore does not have an active Construction Contingency Plan or Response Action Plan. The Plant does have a combined Spill Prevention, Control and Countermeasure (SPCC) Minnesota Spill Plan and a SWPPP to address releases of stored petroleum products or stored wastewater treatment chemicals.

Previous events at the Metro Plant include petroleum-contaminated soils that were investigated and subsequently treated following removal of underground storage tanks in 1990; the MPCA has closed the file on this incident (MPCA Site No. LEAK 00003096). A separate petroleum leak incident (MPCA Site No. LEAK 0020423) occurred in 2017. Following soil remediation and removal activities, the site was closed in 2017. The file for a separate release (MPCA Site No. LEAK 00004071) has also been closed. No further investigation has been required of diesel range organics detected when four underground storage tanks (USTs) were upgraded in 1993 (MPCA Site No. LEAK 00007015). A small release of kerosene reported as MPCA Site No. LEAK 17085 in 2007 was determined to be insignificant, requiring no action. None of these events occurred in the area of the Project, so no contamination is anticipated. There are no other environmental hazards known to be associated with past activities in the Project area.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

MCES will haul dry ash from the FBIs and air pollution control equipment offsite for disposal in an industrial waste landfill in Minnesota. In cases of high solids storage levels and unavailable incineration capacity, dewatered wastewater solids are stabilized with lime and ash and hauled offsite for disposal in an industrial landfill in Minnesota. The procedures for dry ash disposal will be the same for operation of the Project with the addition of the fourth FBI. Ash produced is expected to increase over time with increased wastewater processing due to population increases.

No increase in solid waste is expected from the auxiliary boilers and incinerator auxiliary back up fuel change, new steam turbine generator, auxiliary condensers, the transporters vent change, new cake bins and centrifuges, or the new engine-driven fire pump.

The addition of the FBI will also include a new cake receiving facility, which will allow the Metro Plant to accept dewatered wastewater solids via trucks from other MCES WWTP facilities, including Seneca, Blue Lake, or Empire. This cake receiving facility is not anticipated to be used on a regular basis but is instead intended for emergency backup situations at the other facilities, which will allow their dewatered wastewater solids to be processed through any of the four incinerators at the Metro Plant. This would generate a small amount of additional ash from the FBI operation but would reduce the amount of dewatered wastewater solids disposed at landfills overall. The use of the new cake receiving facility to provide emergency operations would result in a net decrease of regional waste sent to landfills from MCES facilities because the volume of ash produced from

incineration would be much less than the volume of dewatered wastewater solids received, which would have been landfilled if the cake receiving facility were not available.

MCES will properly dispose of offsite all demolition and construction waste associated with the expansion of the existing SMB. Demolished steel tanks and asphalt will be recycled during construction.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverseeffects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

Table 10 identifies existing storage tanks that will continue to be used at the Metro Plant.

Table 10: Existing Tanks that will be Used by the FBI 4 Project

Chemical	Volume (gal)	Tank Type*	Use	Regulated by PCA Storage Tank Program?
Morphaline	150	304 SS	Boiler Feed	No+
Corrosion Inhibitor	250	304 SS	Boiler Feed	No+
Oxygen Scavenger	150	304 SS	Boiler Feed	No+
Diethylamindethanol	150	304 SS	Boiler Feed	No+
Caustic Storage - Bulk	15,000	CS	Scrubber System	Yes
Caustic Day Tank 1	250	CS	Scrubber System	No+
Caustic Day Tank 2	250	CS	Scrubber System	No+
Caustic Day Tank 3	250	CS	Scrubber System	No+
Polymer - 1	12,900	FRP	Dewatering	Yes
Polymer - 2	12,900	FRP	Dewatering	Yes
Polymer - 3	12,900	FRP	Dewatering	Yes
Polymer - 4	12,900	FRP	Dewatering	Yes
Polymer Mix Tank - 1	6,000	FRP	Dewatering	Yes
Polymer Mix Tank - 2	6,000	FRP	Dewatering	Yes
Polymer Mix Tank - 3	6,000	FRP	Dewatering	Yes
Polymer Feed Tank - 1	4,800	FRP	Dewatering	Yes
Polymer Feed Tank - 2	4,800	FRP	Dewatering	Yes
Polymer Feed Tank - 3	4,800	FRP	Dewatering	Yes
Polymer Feed Tank - 4	4,800	FRP	Dewatering	Yes
Sulfuric Acid	1,000	HDLPE	Alkaline Odor Control Scrubber	No+
Caustic	550	HDLPE	Alkaline Odor Control Scrubber	No+
Sodium Hypochlorite - 1	3,000	HDLPE	Alkaline Odor Control Scrubber	Yes

Chemical	Volume (gal)	Tank Type*	Use	Regulated by PCA Storage Tank Program?
Sodium Hypochlorite - 2	3,000	HDLPE	Alkaline Odor Control Scrubber & WFE System	Yes
Alum	9,500	HDLPE	FTS and GTS	Yes
Ammonia - Decommissioned	10,000	CS	Air pollution control	Yes

**SS – stainless steel, CS – carbon steel, FRP -fiberglass reinforced plastics, and HDLPE – high density linear polyethylene*

+ – denotes tanks that are not regulated due to not meeting minimum size threshold, though any tank greater than 500 gallons still will be registered with the MPCA

Table 11 identifies new storage tanks included with the Project. The two 60,000-gallon propane tanks and one 300-gallon diesel storage tank will be placed south of the SMB. The propane tanks will be stored outside within a secured fence. The diesel tank will be located with a fire pump in a small building south of the SMB. MCES will construct a propane building to house pumps, vaporizer, and an air blend system as part of the Project. **Figure 5** shows the location of the proposed propane tanks and building. MCES will also add tanks to store hydraulic fluid needed for the cake pumps, as well as lube oil for the new steam turbine generator. MCES will register aboveground storage tanks with the MPCA and adhere to the design and operating regulations pursuant to Minn. R. ch. 7151.

There are no current plans or requirements via the Air Permit to install a urea or ammonia system for nitrogen oxides (NO_x) emissions control at the Metro Plant. However, the new FBI will be evaluated after initial commissioning to determine if additional control technologies are needed. MCES would follow requirements for storage and handling of urea or ammonia if a system is added to the Metro Plant.

Table 11: Proposed Tanks

No. of Tanks	Description	Location	Size (gal)	Regulated by PCA Storage Tank Program?
2	Propane	Outside, South of SMB	60,000	No^{++}
1	Diesel	SMB	300	No^{+}
1	Sodium Hydroxide (day tank)	SMB	250	No^{+}
1	Hydraulic Fluid	SMB	610	No^{+}
1	Lube Oil ISO VG 68	SMB	1,320	Yes

+ – denotes tanks that are not regulated due to not meeting minimum size threshold, though any tank greater than 500 gallons still will be registered with the MPCA

++ – denotes tanks that are gases at ambient temperature and pressure, and therefore are not regulated by the AST program

There are two 440,000-gallon fuel oil tanks used for boiler backup fuel (one in service and one out of service) that will be taken out of service after the propane system is operational in compliance with Minn. R. 7151.8200. When the out of service fuel tanks are removed, the removal process will be conducted following MPCA guidelines and requirements. If leaks, spills, or soil contamination are identified during the process to remove and retire the backup fuel oil tanks, MCES will follow appropriate guidelines and remediation practices to address identified issues.

