



# Minnesota Pollution Control Agency

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October 30, 2009

TO: INTERESTED PARTIES

RE: Pope/Douglas Waste-To-Energy Facility Expansion

Enclosed is the Environmental Assessment Worksheet (EAW) for the proposed Pope/Douglas Waste-To-Energy Facility Expansion, Douglas County. The EAW was prepared by the Minnesota Pollution Control Agency (MPCA) and is being distributed for a 30-day review and comment period pursuant to 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 November 2, 2009, issue. Written comments on the EAW should be submitted to Kevin Kain and will be accepted until 4:30 p.m. on December 2, 2009.

In addition to the EAW, the MPCA's draft Air Emissions Permit will also be available for public comment beginning November 4. The contact person for the Air Emission Permit is Bruce Braaten at 507-206-2607. Comments will be accepted on the Air Emissions Permit until December 4, 2009.

The Minnesota Pollution Control Agency will host a public meeting on the proposed expansion of the Pope/Douglas Waste-To-Energy Facility on Tuesday, November 17, 2009, at the Alexandria Technical College located at 1601 Jefferson Street, Auditorium Room 205. The event will begin with informal discussions from 6:30 to 7:00 p.m., followed by a presentation from the project proposer, Pope/Douglas Solid Waste Management. The MPCA will provide information about the permitting and environmental review process for the proposed project. Copies of the EAW document and the Air Quality Permit will be available at the meeting.

Comments received on the EAW will be used by the MPCA in evaluating the potential for significant environmental effects from this project and deciding on the need for an Environmental Impact Statement (EIS).

A final decision on the need for an EIS will be made by the MPCA Commissioner after the end of the comment period. If a request for an EIS is received during the comment period, or if the Commissioner recommends the preparation of an EIS, the MPCA Citizens' Board (Board) will make the final decision. The final EIS need decision will also be made by the Board if so requested by the project proposer, other interested parties or MPCA staff and if this request is agreed to by one or more members of the Board or the MPCA Commissioner. The Board meets once a month, usually the fourth Tuesday of each month, at the MPCA office in St. Paul. Meetings are open to the public and interested persons may offer testimony on Board agenda items. A listing of Board members is available on request by calling 651-757-2025.

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.

If you have any questions on the EAW, please contact Kevin Kain at 651-757-2482.

Sincerely,

Craig Affeldt  
Supervisor, Environmental Review Unit  
St. Paul Office  
Regional Division

CA:mbo  
Enclosure

# ENVIRONMENTAL ASSESSMENT WORKSHEET

**Note to reviewers:** The Environmental Assessment Worksheet (EAW) provides information about a project that may have the potential for significant environmental effects. This EAW 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 EAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the EAW in the *Minnesota Environmental Quality Board (EQB) Monitor*. Comments on the EAW 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 EAW may be obtained from the MPCA by calling 651-757-2101. 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:** Pope/Douglas Waste-To-Energy Facility Expansion
2. **Proposer:** Pope/Douglas Solid Waste Management Board
- Contact Person** Pete Olmscheid
- and Title** Executive Director
- Address** 2115 Jefferson Street  
Alexandria, Minnesota 56308
- Phone** 320-763-9340
- Fax** 320-763-9342
3. **RGU:** Minnesota Pollution Control Agency
- Contact Person** Kevin Kain
- and Title** Project Manager
- Address** 520 Lafayette Road North  
St. Paul, Minnesota 55155-4194
- Phone** 651-757-2482
- Fax** 651-297-2343

4. **Reason for EAW Preparation:**
- |                      |                     |                       |                         |                          |
|----------------------|---------------------|-----------------------|-------------------------|--------------------------|
| <b>EIS</b>           | <b>Mandatory</b>    | <b>Citizen</b>        | <b>RGU</b>              | <b>Proposer</b>          |
| <b>Scoping</b> _____ | <b>EAW</b> <u>X</u> | <b>Petition</b> _____ | <b>Discretion</b> _____ | <b>Volunteered</b> _____ |

**If EAW or EIS is mandatory give EQB rule category subpart number and name:** Minn. R. 4410.4300, subp. 17.D.

Construction or expansion of a mixed municipal solid waste (MSW) energy recovery facility or incinerator, or the utilization of an existing facility for the combustion of mixed MSW or refuse-derived fuel, with a capacity of 30 tons per day (tpd) of input.

