July 4, 2005

TO: INTERESTED PARTIES

RE: Olmsted Waste-to-Energy Facility: MWC Unit 3 Project Environmental Impact Statement

An Environmental Impact Statement (EIS) is being prepared by the Minnesota Pollution Control Agency (MPCA) on a proposal by Olmsted County Public Works (OCPW), located in Rochester, Minnesota, to expand its existing Olmsted Waste-to-Energy Facility (OWEF). OCPW is proposing to construct a third municipal waste combustor (MWC), having a planned capacity of 200 tons per day (TPD), at its OWEF. The existing MWC Unit 1 and Unit 2 (capacity: 100 TPD each) will continue operation. Energy recovered will continue to be sold as electric energy and district heating/cooling services. The facility is situated along the west side of Silver Creek Road and the south side of the DM&E Railroad and approximately 0.4 miles north of College View Road East (County Road 9).

Enclosed are the Scoping Environmental Assessment Worksheet (SEAW) and Draft Scoping Decision Document for the proposed Olmsted Waste-to-Energy Facility: MWC Unit 3 Project. The SEAW and Draft Scoping Decision Document were prepared by the MPCA and are being distributed for a 30-day review and comment period ending on August 8, 2005, in compliance with the Environmental Quality Board (EQB) rules.

The comment period will begin the day the EAW availability notice is published in the *EQB Monitor*, which will likely occur in the July 4, 2005, issue. A public meeting will be held on Wednesday, July 27, 2005, to discuss the proposed contents of the EIS. There will be an open house from 6:00 p.m. to 7:00 p.m., followed by a formal presentation at 7:00 p.m., at University Center Rochester, 851 - 30th Avenue SE, Memorial Hall (MH) 223, Rochester, Minnesota. Staff will be available until 9:00 p.m. This public meeting will be open to the public for interested parties to ask questions regarding the Draft Scoping Decision Document for the preparation of the EIS.

Written comments received on the SEAW and Draft Scoping Decision Document will be used by the MPCA in preparing a Final EIS Scoping Decision Document for the Olmsted Waste-to-Energy Facility: MWC Unit 3 Project.

Minn. R. 4410.2100 provides that an EIS scoping process be implemented for any EIS. The purpose of the scoping process is to reduce the scope and bulk of the EIS; identify only those potentially significant issues relevant to the proposed project; define the form used; determine the level of detail needed; define the content of the document; examine the alternatives to the proposed project; establish the timetable for preparation of the EIS; and determine the permits for which information would be developed concurrently with the EIS.

The purpose of the EIS is the evaluation and disclosure of information about the significant environmental effects of a proposed action. The EIS is not intended to justify either a positive or negative decision on a project, but may be utilized by government units as a guide in issuing or denying permits or approvals for the project and in identifying measures to avoid or mitigate adverse environmental effects.

Mitigation measures that could reasonably be applied to eliminate or minimize adverse environmental effects will be identified in the EIS in both the section describing environmental effects and in a separate section for permitting reference.

Please note that comment letters submitted to the MPCA do become public documents and will be part of the official public record for this project.

All comments on the Scoping EAW and/or the Draft Scoping Document must be received by 4:30 p.m. on August 8, 2005. Comments should be sent to Denise Leezer at 520 Lafayette Road North, Saint Paul, Minnesota 55155-4194 or via e-mail at denise.leezer@pca.state.mn.us.

If you have any questions on the SEAW or Draft Scoping Decision Document, please contact Denise Leezer, of my staff, at (651) 297-8236.

Sincerely,

Beth G. Lockwood
Supervisor, Environmental Review Unit
Environmental Review and Operations Section
Regional Division

BGL:dl/ns

Enclosures

SCOPING
ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to reviewers: The Scoping Environmental Assessment Worksheet (SEAW) provides information about a project that may have the potential for significant environmental effects. This SEAW was prepared by the Minnesota Pollution Control Agency (MPCA), acting as the Responsible Governmental Unit (RGU), to determine whether an Environmental Impact Statement (EIS) should be prepared. The project proposer supplied reasonably accessible data for, but did not complete the final worksheet. Comments on the SEAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the SEAW in the *Minnesota Environmental Quality Board (EQB) Monitor*. Comments on the SEAW should address the accuracy and completeness of information, potential impacts that are reasonably expected to occur that warrant further investigation, and the need for an EIS. A copy of the SEAW may be obtained from the MPCA by calling (651) 296-7398. An electronic version of the completed EAW is available at the MPCA Web site http://www.pca.state.mn.us/news/eaw/index.html#open-eaw.

1. Project Title: Olmsted Waste-to-Energy Facility: MWC Unit 3 Project

2. Proposer: Olmsted County Public Works

Contact Person Craig Diekvoss

and Title Regulatory Compliance Coordinator

Address 2122 Campus Drive Southeast

Rochester, Minnesota 55904-4744

Phone 507-285-8607

Fax 507-287-2320

3. RGU: Minnesota Pollution Control Agency

Contact Person Denise Leezer

and Title Project Manager

Address 520 Lafayette Road North

Saint Paul, Minnesota 55155

Phone (651) 297-8236

Fax (651) 296-7782

4. Reason for EAW Preparation:

EIS Scoping	Mandatory EAW	Citizen Petition	RGU Discretion	Proposer Volunteered
X*				

*Voluntary EIS

If EAW or EIS is mandatory give EQB rule category subpart number and name:

According to Minn. R. ch. 4410.4400, subp. 13, Solid Waste, an EIS must be prepared for the construction or expansion of a mixed municipal solid waste energy recovery facility or incinerator with a capacity of 250 or more tons per day of input. Although the proposed project, at a planned capacity of 200 tons per day of input, will not meet or exceed the threshold requiring the mandatory preparation of an EIS, Olmsted County has voluntarily agreed to prepare an Environmental Impact Statement for the proposed project.

5. Project Location: County: Olmsted City/Twp: Rochester

SW 1/4	1/4	Section	31	Township	107 North	Range	13 West

Attachments to the SEAW:

Figure 1: County map showing the general location of the project;
Figure 2: U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries
Figure 3: Site plan showing all significant project and natural features.
Figure 4: Site Map of Adjacent Land Uses
Figure 5: Site Plan
Figure 6: Photo of Proposed Unit 3 Site Location – Looking South
Figure 7: Photo of Proposed Unit 3 Site Location – Looking North
Figure 8: Photo of Proposed Cooling Tower Site Location
Figure 9: Facility Process Flow Diagram
Figure 10: Letter from the Minnesota Historical Society
Figure 11: Letter from the U.S. Fish and Wildlife Service
Figure 12: Letter from the Minnesota Department of Natural Resources

Attachment 1: EIS Scoping Decision Document

6. Description:

a. Provide a project summary of 50 words or less to be published in the *EQB Monitor.*

Olmsted County is proposing to construct a third municipal waste combustor (MWC), having a planned capacity of 200 tons per day (TPD), at its Olmsted Waste-to-Energy Facility (OWEF). The existing MWC Unit 1 and Unit 2 (capacity: 100 TPD each) will continue operation. Energy recovered will continue to be sold as electric energy and district heating/cooling services. The OWEF site is located on the east side of the city of Rochester (City) in Olmsted County (County). The facility is situated along the west side of Silver Creek Road and the south side of the DM&E Railroad and approximately 0.4 miles north of College View Road East (County Road 9).

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

Background

The OWEF was constructed in 1985/86, went into commercial operation in April of 1987, and has operated continuously since that date serving Olmsted County and Dodge County. The OWEF is a waste-to-energy facility that processes 63,000 tons of municipal solid waste (MSW) annually using two 100 TPD MWCs. Hazardous, commercial/industrial, and problem wastes are diverted to appropriate reuse or disposal. The remaining waste is either composted (in the case of yard waste), combusted in the waste-to-energy plant for energy recovery or landfilled (in the case of non-processables and bypassed waste).

Facility Process Description (See Figure 9)

When entering the OWEF, commercial haulers stop at the scale house to have their trucks and garbage weighed. When leaving, the trucks are again weighed to calculate the weight of garbage deposited and the cost for disposal. Approximately 65 to 75 percent of the residual waste (defined as the amount of waste remaining after existing waste abatement, separation, and processing efforts have been applied) generated in Olmsted and Dodge Counties is delivered to the OWEF.

The remaining residual waste is bypassed to the Kalmar Landfill for disposal. Refuse trucks enter through the west door, back up to one of five openings, and tip loads into the storage pit. The trucks exit through the east door. Only commercial trucks enter the tipping hall. Cars, pickups, and trailers

deposit their refuse at the public drop area next to the Recycling Center.

The pit is 30 feet deep, 50 feet wide, 100 feet long, and holds up to 3,000 tons of refuse. A grapple is suspended from a 6-ton bridge crane 100 feet above the storage bunker. The crane travels from one end of the bunker to the other as the grapple descends to take bites of the stored refuse. The grapple is also used to "fluff" the refuse so that it will burn more efficiently. The grapple's jaws measure 12 feet across when open and can grasp more than four cubic yards of refuse weighing 2.75 tons. The grapple is used to transfer combustible waste from the storage pit to the fuel loading chute of either MWC Unit 1 or MWC Unit 2**.** The grapple is also used to place non-combustible materials in a bypass container for later transport to the landfill.

From their perch 35 feet above the pit, an operator guides the movements of the crane and grapple from a central control room equipped to monitor and operate the facility. Dozens of remote devices allow the operators to monitor and control everything from the furnace feed chutes to the scale house. The refuse, after being loaded into a fuel loading chute, slowly travels 16 feet down onto the feed rams. The feed rams force the waste into the combustion chamber. Ultrasonic monitors track the level in the chute and inform the operator when another load is needed. There are two chutes, one for each MWC, which the operator feeds alternately, approximately every ten minutes, with the crane and grapple.

As refuse moves through the combustion chamber of either MWC Unit 1 or MWC Unit 2, it is turned by three reciprocating grate stokers for efficient burning. Each hour, 3.75 tons of refuse enter each MWC; that's 180 TPD, with computer-controlled combustion and a temperature of over 2,000 degrees Fahrenheit. Refuse passing over the first grate is dried and ignited. Most combustion occurs on the second grate. The third grate ensures that the refuse is completely burned before the remaining "bottom ash" drops into a water filled tank which quenches and cools the ash**.**

A hydraulic ram below the furnace pushes the ash onto a conveyor which, in turn, moves the ash into 20 yard roll-off boxes. An ultrasonic system senses when each box is fully loaded and sends a signal to the Control Room. The boxes are loaded on a truck, covered, and taken to the Kalmar ash monofill where the ash is deposited in specified cells that have been constructed in compliance with regulatory requirement to accept the ash. Ten cubic yards of waste ends up as about 1 cubic yard of ash.

The OWEF uses an automatic combustion control system which continually monitors and reacts to conditions in the furnace. Steam pressure and flow are extremely stable. The boiler, located above the MWC chamber, produces the steam which generates electricity and heats (and cools) a total of 22 buildings. Steam from the boiler is piped into the 1 Turbine Generator where about 1,500 kilowatts of electricity is generated per hour; enough to power 1,600 homes.

After passing through the 1 Turbine Generator, the steam passes into the district heating and cooling system. When demand in the district system is low, the steam is used in the 2 Turbine Generator, which generates up to 1,500 more kilowatts of electricity. Excess electricity, not needed by the nearby government buildings, is sold at wholesale cost to the power grid.

The flue gas from the process passes through the air pollution control system**,** which is composed of four distinct subsystems providing acid gas scrubbing, powdered activated carbon injection, fabric filtration, and continuous emissions monitoring. The acid gas scrubber neutralizes acid gases present in flue gas (primarily hydrogen chloride and sulfur dioxide) while reducing flue gas temperature to a level that promotes effective control of mercury and dioxin. The powdered activated carbon system removes condensable pollutants, especially mercury and dioxin.
The fabric filter collects dust composed of fly ash, scrubber residue, and carbon. A Continuous Emissions Monitoring System (CEMS) continuously monitors carbon monoxide, oxygen, sulfur dioxide, opacity, unit load, flue gas temperature, and carbon addition rate.

The integrated waste processing operations on the OWEF campus also includes a hazardous waste receiving and bulking center, a recycling center, and yard waste composting facilities. Household quantities of self-hauled MSW are also taken in at the recycling center and shipped over to the tipping floor at OWEF in 20-yard loads. This is done both as a convenience to County residents and also to prevent safety and traffic issues in the tipping floor area. These operations will be largely unchanged with the project.

Proposed Project

The County is proposing to install one new MWC with a proposed capacity of 200 TPD, doubling the existing capacity, and an additional steam Turbine Generator (See Figures 6 and 7). Like the existing MWC Units 1 and 2, the proposed MWC Unit 3 would operate in a cogeneration mode, simultaneously producing steam for district heating/cooling and electrical power. This arrangement maximizes the overall thermal efficiency of the waste-to-energy system.

The proposed MWC Unit 3 building will be constructed on the west side of the existing OWEF in a flat area adjacent to the existing building structure that currently contains gravel and grassed areas (See Figures 5, 6, and 7). The proposed cooling tower is to be constructed in a grassed area behind the curb on the north side of the facility.

A new steam Turbine Generator is also proposed and will have a five MW (gross) rating. Electrical power produced in excess of that required by directly connected loads would continue to be sold to the Southern Minnesota Municipal Power Agency.

A new condenser and cooling tower (See Figure 8) will be installed to serve as the related heat sink. The steam Turbine Generator will be equipped with extraction ports at pressures correlating to the steam pressures in the existing plant and District Energy System so that it will be fully compatible with the existing plant**.** A new balance of plant auxiliary equipment will be installed to serve the proposed MWC Unit 3, including new boiler feed pumps, new condensate pumps, and a new deaerating feed tank.

Air emissions from the proposed MWC Unit 3 will be subject to the same emission control configuration as has been recently installed on existing MWC Units 1 and 2; namely, a spray dryer absorber (SDA) reactor for control of acid gases including sulfur dioxide; powdered activated carbon injection modules for control of certain metals, organics, and dioxin; and a fabric filter baghouse for control of particulate matter.

The proposed MWC Unit 3 will be equipped with a CEMS arrangement as is installed for MWC Units 1 and 2. Those systems are capable of monitoring carbon monoxide (CO), inlet/outlet sulfur dioxide (SO2) concentrations, opacity, oxygen (used as a diluent measurement), steam flow, fabric filter inlet temperature, powdered activated carbon feed rate, and stack gas flow (for SO2 mass emission limits). The proposed MWC Unit 3 CEMS will include the addition of a nitrogen oxide (NOx) CEMS. The existing CEMS enclosure is of sufficient size to accommodate the additional equipment.

Building systems that will need to be expanded into the new area include lighting, heating, electrical power, service air, service water, communications, and fire protection. The amount of surface area disturbed during construction is expected to be less than 1.0 acre.

Some modifications to the cranes will be required. The nature of these modifications will be determined during the design phase of the project

The existing ash system will be expanded to manage the increase in ash produced by the proposed MWC Unit 3. Some modifications will be necessary, but the capacities of the existing system are sufficient to serve the proposed MWC Unit 3, so these modifications will be relatively minor. All OWEF ash is permanently disposed of in a permitted, dedicated ash cell(s) at the County-owned and operated Kalmar

Landfill in Kalmar Township. The capacity of the Kalmar Landfill ash cell(s) is (are) sufficient to handle the additional ash generated by the proposed MWC Unit 3.

Proposed Treatment of Topic in the EIS:
The EIS will include a complete project description, including the projected timing of all phases of construction and operation.

c. 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.