The selected construction contractor will be required to follow MCES' spills reporting and mitigation procedure during construction of the Project. MCES defines a spill as a release of wastewater, sludge, treated effluent, chemical, petroleum, or other material outside of the container, conduit or

treatment unit in which it is stored, transferred, or treated. The procedure requires: (1) Stop and contain the spill, ensuring access to waters and sewers is blocked, (2) Initiate spill response/recovery if it is safe to do so, (3) Notify site manager and Council's Authorized Representative (CAR), and (4) Notify MCES Regional Dispatch at (651) 602-4511. MCES Regional Dispatch will coordinate and facilitate appropriate spill responses and immediate corrective action and will complete all the necessary notifications with both internal and external parties. Additionally, the contractor is required to contact the State Duty Officer at (651) 649-5451 for any spill incident. Environmental effects of accidental spills or releases of hazardous material will be minimized due to the implementation of the above mitigation procedure.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling

Several wastes generated because of Metro Plant operation and maintenance activities are classified as hazardous wastes by Minn. R. ch. 7045. The Metro Plant is classified as a small quantity hazardous waste generator (MND000819383). These include items such as corrosive laboratory chemicals, heavy metal lab wastes, non-chlorinated lab solvent, chlorinated solvent, degreasing solvent, paint waste, chemical oxygen demand (COD) ampoules and lab-packed hazardous waste. MCES will manage the plant's hazardous wastes in compliance with these rules, which minimizes the adverse effects from the storage of the hazardous wastes. Universal wastes include batteries, florescent lamps, and mercury-containing equipment. Oily wastes include used oil, used oil filters, and used oil absorbents.

No significant amount of generated or stored hazardous waste is anticipated to be associated with construction of the Project. The contractor will be required to dispose of hazardous waste consistent with applicable laws and regulations. Any minor amounts of hazardous materials or waste will be stored in locked containers during construction.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The Mississippi River flows along the western edge of the Metro Plant. Lands designated for Pig's Eye Regional Park, around Pig's Eye Lake, are to the south and southeast of the Metro Plant property. Further to the southeast is the Pig's Eye Lake Scientific and Natural Area (SNA). MRCCA Vegetation Restoration Priorities and Significant Existing Vegetative Stands are present in the areas adjacent to, and within portions of the Metro Plant property, but are outside the limits of the Project area. The undeveloped character of much of the land near the Metro Plant, particularly to the south and east, provides a range of habitat, which includes wetlands, floodplain forest, and grasslands.

Ramsey County has coordinated deer hunts on the Pig's Eye peninsula in the past as part of the Ramsey County Cooperative deer management plan. An avian study was completed in the spring of 2018 and identified over 50 species of birds on the Metro Plant property. The stretch of the Mississippi River the Metro Plant is on has been documented to support over 80 species of fish according to the DNR fish mapper database.

The Project is an addition to an existing building to add infrastructure for plant operations. All Project activity will be confined within the existing levee and floodwall for the Metro Plant. Buildings, treatment tanks, roads, and storage areas occupy most of the area inside of the levee. Plant communities inside of the levee and floodwall are limited to landscaped areas planted with grass. Neither Project construction nor operation are expected to affect nearby sensitive resources.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, andother sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA____) and/or correspondence number (ERDB_-20150106**___) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.**

The DNR maintains a list of known records of rare and sensitive species and habitats in Minnesota within the Natural Heritage Information System (NHIS). Queries of the NHIS database have been conducted for the Metro Plant as part of the review of previous projects at the Metro Plant (ERDB-20150106). An updated request for concurrence was received on May 9, 2022. The DNR NHIS review of the Project indicated that the Project area is within a High Potential Zone for the rusty patched bumble bee (*Bombus affinis*). High Potential Zones are areas identified by the U.S. Fish and Wildlife Service (USFWS) where presence of the rusty patched bumble bee should be presumed. The DNR did not identify any other potential impacts to State-listed species or rare features resulting from the Project and did not recommend any specific mitigation measures. The correspondence provided from the DNR, including ERDB 20150106 and MCE 2022-00056, is provided in **Appendix B**.

Under Stantec's Limited License to Use Copyrighted Material (LA-1005) related to Rare Features Data, NHIS was searched in March 2022 to identify species within the Project area and a one-mile buffer. **Table 12** lists the results of the NHIS review. **Appendix B** includes the DNR's response letter (Correspondence # MCE 2022-00056, dated May 9, 2022).

Table 12: DNR Sensitive Species within One Mile of the Project Area

Species Common Name	Scientific Name	State Rank*	Habitat Description
Plants			
Butternut	*Juglans cinerea*	E	This species occurs in mesic northern forests on loamy or alluvial soils with water near the surface or along river terraces protected from flooding or scouring.
Kitten Tails	*Besseya bullii*	T	This species occurs within oak savannas, oak woodlands and dry prairies in the metropolitan area. It occurs in partial shade to full sunlight on the upper slopes of river bluffs and is associated with well-drained sandy to gravelly soil derived from alluvium or limestone bedrock.
Canada Frostweed	*Crocanthemum canadense*	SC	Canada frostweed is found on high quality remnant sand savannas, sand prairies, dunes, and barrens. These sparsley vegetated habitats are characteristically dry and sunny most of the day.

Species Common Name	Scientific Name	State Rank*	Habitat Description
			Cleared and plowed habitats do not support this species.
Insects			
Lead-plant Flower Moth	*Schinia lucens*	SC	Leadplant flower moth is associated with leadplant (*Amorpha canescens*) which grows only on upland prairie and savanna plant communities.
Fish			
Black Buffalo	*Ictiobus niger*	T	Black Buffalo is found in sloughs, impoundments, and both fast- and slow-flowing portions of rivers.
Blue Sucker	*Cycleptus elongatus*	SC	The Blue Sucker prefers deep, swift water in channels of large rivers with sand, gravel, or rubble bottoms.
Mussels			
Fawnsfoot	*Truncilla donaciformis*	T	Fawnsfoot occurs in flowing areas of large rivers in soft or coarse substrate, and they have been found at depths up to 30 feet.
Wartyback	*Quadrula nodulata*	E	The wartyback is found in large rivers on fine or coarse substrates in areas of slow or moderate current.

**State Ranking: E = Endangered, T = Threatened, SC = Special Concern*

The USFWS's Information for Planning and Consultation (IPaC) tool was used to gather data about federally listed threatened and endangered species that may occur in the vicinity of the Project area. The USFWS IPaC lists the northern long-eared bat (*Myotis septentrionalis*; NLEB) as federally endangered (effective March 31, 2023) the higgins eye mussel (*Lampsilis higginsii*; pearlymussel) as endangered, and the monarch butterfly (*Danaus plexippus*) as a federally listed candidate species (and is therefore not federally regulated).

Botanical and insect species listed in **Table 12** are associated with high or moderate quality native forest or prairie habitats that occur outside of the Project footprint. Lands impacted by the Project consist of paved areas or graded ground maintained as turf or a stormwater basin.

Fish and mussel species will not be affected by alterations to the Project area. All disturbance will occur on uplands inside the levee. Runoff from the Project area is directed to and treated by the stormwater basin near the SMB before ultimately being discharged to the Mississippi River. The Project will not require tree and woody vegetation removal given that the Project area limits are within a developed area primarily consisting of existing pavement and minor areas of mowed lawn. Therefore, no suitable habitat for the NLEB will be impacted by the Project.

The DNR notes that the Project area is within a High Potential Zone for a federally protected species, the rusty patched bumble bee (*Bombus affinis*). The rusty patched bumble bee is listed by the USFWS as endangered. The species occurs in a variety of habitats, including prairies, woodlands, marshes, agricultural landscapes and residential parks and gardens where they frequent flowering plants from April through October. The rusty patched bumble bee requires areas that support sufficient food, including nectar and pollen from diverse and abundant flowers, as well as undisturbed nesting sites that are in proximity to those floral resources. Given that the proposed building addition will be constructed within a developed area consisting of primarily paved or mowed lawn with no nectar resources or potential nesting habitat, it was determined that no suitable habitat for the rusty patched bumble bee would be impacted by the Project.

An active bald eagle nest site was recorded west of the effluent channel approximately one mile from the Project. Biologists observed the nest in a high-quality floodplain forest while conducting a Natural Resource Assessment in September 2017 and June 2018. The presence of a nest at this location indicates that this pair of eagles is acclimated to activities associated with the operations of the existing Metro Plant as well as barge and boat traffic occurring along the Mississippi River.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separatelydiscuss effects to known threatened and endangered species.

Neither Project construction nor operation will affect nearby sensitive resources as the Project will be contained within the levee and berm surrounding the Metro Plant. The Project would not impact suitable habitat for rare species.

As discussed in Item 7 (Climate Adaptation and Resilience), it is anticipated that Minnesota will experience an increase in temperature, precipitation, and more frequent extreme precipitation events resulting from climate change. Changes in temperature, precipitation, and the urban heat island may negatively wildlife, plant communities, and rare features including the SNA. The Project would not impact suitable habitat for rare species and, therefore, would not exacerbate the impacts of climate change on rare species. As described in Item 7.b., the Metro Plant's heat recovery system would mitigate contributions of the Project to the urban heat island by reducing heat loss and recovering energy. Additionally, MCES will consider opportunities to incorporate sustainable landscaping consistent with the Metro WWTP Sustainable Landscape Master Plan.

Construction activities that involve soil disturbance can result in the introduction and spread of invasive species. Minnesota statutes (Chapter 18) and local ordinances regulate the management of noxious weeds and invasive species. MCES will implement best management practices during construction activities and operation within the Project area to minimize the introduction or spread of noxious weeds and invasive species at the site. These practices may include cleaning mud and debris off construction equipment and clothing and staying on designated roads.

d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.

The DNR reviewed the Project and did not identify any state-listed species that would be potentially impacted by the Project nor any project specific mitigation recommendations. The DNR noted that the Project area is within a high potential zone for the rusty patched bumble bee, a federally listed species. The Project would not impact habitat suitable for the rusty patched bumble.

Under the MRCCA Program, Executive Order 79-19 establishes Standards and Guidelines for state and regional agencies with regard to permit regulation and in developing plans within their jurisdiction, and for the MCES regarding plan review, regulations, and development permit applications. In addition, regional and state agencies are directed to develop a capital improvement program or public facilities program, which specifies the sequence of actions consistent with the standards and guidelines. Standards and guidelines that are particularly applicable to the Project include the following:

- Minimize runoff and improve runoff quality.
- Minimize site alteration.

- Manage vegetation cutting.
- Address standards for site plans:
  - Approval of site plans to determine that plans adequately assess and minimize adverse effects and maximize beneficial effects.
  - Include measures that address adverse environmental effects.
  - Include standards to ensure that structures, roads, screening, landscaping, construction placement, maintenance, and stormwater runoff are compatible with characteristics and use of corridor in that district.
  - Provide opportunities for establishment of open space and public viewing where applicable, and specific conditions regarding buffering, landscaping, and re-vegetation.
- Address standards for structure site and location to ensure riverbanks, bluffs and scenic overlooks remain in their natural state and minimize interference with views of and from the river, except for specific uses requiring river access.
- Include provisions to retain existing vegetation and landscaping.

FBI 4 will be constructed in a building addition next to the existing FBIs on land currently paved. Other parts of the Project include construction within and in proximity to the existing SMB. No issues with sensitive resources around the construction site are anticipated. Neither Project construction nor operation will affect nearby fish, wildlife, plant communities, ecosystems, and sensitive ecological resources, as the Project will be contained within the levee and berm surrounding the Metro Plant.

MCES will consider opportunities to incorporate sustainable landscaping consistent with the Metro WWTP Sustainable Landscape Master Plan along with wildlife-friendly erosion control products. Opportunities to utilize sustainable landscaping into Metro Plant landscaping will be confirmed as the final design is developed.

15. Historic Properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

See attached SHPO documents in **Appendix C**. The historic property database search was done for the following coordinates, which includes the Project area: SW NW S10 T28N R22W. SHPO reported that several sections of the Trunk Highway 61 are historical properties located near the Metro Plant. No archeologic records were found near the Metro Plant.

MCES proposes construction that will be on previously disturbed land within the existing floodwall and berm area of the plant. Therefore, surrounding areas outside of the Metro Plant property will not be affected.

16. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

There are no scenic byways near the Metro Plant as determined by the Minnesota Department of Transportation (MnDOT) as a part of the Minnesota Scenic Byways Commissions. No rivers or river segments in the Minnesota State Wild & Scenic Rivers Program as determined by the DNR are near the Metro Plant. As discussed in Item 14.d, MRCCA standards and guidelines apply to the Project. The Project area consists of a paved area and small areas of mowed lawn adjacent to the existing SMB. The Project will not require vegetation cutting or removal of existing buffers. The addition to the existing SMB to accommodate FBI 4 and the associated stack will not significantly alter the appearance of the existing Metro Plant. The architectural design of the proposed addition will be similar to the existing building, consisting of precast concrete panels. The new FBI4 stack will be clustered in the same location and at the same height as the existing incinerator stacks.

To mitigate potential visual effects of vapor plumes from the Project, the incinerator plume is suppressed by high stack temperatures. Residual heat in the exhaust stream will be captured upstream of the wet scrubbers and added back into the air stream downstream of the wet scrubbers. This elevates the air stream by about 100 degrees Fahrenheit. This addition of heat to the heat produced in the induced draft fan effectively increases exhaust stream temperature to 250 degrees Fahrenheit as it enters the discharge stack and minimizes vapor plumes.

17. Air

a. Stationary source emissions – Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

Existing Conditions

The existing Metro Plant provides treatment of wastewater and incinerates wastewater solids with state-of-the-art energy recovery, which results in air emissions. Current primary air emission sources at the Metro Plant include three fluidized bed incinerators, odor scrubber, liquids treatment processes, sludge tanks, boilers, ash handling, and emergency generators. Items and activities with less significant air emissions include fuel tanks, maintenance activities such as painting, welding, and degreasing, and handling and storage of sand, lime, and ash. The Metro Plant is regulated as a major Prevention of Significant Deterioration (PSD) facility for nitrogen oxides (NO_x), a major Title V facility, but a minor Hazardous Air Pollutant (HAP) facility.

The Metro Plant was in the PM_{10} maintenance area along the Mississippi River in Saint Paul. This maintenance area is defined as an area that was formerly designated as nonattainment and has been redesignated to attainment for a criteria pollutant, indicating the area now meets the PM_{10} National Ambient Air Quality Standard (NAAQS) standard. The maintenance area was redesignated as attainment for PM_{10} in 2002 and the maintenance plan expired in September 2022. The Metro Plant and nearby facilities have on-going PM_{10} air permitting requirements for this maintenance area.