The County began developing an integrated solid waste management system in the 1980s to provide residents with responsible waste disposal options. The integrated solid waste management system has been very successful at providing comprehensive waste management services through the following components:

- Waste reduction and education programs and business waste management assistance,
- Mandatory curbside recycling and a publicly owned and operated recycling center,
- Yard waste composting site,
- Hazardous waste management program, including a regional hazardous waste management facility,
- Mass-burn municipal solid waste combustor that co-generates steam and electricity for sale to a district heating and cooling system, and
- Landfill consisting of municipal solid waste, construction and demolition debris, and ash cells.

The County developed a "Solid Waste Division Ten-year Management and Business Plan" (Solid Waste Management Plan (SWMP) in 2001. This plan was developed to update the County's existing SWMP and to meet state statutory requirements for counties to develop and maintain a solid waste management program, including a solid waste management plan.

The proposed MWC Unit 3 project was identified in the 2001 SWMP as the first step (Objective 1A) in meeting the state goal (Minn. Stat. §115A.03) of processing 90 percent of generated MSW. This proposed project also fits into the waste management goals of the state (Minn. Stat. §115A.02 (b)) to foster an integrated waste management system with a preference towards resource recovery in lieu of MSW landfills.

The population of the greater Rochester area is expected to continue growing for the next several years. Despite continued educational efforts by the County on source separation of recyclables, the amount of processable MSW is expected to continue growing beyond the capacity of OWEF Units 1 and 2 over the next five to ten years. Already, approximately 25-35 percent of processable MSW on an annualized basis is bypassed directly to the Kalmar Landfill.

Therefore, Olmsted County Public Works is initiating this multi-year project now with the intent of commercial operation in late 2007. All institutional arrangements that will be necessary to assure the commercial success of the project have been in place and serving the existing facility for many years.

These contracts include MSW delivery, electrical sales, and district energy system sales. All of these contracts have been renewed or renegotiated since the original term. All of the contractors involved have expressed an interest in continuing their contractual relationship with the County for the foreseeable future.

Beneficiaries of the project include all regional generators of municipal waste (e.g., residential, commercial, and industrial through continued safe, environmentally-responsible and cost-effective disposal of MSW), current and future DES customers (through increased reliability and capacity of the

district heating/system cooling systems as a whole, and increased economies of scale with a larger system), and MSW hauling contractors (through reduced trips to the Kalmar Landfill).

d. Are future stages of this development including development on any outlots planned or likely to happen? ☐Yes ☒No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

Although not yet approved or budgeted for at this time or specifically part of the proposed MWC Unit 3 project, Olmsted County is evaluating the possibility of constructing a storage warehouse on the west side of the property (see Figure 6). The possible warehouse project would consist of a 100 feet x 50 feet warehouse building equipped with a loading dock and access drive.

This project would involve a minor amount of additional surface area disturbance on the existing site (approximately 14,000 square feet or 0.3 acres), but would have no effect on emissions, traffic, noise, etc. The purpose of the warehouse project would be to store parts, activated carbon (for the PAC injection systems), etc.

e. 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.

The original facility, consisting of two municipal waste combustors, two Turbine Generators, and related auxiliary systems, was constructed in 1985 to1986 and went into commercial operation in 1987. An EAW was prepared for the project in 1984. The air pollution control equipment at the facility is currently being upgraded to comply with forthcoming MPCA rules regulating air emissions.

7. Project Magnitude Data

Total Project Area (acres) 0.4 or Length (miles) _____
Number of Residential Units: N/A Unattached ____ Attached ___ maximum units per building ___
Commercial/Industrial/Institutional Building Area (gross floor space): total square feet 14,400
Indicate area of specific uses (in square feet):

Office		Manufacturing	
Retail		Other Industrial	14,400
Warehouse		Institutional	
Light Industrial		Agricultural	
Other Commercial (specify)			

Building height 101 feet If over 2 stories, compare to heights of nearby buildings 101 feet

The existing boiler building, at a height of 101 feet, will be expanded out to contain the new proposed MWC Unit 3 combustor and associated plant equipment. Additionally, a new cooling tower (1,000 square feet) at an approximate height of 30 feet may be constructed on the north side of the facility as part of the proposed MWC Unit 3 expansion project. Aside from the construction of an additional stack, the heights and footprints of the finished project will not be significantly different than the current visual appearance of the OWEF.

Proposed Treatment of Topic in the EIS:
The expected Project Magnitude Data information is adequately described in this document. The topic will not be carried forward into the EIS.

8. Permits and approvals required. List all known local, state and federal permits, approvals 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.

Unit of Government	Type of Application	Status
State of Minnesota		
DNR*	Water Appropriation Permit Amendment (Water Supply)	To be applied for if needed
MPCA	Prevention of Significant Deterioration Program (PSD) Permit Amendment and Major Amendment to Part 70 Operating Permit	Application has been submitted
Local		
Rochester-Olmsted Planning Department	Site Development Plan Review	To be applied for
City of Rochester	Industrial Discharge Permit - Notification of significant increase in volume of wastewater discharges	To be applied for
	Building Permit and Zoning Certificate	To be applied for
	Grading Permit	To be applied for
	Structure Height Variance	To be applied for if needed

***Abbreviations**
DNR Minnesota Department of Natural Resources
MPCA Minnesota Pollution Control Agency

On September 3, 2003, Olmsted County applied for a preliminary grant for financial assistance to the Minnesota Office of Environmental Assistance to fund a portion of the OWEF proposed MWC Unit 3 project through the State's Solid Waste Capital Assistance Program. Under an inter-county cooperative agreement between Olmsted and Dodge Counties, the grant could provide up to $4 million ($2 million per county) towards the capital costs of the project.

Proposed Treatment of Topic in the EIS:
The EIS will identify the known governmental permits and/or approvals required for the expansion along with the governmental unit responsible for each decision.

9. Land Use. Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

Prior to development of the facility, the site was a vacant parcel of land on the Olmsted County Campus (formerly known as the Rochester State Hospital). Adjacent land development includes the Federal Medical Center to the west, County Campus buildings to the south (including a juvenile detention facility), and Olmsted County Recycling Center and Hazardous Waste Facility to the east. The closest residential area of Rochester lies approximately 0.4 miles to the west. Quarry Hill Park is located to the north on the other side of the railroad tracks, and areas farther to the east and south generally consist of institutional and agricultural areas (See Figure 4).

The OWEF is located within a special zoning district classified as a Mixed Redevelopment District (MRD) and is a permitted use under the Area Accessory Development category.

Proposed Treatment of Topic in the EIS:
The expected Land Use impacts are adequately described in this document. Based on the information

provided, the anticipated effect would be negligible. No further review in terms of Land Use is warranted. The topic will not be carried forward into the EIS.

10. Cover Types. Estimate the acreage of the site with each of the following cover types before and after development:
The topic is minor, but will be discussed briefly in the EIS using the same information.

	Before	After		Before	After
Types 1-8 wetlands	0	0	Lawn/landscaping	0.20	0
Wooded/forest	0	0	Impervious Surfaces	0.05	0.40
Brush/grassland	0	0	Other (describe)	0.15	0
Cropland	0	0			
			TOTAL	0.40	0.40

*If **Before** and **After** totals are not equal, explain why:*

Note: The existing OWEF site is approximately 9 acres in size. The site size will not change; the amount listed above reflects only the area of the site affected by the proposed MWC Unit 3 project.

Proposed Treatment of Topic in the EIS:
The expected Cover Types are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Cover Types is warranted. The topic will not be carried forward into the EIS.

11. Fish, Wildlife, and Ecologically Sensitive Resources.

a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

Construction activities associated with the proposed expansion would be confined to the grounds of the existing OWEF site and therefore, would have little, if any impact on fish and wildlife in the area. The site has been developed since the mid-1980s and currently does not provide any wildlife habitat.

b. Are any state (endangered or threatened) species, rare plant communities or other sensitive ecological resources such as native prairie habitat, colonial waterbird nesting colonies or regionally rare plant communities on or near the site? ☒ Yes ☐ No
If yes, describe the resource and how it would be affected by the project. Indicate if a site survey of the resources has been conducted and describe the results. If the DNR Natural Heritage and Nongame Research program has been contacted give the correspondence reference number. ERDB 20040239
Describe measures to minimize or avoid adverse impacts.

A review of the Minnesota Natural Heritage Information system database was requested from the DNR to determine if any rare plant communities or animal species, unique resources, or other significant natural features are known to occur on or near the project site.

As stated in a letter from the DNR dated October 8, 2003, results of the database search indicated that ten rare features consisting of animals (turtles, snakes, and fish) and natural plant communities (dry prairie) were known to occur within the vicinity of the project area. These rare features are beyond the site boundaries and therefore, will not be directly affected by the project (See Figures 6 and 7).

This finding is confirmed in the DNR letter, which concludes that based on the nature and location of the proposed project, the known occurrences of rare features identified by the search would not be affected. A copy of the DNR letter is provided as Figure 12.

Information was also requested from the U.S. Fish and Wildlife Service (USFWS) about possible federally threatened and endangered species that may exist at or near the project site. A letter dated October 10, 2003, was received from the USFWS stating that their records indicate that no federally listed species have been documented in the project area and that the proposed project will not adversely affect any threatened and endangered species or their critical habitat. A copy of the USFWS letter is attached (See Figure 11).

Proposed Treatment of Topic in the EIS:
The expected impacts to Fish, Wildlife, and Ecologically Sensitive Resources are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Fish, Wildlife, and Ecologically Sensitive Resources is warranted. The topic will not be carried forward into the EIS.

12. Physical Impacts on Water Resources. Will the project involve the physical or hydrologic alteration (dredging, filling, stream diversion, outfall structure, diking, and impoundment) of any surface waters such as a lake, pond, wetland, stream or drainage ditch? ☐ Yes ☒ No
If yes, identify water resource affected. Describe alternatives considered and proposed mitigation measures to minimize impacts. Give the DNR Protected Waters Inventory (PWI) number(s) if the water resources affected are on the PWI.

Proposed Treatment of Topic in the EIS:
The topic is not relevant and will not be addressed in the EIS.

13. Water Use. Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? ☒ Yes ☐ No
If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

The County currently owns and operates two wells south of the OWEF to supply water for make up purposes, cooling, domestic uses, and fire protection at the facility. Additionally, the wells supply domestic water (raw/hard and soft) to County Campus buildings, Federal Medical Center, and DNR Region 4 Area office.

There are also two cross-connections to the City's municipal water supply system that serve as supplemental water sources, however these are seldom used. The two wells are shown on Figure 5 and are identified as Well 1 (Unique Well No. 220784) and Well 2 (Unique Well No. 220785). The wells are currently permitted to withdraw up to 100 million gallons per year under DNR Water Appropriation Permit No. 75-5094, which was last amended on September 20, 1989. Based on the water usage reporting records over the past five years, the OWEF has withdrawn an average of 72.2 million gallons of water per year from the two wells.

The proposed MWC Unit 3 project will increase the amount of water used at the facility. Consideration is currently being given to installing a second air-cooled condenser, a fully evaporative cooling tower, or possibly a hybrid consisting of a combination of the two. Based on the "worst case" scenario using a fully evaporative cooling tower, the annual water demand would more than double, going from 72.2 million gallons to 164 million gallons and would exceed the current limits of the DNR water appropriation permit. Though the DNR permit may need t be amended the two existing wells should have adequate pumping capacity to meet the additional water supply demands and therefore, no new wells would be installed to

serve the facility. There is also the option of obtaining a portion of the additional water from the municipal water supply system through the City cross-connections.

An amendment to the DNR water appropriation permit would be required if more than 100 million gallons of water is withdrawn from the two existing on-site wells. The Water Appropriation Permit is required for all users withdrawing more than 10,000 gallons of water per day or one million gallons per year. The purpose of the permit program is to ensure water resources are managed so that adequate supply is provided to long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power, navigational, and quality control.

The program exists to balance competing management objectives including both the development and protection of the water resources. Information on permitted water users and reported water use is used to evaluate impacts from pumping on surface and ground water resources. Water use data are also used for water supply planning and resolving water use conflicts and well interferences. The DNR administers this permit and requires monthly usage monitoring and annual reporting to ensure that surrounding communities' and industries' water supplies will not be affected by draw-down of the aquifer. Minn. Stat. § 103G.261 establishes domestic water use as the highest priority of the state's water supply when supplies are limited.

A review of existing hydrological data and permitted water use in the vicinity and quantitative analysis of the affects on groundwater levels and aquifer sustainability may be required by the DNR as part of the permit amendment request to increase water usage amounts. A similar analysis may also be required to determine the effect on groundwater recharge areas for City and County wells under the Minnesota Department of Health's Wellhead Protection Program. Additionally, if a portion of the water is supplied from the municipal water system, appropriate approvals will need to be obtained from the City in the form of a service contract or agreement. The data gathered as part of the permitting and approval processes will be sufficient to assess potential impacts and inform regulatory decisions. No further study is necessary.

It is not anticipated that temporary dewatering of local groundwater will be required during construction of the proposed MWC Unit 3 project.

Proposed Treatment of Topic in the EIS:
The expected impacts to Water Use are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS.

14. Water-related land use management districts. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? ☐ Yes ☒ No
If yes, identify the district and discuss project compatibility with district land use restrictions.

The OWEF is located approximately 300 feet south of Silver Creek, a DNR protected watercourse. The Rochester-Olmsted Planning Department was contacted about any applicable shoreland zoning and floodplain regulations pertaining to development along Silver Creek. As informed by planning staff and as stated in the Rochester Zoning Ordinance under Section 62.1001, Part 2, the Silver Creek corridor from the eastern boundary of Quarry Hill Park to its confluence with the South Fork Zumbro River is exempt from the City's shoreland management standards.

This reach of Silver Creek includes the section north of the OWEF site. Justification for exempting this reach of Silver Creek from the shoreland management regulations, which was approved by the DNR, was based on the fact that the stream banks had been altered over time and the majority of the land along the creek was owned by the City and included within delineated flood protection areas.

The City regulates 100-year floodplain areas along Silver Creek in accordance with Sections 62.800-62.880 of the Rochester Zoning Ordinance. Designated 100-year floodplains within Olmsted County, including Silver Creek west of Silver Creek Road, were delineated as part of the Federal Emergency Management Agency's National Flood Insurance Rate Program.

A review of the Flood Insurance Rate Map for Olmsted County and Incorporated Areas (revised February 4, 1998) indicates that the Base Flood Elevation (100-year flood level) in the vicinity of the OWEF site is 1,008 feet. Spot elevations taken by the County in September 2003 along the north side of the facility and two-foot contour maps received from the City on October 1, 2003, indicate that all developed areas of the site including areas where the proposed MWC Unit 3 building, stack, and cooling tower will be built are at or above elevation 1,010 feet, or at least two feet above the 100-year floodplain. Therefore, any site grading, excavation, and fill activities associated with the proposed MWC Unit 3 project should not result in any floodplain impacts and will comply with applicable floodplain regulations of the City.

Silver Creek is not a state or federally designated wild and scenic river.

Proposed Treatment of Topic in the EIS:
The expected impacts to Water-Related Land Use Management District are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS

15. Water Surface Use. Will the project change the number or type of watercraft on any water body?
☐ Yes ☒ No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

Proposed Treatment of Topic in the EIS:
The topic is not relevant and will not be addressed in the EIS.

16. Erosion and Sedimentation. Give the acreage to be graded or excavated and the cubic yards of soil to be moved: **0.40** acres; **TBD** cubic yards. Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.

Erosion and sedimentation is expected to be minimal. There are no steep slopes or highly erodible soils located on the site. Approximately 0.40 acres of the site will be graded and disturbed as part of proposed facility expansion project. Since the areas where the proposed MWC Unit 3 building and cooling tower will be located are relatively level and construction will be to grade, little excavation or filling is anticipated (estimated quantity of soil to be moved has not been determined at this time). Area(s) for equipment staging and laydown may prove to be needed, but their size is not expected to significantly change the total area shown above. In any event, such laydown areas would be treated with the same mitigative measures discussed below.