The Metro Plant operates under MPCA air permit 12300053-006. The permit expired on February 25, 2015. An air permit renewal application was submitted on August 26, 2014. Minnesota rules and Title V regulations allow operation of a facility on an expired permit if a renewal permit application was received 180 days prior to the expiration date. The MPCA indicated that the application was administratively complete.

Proposed Conditions

MCES proposes to increase solids processing capacity at the Metro Plant by adding a fourth incinerator with state-of-the-art energy recovery and air pollution control equipment. The PM_{10} emissions from the Project require MCES to apply for a major amendment to the Metro Plant's existing air permit. Air dispersion modeling is complete for the Project and discussed below.

Proposed Equipment

MCES proposes to add FBI 4, a new steam turbine generator, two centrifuges, one cake bin, two cake pumps, a new sludge cake receiving facility, and a 175-kW engine-driven fire pump. The existing pressure-based ash conveyance system is proposed to be replaced with a new vacuum ash conveyance system and the existing SMB housekeeping ash system will be replaced. MCES also proposes to change the backup fuel for the auxiliary boilers and incinerators from fuel oil to propane. In addition, some of the existing transporters are proposed to exhaust to bin vent filters instead of stack STRU3 (SV023).

The proposed FBI 4 will have approximately the same capacity as the three existing incinerators (130 dtpd each). Energy recovery and air pollution control equipment proposed for FBI 4 will be similar to the equipment for the three existing incinerators. Further discussion on the air pollution control train at the Metro Plant is provided under the Mitigation section below.

The Project will convert part of the dense phase (pressurized) ash transport system to vacuum transport system, which will add two additional dust collectors, while discontinuing the use of part of the existing system. A small emission increase is expected for the ash transport system with the throughput increase.

Other Project components are not expected to significantly increase particulate matter emissions relative to the emissions increase from FBI 4.

Regulatory Discussion

The Project will trigger a major Minnesota air permit amendment. The Metro Plant existing permit notes that a major amendment is triggered for any new PM_{10} emission source since the site is in a PM_{10} maintenance area and has permanent Title I conditions for PM_{10} emissions. A summary of the applicable air permitting regulations is in **Appendix G**.

Although the Metro Plant is a major PSD source, the Project will not trigger PSD review requirements because the proposed air emissions are below the PSD thresholds. New emission limits on $PM_{2.5}$ and PM_{10} for the auxiliary boilers, existing and new incinerators, and alkaline stabilization sludge loadout, are proposed in the air permit application. In addition, a risk-based polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF) emission limit is proposed for the existing incinerators. Establishing a site-specific limit also triggers a major air permit amendment.

Emissions Discussion

Criteria Pollutants

The change in the Metro Plant criteria pollutant potential emissions with the inclusion of the Project potential emissions is shown in **Table 13**. The calculation includes emissions from FBI 4, the new engine-driven fire pump, the SMB vacuum ash conveyance system, the SMB ash housekeeping system, and from changing the Metro Plant's auxiliary boiler backup fuel and the incinerators auxiliary backup fuel from fuel oil to propane.

Table 13: Change in Facility Potential Criteria Pollutant Emissions

Pollutant	Change in Potential Emissions (tons/yr)
PM, excluding condensable particulates	-3.37
PM_{10}	-2.88
$PM_{2.5}$	-3.49
SO_2	-3.19
NO_x	26.49
VOC	15.42
CO	12.91
Lead	-7.98×10^{-4}

The Project will increase potential emissions of some criteria pollutants at the Metro Plant, as the FBI 4 would increase the maximum throughput capacity to accommodate the population growth of the Metro Plant service area and would allow MCES to complete extensive renewals on the existing incinerators. Potential emissions of other criteria pollutants will decrease due to the fuel change. Actual emissions are expected to increase as the population served by the Metro Plant increases.

Hazardous Air Pollutants (HAPs)

The hazardous air emissions from FBI 4 are expected to be metals, volatile organics, polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), and hydrochloric acid. Allowable mercury emissions under the NSPS for FBI 4 are approximately 299 grams per year.

Select hazardous air emissions from the Project are shown below in **Table 14**. Potential emission decreases of lead and mercury are associated with changing the Metro Plant's auxiliary boiler backup fuel and the incinerators auxiliary backup fuel from fuel oil to propane. Potential emissions of other regulated HAPs will increase. These HAPs were evaluated in the Air Emission Risk Assessment discussed below.

Table 14: Change in Facility Potential Hazardous Air Pollutant and Hydrogen Sulfide Emissions

Hazardous Air Pollutant	Change in Potential Emissions (tons/yr)
NSPS Regulated HAPs	
Lead	-7.98×10^{-4}
Cadmium	9.59×10^{-5}
Mercury	-8.44×10^{-5}
Hydrochloric acid	0.14
Total Dioxins/Furans, total mass basis	5.12×10^{-9}
All Other HAPs	
Individual HAP	1.75×10^{-3}
Total HAPs	2.45
Other Toxics of Interest	
Hydrogen sulfide	0

With the additional solids processing capacity, the Metro Plant will remain a minor HAP source after the Project.

PFAS

Per- and polyfluoroalkyl substances (PFAS) compounds have been used for decades in a wide variety of industrial processes and commercial products. PFAS are unique in that they are difficult to destroy and do not break down in the environment. If released into the air, they can impact soil, surface water and groundwater. PFAS are not yet regulated under the Clean Air Act. MDH has health-based values for PFAS in air but there are not yet any risk-based values for releases to the air that will protect fish consumers.

The concentration of PFAS currently in the wastewater recycle stream and therefore in the air emissions from the incineration process is currently unknown. At this time, testing methodologies, emissions, fate and transport studies of PFAS in incineration processes are limited and inconclusive. However, because the Project will not be processing additional wastewater until the population increases, it is not expected that additional PFAS will be introduced into the wastewater recycle stream in the immediate future.

The MPCA's Minnesota PFAS Blueprint (February 2021) outlines the state's plan to protect communities and the environment from PFAS pollution. The plan presents approaches to pollution prevention, investigation of PFAS discharges, environmental monitoring, toxicity research, and regulatory development. The MPCA PFAS Monitoring Plan (March 2022) outlines a plan to gather PFAS data at manufacturing and industrial facilities, airports, landfills, and wastewater treatment plants, which will include MCES and serve as a basis for the MPCA's PFAS reduction program(s). MCES will continue to work with the MPCA to address PFAS at the Metro Plant as the regulatory framework evolves.

Air Quality

Significant Impact Analysis

MCES used a Source Impact Analysis (SIA) to assess whether the Project will cause or contribute to an air quality violation. Modeled concentrations were compared to the respective Significant Impact Level (SIL) for each criteria pollutant and averaging period. SILs are a non-regulatory threshold that are only used for evaluating the significance of an emission source or sources. The SIL is defined as a *de minimus* threshold at which a source is presumed to not cause or contribute to an exceedance of a National Ambient Air Quality Standards (NAAQS). See **Table 15** for the SIA results.

The results of the SIA showed that only carbon monoxide (CO) emissions were below the SIL. Therefore, NAAQS modeling was not required for CO. For the parameters that did not pass the SIL (NO_2, SO_2, PM_{10}, $PM_{2.5}$), refined air dispersion modeling was conducted.