Temporary erosion and sediment control measures such as silt fences, rock check dams, sediment filters and traps, mulching, and crushed rock pads will be used where applicable. Soils tracked from the construction site by motor vehicles and equipment will be cleaned from paved roadway surfaces throughout the duration of the construction project. All disturbed vegetated areas of the site beyond the building structures will be seeded and mulched as soon as practical upon completion of the final grading work.

Temporary erosion control measures will be maintained during construction and remain in place until permanent vegetation has been established. Grading and sediment control plans will be prepared and included with the set of plans submitted to the Rochester-Olmsted Planning Department as part of the Site

Development Plan Review process. Copies of the plans will, in turn, be forwarded to various City entities, including the Public Works Department, Building Safety Department, Fire Department, and Rochester Public Utilities for review and comment.

Proposed Treatment of Topic in the EIS:
The expected impacts to Erosion and Sedimentation are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS.

17. Water Quality – Surface-Water Runoff.

a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any storm-water pollution prevention plans.

No significant change in the quantity or quality of stormwater runoff from the facility is expected. The new building structures associated with the proposed expansion project will add approximately 0.35 acres of new impervious surface with roughly 0.15 acres (40 percent) replacing hard-packed gravel surfaces. No additional paved areas or modifications to the existing stormwater drainage system are planned at this time as part of this project. Consistent with existing operations at the facility, all raw materials, waste products, and hazardous substances or chemicals associated with the MWC Unit 3 project and its auxiliaries will be located within enclosed buildings or under cover protected from direct exposure to stormwater. Continuing to use good housekeeping practices such as keeping all road surfaces clean as well as maintaining landscaped areas with low runoff potential around the perimeter of the site also helps to minimize potential pollutant sources.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

The majority of stormwater runoff from the site drains to Silver Creek. Runoff from the east side of the facility drains via catch basins and a storm sewer system that discharges directly into Silver Creek. Runoff from the west side of the facility drains via catch basins and a storm sewer system that discharges to a ditch located west of the site on the adjacent Federal Medical Center property. This ditch is approximately 700 feet in length and flows into Silver Creek just north of the DM&E Railroad tracks.

Dense vegetation is maintained along the bottom and sides of the ditch, which helps stabilize the flow channel, minimize erosion potential by reducing flow velocities, filters out nutrients and suspended solids, and promotes infiltration. Runoff from the rooftop of the MWC Unit 3 building will likely be directed to the west storm sewer system that outlets to this ditch.

Runoff from paved areas along the north side of the facility drain through curb cuts and into a low ponding area located in the compost area on the south side of the railroad tracks, where stormwater infiltrates into the underlying soils. This drainage area includes the proposed location for the cooling tower on the north side of the facility.

Due to the size and nature of the project and existing stormwater management provisions in place, the project is not expected to have a negative impact on the water quality of Silver Creek.

Proposed Treatment of Topic in the EIS:
The expected impacts to Water Quality and Surface Water Runoff are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS.

18. Water Quality – Wastewater.

a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

The existing OWEF produces domestic wastewater from the 30 employees working at the plant along with process wastewater consisting of cooling tower blowdown and boiler blowdown. Upon completion of the MWC Unit 3 project, the facility will employ approximately 6 additional people, increasing the quantity of domestic wastewater discharges slightly. Boiler blowdown discharges will also increase and blowdown from the new cooling tower will be introduced as a new wastewater stream. Below is a table comparing existing and proposed wastewater discharges from the facility.

Wastewater Discharges

Wastewater Source	Existing Conditions Flow (gpd)	Proposed Conditions Flow (gpd)
Domestic Wastewater	2,050	2,450
Cooling Tower Blowdown	3,565	3,565
Cooling Tower Blowdown (MWC Unit 3)*	---	95,290
Boiler Blowdown	1,475	2,951
Total	10,440	104,256

* Based on the "worst case" scenario using a fully evaporative cooling tower.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

Wastewaters generated at the facility are not treated onsite and instead are directed to the Rochester municipal sanitary sewer system as described below in Item 18c. All drains within the facility are connected to the sanitary sewer. The drains are protected from spills and leaks that may occur during normal operations at the facility by utilizing standard spill prevention and control methods.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

Wastewater discharges from the facility are directed to Rochester's municipal sanitary sewer system and treated at the Rochester Water Reclamation Plant, which discharges to the Zumbro River. Discharges from the facility are authorized under an existing Industrial Discharge Permit (Permit No. 3N-07) issued by the City. No pretreatment is currently provided for the industrial wastewater discharged to the municipal sanitary sewer. Permit limits have been established for heavy metals and semi-annual water quality monitoring is required to show compliance with permit limits.

The Rochester Water Reclamation Plant (RWRP) is expected to have adequate capacity to handle and treat the additional wastewater discharges from the proposed plant expansion and therefore, no improvements are necessary. Although the composition of the wastewater discharges is not expected to change significantly and the terms and conditions of the permit should remain the same, the County is required to notify the RWRP Plant Manager in writing of the proposed increase in wastewater volumes from the facility in advance of such increase.

d. If the project requires disposal of liquid animal manure, describe disposal technique and location and discuss capacity to handle the volume and composition of manure. Identify any improvements necessary. Describe any required setbacks for land disposal systems.

N/A

Proposed Treatment of Topic in the EIS:
The expected impacts to Water Quality – Wastewaters are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS.

19. Geologic Hazards and Soil Conditions.

a. Approximate depth (in feet) to Ground water: _____ minimum; _____ average.
Bedrock: _____ minimum; _____ average.
Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

Boring logs for Wells 1 and 2 previously discussed in Item 13 indicate that bedrock was encountered at depths of 70 and 74 feet, respectively, below the ground surface. This is consistent with the Olmsted County Geologic Atlas (Minnesota Geologic Survey, Depth to Bedrock and Bedrock Topography, Plate 4 of 9, by Bruce M. Olsen 1988,) that indicates bedrock in the area should be encountered at a depth between 51 to 100 feet below ground surface.
The Olmsted County Geologic Atlas (Minnesota Geologic Survey, Sinkholes and Sinkhole Probability by Calvin Alexander, Jr. and Geri L. Maki, 1988) indicates that the project area is listed as having "low to moderate sinkhole probability," therefore, problems with such features are not anticipated.

b. Describe the soils on the site, giving SCS classifications, if known. Discuss soil granularity and potential for ground-water contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

As shown on the General Soil Map contained in the Soil Survey of Olmsted County (1980), soils surrounding the OWEF fall under the Waukee series. The Waukee series consists of deep, well-drained soils that are moderately permeable in the upper part and rapidly permeable in the underlying material. These soils formed in loamy alluvium and in the underlying sandy material. They are located on stream terraces with slopes ranging from 0 to 6 percent. Specifically the site soils are classified as Waukee loam (483A), 0 to 2 percent slopes. Typically the surface layer is very dark brown loam about 10 inches thick. The subsoil is about 38 inches thick consisting of loam, sandy loam and gravelly loamy sand and course sand. Permeability is moderate in the upper parts of the soil and very rapid in the underlying material.

Soil borings completed (Braun Intertec, 2001) in the area of the proposed addition indicate the soils in this area consist of approximately 6 feet of fill described as poorly graded sand. Alluvium consisting of poorly graded sand underlies the fill to a depth (end of boring) of approximately 20 feet. Groundwater was encountered at approximately 16 feet below ground surface. A previous boring completed (Huntingdon, 1993) to a depth of 41 feet provides similar results.

Proposed Treatment of Topic in the EIS:
The expected impacts to Geologic Hazards and Soil Conditions are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS.

20. Solid Wastes, Hazardous Wastes, Storage Tanks.

a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

Olmsted County operates a waste abatement program and intends to continue to do so. Olmsted County's integrated solid waste management system was developed based on Minnesota's waste management hierarchy: reduce, reuse, recycle, resource recovery, and landfilling. The County has established an objective of processing 90 percent of the total MSW generated, in some form, prior to landfilling. This goal reflects Olmsted County's commitment to landfill abatement. The County's integrated solid waste management system includes the following components:

- Waste reduction and education programs and business waste management assistance,
- Mandatory curbside recycling, rural recycling sheds and a privately operated but publicly owned recycling center,
- Yard waste composting site,
- Hazardous waste management program, including a regional hazardous waste management facility,
- Mass-burn municipal solid waste combustor that co-generates steam and electricity for sale to a district heating and cooling system, and
- Landfill consisting of municipal solid waste, construction and demolition debris, and ash cells.

The addition of the proposed MWC Unit 3 will allow Olmsted County to work towards achieving the objective of processing 90 percent of the total MSW generated in the County prior to landfilling. Small quantities of waste from Mayo do not include infectious waste

The OWEF burns municipal solid waste as fuel for generating steam and electricity. The facility has been designed to accommodate the handling and storage of solid waste. The waste is collected from all sources in Olmsted County and from the transfer station in Dodge County. Small quantities of waste are also received from the Mayo Clinic. The facility does not burn hazardous waste.

The County owns and operates a landfill in Kalmar Township. The Kalmar Landfill provides three major components to the Counties' integrated waste management system: a bypass landfill for solid waste; an ash landfill for incinerator ash from the OWEF, Rochester Public Utilities coal ash, and the Mayo Clinic waste combustor ash; and a demolition landfill for demolition and construction debris. Ash is the remaining product after the solid waste has been burned and is transported to the Kalmar Landfill for disposal. The ash landfill is a permitted, double composite lined landfill.

The County has set up a hazardous waste program, including a household hazardous waste program, with the primary responsibility of preventing hazardous materials from entering the waste stream. The hazardous waste program works in conjunction with the Counties' education program. The primary function of the education program is to increase waste reduction, recycling and provide citizen education on the County's overall solid waste program.

It should also be noted that a Materials Separation Plan is required for the Proposed MWC Unit 3 project under federal New Source Performance Standard (NSPS) Subpart AAAA. The purpose of the NSPS materials separation plan is to outline goals and approaches for separating certain components of municipal solid waste for the County's service area prior to waste combustion, and making those

components available for recycling. The materials separation plan is being prepared as part of the air emission permitting process. By regulation, the plan must be made available for public comment.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating ground water. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

The OWEF uses and stores lubricants and oils, in quantities necessary for maintaining and operating equipment at the OWEF. Additionally, the OWEF also uses chlorine gas for domestic water treatment, sulfuric acid for cooling tower water treatment, and sodium hydroxide and hydrochloric acid (HCL) for feedwater demineralizer regeneration. If selective non-catalytic reduction (SNCR) is determined to be needed for NOx control, ammonia is one potential option for reagent, though urea or aqueous ammonium hydroxide could be used in lieu of ammonia**.** Volumes of these materials are expected to increase in proportion to the operating and maintenance needs of the proposed unit. These materials are properly stored at the OWEF.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

No new storage tanks are proposed as part of the addition to the OWEF. The OWEF does have a 20,000-gallon underground storage tank (UST) on-site that stores ultra-low sulfur No. 2 fuel oil for use in both the diesel generator and the auxiliary boiler. This UST was installed in 1997 to meet pending UST standards that were scheduled to take effect in 1998. This UST is a double-walled STIP3 tank with leak detection, and spill and overfill protection. Olmsted County has also properly closed five USTs in the vicinity of the OWEF.

These USTs included four 15,000 gallon USTs installed in 1951 and used for storage of No. 6 fuel oil. Two of the 15,000 gallon USTs were removed in 1984 and the other two were closed in place in 1997. The other closed UST was a 4,000 gallon UST installed in 1978. It was used to store No. 2 fuel oil for the diesel generator and was removed in 1997. Soil around the closed USTs was geoprobed to determine if the USTs had leaked. The results of the geoprobe investigation indicated that the USTs had not released diesel fuel products into the surrounding soils.

Proposed Treatment of Topic in the EIS:
The expected impacts to Solid Wastes, Hazardous Wastes, and Storage Tanks are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of water use is warranted. The topic will not be carried forward into the EIS.

21. Traffic. Parking spaces added: 0 Existing spaces (if project involves expansion): See below Estimated total average daily traffic generated: See Below Estimated maximum peak hour traffic generated (if known) and its timing: N/A Provide an estimate of the impact on traffic congestion affected roads and describe any traffic improvements necessary. If the project is within the Twin Cities metropolitan area, discuss its impact on the regional transportation system.

The existing facility infrastructure (roads, scale house, adequate turning and staging areas, etc.) is in place to accommodate the access and movement needs of larger vehicles and employee parking. Additional infrastructure needs are not anticipated to be required as part of the proposed addition. MSW trucks, ash disposal trucks, employee vehicles and general operation and maintenance vehicles comprise the majority of generated traffic associated with the OWEF facility.

MSW and ash trucks enter and leave the facility via the scale house, so the actual number of trucks is generated through the effort of tracking weight (tonnage) of the trucks. Please refer to table below for a breakdown of traffic volumes related to the current and proposed operations.

MSW delivery trucks comprise the majority of traffic into and out of the OWEF. The number of MSW trucks entering the facility during 2002 was 12,116 vehicles. MSW is delivered to the OWEF Mondays through Saturday. The number of trucks delivering MSW to the OWEF fluctuates on a daily basis. Typically, more waste is delivered to the OWEF early in the week with fewer trucks delivering MSW during the later portion of the week. The volume of MSW, now bypassed to the Kalmar Landfill, which would arrive at the OWEF for incineration, would result in an additional 3,725 MSW delivery trucks entering the OWEF on a yearly basis. These numbers are based on 2002 waste generation rates and do not take into account future increases in county population and/or MSW generation.

Ash disposal trucks comprise the next largest component of truck related traffic. Ash leaves the OWEF seven days per week. The volume of ash generated is directly correlated to the volume of waste burned. During 2002 a total of 1,345 ash disposal trucks left the OWEF. At full operating capacity, the additional waste burned would result in the addition of 1,345 ash trucks per year, for a total of 2,690 ash trucks per year leaving the OWEF.

The current number of employees at the OWEF is 31. This number is projected to increase to 36 to 38, resulting in a slight increase in traffic numbers related to OWEF operations. Ample employee parking is available to accommodate the increase in the number of employees and no new parking spaces are proposed.

Operations and maintenance traffic related to the OWEF is generally comprised of vehicles providing repair and maintenance services and delivery trucks providing supplies or other items generally associated with normal operations of the facility. Traffic flow associated with these types of activities is not expected to increase. The frequency of services and deliveries should remain constant, but the duration of service and quantity of delivery would instead increase. While vehicles associated with these activities are not tracked in detail, operators of the OWEF have estimated that on average four to ten vehicles per day arrive onsite in association with these activities. For purposes of estimating average daily traffic volumes an average number of seven trips per day has been used.

Some traffic will also be generated during construction of the proposed unit, but this would be temporary. The following table presents the average weekday daily traffic counts for the OWEF. While the OWEF typically operates seven days per week, the majority of traffic associated with the operation of the OWEF occurs on weekdays and this is expected to continue with the operation of Proposed MWC Unit 3.

Average Weekday Traffic Summary*

Traffic Type	2002 Average Weekday Traffic	Estimated Average Weekday Traffic w/MWC Unit 3
MSW Related Trucks	78	102
Ash Disposal Trucks	8	11
Employee Related	50	60
Operation and Maintenance	14	14
Total	150	187

* These numbers are based on 2002 waste generation rates of MSW arriving at the OWEF and MSW bypassed to the Kalmar Landfill and account for trips into and out of the facility (round trips).

Based on 2000 average daily traffic volumes provided by the City, traffic on College View Road E, as a

result of the proposed project, will result in an increase from 8,300 to 8,337 vehicles per day, a projected increase of 0.4 percent.

It is important to note that while traffic volumes at the OWEF will increase due to the operation of the proposed MWC Unit 3 project, regionally, overall waste related traffic volumes and miles driven will not. The volume of waste currently generated within Olmsted and Dodge Counties is generated on a per capita basis; that is, volumes generated are population dependent not disposal driven. In general, waste within Olmsted and Dodge Counties currently goes to either the OWEF or the Kalmar Landfill. If the proposed unit is constructed, more waste will be routed to the OWEF and less to the landfill, arguably resulting in a decrease in total regional miles traveled.

Proposed Treatment of Topic in the EIS:
The expected impacts from Traffic are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Traffic is warranted. The topic will not be carried forward into the EIS.

22. Vehicle-Related Air Emissions. Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts. Note: If the project involves 500 or more parking spaces, consult *EAW Guidelines* about whether a detailed air quality analysis is needed.

Vehicle-related air emissions have not been estimated at this time. Particulate emissions from vehicle traffic increases (e.g., additional refuse trucks) will be estimated using U.S. Environmental Protection Agency (EPA) emission factors as part of the MPCA Air Quality permitting process. However, because all site roads are paved, actual particulate emission levels are expected to be low. Carbon monoxide emission levels from vehicle traffic are not expected to be problematic because the site is relatively small (i.e., short overall trip length) and virtually all of the idle time takes place on the tipping floor within the enclosed fuel reception area which contains the truck emissions and supplies combustion air to the furnace, destroying the carbon monoxide and other pollutants. It should also be noted that, regionally-speaking, overall vehicle miles traveled for waste disposal should decrease because of less-frequent bypass trips to the Kalmar landfill.

Proposed Treatment of Topic in the EIS:
The expected impacts from Vehicle-Related Air Emissions are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. However, the topic will be evaluated, as stated above, as part of the MPCA Air Quality permitting process. Therefore, the topic will not be evaluated in the EIS.

23. Stationary Source Air Emissions. Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing), any greenhouse gases (such as carbon dioxide, methane, and nitrous oxides), and ozone-depleting chemicals (chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

In Minnesota, air emission permits are required to operate certain existing facilities or to modify these regulated facilities. Depending on the facility, air emission permits may contain a wide range of federal and state requirements to minimize the impact of the air emissions from these facilities on the environment. The 1990 amendments to the Clean Air Act involved many significant changes to the federal air quality program which, in turn, caused an overhaul of Minnesota's existing air permitting program.

One of the larger changes was the addition of the Part 70 (or Part 70) operating permitting program. Part 70 refers to the section of the Clean Air Act, where the requirements for this program can be found. Part 70 is found within Title 40 of the Code of Federal Regulations (CFR).

A proposed project may initially be reviewed, in part, by examining 'potential' air emissions, which are the air emissions expected when the equipment is operating 24 hours a day, 7 days a week, and 365 days a year without using control equipment and in the absence of any rule-, or permit-based limitations. Since facilities are not allowed to operate under these conditions, "actual" air emissions are much lower.

Because the OWEF total facility potential to emit (PTE) for the regulated pollutants is over the federal Part 70 threshold, the facility has been issued a Part 70 operating permit. The Part 70 operating permit was issued on June 5, 1997. Prior to the June 5, 1997, Part 70 operating permit issuance, a total facility

permit had been issued on August 27, 1985. Between 1985 and 1997, five permit amendments had been issued for the facility as well as one "I/O" permit which authorized installation and operation of a new auxiliary boiler. The Part 70 operating permit reflects the requirements and conditions from the previous permits and amendments.

As part of the OWEF Unit 3 expansion, the Part 70 operating permit will be reissued. The Part 70 operating permit will contain applicable conditions and requirements found in federal and Minnesota rules. In addition, the new total facility Part 70 permit will incorporate the information obtained in the evaluation of the potential environmental impacts associated with the proposed expansion.

Specifically for the proposed Unit 3 Project, the applicable provisions from the following rules will be contained in the Part 70 total facility operating permit:

1. Federal New Source Review Prevention of Significant Deterioration (40 CFR § 52.21);
2. Federal Part 60 Subpart AAAA – Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 (Subpart AAAA); and,
3. Minnesota Waste Combustor Rule (Minn. R. 7011.1201-7011.1290).

Typically, a permit amendment would be issued for the proposed modification. However, since the facility is currently operating under an expired permit, the Part 70 total facility permit will be reissued once the EIS process has been completed.

Federal New Source Review Prevention of Significant Deterioration (PSD)

New Source Review (NSR) is a pre-construction review program. It consists of the PSD program and Non-Attainment Area program. Before a new facility is built, or prior to the expansion or modification of an existing facility, the emissions of regulated NSR pollutants resulting from the project must be analyzed to see if the project is subject to NSR.

The EPA and the State of Minnesota have established National and Minnesota Ambient Air Quality Standards (NAAQS and MAAQS, respectively), which are not to be exceeded. These standards are designed to be protective of public health and the environment.

As part of the air quality permit application, an air dispersion modeling assessment will be completed to determine compliance with the NAAQS and MAAQS. Air dispersion modeling is the primary predictive tool used by regulatory agencies for evaluating air impacts from facilities that are being modified. Air dispersion modeling uses comprehensive facility information (emission rate, stack height, stack diameter, and stack gas temperature and velocity) coupled with representative meteorological data (such as temperature, wind direction, and wind speed) to predict ambient air concentrations at and beyond the Facility boundary.

The NAAQS are human health-based or welfare-based standards that set the maximum concentrations that are allowed in the ambient air (i.e. the air that the general public is exposed to). These six pollutants are referred to as the criteria pollutants. These the are six criteria pollutants:

- nitrogen oxides (NOx),
- sulfur dioxide (SO2),
- ozone/Volatile Organic Compounds (VOCs),
- particulate matter less than 10 microns in size (PM10),
- carbon monoxide (CO), and
- lead (Pb).

The NAAQS are used with monitoring and modeling to determine if an area is in attainment or nonattainment with a particular NAAQS. More information on the NAAQS can be found in 40 CFR § 50.

The PSD program applies to facilities that are located in geographic areas that are deemed to be in NAAQS attainment or are unclassified. Attainment refers to the ambient (i.e., measured) air quality concentrations being lower than the PSD ambient standards for either NOx, PM10, or sulfur oxides. The OWEF location is currently deemed to be in attainment for all of the identified criteria pollutants.

In addition to the six criteria pollutants, the PSD program regulates fluorides, sulfuric acid mist, total reduced sulfur compounds, and municipal waste combustors acid gases/metals.

In order for a facility modification to be subject to PSD, the proposed pollutant's emission increase must exceed the PSD Significance Levels. The following table contains a summary of the OWEF emission increases and the corresponding PSD Significance Levels.

Summary of Potential Emissions Attributable to Proposed MWC Unit 3 Project

Pollutant	Potential Increase* (ton/yr)	PSD Significance Level (ton/yr)
Particulate Matter	18.2	25
PM_{10}	14.9	15
NO_x (uncontrolled)	**239**	**40**
SO_2	23.5	40
CO	34.3	100
Ozone (as VOC)	3.65	40
Lead	0.059	0.6
Fluorides	0.07	3
Sulfuric Acid Mist	0.72	7
MWC Organics (as total Dioxins/Furans)	**4.6 E-06**	**3.5 E-06**
MWC Metals	8.57	15
MWC Acid Gases (as SO_2 + HCL)	38.0	40

* Note that the emission levels shown also include particulate emissions attributable to increased truck traffic (i.e., road dust) on the OWEF site, at a maximum future plant wide (i.e., existing units plus proposed) capacity of 400 tons waste/day.

As illustrated in the table above, preliminary estimates show that the proposed MWC Unit 3 NOx and MWC Organics (total dioxin/furans) emissions will exceed the PSD Significant Level emission rate.

Accordingly, the NOx and MWC Organic emissions are subject to PSD analysis. The remaining pollutants are not subject to PSD analysis.

Unit 3 will be subject to a Best Available Control Technology (BACT) determination for NOx and MWC Organics. BACT is determined by doing a "top-down" analysis of available pollution control technologies. Available technologies are ranked in descending order according to their control effectiveness. Many previous BACT determinations are kept in an EPA clearinghouse, which can be sorted by date and/or operation type.

Based on the BACT determination, the NOx emissions will be subject to a BACT determined control technology and emission limit. Preliminary review indicates that Unit 3 will be required to use SNCR as a BACT condition. SNCR entails the injection of ammonia, urea, and/or other nitrogen-bearing reagent with NOx present in the flue gas.

For the NOx emissions, the PSD analysis will also include an air quality analysis (i.e., dispersion modeling) and an additional impacts analysis. An air dispersion modeling assessment will be completed to determine compliance with the NOx, NAAQS, MAAQS, and applicable PSD increments. Air dispersion modeling is the primary predictive tool used by regulatory agencies for evaluating air impacts from facilities that are being modified. Air dispersion modeling uses comprehensive facility information (emission rate, stack height, stack diameter, and stack gas temperature and velocity) coupled with representative meteorological data (such as temperature, wind direction, and wind speed) to predict ambient air concentrations at and beyond the Facility boundary. The air modeling will require demonstration of the proposed Unit 3 NOx emissions to not exceed the NOx NAAQS, MAAQS, and applicable PSD increments. The additional impact analysis will describe the potential impacts on soils and vegetation caused by the emissions from the proposed facility modification and from associated growth.

As required by the federal PSD requirements, applicable federal (40 CFR Part 52.21) air dispersion modeling will be performed during the permitting process; preliminary indications suggest this will be for NOx only. The results of the federal PSD modeling will be used to evaluate if the proposed BACT limits meet ambient standards and applicable PSD increments with some room for future growth.

Because the BACT determination typically expires within 18 months of the BACT analysis, and because the results of the alternatives determination performed for the EIS may effect the modeling input parameters, federal (40 CFR Part 52.21) air dispersion modeling will not be performed during the EIS process.

A visibility analysis was performed for the nearest Class I Area (Rainbow Lake Wilderness Area). The screening procedure consisted of the methodology outlined in the EPA document Workbook for Estimating Visibility Impairment. The calculations were performed for various distances (starting at 277 km - distance to Rainbow Lake) using the EPA VISCREEN model. The results indicate that there should be no visible plume impacts at the Rainbow Lake Wilderness Area resulting from the project.

For Total Organic emissions, the PSD analysis will include a BACT analysis and additional impact analysis. For PSD analysis, there is no ambient air modeling. This is because there is no ambient air standard. It is noted that dioxins/furan emission risk level has been reviewed as part of the Minnesota AERA process (see Section 29. Cumulative Impacts for a discussion about the AERA evaluation).

It is also noted that a specific pollutant can avoid PSD requirements by taking an emission limit to stay below the PSD Significance Level. This has been proposed for MSW acid gases.

In the past, portions of the Rochester geographic area were nonattainment for PM10 and/or SO2. Now, the geographic location is currently deemed to be in attainment for both PM10 and SO2. Due to the former SO2 nonattainment designation, the existing permit contains SO2 limits set based on air dispersion

modeling. Under the State Implementation Plan Program, the proposed modifications will need to demonstrate compliance for the SO2 NAAQS. The facility is equipped with SO2 CEMS to demonstrate continuous compliance with the SO2 limits.

Federal Part 60 Subpart AAAA – Standards of Performance

NSPSs are technology-based standards. Each NSPS applies only to source categories defined within the specific subparts of the NSPS regulations. The general provisions of the NSPS regulations are located in Subpart A of the rules (all NSPS regulations can be found in 40 CFR § 60). It is possible that more than one NSPS regulation may apply to a facility.

Unit 3 is subject to the NSPS Subpart AAAA provisions (Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999). This Subpart begins at 40 CFR § 60.1000.

For Unit 3, Subpart AAAA provides emission concentration limits for the following pollutants:

- dioxins/furans (total mass),
- cadmium,
- lead,
- mercury,
- particulate matter,
- hydrogen chloride,
- nitrogen oxides,
- sulfur dioxide, and
- carbon monoxide.

In addition to the emission limits established by the NAAQS and MAAQS, Subpart AAAA has requirements that necessitate demonstration that the facility is meeting its emission limits for its regulated pollutants. However, these limits are technology-based limits rather than health-based limits.

Annual performance tests are, initially, required for dioxins/furans, cadmium, lead, mercury, particulate matter, and hydrogen chloride. Continuous monitoring is required for nitrogen oxides, sulfur dioxide, and carbon monoxide. In addition, the Unit 3 load level, inlet fabric filter temperatures, and carbon feed rate for the activated carbon must also be continuously monitored.

To meet the Unit 3 Subpart AAAA emission limits, OWEF has proposed the following air pollution control equipment:

- SDA reactor for control of MWC acid gases, including sulfur dioxide;
- Powdered activated carbon (PAC) injection modules for control of certain metals and organics; and,
- Fabric filters (baghouses) for enhanced control of particulate matter, including MWC metals.

In 2003, the existing MWC Units 1 and 2 were retrofitted with the same air pollution control equipment to meet NSPS Subpart BBBB (federal guidelines for existing MWCs of this size category).

Minnesota Waste Combustor Rule

In addition to the Federal rules, Minnesota has a waste combustor rule. The Minnesota rule largely parallels the Federal rule. In some cases, it has additional requirements or more restrictive requirements. Unit 3 is subject to the Minnesota Waste Combustor Rule. The Minnesota Waste Combustor Rule starts at Minn. R. 7011.1201.

The Minnesota waste combustor rule provides, in part, that "no waste combustor shall combust yard waste or waste tires unless specifically allowed to do so in the air emission permit." Minn. R. 7011.1220, subp. 2. The permit prohibits burning yard waste, but contains "special authorization" for burning tires. The existing air emission permit authorizes the facility "to burn waste tires in accordance with the Industrial Waste Management Plan, provided that burning tires does not cause a violation of any emission limits." As part of the review of the proposed project, Olmsted County has agreed to replace this condition in the existing permit with the provision that only the incidental inclusion of tires in the municipal solid waste stream would be acceptable.

The OWEF Ash Management Plan includes ash sampling and analysis protocols and schedules as well as information on ash disposal and toxicity. This plan has been sent to the MPCA for review and approval. The purpose of this rule provision is to incorporate portions of the ash management rules contained in Minn. R. ch. 7035, and to ensure that waste combustors make appropriate arrangements for ash disposal.

Proposed Treatment of Topic in the EIS:
The expected emissions from the identified criteria pollutants will be controlled and limited as a result of conditions included in the Part 70 Air Quality permit to comply with health-based standards. The expected impacts from the identified criteria pollutants are adequately described in this document. Based on the information provided, the anticipated effect would not be significant. No further review is warranted. The topic will not be carried forward into the EIS.

However, other anticipated pollutants that may be emitted from the proposed Unit 3 have been identified and evaluated during the Air Emissions Risk Analysis (AERA) process (discussed further in Section 29: Cumulative Impacts) and information beyond what is in the EAW will be included in the EIS.

24. Odors, noise and dust. Will the project generate odors, noise or dust during construction or during operation? ☒ Yes ☐ No

If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

Odors
Municipal solid waste contains odorous materials. The facility has been specifically designed to minimize the impact of odors by containing such odors to within the facility. Refuse delivery trucks enter the facility where the waste is unloaded in the enclosed fuel reception area. Constant negative air pressure is maintained by drawing combustion air from the tipping floor and refuse pit (where incoming waste is dumped) into the furnace where the waste is combusted. At the temperatures encountered in the combustion system, all odors associated with the waste are removed. This ensures that no odor will be detected around or downwind of the facility. No odor complaints associated with operations at the facility have been received to date.