Table 15: SIA Modeling Results

Pollutant	Averaging period	Significant Impact Level (SIL) (ug/m3)	Total modeled concentration (ug/m3)	Percent of SIL (%)
NO_2	1-hr	7.52	183.29	2437.35
	annual	1	10.84	1084.42
SO_2	1-hr	7.86	146.22	1860.32
	3-hr	25	132.48	529.90
	24-hr	5	88.19	1763.77
	annual	1	15.69	1569.14
PM_{10}	24-hr	5	53.58	1071.64

Pollutant	Averaging period	Significant Impact Level (SIL) (ug/m3)	Total modeled concentration (ug/m3)	Percent of SIL (%)
	annual	1	N/A	N/A
$PM_{2.5}$	24-hr	1.2	18.53	1544.48
	annual	0.3	3.93	1964.03
CO	1-hr	2000	396.31	19.82
	8-hr	500	302.81	60.56

Air Modeling

MCES conducted air dispersion modeling of Project emissions using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). The Air Modeling Report is provided as **Appendix D**.

For PM_{10}, MCES conducted a refined modeling analysis that accounts for as many PM_{10} emitting sources as can be quantified in the area as well as a monitored background value. This analysis is referred to as a Cumulative Impact Analysis (CIA). A summary of the preliminary predicted ambient impacts is shown in **Table 16**.

Table 16: Cumulative Impact Analysis Results

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Ambient Impact (µg/m³)	Ambient Air Quality Standard (µg/m³)
$PM_{2.5}$	24-hr	33.40	Background varying by season is included in model results	33.40	35
$PM_{2.5}$	Annual	3.90	7.4	11.30	12
PM_{10}	24-hr	578.53 – All Sources *	50	628.53	150
SO_2	1-hr	140.51	10	150.51	196.4
SO_2	24-hr	74.42	5	79.42	366.6
SO_2	Annual	16.14	2	18.14	78.6
NO_2	1-hr	169.07	Background varying by season and hour of day included in model results	169.07	188
NO_2	Annual	11.51	13	24.51	99.7
Pb	Rolling 3-Months	0.0051	0.015	0.015	0.15
H_2S	30-min	29.83	Negligible	29.83	70 / 42

** MCES is proposing to restrict facility emissions to ensure that its maximum contribution to all PM_{10} NAAQS exceedances is less than the SIA of 5 mg/m^3.*

All of the pollutants passed the CIA by modeling under the ambient air quality standards for NAAQS/MAAQS except for PM_{10}, which then underwent a third analysis called a Source Contribution Analysis (SCA).

PM_{10} Source Contribution Analysis (SCA)

The PM_{10} nearby source parameters provided by MPCA for the Red Rock Maintenance area have modeled concentrations above the PM_{10} NAAQS. MCES is proposing an operating restriction on the facility so that Metro Plant's contribution to all exceedances is less than 5 µg/m^3 SIA. The final air dispersion modeling report submittal documented all day and receptor locations above the PM_{10} NAAQS, and all days where the Metro plant contributions were above the 5 µg/m^3 PM_{10} SIL for those receptors. MCES demonstrated that the Metro plant had no contributions above 5 µg/m^3 for the modeled PM_{10} NAAQS exceedances. Therefore, the Metro Plant is not a significant contributor under MPCA and EPA guidance. Alkaline Stabilization Loadout is an emergency backup process to incineration. MCES proposes that Alkaline Stabilization Loadout (EQUI 9) will not operate at the same time as all four incinerators. Under EPA and MPCA guidance, both can proceed with Metro Plant permit issuance and SIP revision on a schedule that does not depend on MPCA revising nearby source permits or establishing nearby source administrative orders.

An ambient monitor is operated by MPCA for PM_{10} in the Red Rock Road maintenance area. The Red Rock Road maintenance area includes all of Childs Road. The ambient monitoring in the area demonstrates that particulate matter concentrations have consistently remained below the NAAQS. MCES has completed air dispersion modeling for the Metro Plant and nearby sources, as provided by MPCA. The Metro Plant impacts are below the PM_{10} Significant Impact Analysis for all days and locations that nearby source allowable emissions are showing modeled exceedances.
Based on the CIA, FBI 4 and the remainder of the Project will meet all NAAQS and Minnesota Ambient Air Quality Standards (MAAQS).

Air Emissions Risk Assessment

MCES has also completed an Air Emissions Risk Assessment (AERA) that evaluated air emissions for potential impacts to human health. The AERA is provided as **Appendix E**. The AERA includes both a quantitative analysis of potential impacts to human health using the risk assessment screening spreadsheet (RASS), and a qualitative analysis using information from the Metro Plant and the surrounding community.

The RASS was used to evaluate air toxics emissions for acute and chronic (non-cancer) hazard indices, and cancer risks associated with the Project. The air toxics concentrations were estimated using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) with facility-specific parameters. The RASS is a spreadsheet-based tool that can estimate air concentrations from dispersion parameters and facility emissions, and then compare the calculated air concentrations to health benchmarks. MCES entered estimated concentrations and dispersion parameters from facility specific AERMOD modeling directly into the RASS. They therefore bypassed the screening capabilities of the RASS and completed a refined analysis as an initial step. The results of this assessment (the AERA results) are described in detail below.

The RASS allows for estimations of cancer risk and hazards (non-cancer) for a variety of hypothetical exposure scenarios for several potential exposure durations. An acute exposure duration refers to a

short exposure of one day or less. Chronic refers to an exposure of approximately 8 years or over. Subchronic is an intermediate exposure period of more than 30 days to 8 years.[19]

The acute inhalation scenario describes potential effects from breathing hourly maximum air concentrations of facility air toxics, potentially anywhere outside the facility boundary. Results less than or equal to one indicate that no adverse effects are likely to occur.

The subchronic inhalation scenario describes potential effects from breathing air for a duration of two weeks to approximately three months, reflected by modeled maximum monthly air concentrations. Results less than or equal to one indicate that no adverse effects are likely to occur.

The chronic noncancer inhalation scenario describes potential noncancer effects from breathing air for up to a lifetime, reflected by modeled maximum annual air concentrations. The cancer risk from inhalation describes the likelihood of a lifetime excess cancer risk of one in 100,000 (1E-5). The MDH threshold is 1E-5.

The urban gardener and resident chronic noncancer and cancer scenarios describe the potential for adverse health effects over an adult human lifetime for inhalation and 30 years for ingestion of deposited air emissions. The hypothetical urban gardener inhales air, ingests soil, ingests home-grown produce, and eats home-raised chicken eggs where Metro Plant air emissions deposit. The default RASS also includes a farmer scenario, but there are no farms with livestock within ten kilometers of the facility, so this scenario is not included. The MDH thresholds are 1 for noncancer endpoints and less than or equal to 1E-5 for cancer endpoints. **Table 17** summarizes the total facility risk assessment results and MDH thresholds.

Table 17: Total Facility Risk Assessment Results

Scenario	MDH Total Facility Threshold	MCES MWWTP Risk Result	Exceeds MDH Threshold
Acute Inhalation Hazard Index [20]	1	1	No
Subchronic Noncancer Inhalation Hazard Index	1	0.4	No
Chronic Noncancer Inhalation Hazard Index	1	1	No
Cancer Risk from Inhalation	1E-5	1E-5	No
Total[21] Urban Gardner Cancer Risk	1E-5	1E-5	No
Total Urban Gardener Noncancer Hazard Index	1	1	No
Total Resident Cancer Risk	1E-5	1E-5	No
Total Resident Noncancer Hazard Index	1	1	No

19 MDH 2020, https://www.health.state.mn.us/communities/environment/risk/docs/guidance/air/airdurations.pdf.

20 The acute inhalation hazard index is the sum of the acute hazard from the Q/CHI output plus the acute inhalation NO2 hazard quotient at the maximum receptor location.