Noise
Noise will be generated during construction and also during normal operation of the facility, but is not expected to have an adverse affect on the surrounding area. The facility is located on the east edge of Rochester with the nearest residential areas of town located approximately 0.4 miles away. The existing OWEF has been in operation since 1987 and no noise complaints have been received in the past 5 years. Other existing noise sources located in the general vicinity of the site include industrial facilities (Composting Facility, Recycling Center/Hazardous Waste Facility), institutional facilities, streets, four-lane roads, railroad tracks, and farm equipment associated with agricultural activities.

Typical noise sources during construction include earth-moving and grading equipment (bulldozers, graders), cranes, and fabrication activities (pneumatic wrenches, saws, welding equipment). Many of

these noise sources are intermittent and of short-term duration during the construction period which is expected to last a nominal 18 months. Significant portions of the construction involve indoor work such as pipefitting, electrical wiring, and equipment installation. Those indoor activities normally do not result in appreciable outdoor noise. Noise impacts due to construction activities will be temporary and will be generally confined to the immediate vicinity of the project site. Construction work will be conducted during normal working hours set forth in city ordinances established by the City.

All facility operations take place inside building enclosures and all major noise producing equipment is also located inside buildings. Truck traffic is expected to increase as a result of the expansion, but is not expected to increase overall noise levels significantly along the haul routes. Neither the existing stack or the proposed MWC Unit 3 exhaust stack are discernable sources of noise.

Dust

Dust will be generated on a temporary basis during construction of the facility expansion project but is expected to be minimal based on the developed nature of the site and the small amount of the land to be disturbed. As needed, reasonable measures (e.g., watering of unpaved areas, sweeping of paved areas) will continue to be taken to minimize dust emissions during construction.

Proposed Treatment of Topic in the EIS:

The expected impacts from Odors, Noise, and Dust are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Odors, Noise, and Dust is warranted. These topics will not be carried forward into the EIS.

25. Nearby resources. Are any of the following resources on or in proximity to the site?

a. Archaeological, historical, or architectural resources? ☒ Yes ☐ No
b. Prime or unique farmlands or land within an agricultural preserve? ☐ Yes ☒ No
c. Designated parks, recreation areas, or trails? ☒ Yes ☐ No
d. Scenic views and vistas? ☐ Yes ☒ No
e. Other unique resources? ☐ Yes ☒ No

If yes, describe the resource and identify any project-related impacts on the resources. Describe any measures to minimize or avoid adverse impacts.

Information was requested from the Minnesota State Historic Preservation Office (SHPO) about possible archeological, historical or architectural resources located on or near the project site. A response letter dated October 30, 2003, was received from the SHPO stating that the only recorded historic property in the project area is the Winona and Saint Peter Railroad corridor, now the DM&E Railroad (See Figure10). They also indicate that an archeological survey of the project area would not be necessary. The railroad tracks are located approximately 200 feet north of the facility. Construction of the Proposed MWC Unit 3 project will be confined to developed areas of the site adjacent to the existing facility and therefore, no project-related impacts to the railroad corridor are anticipated.

Olmsted County reported that several areas adjacent to the facility are currently being used to grow feed crops. These fields are east of the facility within the Gordon Yeager Wildlife Management Area which is managed by the DNR. The local DNR office reported to Olmsted County that corn/soybeans from these fields are either stored or sold on the open market. The farmers that till and harvest these fields also get a portion of the crop, ostensibly to be sold at a local elevator.

A Land Use Plans map for the City and Olmsted County indicate that the area directly surrounding the facility is classified as 50 year urban reserve, with public and recreational area and open space within a kilometer (km) of the facility. There are no designated trails or developed public facilities within the wildlife management area. Silver Creek is located north of the site on the other side of the railroad tracks

and flows in a westerly direction outletting into the Zumbro River just upstream of Silver Lake. Construction of the Proposed MWC Unit 3 project will be confined to developed areas of the site adjacent to the existing facility and therefore, no project-related impacts to these resources is anticipated.

As stated previously in Item 11b, the DNR concluded that based on review of the Minnesota Natural Heritage Information system database, known occurrences of rare features identified in the project area, including unique resources, would not be affected by the project.

Proposed Treatment of Topic in the EIS:
The expected impacts from Nearby Resources are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Nearby Resources is warranted. The topic will not be carried forward into the EIS.

26. **Visual impacts**. Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? ☐ Yes ☒ No See below.
If yes, explain.

The proposed MWC Unit 3 project will include the construction of another stack. The new stack will be constructed to the same height as the highest existing stack, set at 190 feet above the ground level. The tallest OWEF building height is 101 feet and an existing auxiliary boiler stack is 110 feet high. An adjacent water tower stands at a height of 145 feet. Lighting at the facility will be provided for plant operational purposes. Lighting impacts should be minimal and are expected to be similar to the current lighting provided for existing operations.

As flue gas is emitted from the stack, water vapor present in the flue gas can condense to form a visible steam plume. In addition, water vapor emitted from cooling towers can result in a similar, visible plume. The length and persistence of the visible plumes are influenced by the prevailing weather conditions such as temperature, relative humidity, and wind speed. The plumes are more persistent and visible during cold and damp weather, principally during the winter months. On most days of the year, however, visible steam or vapor plumes, if present, will disperse and evaporate after traveling only a moderate distance aloft.

The Rochester Municipal Airport, located more than eight miles southwest of the site, is the closest active airport. Because of the distance and since all proposed building structures including the new stack are anticipated to be less than 200 feet tall, the facility should not represent a potential impact to aircraft operations and thus no Federal Aviation Administration coordination or notice of proposed construction would be required. Should it be determined at a later time that significant benefits would be derived from having the new stack for the proposed MWC Unit 3 taller than 200 feet, the required FAA notice of proposed construction would be provided including exact coordinates and height of the stack.

Proposed Treatment of Topic in the EIS:
The expected impacts from Visual Impacts are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Visual Impacts is warranted. The topic will not be carried forward into the EIS.

27. **Compatibility with plans and land use regulations.** Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency? ☒ Yes ☐ No
If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

The proposed project is compatible with local plans and land use regulations. The OWEF facility and surrounding campus is considered a special zoning district and classified as a MRD. Under Chapter 62 of the local zoning district regulations a waste disposal system is permitted. Chapter 62.930 Area Accessory Development states:

Public or cultural facilities developed to meet the social or physical needs of a neighborhood or of the City as a whole are permitted according to the regulations contained in this section. Area accessory developments include: The erection, construction, alteration or maintenance by a public or private utility, or by a governmental agency, of an underground or overhead gas, electrical, steam, water or communication distribution system, including commercial wireless telecommunication service towers, or a waste or runoff disposal system, or public safety system, including poles, wire, mains, drains, sewers, pipe, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants, solid waste collection stations, and other similar equipment and accessories in connection therewith, necessary for the furnishing of adequate service by such public utilities or governmental agencies or for the public health or safety or general welfare.

The addition of the proposed unit (onto the existing building) is compatible with uses as stated under Chapter 62 and within the MRD. The facility will be required to file three local permit applications; Site Development Plan Review, Building Permit Application and a Grading Permit Application. In addition to these permits, a variance may also be required from the City to allow building structures to exceed height restrictions (35 feet) for areas zoned MRD.

Olmsted County undertook the task of developing a "Solid Waste Division Ten-year Management and Business Plan" (or SWMP) in 2001. This plan was developed to update the County's existing SWMP and to meet state statute requirements authorizing counties to develop and maintain a solid waste management program, including a solid waste management plan. This proposed project also fits into the waste management goals of the state (Minn. Stat. §115A.02 (b)) to foster an integrated waste management system with a preference towards resource recovery in lieu of MSW landfilling.

The County also has a Solid Waste Ordinance (No. 10) which has been established to benefit, protect and ensure the public health and welfare of its residents through sound management of solid waste generated in and existing within the County. Pursuant to Minnesota Statutes, Olmsted County's Solid Waste management practices constitute the State Hierarchy, in order of preference: waste reduction and reuse, waste recycling, composting of yard and food waste, resource recovery through MSW composting or incineration, and land disposal.

Proposed Treatment of Topic in the EIS:
The expected impacts from Compatibility With Plans and Land Use Regulations are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Compatibility With Plans and Land Use Regulations is warranted. The topic will not be carried forward into the EIS.

28. Impact on infrastructure and public services. Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project? ☐ Yes ☒ No
If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)

Existing infrastructure and public services currently serving the facility including sanitary sewer and water, electrical transmission system, steam distribution network, and access roads and drives are sufficient to handle the proposed expansion. No improvements or modifications to these will be required. The proposed MWC Unit 3 will utilize the existing infrastructure (available capacity) to distribute renewable energy generated, in the form of steam and electricity, for sale.

Proposed Treatment of Topic in the EIS:
The expected impacts on Infrastructure and Public Services are adequately described in this document. Based on the information provided, the anticipated effect would be negligible. No further review in terms of Impact on Infrastructure and Public Services is warranted. The topic will not be carried forward into the EIS.

29. Cumulative impacts. Minn. R. 4410.1700, subp. 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts (or discuss each cumulative impact under appropriate item(s) elsewhere on this form).

The MPCA developed risk analysis tools in response to a growing demand from the public to know more about the quality of air. The AERA process provides for: (1) a streamlined review of facility air emissions; (2) a consistent format for presenting the quantitative risk estimates along with qualitative information to provide context to these risk estimates; and (3) flexibility in the manner in which the quantitative risks are calculated (the input parameters may be more or less accurate so that the risk estimates may fall along a continuum between a more conservative upper bound assessment (screening) vs. a more accurate (refined) assessment of the risks).

In the AERA guidance, MPCA uses the term "risk" to refer to estimated additional lifetime cancer risks and potential noncancer health effects. Potential health effects from individual noncarcinogenic chemicals are expressed as a "hazard quotient." Potential health effects from all noncarcinogens added together are expressed as a "hazard index."

Risk analyses assume that some level of risk is acceptable because no human activity is without risk. In general, the risk level deemed to be acceptable for emissions from a facility or an expansion project for the risks of all carcinogenic chemicals added together is less than 1 chance in 100,000 (10^5) of additional lifetime cancers based on the MPCA's interpretation of Minnesota Department of Health guidance. The level of risk deemed to be acceptable for all noncarcinogenic chemicals added together is a hazard index of 1.0.

If a project shows a risk in excess of these levels, the MPCA examines the project analysis to determine whether future investigation or project modification is warranted. Interested readers can find more detailed information on the air risk analysis process at http://www.pca.state.mn.us/air/aera.html.

An AERA was designed to inform and focus the scope of the voluntary EIS. The AERA facilitated identifying issues that may be dropped from further analysis because a potential chemical of concern did not have a significant impact on public health. The AERA also aided in focusing the analysis that would occur in the EIS by identifying specific elements that would bring greater clarity to determining the impacts from the facility.

The Risk Assessment Screening Spreadsheet (RASS) was used to compute risks (cancer risks and hazard indices) for receptors assumed to be present at the locations of highest modeled air concentrations. MPCA used the EPA AERMOD model (version 02222) to develop dispersion factors for the RASS. The modeling considered key OWEF emission sources, on-site receptors, off-site receptors, and five years of Rochester meteorological data.

Potential inhalation risks to receptors were calculated for 1-hour (acute), 3-month (subchronic) and 70-year (chronic) exposure periods under maximum future operating conditions. Potential ingestion risks to residents (consuming garden produce) and farmers (consuming produce, meats, milk, etc.) were estimated

for receptors potentially living at the location of maximum modeled air concentration. Fortyone (41) chemicals were assessed quantitatively in the RASS for at least one risk endpoint; fiftythree (53) chemicals were listed as potentially emitted that do not have inhalation health benchmarks.

Emissions and risks were computed separately for (1) the total facility after the proposed project was operational (including the operation of the auxiliary boiler along with MSW Units 1, 2, and 3) and (2) the proposed Unit 3 project emissions increase.

Olmsted County, the project proposer, provided emissions estimates for the total facility and Unit 3 project two ways. The "Regulatory" emissions scenario used in this AERA was developed from the following sources: (1) for the nine federally regulated pollutants, the NSPS emission standard serves as a limited PTE or (2) for the majority of the non-regulated pollutants, OWEF performance tests provide the basis of the emissions or (3) for a few remaining non-regulated pollutants, emissions data from similar sources was utilized. Olmsted County also submitted a second lower "Engineering" emissions scenario, which may be similar to future projected actuals. Both analyses are available for review upon request.

Risk Drivers

The AERA identified the risk drivers from either the total facility or the Unit 3 project to include dioxins/furans, cadmium, chromium (as hexavalent chromium), polyaromatic hydrocarbons, arsenic, nitrogen oxide (NO2), sulfuric acid and hydrochloric acid. Risk drivers are chemicals associated with an exposure pathway cancer risk of at least 10^{-6} or a hazard quotient of at least 0.1.

Mercury

Prior to OWEF updating its control equipment, together Units 1 and 2 emitted about 60 pounds per year (lb./year) of mercury. In 2003, OWEF installed carbon injection controls, lime-injected spray-dryer absorbers, and fabric filters (replacing the existing electrostatic precipitators). The new control equipment reduced the actual mercury emissions to about 3.5 lb/year total for Units 1 and 2. With the addition of Unit 3 using the same control equipment as Units 1 and 2, an additional 3.5 lb/year of mercury will be emitted from Unit 3. Hence, the anticipated actual mercury emissions are expected to be about 7 lb/year.

Stack testing shows total mercury emissions control of about 95 percent, due to the use of activated carbon injection and spray dryer/fabric filters. Additionally, Olmsted County operates mercury-waste separation and collection programs to collect mercury separately from municipal solid waste.

Human Consumption of Fish Potentially Impacted by Persistent Bioaccumulative Toxicants (PBTs)

Quarry Hill Pond is located within a recreational area and is approximately 0.5 km north of the facility. Based on its proximity, the prevailing winds, and dispersion modeling results, this small water body is expected to receive the relatively highest deposition (per surface area) of facility emissions as compared to other nearby water bodies. Silver Lake, with a larger surface area and a greater dilution rate, is within 2 km northwest of the facility. The presence of these waterbodies in the vicinity of the facility persistent bioaccumulative toxicant emissions (e.g., mercury, dioxins/furans, etc.), suggests the potential for impacts via human consumption of fish. For this reason, the fish exposure pathway was included in the scope of the EIS.

Proposed Treatment of Topic in the EIS:

The Risk Drivers, the potential impact of the mercury emissions and the potential impact of the PBTs identified during the AERA process may have the potential for significant environmental effects and information beyond what is in the EAW will be included as part of the scope of the EIS. (For further detail regarding the proposed analysis see the Scoping Document included as Attachment A.)

30. Other Potential Environmental Impacts. If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

No other potential environmental impacts have been identified at this time as a result of the proposed project.

31. Summary of issues. List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

N/A

RGU CERTIFICATION.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The SEAW 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, subps. 9b and 60, respectively.
- Copies of this SEAW are being sent to the entire EQB distribution list.

Name and Title of Signer:

Beth G. Lockwood, Supervisor, Environmental Review Unit
Environmental Review and Operations Section
Regional Division

Date:

The format of the Scoping Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at Minnesota Planning. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar, Saint, Saint Paul, Minnesota 55155, 651-296-8253, or at their Web site http://www.eqb.state.mn.us/review.html.

ATTACHMENT 1

STATE OF MINNESOTA
MINNESOTA POLLUTION CONTROL AGENCY

SCOPING DECISION DOCUMENT
OLMSTED WASTE-TO-ENERGY FACILITY
ENVIRONMENTAL IMPACT STATEMENT

INTRODUCTION

The Minnesota Pollution Control Agency (MPCA) is preparing an Environmental Impact Statement (EIS) on a proposal by Olmsted County Public Works for the Olmsted Waste-To-Energy Facility (OWEF) to construct a third municipal waste combustor (MWC), located in the city of Rochester, Olmsted County, Minnesota. The OWEF processes 63,000 tons of municipal solid waste annually, using two MWCs of 100 tons per day capacity each. The energy recovered from this process is used to provide steam, electricity, and chilled water service to a district energy system serving 26 buildings.

The proposed project involves the construction a third MWC unit, having a planned capacity of 200 tons per day, as well as the addition of a new waste-to-energy boiler (likely of mass-burn waterwall design but yet to be designed and specified) and an additional steam turbine generator. Like the existing two MWC units, the proposed third MWC unit would operate in a cogeneration mode, simultaneously producing steam for district heating, cooling, and electrical power.

Since the proposed project will increase the capacity of the existing facility by more than 30 tons per day of input and the potential increase in air emissions attributable to the project will likely exceed 100 tons per year for at least one pollutant, an Environmental Assessment Worksheet (EAW) would normally be required under Minn. R. 4410.4300, subp. 15.A and 17.D. Minn. R., Part 4410.4400, subp. 13, Solid Waste, requires that an EIS be prepared for the construction or expansion of a mixed municipal solid waste energy recovery facility or incinerator with a capacity of 250 or more tons per day of input. Although the proposed project will have a planned capacity of 200 tons per day and not meet or exceed the threshold of a mandatory EIS, Olmsted County Public Works has voluntarily agreed to initiate an EIS.

PREVIOUS ENVIRONMENTAL REVIEW

The original facility, consisting of two municipal waste combustors, two turbine generators, and related auxiliary systems was constructed in 1985-1986 and went into commercial operation in 1987. An EAW was prepared for the project in 1984.

SCOPING PROCESS AND PURPOSE

Minn. R. 4410.2100 provides that an EIS scoping process be implemented for any EIS. The purpose of the scoping process is to reduce the scope and bulk of the EIS, identify only those issues relevant to the proposed project, define the form to be used, determine the level of detail needed, define the content of the document, examine the alternative to the proposed project, establish the timetable for preparation and the preparers of the EIS, and determine the permits for which information would be developed concurrently with the EIS. The purpose of the EIS is the evaluation and disclosure of information about the significant environmental effects of a proposed action. The EIS is not intended to justify either a positive or negative decision on a project, but it may be utilized by governmental units as a guide in issuing or denying permits or approvals for the project and in identifying measures necessary to avoid or mitigate adverse environmental effects.

SCHEDULE

An EIS Preparation Notice for the project is expected to be published in the Environmental Quality Board (EQB) *Monitor* in October 2005. Within 280 days after the publication of the notice, the final EIS is expected to be prepared and distributed for public review. The MPCA must make a determination of the adequacy of the final EIS.

A tentative schedule for development and review of a draft and final EIS for the Expansion is provided below. The schedule is contingent upon the anticipated dates for the Scoping Decision and Preparation Notice Publication.

Tentative EIS Schedule
Olmsted Waste-To-Energy Facility

September 2005.....MPCA Citizens' Board Approval of EIS Scope

November 2005.....Notice of EIS Preparation

July 2006.....Distribution of Draft EIS

October 2006.....Determination of Adequacy

RECORD OF DECISION

Among the objectives for Minnesota's environmental review process are the provision of useable information about the primary environmental effects of a proposed project and the encouragement of accountability in public and private decision making. This Scoping Decision is obligated to identify those permit/approval decisions for which a Record of Decision must be maintained, identifying how the EIS was considered in reaching the decision.

For the proposed Expansion EIS, a Record of Decision shall be maintained for the following governmental approvals.

Record of Decision Required

Agency	Decision
MPCA	Prevention of Significant Determination Program Permit Amendment and Major Amendment to Part 70 Operating Permit

PROPOSED CONTENT OF THE EIS

This section of the scoping document outlines the items to be contained in the Expansion EIS. In accordance with Minn. R 4410.2300, the EIS will include the following:

Cover Sheet

The cover sheet will include the name of the Responsible Governmental Unit (RGU); the title of the proposed project and project location; name, address, and telephone number of the contact person at the RGU and of the proposers representative; a designation of the statement as a draft, final, or supplement; a one paragraph abstract of the EIS; the date of the public meeting on the draft EIS; and the date following the meeting by which comments on the draft EIS must be received by the RGU.

Summary
The summary shall stress the major findings, areas of controversy, and the issues to be resolved including the project as proposed.

A project description, environmental, and mitigative measures; alternatives; a list of governmental approvals; and economic impacts; and direct, indirect, and adverse or beneficial impacts are to be identified.

Preparers
The EIS will be prepared by the staff of the MPCA possibly with the assistance of one or more hired consultants. The consultant would be responsible for reviewing the adequacy of available data and reports, including those received from the proposer; preparing technical information on expected impacts of the project; participating in the public meeting for the draft and final EIS; assisting the MPCA in responding to public comments on the draft EIS; and in preparing the draft and final EIS.

Project Description
EQB Rules explicitly direct that a proposed project be described only in sufficient detail to identify its purpose, size, scope, environmental setting, location, and anticipated phases of development.

Permits and Approvals
The EIS will list the known governmental permits and/or approvals required for the expansion along with the unit of government responsible for each decision.

While the EIS will provide a variety of information useful for permitting and approval decisions, it is not intended to provide all data and information required for these actions. All required permit applications and information for the project will be developed and submitted independent of the EIS.

ENVIRONMENTAL IMPACTS AND MITIGATION

The issues that have yet to be resolved and examined in more detail in the EIS, are identified below:

1. The EIS will contain a focused human health risk analysis of air toxic emissions from Municipal Solid Waste (MSW) Unit 3, including human health hazards and cancer risks from exposures to air, soils, and biota as outlined below.

2. The EIS will include an analysis of the mercury emissions and local deposition to include the following:
    - Assessment of the air concentrations and deposition of mercury, in the vicinity of the facility, to waters of the state that are associated with MWC Unit 3 emissions.

    - Estimation of any increase in methylmercury concentrations in fish tissue associated with MWC Unit 3 emissions.

    - Calculation of the percent increase of mercury in fish tissue associated with MSW Unit 3 emissions as compared to estimates of existing concentrations.

HUMAN HEALTH AIR TOXICS RISK ANALYSIS SCOPE

Overview

Chemicals emitted from Unit 3 will be dispersed in the air, may deposit on surface soil, vegetation, and surface water and may enter the food chain. The potential for human exposures and associated risks from these chemicals will be estimated by conducting a direct (inhalation) and indirect (multiple ingestion pathways) human health risk analysis focused on the chemicals and considerations identified below.

The general methodology for the analysis is outlined in U.S. Environmental Protection Agency's (EPA) *Human Health Risk Assessment Protocol (HHRAP) for Hazardous Waste Combustion Facilities* (EPA, 1998 and all published errata and updates). The major components of air toxics risk analyses are outlined below:

- Identify the air toxics emitted from the source.
- Identify available toxicity information for the identified chemicals.
- Estimate potential human exposures to the chemicals based on modeled concentrations and human exposure assumptions.
- Develop numerical estimates of the cancer risks and noncancer hazard indices based on the available toxicity measures and exposure estimates. Accompany these numerical results with a characterization of the key assumptions, data gaps, sensitivity of the results to the assumptions, and the uncertainties.

The EIS will assess human health risks for a focused list of air toxics emissions from Unit 3 using the Industrial Risk Assessment Program (IRAP) for human health http://www.weblakes.com/iraph.html. Air dispersion and deposition modeling will be used to estimate air concentrations and quantities of a focused list of chemicals deposited from the air within a 10 kilometer (km) radius from the facility. Standard EPA chemical fate and transport equations will be used to estimate the chemical concentrations in environmental media, including foodstuff.

Minnesota-specific data and modeling will be used to estimate methylmercury concentrations in fish tissue in water bodies associated with the relatively greatest potential for mercury exposure from Unit 3. Air toxics exposures from Unit 3 emissions of the Identified Chemicals will be assessed using standard EPA exposure assumptions for three exposure scenarios (HHRAP residents, farmers, and fishers).

If any locations are identified with cancer risks greater than 10^{-5} or hazards indices greater than 1, then the exposure assumptions used in those areas will be studied in greater detail based on population characteristics in the vicinity of the facility, land use data, and the potential exposure pathways to identify site-specific relevant exposure assumptions in the areas around the facility.

If site-specific information for specific locations demonstrates the standard exposure pathways or intake assumptions are not relevant, or that other exposure pathways and intake assumptions are relevant, these alternate exposure scenarios will be used to recalculate the human exposure and cancer risks and hazard indices in those areas. Relatively more effort will be devoted to accurately assess potential exposures in the areas with relatively higher modeled air concentrations and deposition rates.

AERA Results Used In Preparing the EIS Scoping Document

This EIS assessment builds on the information developed in OWEF's Air Emissions Risk Analysis (AERA). Olmsted County submitted an AERA http://www.pca.state.mn.us/air/aera.html) for the total OWEF facility and for Unit 3 emissions (The results of the AERAs are available upon request). Olmsted County submitted emissions calculations reflecting the anticipated allowable emission rates (called the "regulatory" emissions scenario). MPCA slightly revised the Risk Assessment Screening Spreadsheets (RASS), completed the AERA forms, summarized the results from the "regulatory" emissions scenario, and developed recommendations for a more refined analysis on a subset of the chemicals.

AERA Internal Form-03 summarizes the emission estimates, chemicals for additional analysis, exposure scenarios/pathways, and other factors for use in a refined air toxics health assessment. These recommendations were incorporated into this scoping document. Because the AERA was used as a screening tool to focus future analyses, it was not designed to accurately calculate actual human health risks.

Some of the factors affecting the accuracy are described in item 35 of the AERA internal form-03. It should also be noted that standard EPA risk assessment methodology relies on toxicity values that are generally intended to be health protective for regulatory applications rather than to accurately predict human risk. However, the derived toxicity measures are only based on currently available toxicity information, the quantity of which might range from scant to plentiful.

IDENTIFY AIR TOXICS FOR QUANTITATIVE EVALUATION

This presents the rationale for including chemicals for quantitative assessment in the EIS.

AERA "Risk Drivers"

The AERA risk screening results identified a limited number of chemicals called "risk drivers" for the resident and farmer exposure scenarios at locations of maximum impacts. The AERA "risk drivers" were defined as chemicals with an exposure pathway cancer risk of at least 10^{-6} or a noncancer hazard quotient of at least 0.1. "Risk drivers" from the total facility emissions include dioxins/furans, cadmium, chromium (as hexavalent chromium), polyaromatic hydrocarbons (PAH), arsenic, nitrogen oxide (NO_2), sulfuric acid and hydrochloric acid. The EIS will evaluate the risks of these chemicals in a more refined manner.

Persistent Bioaccumulative Toxicants (BTS) for Fish Consumption Pathway Analysis

Because the AERA lacked a human fish consumption pathway analysis, the potential "risk drivers" from the fish consumption pathway have not been identified. Chemicals that persist in the environment for long periods of time have the potential to bioaccumulate in biological tissues to levels that may result in significant exposures, and toxic PBTs are of greatest potential interest for the fish exposure pathway. Therefore, all emitted PBTs with an oral RfD or an oral potency slope will be assessed via the fish exposure pathway. The proposed list of PBTs for this facility will be submitted to MPCA for review and approval.

For this EIS, the chemicals identified for further analysis will be called the "Identified Chemicals."

TOXICITY ASSESSMENT

The EIS toxicity assessment will identify numerical measures for assessing toxicity from data sources acceptable to MPCA and the Minnesota Department of Health (MDH). These "toxicity values" include acute (1 hour) and chronic (long term) inhalation health benchmarks, inhalation

unit risks, RfDs, and oral cancer potency slope factors. The toxicity assessment will be limited to assessing health endpoints for which toxicity measures are readily available.

To Characterize Inhalation Risks

MPCA routinely uses MDH/MPCA approved inhalation health benchmarks to assess the inhalation risks of chemicals emitted from facilities. These include air concentrations derived as protective for noncancer health effects and air concentrations, derived from the inhalation unit risk values, designed to be protective at a 10^{-5} level of additional cancer risk. These are available in MPCA's current RASS http://www.pca.state.mn.us/air/aera.html and will be used in the EIS.

To Characterize Ingestion Risks

Oral toxicity values (i.e., oral RfDs and cancer slope factors (potency slopes)) are used to assess the noncancer hazards and cancer risks, respectively, of ingesting chemicals. The MDH and MPCA do not have a complete list of oral RfDs and cancer slope factors (potency slopes), nor has a MDH/MPCA standard hierarchy for deriving these values been established for multimedia air toxic analyses.

The MPCA will provide a table containing a draft compilation of ingestion toxicity measures for use in the EIS. These will be reviewed by the contractor to determine whether they represent the most up-to-date and scientifically defensible values and to develop any recommendations for revision. The MPCA, in consultation with MDH, will be contacted for review and approval of the final oral toxicity values for the analysis.

The final list of toxicity values used to assess hazards or cancer risks from inhalation and ingestion exposures will be tabulated along with the source of the values, the applicable exposure duration, and for noncancer effects, the nature of the health effects used to derive the value.

ESTIMATING POTENTIAL HUMAN EXPOSURES

The purpose of the exposure assessment is to estimate the degree to which humans in the vicinity of the facility may be exposed to the Identified Chemicals. This depends on the following:

- The time individuals spend at locations potentially impacted by facility emissions (the number of years, days per year, hours per day, etc.).
- How much they consume garden produce, crops, eggs, dairy products, meat, fish, mothers milk, etc. from local farms, their gardens, their own livestock, or nearby water bodies.
- The chemical concentrations in air, soils, surface water and food products.

The exposure assessment will be done in a health protective manner, using exposure estimates relevant to individuals with the potential for experiencing among the highest exposure levels. The purpose is not to estimate the average exposures across potentially exposed populations. For this reason, much of the population should experience lower exposures and risks than identified in the analysis.

For each defined exposure scenario, the quantitative exposure assessment involves estimating the magnitude of potential human exposures, the frequency and duration of such exposures, the exposure pathways (e.g., movement of the chemicals from the facility to contaminated air, soil, biota, surface water, etc.), and the exposure routes (e.g., ingestion, inhalation) by which

humans may be exposed. It identifies where the human "receptors" may be located and how much they may contact contaminated media (e.g., air, meat, fish, produce). The media concentrations are combined with the exposure assumptions to estimate the chemical intake (exposure) for each exposure pathway and exposure route.

As outlined in the HHRAP guidance, the exposure assessment involves understanding the current and future land use, the locations of populations, and the various human behaviors occurring in the vicinity of the facility. Different exposure scenarios are defined to characterize various ways in which individuals may be exposed to chemicals in their environment during their daily activities. Because different groups of people (subpopulations) may exhibit different behaviors, several exposure scenarios are defined for the assessment. Information defining the physical locations around the vicinity of the facility where a given exposure pathway or scenario wouldn't be relevant (i.e., where the exposure pathways aren't complete and those exposures will not occur) is needed to determine which media concentrations are combined with which exposure assumptions to estimate risks.

The exposure assessment may include information and assumptions about the topics outlined in the following list. Some relevant sources of information used to inform these issues are discussed in more detail in the following paragraphs.

- Potentially exposed populations (current and future)
- Potential exposure pathways (e.g., breathing air, eating fish, meat, eggs, etc.)
- Relevant exposure scenarios for the assessment (e.g., resident, farmer, fisher) and the exposure assumptions characterizing the amount of exposure potentially occurring via relevant exposure pathways (e.g., consumption rates of milk, beef, eggs, fish, etc. and the fraction of the products consumed from potentially contaminated local source.)
- Regions where the various exposure scenarios and assumptions are plausible
- Air concentrations of Identified Chemicals in locations where inhalation exposures may occur
- Chemical deposition rates from the air to soils, vegetation, and surface waters in locations where exposures may occur
- Chemical concentrations in media (soils, surface waters, fish, produce, meat, eggs, breast milk, etc.) which may be ingested locally
- Potential human contact rates with potentially contaminated media
- Chemical intakes (doses) resulting from each complete exposure pathway (for each exposure scenario)

Land Use Characterization and Receptor Locations

Some of the following information about the facility exposure setting are available and will be included from the AERA. Additional information sources will be researched, as needed, to identify where current and future populations may be located and to inform the development of relevant and protective exposure scenario(s).