21 Total urban gardener and resident hazards and risks are for the sum of inhalation and ingestion pathways.

The risk assessment results are theoretical estimates based on hypothetical emission and exposure scenarios. The results do not represent actual hazards or lifetime excess cancer risks to the nearby population from the Project. The modeled emissions from the Metro Plant are not above the risk guidelines. The total facility modeled emissions do not exceed the MDH threshold and pass applicable risk scenarios at the ambient boundary.

Mitigation

The proposed air pollution control train for FBI 4 includes carbon injection for mercury removal; a baghouse for control of particulate matter and heavy metals; wet scrubber for control of particulates, heavy metals, and acid gases; and wet electrostatic precipitator for control of particulate matter and heavy metals. The proposed control equipment is the same as the control equipment installed on the existing FBI 1-3. The new vacuum ash conveyance system and housekeeping system will use fabric filters that are inherent process equipment. FBI 4 will meet the applicable 40 CFR 60 Subpart LLLL emission standards and monitoring requirements. Continuous parametric monitoring on FBI 4 control equipment will be completed in accordance with final air permit requirements.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimizeor mitigate vehicle-related emissions.

MCES anticipates that the minimal increase in actual truck traffic from the Project will not significantly impact air quality. The additional FBI 4 solids capacity is equivalent to an average of one additional ash truck per day. Actual ash generation will gradually increase with population growth. MCES may also have additional cake receiving trucks as a result of the Project. The Empire, Blue Lake, or Seneca Wastewater Treatment Plants may send cake to the Metro Plant on an emergency backup basis.

An increase in traffic and congestion results in an increase in vehicle emissions. Vehicle emissions can affect air quality by emitting airborne pollutants. Diesel exhaust contains fine particulate matter, ozone forming nitrogen oxides, carbon monoxide, and HAPs.

An average of one additional ash truck per day with occasional emergency cake and liquid sludge receiving are not expected to cause a measurable increase in air quality. The average annual daily traffic volume (AADT) on Childs Road is 2,950 vehicles per day (from the MnDOT 2017 Publication Traffic Volumes Metro Street Series). One additional truck per day, or two vehicle trips per day, is approximately 0.07% of existing traffic on Childs Road traffic leading to the Metro Plant. Therefore, no specific minimization or mitigation measures are proposed for vehicle traffic.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize ormitigate the effects of dust and odors.

The Project will occur within the existing Metro Plant site in an area zoned for industrial use. The area in the vicinity of the Metro Plant is not expected to be adversely affected by noise, dust, or odors during construction or operation. Roads are paved at the Metro Plant. Therefore, fugitive dust emissions from traffic traveling on paved roads are expected to be minimal. The City of Saint Paul sweeps arterial roadways at least eight times per year, including Pig's Eye Lake Road, according to

the City's interactive street sweeping map. MCES periodically sweeps internal roads. Maximum potential emissions from paved roads were included in the air dispersion modeling analyses for PM_{10} and $PM_{2.5}$ to demonstrate compliance with the NAAQS.

Generation of dust can be anticipated during the limited amounts of demolition work that will occur. MCES will control nuisance levels of dust generated during demolition activities though periodic wetting and/or other measures.

The fourth incinerator will have no impact on odors during construction or during operation as the incineration process eliminates any odors. Odors from the additional dewatering facilities will be directed to the inlet on the fluidizing air blowers and incinerated, or to the alkaline stabilization loadout scrubber with chemical neutralization. MCES will direct odors from the cake receiving to the inlet on the fluidizing air blowers, or to the alkaline stabilization loadout scrubber. No additional odors during construction or during operation are expected from the additional dewatering and cake receiving facilities.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. GHG Quantification: For all Projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to cometo that conclusion and any GHG emission sources not included in the total calculation.

Greenhouse gas emissions can be categorized as Scope 1 emissions if they are direct emissions released from the project location. Scope 2 emissions are indirect emissions generated from generation of electricity, while Scope 3 emissions are indirect emissions from upstream or downstream processes. GHG emissions are reported in CO_2-equivalent short tons (tpy CO_2e).

Scope 1 Greenhouse gas (GHG) emissions from anthropogenic (man-made) sources were reported on the Metro Plant 2019 Air Emission Inventory Report. These emissions include only emissions from fossil fuel combustion at the Metro Plant and do not include biogenic greenhouse gases generated from treatment of wastewater or from carbon in the wastewater sludge. **Table 18** tabulates actual Scope 1 greenhouse gas emissions reported in 2019.

Table 18: Actual 2019 Anthropogenic Metro Plant Fossil Fuel Combustion GHG Emissions

Greenhouse Gas	Fossil Fuel Emissions (tons/yr)	Anthropogenic Emissions from Sludge* (tons/yr)	Total Emissions (tons/yr)
Carbon Dioxide, CO_2	5,138	Biogenic, non-reportable)**	5,138
Methane, CH_4	0.1	33.0	33.1
Nitrous Oxide, N_2O	0.01	4.3	4.3
CO_2e*	**5,144**	**2,117**	**7,261**

** Based on emission factors from 40 CFR 98, Subpart C.*

**** Actual biogenic emissions have not been identified for air emission inventory reports.

Tables 19 and **20** quantify Project related Scope 1, Scope 2, and Scope 3 GHG emissions. The Project lifetime for which operational emissions are expected to occur is 30 years. The operational emissions were calculated using projected increased electricity demand compared to the current

facility, the addition of FBI 4 and the fire pump engine, and the difference in greenhouse gas emissions from allowable backup fuel use for the change from fuel oil to propane.

Construction is expected to last approximately three years; the emissions have been annualized. Off-road emissions were calculated assuming heavy duty diesel equipment would be operating 12 hours per day for 5,915 total equipment days and that generators and miscellaneous small engines would be operating 12 hours per day for 6,240 total equipment days. On-road equipment emissions were calculated assuming diesel construction and delivery vehicles would make three daily trips, gasoline passenger cars and light-duty trucks would each make 10 daily trips, and diesel light-duty trucks would make three daily trips for the duration of construction. Emission factors for construction traffic were taken from EPA's *Emission Factors for Greenhouse Gas Inventories.*

Table 19: Project-related Operational Greenhouse Gas Emissions

Source	Scope	CO_2e (tons/yr)
Increased Incineration, biogenic	Scope 1	92,729
Increased Incineration, anthropogenic CH_4 and N_2O	Scope 1	1,803
Fire Pump Engine	Scope 1	76
Boiler Backup Fuel Change	Scope 1	-2,474
Land-Use conversion	Scope 1	0.3
Electricity	Scope 2	-2,015
Solid Waste Management	Scope 1	696
Off-Site Traffic	Scope 3	5,151
Total Operations, excluding biogenic wastewater treatment emissions		**3,239**

Biogenic CO_2 emissions (naturally occurring) from wastewater treatment, including sewage sludge incineration were calculated for air permitting but are considered carbon neutral and therefore excluded from the total carbon footprint shown in **Table 19**.

Table 20: Construction-related Greenhouse Gas Emissions

Source	Scope	CO_2e (tons/yr)
Off-Road Construction Vehicles	Scope 1	4,343
On-Road Construction Vehicles	Scope 1	186
Total Construction		**4,529**

GHG emissions from the Project and construction activities were calculated based on EPA published emission factors (**Appendix F**). Construction activity GHG emissions will be temporary, not continuous, and estimated to be less than five percent of the annual GHG emissions from the Project operations.