If use of HHRAP default exposure assumptions at the maximum concentration locations results in acceptable risks, no further development of exposure scenarios will be needed. However, the following outlines the type of information that will be considered if further refinement of the exposure scenarios and assumptions are needed.

More effort will be directed to better understand the appropriate exposure assumptions in the areas with relatively higher modeled air impacts. The presumption will be that the HHRAP default exposure assumptions apply everywhere in the vicinity of the facility unless site-specific information demonstrates that the standard specific exposure pathways or intake assumptions are not relevant, and that other exposure pathways or intake assumptions are more appropriate.

Land Use Considerations

- Current and future land use maps and information
- Local zoning information, including a specific description of the allowable activities that may occur within zoning districts, and whether there are variances from the zoning code within the vicinity of the facility
- Local ordinances or other factors pertaining to the conditions under which individuals and businesses may or may not raise livestock for their own use or for others
- Information obtained from the county feedlot officer, city and county environmental health departments, the city and county planning directors, the city administrator, and social services departments that characterize the extent to which individuals may consume locally grown livestock, eggs, dairy products, garden produce, or crops. This information may include information about the current and potential future source(s) of the feed consumed by the livestock that may live in the vicinity of the facility.
- Identify the source of drinking water to Olmsted County residents to determine if there are any local surface-water sources of drinking water supplies
- Identify sources of beef cattle, dairy products, pigs, chickens, eggs, and crops produced locally for human consumption by the producers or the local public
- Identify other local information that informs the extent to which the listed or other exposure pathways may be relevant to residents, farmers, or fishers in the vicinity of the facility
- Identify the locations of public fishing areas, including Quarry Hill Park and Silver Lake
- Identify whether it is reasonable to assume that subsistence fishers may rely on fish from the water bodies potentially impacted by Unit 3 emissions

- For Quarry Hill Pond and Silver Lake, collect the following available information from the Quarry Hill Nature Center, fisheries staff from the DNR Fisheries, or other available sources:
    1. The type of fish collected by people fishing in the lake
    2. The size of the fish collected
    3. A description of the amount of fishing occurring in each water body
    4. The adequacy of this information in defining fishing habits
    5. Whether there is evidence that these water bodies do or do not serve as an important food source for any subpopulations

Potential Receptor Locations

- Location of hospitals, daycare centers, schools, and nursing homes within 3 km of the proposed facility
- Locations and current use of surface-water bodies within 10 km to the proposed facility boundary

- The locations of residences in urban, suburban, and rural areas that are closest to the locations of maximum modeled concentrations and deposition rates
- The locations of facilities with recreational, occupational, or other activities that may result in higher exposures than assumed under the residential exposure assumptions
- Locations of nearby community supported agriculture farm(s), and information relating to whether the livestock (including chickens) feed by grazing or on locally grown crops or from feed materials obtained from distant locations. Local individuals and families may obtain a substantial portion of their food from these sources during the growing season
- Locations of surface -water bodies potentially impacted by the Identified Chemical emissions from Unit 3

The EIS will include maps and specific descriptions characterizing the current and potential future land use, zoning considerations, relevant ordinances, and the locations of specific human receptors. The source of all information will be documented.

As appropriate, develop additional customized exposure scenarios for the areas most impacted by the facility emissions. These will be derived in a protective manner by modifying the EPA default exposure scenarios based on site-specific information. The proposed alternate exposure scenarios will be provided to MPCA for review and approval.

Characterizing Water Bodies for Assessment

The relatively most impacted water bodies (for human health risks) will be identified by considering the amount of pollutants deposited in the lake, the water residence time, the estimated chemical uptake into fish, and the actual potential for human exposure (which depends on the amounts consumed). Because streams have relatively rapid flow rates compared to lakes, Quarry Hill Pond and possibly Silver Lake are likely the water bodies with the highest estimated risks from Unit 3 Identified Chemical emissions. Show that other potentially impacted water bodies would have lower risks, or include the other water bodies in the analysis.

Provide map(s) showing the drainage basin for each water body potentially impacted by Identified Chemical emissions from the Unit 3 within a 10 km radius around the facility (or beyond if the watershed for Silver Lake extends beyond this area).

Evaluation of Site-Specific Physical Parameters

The equations presented in HHRAP and the recommended input parameters to these equations as listed in HHRAP (version 1998 and updates) will generally be used to estimate the evaluated chemical concentrations in the various environmental media and food sources. However, if more appropriate site-specific parameters are identified for site-specific physical parameters (such as total suspended solids, cover management factor, evapotranspiration, etc.), these values will be used in place of the HHRAP default values, and any changes will be identified and a rationale provided for the change in the input value. These values will be reviewed and approved by MPCA.

Human Exposure Pathways and Exposure Assumptions

Table 1 summarizes the exposure pathways outlined in HHRAP.

Table 1**
Human Exposure Scenarios for Evaluation in Focused Risk Analysis

	Exposure Scenarios[a] for Analysis						
Pathways of Exposure - to Unit 3 Emissions of Identified Chemicals	**Resident (child and adult)**	**Site-specific Resident (child and adult)**	**HHRAP Farmer (child and adult)**	**[e] Site-specific Farmer (child and adult)**	**HHRAP Fisher (child and adult)**	**[e] Site-specific Fisher (child and adult)**	**Acute [b] risk (short term) inhalation (relevant to all scenarios)**
Inhalation of Vapors and Particles	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Incidental Soil Ingestion	**X**	**X**	**X**	**X**	**X**	**X**	**-**
Ingestion of Drinking Water from Surface Water Sources	**g**	**g**	**g**	**g**	**g**	**g**	**-**
Ingestion of Homegrown Produce	**X**	**X**	**X**	**X**	**X**	**X**	**-**
Ingestion of Homegrown Beef	**-**	**-**	**X**	**X**	**-**	**-**	**-**
Ingestion of Milk from Homegrown Cows	**-**	**-**	**X**	**X**	**-**	**-**	**-**
Ingestion of Homegrown Chickens	**-**	**-**	**X**	**X**	**-**	**-**	**-**
Ingestion of Eggs from Homegrown Chickens	**d**	**d**	**X**	**X**	**d**	**d**	**-**
Ingestion of Homegrown Pork	**-**	**-**	**X**	**X**	**-**	**-**	**-**
Ingestion of Fish from Nearby Water bodies	**d**	**d**	**d**	**d**	**X**	**X**	**-**
Ingestion of Breast Milk by Nursing Infants	**c**	**c**	**c**	**c**	**c**	**c**	**-**

**Notes:

[a] Exposure scenarios are defined as a combination of exposure pathways evaluated for a receptor at a specific exposure scenario location (receptor grid node).

[b] The acute risk scenario evaluates short-term 1-hour maximum air concentrations at any land use area that would support the other exposure scenarios, as well as, commercial and industrial land use areas.

[c] Infant exposure to dioxins and furans via the ingestion of their mother's breast milk is evaluated as an additional exposure pathway, separately from the recommended exposure scenarios identified in this table.

[d] Regional specific exposure setting characteristics (e.g., presence of ponds on farms or within semi-rural residential areas, presence of some livestock within semi-rural residential areas) may warrant including this exposure pathway.

[e] Site-specific resident, farmer, and fisher scenarios should be defined in conducting the EIS based on the land use and related information.

[f] EPA has shown that dermal exposures, inhalation of resuspended dust, and ingestion of ground water are generally minimal compared to the inhalation and ingestion exposures outlined above for combustion facilities (HHRAP), so quantitative analyses of these exposure pathways will not be included.

[g] If the municipal water supply does not use surface waters within 10 km from the facility, then the surface water drinking water exposure pathway will be excluded from all exposure scenarios.

Table 1 outlines the HHRAP recommended exposure pathways for the resident, farmer, and fisher exposure scenarios defined in the HHRAP. These exposure scenarios differ mainly in consumption rates of potentially contaminated foods. The farmers are assumed to consume more contaminated beef, pork, milk, chicken, eggs, and produce than the resident population, and

fishers are assumed to consume more contaminated fish than recreational fishers or the general population because their food supply may be primarily from a contaminated source. EPA's standard human exposure assumptions for the resident, fisher, and farmer exposure scenarios are provided in the HHRAP. It should be noted that the 82 gallons per day (gpd) fish consumption rate in the HHRAP default assumptions equates to 130 gpd raw fish tissue consumption, which is close to EPA's Fish Advisory document, which suggests a raw fish tissue consumption rate of 142 gpd.

The exposure setting information related to land use, ordinances, and population activities may be considered in developing site-specific exposure scenarios relevant for this EIS. This information, including the locations of potentially sensitive subpopulations, should be used in setting up the exposure scenario locations for the IRAP risk modeling. Map(s) of the area around the facility showing the specific areas of land that were assessed to identify the maximum risk locations for each exposure scenario and the locations of potentially sensitive receptors.

Screening and Refined Approach to Identifying Relevant Exposure Scenarios (Pathways and Exposure Assumptions)

A screening level risk analysis may estimate risks based on exposure assumptions likely to overestimate actual exposures. If the risks are below levels of concern, no additional resources need to be spent to define more likely levels of exposure.

A screening approach will be conducted for the OWEF assessment, potentially followed by an assessment using a more refined (accurate) set of exposure assumptions in the areas where this is clearly appropriate. First the entire air dispersion modeling domain will be assessed for all three HHRAP default exposure assumptions. If a practical method is available to produce isopleths of the cancer risks (and hazard indices) that information will be provided.

Producing risk isopleths would be the most straightforward manner to identify the areas of relatively low risk not needing further evaluation. Otherwise, multiple IRAP risk characterization analyses should be conducted on subsets of the area within 10 km radius from the facility, to identify the areas not needing future review. The risk characterization will be rerun as appropriate in those areas. Documentation of the rationale for all modifications to the HHRAP exposure assumptions will be presented for MPCA's review and approval. If there are physical locations where the estimated risks associated with these exposures sum to more than a 10^{-5} additional cancer risk or more than a hazard index of 1, then the exposure pathways and exposure assumptions will be reviewed in conjunction with a more detailed set of information about the exposure setting (land use, potential receptors, etc.) to develop more appropriate exposure assumptions.

Developing Site-Specific Exposure Pathways

As discussed above, site-specific information may be used to develop human exposure assumptions for a refined exposure assessment.

The fish tissue consumption exposure assumption will assume at least a 30 gpd fish consumption rate as incorporated in the Minnesota Surface Water Quality Standards. This consumption rate was derived based on the consumption rates of anglers using the eightieth percentile statistic. If the actual fish consumption rate from a given water body is more or less than 30 gpd, then the hazard quotient for the fish tissue exposure pathway would be proportionally higher or lower.

ESTIMATING MEDIA CONCENTRATIONS

Identified Chemical Emission Estimates from MSW Unit 3

This describes the emission rates of Identified Chemicals from Unit 3 that will form the basis of the EIS air toxics risk calculations.

Source, Emission Conditions, Emission Rates

MSW Unit 3 Identified Chemical emissions for the "regulatory" emission scenario will be summarized in a table. As described in the AERA, this was developed as a reasonable estimate of the maximum allowable emission rates from routine operations. With the following exceptions, these "regulatory" emission rates will be used to assess the chemicals evaluated in the EIS.

1. The AERA conservatively estimated chromium health risks using the unlikely assumption that all of the chromium was in the most toxic hexavalent form. Better information regarding actual hexavalent chromium emissions would reduce the substantial uncertainties associated with this "risk driver" for inhalation cancer risks. A more refined estimate of the hexavalent chromium emission rate will be developed based on a review of the literature, other relevant information available from the MPCA, and measurements of hexavalent chromium emissions from this or similar MSWs. A reasonable upper bound "regulatory" hexavalent chromium emission rate will be provided along with a solid rationale for this estimate.

2. The relative composition of the dioxin/furan congeners also plays an important role in defining the estimated toxicity of the overall dioxins/furan mass. Identify a reasonable upper bound on the 2,3,7,8-tetrachlozodibenzo-p-dioxen equivalents, specific dioxin/furan congeners and dioxin/furan homologue groups (dioxins or furans with the same number of chlorine atoms).

3. The AERA assessed PAHs as a single group, using benzo(a)pyrene toxicity data and the chemical fate and transport data derived from one PAH. The EIS may assess individual PAH compounds if this refinement significantly reduces the overall assessment uncertainties. The AERA assessed polychlorinated biphenyl (PCB) emissions as total mass. The EIS could include an assessment of individual PCB congeners if this refinement significantly reduces the overall assessment uncertainties.

4. The estimated local deposition of mercury is based on the fraction emitted in each form of mercury. The divalent form is the primary form which may deposit locally. The AERA identified about half of the emitted mercury may be divalent mercury. The mercury risk assessment (hazard quotient) will be based on the best available estimate of the speciation of mercury emissions, consistent with the "regulatory" emissions scenario. The mercury assessment of the increase in fish tissue concentrations calculated as a percent of existing fish tissue concentrations, will be developed based on actual mercury emission rates. The basis for the emissions calculations will be documented and submitted to MPCA for review and approval. The sensitivity of the estimate will also be discussed in the risk characterization.

Air Dispersion and Deposition Modeling

Air concentrations and deposition rates are estimated using air dispersion models. These models estimate the physical processes occurring in the atmosphere that directly influence the dispersion of gaseous and particulate emissions from the facility into the air and to the ground.

Air dispersion and deposition modeling will be conducted to estimate unitized air impacts and deposition rates for facility emissions using MPCA-approved modeling methodology. ISCST3 is the model of choice, unless AERMOD is available. The model output will include applicable averaging times for air concentrations as well as wet, dry, and total deposition for vapors, particles, and particle-bound chemicals.

At a minimum, the air dispersion and deposition modeling domain will include the area within 10 km of the facility. The modeling range may be extended to include watershed(s) associated with potentially impacted water bodies. Meterology inputs will be obtained from MPCA when the work order is signed or shortly thereafter. See MPCA modeling guidance at http://www.pca.state.mn.us/air/modeling.html.

An air dispersion and deposition modeling protocol will be developed and submitted to the MPCA for review and approval prior to proceeding with this modeling. A table showing the mean particle diameters for each range and fraction of total particles proposed for the air dispersion model and the source of this information will be included in the modeling protocol, along with the rationale for selecting this data for this facility.

The modeling output files will be provided to the MPCA in a format ready for input into the IRAP for human health.

Modeled air concentration and deposition rate results for each assessed chemical at each grid node and as isopleth graphs will be developed to identify the locations of elevated concentrations. It may also be appropriate to provide chemical-specific isopleth graphics focused on the area(s) with higher concentrations (and covering a smaller geographic area). The electronic output files will also be configured so the modeling results for various sets of grid nodes (for example, those over a watershed) can be extracted for further analysis. Mercury will be presented both as total mercury and for each speciated form of mercury.

Identifying Physical/Chemical Properties and Fate and Transport Parameters

Estimating the transport and fate of chemicals deposited to land, water, and vegetation requires chemical-specific environmental fate and transport parameters. These can be empirically determined or in some cases estimated based on a chemical's physical and chemical properties. The HHRAP documentation contains these parameters for numerous chemicals.

For individual chemicals lacking the necessary values in the current HHRAP guidance, or from the MPCA, the physical/chemical properties will be obtained from the best available sources, and the necessary environmental fate and transport properties can be estimated from the physical chemical properties following HHRAP guidance. Bio-accumulation factors appropriate to the trophic levels of the fish in each assessed water body will be used. The proposed values will be provided to the MPCA for review and approval prior to proceeding with the fate and transport modeling steps.