The largest source of CO_2 emissions from the Project is from the incineration of sewage sludge. CO_2 emitted to the atmosphere from combustion of biomass, such as wastewater treatment sewage sludge, is considered biogenic CO_2 as defined in Table 1 of the EAW guidance.

The change in potential emissions of greenhouse gases is shown in **Table 21**. The carbon dioxide emissions generated from sludge treatment are biogenic. These emissions would be expected to

occur regardless of how the sludge is treated. Anthropogenic carbon dioxide is anticipated to decrease because of the change in auxiliary boilers back-up fuel type. Methane may be generated from incomplete combustion. Nitrous oxide is emitted at combustion sources and is temperature dependent. Nitrous oxide tends to decrease as NO_x increases. The carbon dioxide, methane, and N_2O emissions for FBI 4 are based on emission factors from 40 CFR 98 for Solid Biomass Fuels. As noted in the actual emission discussion, actual emissions are expected to increase as the population served by the Metro Plant increases.

Table 21: Change in Facility Potential Greenhouse Gas Emissions

Greenhouse Gas	Change in Potential Emissions (ton/yr)
Biogenic Carbon Dioxide, CO_2	92,729
Anthropogenic Carbon Dioxide, CO_2	-2,437
Methane, CH_4	28.53
Nitrous Oxide, N_2O	3.79
CO_2e	92,135

Table 22 below summarizes the estimated impact of the Project on greenhouse gas emissions to the Metro Plant. Biogenic emissions from incineration of wastewater solids would be expected to occur regardless of how the sludge is treated. Anthropogenic carbon dioxide emissions decrease due to the change in auxiliary boiler backup fuel type. The pre-Project GHG emissions for the Metro Plant are above the major source threshold for CO_2e. After the Project, the Metro Plant will remain a major source.

Table 22: Summary of Potential Greenhouse Gas Emissions*

	Pre-Project Total Facility Emissions (tpy)	Change in Facility Potential Emissions (tpy)	Post-Project Total Facility Emissions (tpy)
Biogenic CO_2	271,872	92,729	364,601
Anthropogenic CO_2	44,808	-2,437	42,371
CH_4	69.73	28.53	98.25
N_2O	26.60	3.79	30.39
Anthropogenic CO_2e	54,555	-594	53,885
Biogenic CO_2e	271,872	92,729	364,601
Total CO_2e	326,351	92,135	418,486

**Table 21 shows all direct greenhouse gas emissions including biogenic CO_2 from wastewater treatment.*

b. GHG Assessment

i. Describe any mitigation considered to reduce the project's GHG emissions.

MCES is recovering heat and electricity from sludge incineration and reducing fossil fuel use to support wastewater treatment operations at the Metro Plant with the incinerators. The auxiliary boilers backup fuel change results in a small greenhouse gas reduction.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce theproject's GHG emissions. Explain why the selected mitigation was preferred.

Reductions in greenhouse gas are included in the quantified emission presented in item 18a.

iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

Assuming a 30-year lifetime, the predicted net lifetime greenhouse gas emissions are approximately 111,000 tons of CO_2e over 30 years. Ninety-six percent (96%) of the greenhouse gas emissions generated by the Project are biogenic CO_2 and are not included in the predicted net lifetime greenhouse gas emissions. The predicted anthropogenic greenhouse gas emissions increase from the project will be minimal and will not substantially affect the Minnesota Next Generation Energy Act goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

The Project area is in a heavy industrial area and no sensitive noise receptors are immediately adjacent to the Project area. The closest sensitive receptor to the Project area would be park and trail users at Pig's Eye Regional Park approximately one-quarter mile east of the Project. Pig's Eye Regional Park is east of Pig's Eye Lake Road and buffered from the Project area by Battle Creek and vegetated areas bordering the creek.

Varying degrees of noise can be expected during the construction period. Anticipated noise sources are primarily construction equipment and normal construction activities. High impact noise, such as pile driving, will be required during construction. Pile driving equipment results in the highest peak noise level. High impact noise construction activities will be limited in duration to the greatest extent possible and avoided during night-time hours. Mitigative measures would include standard mufflers on engine driven equipment and possible ear protection as necessary for workers engaged in periodic demolition or other short-term noise intensive activities.

Any increase in noise after operation of the Project starts is expected to be minimal as the Metro Plant is already fully operational. Additionally, the Metro Plant is in a zone designated for industrial use and is not near residential properties. There have been no previous noise complaints or concerns reported from operations of the Metro Plant. MCES will continue operation of the Metro Plant in accordance with noise standards for industrial areas.

20. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

1. Existing and Proposed Parking Spaces

Sufficient parking spaces are available at the Metro Plant to accommodate parking. The Project will not alter or impact the existing parking area at the Metro Plant. Therefore, MCES does not propose to add new parking spaces to the Metro Plant because of the Project.

2. Estimated Total Average Daily Traffic Generated

Temporary construction traffic will vary, depending upon construction stage, from an estimated five to ten vehicles per day. **Table 23** presents truck traffic from operation of the Metro Plant before and after the Project. Metro currently has the capability to receive liquid sludge from other MCES wastewater treatment plants. In addition, MCES is proposing to add cake receiving with the Project. Transporting sludge or cake to the Metro Plant from MCES's other wastewater treatment plants is not the routine operating scenario and will only be used on an emergency backup basis. The truck counts in **Table 23** assume the liquid sludge from all other MCES wastewater treatment plants are received at the Metro Plant as a worst case. Without these infrequent liquid sludge and cake trucks from the other facilities, two additional one-way truck trips per day are expected after the Project is completed.

Table 23: Project-related Traffic Counts

Type of Vehicle	Daily Estimated Trips Before Project	Daily Estimated Trips After Project	Approximate Change in Daily Trips
During Construction			
Construction Related Vehicles	Not Applicable	10 to 20	10 to 20
Facility Operation			
Liquid Waste	90	90	0
Liquid Sludge	Up to 36	Up to 36	0
Stabilized Sludge	14	14	0
Ash	6	8	2
Grit/Screenings	2	2	0
Scum	2	2	0
Cake Receiving[1]	0	Up to 40	Up to 40
Total	150	212	62

Note: Each truck is counted as two trips in Table 23.[1] Cake receiving facilities will allow the Metro Plant to provide emergency back-up operations for other MCES wastewater treatment plants that process wastewater solids. The trips identified are worst case and are only expected to occur on an emergency basis.

3. Estimated Maximum Peak Hour Traffic Generated

The average annual daily traffic volume (AADT) on Childs Road is 2,950 vehicles per day (from the MnDOT 2017 Publication Traffic Volumes Metro Street Series). The minimal increase in traffic in this industrial area due to the Project, including potential increases from use of the cake receiving facility, is not anticipated to significantly impact traffic flow or patterns or require any traffic improvements.

4. Indicate Source of Trip Generation Rates

Trip generation rate estimates are based on experience in previous construction projects, planned construction, and extrapolation from estimates of trips based on current operation. The waste traffic counts are calculated for expected throughputs at facility capacity and individual truck loads. Liquid sludge and cake receiving shown are based on loads per truck and the total plant capacities of all other MCES wastewater treatment plants.

5. **Availability of Transit and/or other Alternative Transportation Modes**
   No existing transit service routes operate on roadways immediately adjacent to the Metro Plant. Metro Transit Route 363 operates along Highway 61, east of Metro Plant. A park and ride facility is located on Highway 61 near the intersection of Lower Afton Road.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.*If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance.

Construction activities will have a slight increase in traffic but will not require improvements. The minimal increase in traffic in this industrial area due to the Project operations will not significantly impact traffic flow or patterns or require any traffic improvements. During operation of the SMB, minimal effects on traffic are expected. Traffic will increase as solids processing demand increases due to growing population demands. However, solids from the Metro Plant will need to be removed from the site regardless. Incineration decreases the total volume of solids requiring disposal, so increasing solids incineration capacity will affect traffic congestion less than disposing of solids that have not been incinerated. The proposed new cake receiving facility may increase truck activity at the site to transport the cake from other MCES facilities to the Metro Plant for processing. However, this new cake facility is proposed for use in emergency backup situations only and changes in traffic patterns to the facility for cake receiving are anticipated to be small and temporary.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

As described in item 20b, MCES anticipates no significant impacts to traffic flow or patterns. Therefore, MCES proposes that no additional measures are needed to minimize or mitigate Project related transportation effects.

21. Cumulative Potential Effects
(Preparers can leave this item blank if cumulative potential effects areaddressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The Project would add a fourth fluid bed incinerator (FBI 4) in a building addition to the existing SMB to increase solids processing capacity at the Metro Plant. This will result in some changes to the Metro Plant operations. The Project construction will remain within the existing Metro Plant property and is planned to occur between 2024 and 2026. It is anticipated that FBI 4 would be in operation in 2026, allowing for renewal of the existing incinerators. Following renewal of the existing incinerators and with the increased population growth, the SMB, along with FBI 4, is expected to operate for approximately 40-60 years.

Air Quality
Cumulative potential effects to air quality from the Project were evaluated using air dispersion modeling and a cumulative impact analysis. The purpose of the modeling analysis was to demonstrate compliance with the NAAQS and to support a Human Health Risk Assessment for the Project via the Air Emission Risk Assessment (AERA).

Background air concentrations were added to the Metro Plant modeled concentrations to estimate total ambient concentrations of criteria pollutants. The background concentrations were chosen based on current air dispersion modeling guidance from the MPCA.

The criteria pollutant modeling included nearby sources as well as background concentration levels. The total predicted concentrations include cumulative effects from MCES as well as all other air emission sources. While the nearby sources have modeled impacts estimated above the PM_{10} National Ambient Air Quality Standards, MCES has demonstrated that the Metro Plant does not contribute more than 5 $\mu g/m^3$ PM_{10} to any of the modeled violations. Based on the air dispersion modeling and cumulative impact analysis for the Project, the Metro Plant will comply with the applicable air quality standards and is not expected to contribute to an adverse cumulative potential air quality effect.

Air Toxics or Non-Criteria Pollutants

MCES completed an AERA to evaluate the acute inhalation hazard, inhalation chronic non-cancer hazard, and inhalation cancer risk from the ambient monitoring data, any modeled off-site sources, and the total proposed facility.

Table 24 shows that the existing inhalation cancer risk and inhalation acute hazard index in populated areas in Minnesota exceed the MDH thresholds. The ambient monitoring data includes emissions from mobile sources, residential and commercial sources, as well as permitted and unpermitted point sources. The Metro Plant has been operating for many decades, and the ambient monitoring data includes contributions from the existing facility.

Table 24: MPCA Ambient Monitoring Data

Source of Risk	Inhalation Cancer Risk	Inhalation Chronic Non-Cancer Hazard Index	Inhalation Acute Hazard Index
Ambient Monitoring Data	3.3 in 100,000	0.6	1.7

The risk analysis overestimates the actual risks and hazards to the public from the proposed Project's air emissions. The Metro Plant actual air emissions are within the MDH thresholds, and the Metro Plant does not operate all equipment continuously at capacity. It is unlikely that the public would be at the locations of the maximum facility concentrations on a long-term basis and there are no residents living at those locations. However, even using conservatively high assumptions, the Metro Plant is still within the MDH threshold levels.

The total proposed facility quantitative risk and hazard results include many sources that are unchanged as a result of the Project. The total facility passes all applicable risk scenarios at the ambient boundary and therefore the Project is not anticipated to cause adverse health effects to the public when considering cumulative effects.

GHG Emissions

On-site, stationary source GHG emissions were calculated for the Project at the Metro Plant to support the air permit application. GHG emissions from the fourth incinerator include both biogenic emissions from the incineration of solids and the anthropogenic burning of fuel to operate the incinerator. There are only anthropogenic sources of GHGs from the auxiliary boilers and engine-driven fire pump.

While the Project will increase overall GHG emissions for the Metro Plant, the increase in GHG emissions is necessary to ensure the proper treatment of wastewater at the Metro Plant.

The City of St. Paul has a Climate Action and Resilience Plan (CARP)[22] that describes the current GHG emissions profile and strategies to mitigate GHG emissions and reduce vulnerabilities. The 2015 GHG inventory for the City of St. Paul calculates that 1% of the city's GHG emissions were attributable to water and wastewater. The CARP notes that treating and distributing clean water is critical and that mitigation of wastewater emissions is dependent upon reducing water consumption. The CARP also contains strategies for the City of St. Paul to reduce overall GHG emissions and achieve carbon neutrality by 2050. Other sectors, such as building energy use and travel, will drive the success of the program. Cumulatively, the GHG emissions from MCES and wastewater treatment in general are minor.

Odor

The proposed improvements to the Metro plant will incorporate existing odor control systems to control odors. Therefore, the Metro Plant will not generate additional odors within the community because of the Project.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The Metro Plant reclaimed water project will reduce groundwater withdrawal from the deep bed aquifer including 416 gpm (219 million gallons per year) required to service the SMB (with the Project). The reclaimed water project will construct tertiary filtration and ultraviolet disinfection to provide reclaimed water instead of using groundwater. Construction of this project is planned for 2025-2026. There are no other known reasonably foreseeable projects adjacent to or in the Project area.

Other projects in the surrounding area of the Metro Plant known to be in construction, operation, or planned were identified based on a review of available desktop resources including the City of St. Paul's website and the EQB's Environmental Review Projects Interactive Map. The City of St. Paul's 2022 Capital Projects interactive map identifies trail and park projects proposed to the east, west, and north of the Project area. The City's downtown projects map identifies several roadway and transit projects a mile or greater from the Project area. The EQB's Environmental Review Projects Interactive Map did not identify current projects completing an environmental review process in the vicinity of the Project area. It is not anticipated that these projects would interact with the environmental effects associated with the proposed Project.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

To meet the future demand of solids processing from a growing population, the Metro Plant must increase the solids processing capacity of the Metro Plant. The proposed improvements to the Metro Plant as part of the Solids Management Improvements Project have been evaluated in the context of cumulative potential effects, including air emissions. There are no measures needed to accommodate the Project or protect against cumulative potential effects beyond those described within proceeding items in this EAW.

22. Other Potential Environmental Effects

22https://www.stpaul.gov/sites/default/files/Media%20Root/Mayor%27s%20Office/Saint%20Paul%20Climate%20Action%20%26%20Resilience%20Plan.pdf

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environmentwill be affected, and identify measures that will be taken to minimize and mitigate these effects.

MCES anticipates no environmental effects other than those addressed in this review.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minn. R., 4410.0200, subp. 9(C) and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Dan R. Card, P.E. Date 06/28/2023

Title Supervisor
Environmental Review Unit
Resource Management and Assistance Division