Calculating Concentrations of Identified Chemicals in Environmental Media

In addition to breathing air, humans may be exposed to Identified Chemicals transported to other media (e.g., soils, plants, fish, meat, milk, surface water, and breast milk). Assessing ingestion

exposures to Identified Chemicals present in these media requires an understanding of the chemical concentrations in these media. Media concentration estimates of mercury and other Identified Chemicals will be developed as described below.

IRAP calculates the chemical concentrations in air from the unitized air concentrations and mass emission rates. With one exception, (mercury concentrations in fish), the equations used to estimate the media concentrations for all chemicals are available in HHRAP and are expeditiously calculated in IRAP. Multimedia calculations are only necessary for chemicals assessed by ingestion exposure pathways, not for sulfuric acid, hydrochloric acid and NO_2.

Estimating the Six Concentration of Mercury in Fish Tissue

Estimated increases in mercury fish tissue concentrations associated with Unit 3 emissions will be developed to assess the human health risk of locally deposited mercury. In addition, as described in the section "Local Mercury Deposition Analysis," the percent increase in mercury fish tissue concentrations resulting from Unit 3 mercury emissions will be estimated to understand the incremental increase compared to existing conditions.

Estimating fish tissue mercury concentrations from Unit 3 mercury emissions is challenging, in part, because the deposited mercury is methylated within the watershed to form methylmercury which accumulates in fish. However, empirical findings from studies in Minnesota, and elsewhere, illustrate a relationship between regional mercury deposition rates and measured fish tissue concentrations. For this reason, mercury concentrations in fish will be estimated using a model based on Minnesota-specific data rather than the HHRAP equations. This modeling approach is outlined at the end of this document.

HAZARD AND RISK CHARACTERIZATION

Once the environmental media concentrations in the vicinity of the facility are estimated, human exposure rates (and cancer risks and hazard indices) can then be estimated at locations around the facility where there is a potential for current or reasonable future exposures.

Quantitative human health risk estimates for the cancer risks and noncancer effects for the identified chemicals, available toxicity measures, and appropriate exposure pathways identified above will be defined. The calculations will follow the methodology outlined in the latest version of HHRAP as programmed within IRAP. For inhalation risks, this requires using inhalation unit risks and reference concentrations (not doses).

As defined in the guidance, cancer risks will be calculated based on the annual average emission rates. It is not necessary to calculate subchronic noncancer hazard indices, because the AERA found no "risk drivers" via this exposure duration. The results will be clearly presented in tables that show the overall risks and hazards for each modeled exposure scenario and for each exposure pathway within each exposure scenario for each chemical. The results tables will also be presented in the report and available in a spreadsheet format.

The risk characterization will include the numerical calculation of the ambient media concentrations, estimated hazard quotients (and indices), and cancer risks based on the above-defined exposure scenarios. It will also include a characterization of the most important uncertainties, data gaps, and other considerations specific to this analysis as background information for understanding the numerical values. A simple sensitivity analysis will be included, if appropriate, for the most important key risk modeling parameter(s).

In addition to the work products outlined above, the EIS will include the following:

- A summary of the major risk conclusions
- The identification of key issues that need to be understood to properly evaluate the risk conclusions
- A clear description of the methods used to determine risk
- A summary of the overall strengths and major uncertainties

Electronic versions of all work-products will also be available with the final report

Local Mercury Deposition Analysis[1]

This describes the method for estimating the increase in fish tissue methylmercury concentrations associated with Unit 3 emissions. This information will be used to estimate the noncancer oral hazard quotients associated with fish tissue consumption based on the relevant exposure scenarios. It will also be used to estimate the percent increase in concentrations above existing conditions.

The basic assessment protocol is not a mechanistic model of mercury in the environment, but rather combines empirical fish contamination data with the basic premise that mercury concentrations in fish are in equilibrium with atmospheric mercury deposition. The protocol addresses the question, "If fish in this lake already have a given mercury concentration, how much would that concentration increase if more mercury were added?" Because the ambient mercury concentration in fish is used to measure the sensitivity of the system to mercury, the estimated effect of an increment is likely more accurate than would be predicted by an unconstrained model.

Mercury emissions can cause harm on two scales. On the larger geographic scale, all mercury emissions contribute to the regional and global pools of mercury that cause almost all tested water bodies to receive restrictive fish consumption advisories. On a local scale, mercury emissions have the potential to elevate mercury concentrations in fish of lakes and rivers near (within 10 km) the source.

However, a number of factors control whether a source will actually increase local mercury contamination of fish to a significant extent:

- Presence of surface water bearing fish near the emission source
- Intersection of dispersion plume with surface water
- Height of stack and temperature of stack gases
- Amount of mercury emitted
- Chemical forms of emitted mercury
- Efficiency of the aquatic system in bioaccumulating mercury
- Ratio of the terrestrial watershed to surface water (High ratios can negate the effect of increased mercury deposition directly on surface water.)

The specific methodology for estimating incremental fish tissue mercury concentrations and hazard quotients associated with Unit 3 emissions is outlined in the following section.

[1] This analysis does not address global impacts of adding mercury to the global pool.

Key Concepts/Assumptions

The key concepts and assumptions used to estimate any increase in fish tissue concentrations from the Unit 3 emissions are as follows:

- For a given lake, an X percent increase in the mass of mercury input to a lake will ultimately result in an X percent increase in the fish mercury tissue content of the lake.
- Mass mercury input to a lake can be approximated from direct atmospheric deposition to the lake plus 20 percent of the mass mercury deposited to the rest of the watershed.
- Total mercury fish tissue concentration measurements are available for an average standard size fish (and for upper bound percentiles) from many Minnesota lakes. Where data on specific lakes are missing, data can be estimated based on the data from that region within the state.
- The statewide Minnesota estimate of wet-plus-dry mercury deposition is 12.5 micrograms per cubic meter of mercury (ug Hg/m2)-year (Swain, et al. 1992, Increasing Rates of Atmospheric Mercury Deposition in MidContinental North America. Science, Vol. 257, p. 784-787)

The specific methodology for estimating incremental fish tissue mercury concentrations and hazard quotients associated with Unit 3 emissions is outlined in the following section. MPCA will provide a spreadsheet to perform these calculations. The necessary spreadsheet inputs are as follows:

- Existing fish tissue total mercury concentration (for each species and size fish assessed) (MPCA will provide this information)
- Waterbody surface area
- Watershed surface area (less the waterbody surface area)
- Average mercury concentrations (for each form of mercury in the air) above the waterbody
- Average mercury concentrations (for each form of mercury in the air) above the watershed (without the waterbody)
- Assumed raw fish tissue daily consumption rate

Estimate The Incremental Mercury Deposition Rate Over The Lake And Watershed Due To Unit 3

1. Estimate stack emissions of gaseous divalent mercury (Hg+2), elemental mercury (Hg0), and particle-bound divalent mercury (PM-Hg+2). Unit 3 mercury emission estimates for each of these three mercury species will be developed for the “regulatory” and actual emissions scenarios. The regulatory emissions estimates will be used to estimate the hazard quotient(s) from fish ingestion and the actual emissions estimates will be used to estimate the percent increase in fish tissue concentrations above current ambient conditions.

2. Use air dispersion modeling to estimate annual average concentrations of Hg+2, Hg0 and Hg+2-PM associated with MSW Unit 3 at all grid nodes over the waterbody and watershed.

    - Estimate the average Hg+2, Hg0 and Hg+2-PM concentrations over the fishable water body,

- Estimate the average Hg+2 , (Hg0 and Hg+2-PM) concentrations over the watershed excluding the fishable water body,

Fish-tissue concentrations will be estimated based on the average modeled pollutant concentrations over the water body and watershed. If the watershed extends beyond the 10 km modeling domain, then the average concentration will be derived from the available modeled data. If the watershed extends beyond the modeling domain, then it will be assumed the concentrations over the non-modeled portion of the watershed equal the concentrations at the nearest boundary of non-modeled watershed. The mercury modeling results will be submitted to MPCA for review and approval.

3. Calculate the annual mass (grams Hg) added to the water body from Unit 3 emissions. The annual Hg mass deposited onto the water body and over the rest of the watershed are the sum of the deposition rates of each of the three mercury species. For example, the Hg+2 deposition rate over a unit area (flux in ug/m2-yr) = Average Air Concentration (ug/m3) x Deposition Velocity (m/yr). Multiply the flux over the water body and over the rest of the watershed by their respective areas to get the mass deposited. Finally, assume that 20 percent of the Hg deposited on the ground ultimately impacts the water body. Do analagous calculations for the other mercury species.

Hg = mercury
Hg0 =
PM = particulate matter
ug/m3 = microgram per cubic meter

The following table provides draft estimates of the deposition velocity for mercury species. These values will be considered along with the other information to identify appropriate values for the analysis. The proposed values will be submitted to MCPA for review and approval. Alternately, mercury deposition may be directly modeled using the air dispersion and deposition model. If this approach is taken, the details of the proposed assessment would be submitted to MPCA as part of the air dispersion and deposition modeling protocol:

Mercury Deposition Velocity Estimates

Hg Species	**Derived from:**	**cm/sec**	**meters/year**
Hg+2 gaseous	NO3-	1.1 cm/sec	347,000 m/yr
Hg^0 gaseous	SO2	0.3 cm/sec	94,600 m/yr
Hg+2-PM	particles	0.1 cm/sec	31,500 m/yr

Estimate incremental fish fillet methylmercury conc. from Unit 3 emissions

1. Use the best available measured mercury fish tissue concentration measurements to estimate the mercury fish tissue (fillet) concentrations in each water body under evaluation. This information may be based on actual measurements of the fish from the water body under evaluation or from a relevant statistical summary of data from similar water bodies from the mercury fish tissue database.

   Northern pike and walleye will be the reference species, unless the site-specific exposure information indicates alternate species are more relevant for the analysis. Use total mercury fish tissue concentrations from a fish at the ninetieth percentile size to estimate

health risks (hazard quotients) and from an average sized fish to estimate the percent increase in concentration above the existing conditions.

2. Calculate the annual mercury input to the lake from the background deposition. This is done in a manner analogous to how it was done for the Unit 3 emissions, except the existing ("background") Hg+2 deposition over the entire watershed associated with this tissue concentration of 12.5 ug/m2-yr. The total mercury input to the lake depends on the surface area of the waterbody and the rest of the watershed, with only 20 percent of the mercury deposited to the watershed reaching the waterbody.

3. Estimate the future increase in total mercury fish tissue concentrations from Unit 3 emissions (i.e., the increment). As previously discussed, this will be done for the reference species in each waterbody (pike and/or walleye) for each lake using the actual emissions scenario. In addition, for each lake, it will be done based on the "regulatory" emissions scenario for the species identified as important in terms of human consumption behavior.

   Incremental Concentration (parts per million (ppm)) = (Current Hg fish fillet conc. in ppm) x (Annual Hg mass added to waterbody from Unit 3) ÷ (Annual Hg mass added to waterbody from "background").

4. Convert the total mercury tissue concentrations associated with Unit 3 to methylmercury tissue concentrations by multiplying the total mercury concentration by 1.075. This is the ratio of molecular weights-methylmercury to mercury.

Estimate the incremental methylmercury exposure for each relevant exposure pathway and fisher scenario

Use the same exposure scenarios and human fish consumption exposure pathways and assumptions defined for the other chemicals in the EIS; estimate the daily dose of methylmercury from all forms of deposited mercury.

Estimate the incremental noncancer hazard quotient

Follow EPA risk assessment methodology to estimate the methylmercury hazard quotient for fish consumption. The RfD for methylmercury is 1×10^{-4} mg/kg-day.

mg = milligrams
kg = kilograms

Estimate the percent increase in mercury concentrations in fish

Divide the estimated increase in methylmercury fish tissue concentration by the estimated current methylmercury fish tissue concentration and multiply this by 100.

ALTERNATIVES

The EIS will assess the consequences of a "no build" decision for the proposed project using information compiled by the Minnesota Office of Environmental Assistance (MOEA). MOEA staff conducted an inventory of "available" solid waste management facilities that take MSW in Minnesota, Wisconsin, North Dakota, and Iowa.

The inventory of available facilities, as provided by MOEA, is attached as Exhibit 1. The list of available facilities is limited to those facilities that are most likely to accept solid waste diverted from Olmsted County if the OWEF were not available.

No Build

The EIS will assess the consequences of a no action or "no build" decision for the proposed project. The following types of MSW facilities will be inventoried:

- Recycling;
- solid waste composting;
- private MSW landfills; and
- private industrial waste landfills.

The following information will be provided for each identified facility:

- distance to/from the proposed project site;
- current available MSW processing and/or disposal capacity;
- expansion plans for each facility within the next ten years (if available);
- current fill rates;
- name of current owner; and
- current tipping fees.

Facility Design Alternatives

The issue of design alternatives was not discussed in the SEAW because the design of the proposed expansion must meet specific design specifications that are required by both EPA and the MPCA. Therefore, this alternative discussion will not be carried forward to the EIS.

Location Alternatives

The issue of location alternatives will not be discussed in the EIS as the proposed project is an expansion of an existing facility. Also, relocation of the proposed project is not likely to have significant environmental benefits.

Alternative Technology

The issue of alternative technologies was not discussed in the Scoping EAW because the design of the proposed expansion must meet specific design specifications that are required by both the EPA and the MPCA. The permits that will ensure that all required design and operations specifications will be met by the proposed project are listed in the Scoping EAW in Item 8, *Permits and approvals required*. Therefore, this alternative discussion will not be carried forward to the EIS.

Modified Size Alternative

The modified size alternative section will compare the following scenarios for consideration:

- Two 100 ton per day units
- Four 50 ton per day units
- Alternate size capacities (minimum/maximum) for the new waste-to-energy boiler
- Alternate size capacities (minimum/maximum) for the new steam turbine-generator

ECONOMIC AND SOCIAL IMPACTS

The EIS will discuss the potential for the project and major alternatives to directly and indirectly affect the local economic and sociological impacts.

Economics

The facility's impact on cost to the user of the facility and general public will be identified. The effect of the proposed facility on regional and county solid waste system costs and public economic risks will be evaluated.

Sociological

Inventories will be completed of any nearby existing and planned recreational resources. Any potential impacts resulting from the expansion will be described.

Historical and archeological resources do not appear to exist at or near the site, and there will be no analyses of these issues in the EIS.

MITIGATION MEASURES

For those instances where the impact analyses have identified the potential for adverse effects, the EIS will identify reasonably available measures that could lessen or eliminate the adverse effect. The types of measures that may result in significant mitigation of impacts range from facility-specific modifications in design and/or operation or broader policy-based action at all governmental levels.

APPENDICES

Appendices may be included in the EIS when applicable: (a) material prepared in connection with the EIS, as distinct from material which is so prepared and which is incorporated by reference; (b) material that substantiates any analysis fundamental to the EIS; and (c) permit information that was developed and gathered concurrently with the preparation of the EIS.

MATERIAL INCORPORATED BY REFERENCE

Materials may be incorporated by reference to reduce the bulk of the EIS. Such materials will be cited in the EIS, and its content will be briefly described. Generally, these materials will not be distributed for public review, but will be available for inspection at the MPCA office in Saint Paul.

Each of these major topical areas – (a) alternatives and (b) air quality – will be the subject of a technical report separate from the EIS. Discussion within the EIS on each of these primary impact areas will be based on the analyses and findings of the reports but will likely omit much of the technical aspects of the more focused studies. These reports will be incorporated by reference as part of the EIS. The reports will be available for inspection at the MPCA offices in Saint Paul and libraries on the EQB distribution list in accordance with the requirements of the EQB rules.