5. **Project Location:** **County** Douglas **City** Alexandria
- NE** 1/4 **Section** 30 **Township** 128 North **Range** 37 West

**Tables, Figures, and Appendices attached to the EAW:**

- Figure 1 State Map
  - Figure 2 United States Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable)
  - Figure 3 Site plan showing all significant project and natural features
  - Figure 4 Health Risk Assessment receptor map
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- Attachment 1 Mercury mitigation strategy prepared by Pope/Douglas Waste Management Board
  - Attachment 2 Response letter from the Minnesota Department of Natural Resources (DNR)
  - Attachment 3 Response letter from State Historical Society.

**6. Description:**

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

The Pope/Douglas Solid Waste Management Board is proposing to add a third mixed MSW combustor to the existing two combustors at its waste-to-energy facility in the city of Alexandria. The new combustor (Unit 3) would have a throughput capacity of 120 tpd. After construction, the total waste combustor throughput capacity at the site would be 240 tpd (60 tpd each for the existing Units 1 and 2 and 120 tpd for the new Unit 3).

**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.**

Existing Facility

The Pope/Douglas Solid Waste Management Joint Powers Board (hereinafter "Pope/Douglas") was formed in 1983 to establish and operate a complete solid waste management system. The system is owned by Pope County at 25 percent and Douglas County at 75 percent.

The Pope/Douglas Waste-To-Energy Facility was constructed in 1986 and began accepting municipal solid waste in April 1987. A recycling program was adopted in 1988 to keep harmful elements such as glass and metals out of the waste stream and to sustain the life of the incinerator. In 2003, a Material Recycling Facility (MRF) was added to the front end of the waste combustors. The MRF removes recyclables, hazards, and problem items from the waste stream prior to combustion.

Existing equipment at the facility consists of two municipal waste combustors (MWC) with a total throughput capacity of 120 tpd as an annual average. Each MWC is an independent system consisting of excess air mass burn refractory combustion chambers followed by two heat recovery boilers. Both units operate pollution control systems, continuous emission monitoring systems, and related auxiliary systems. The steam that is generated during the combustion process is sold to the Douglas County Hospital for heating purposes and to the 3M Company manufacturing plant for heating and production purposes. Steam is also used by the Pope/Douglas Waste-To-Energy Facility for heating purposes. Currently, any excess steam is used to generate up to 500 kilowatt per hour of electrical energy.

Proposed Project

The proposed project involves the construction of a new Unit 3 that will have a throughput capacity of 120 tons per day (tpd) as an annual average. This project will allow the facility to increase its total capacity from 120 tpd to approximately 240 tpd as an annual average. Similar to Units 1 and 2, Unit 3 will produce steam that will be sold to existing steam customers and will also be used by the facility for heating purposes. An additional steam turbine may be installed to generate up to 1.5 megawatt per hour of electricity.

Unit 3 will be subject to the same air emission control configuration as Units 1 and 2. The primary control equipment will be dry lime injection for the control of acid gases, activated carbon injection for the control of dioxin, and a fabric filter for the control of particulate matter (PM) and other metals.

All of the ash from the Pope/Douglas Waste-To-Energy Facility is currently disposed of in dedicated ash cells at the Pope/Douglas ash mono-fill in Solem Township, approximately 20 miles away. A new ash handling system will be needed to accommodate increased ash production from the new Unit 3 combustor. The addition of Unit 3 will require construction of an addition to the existing building on site. The new building expansion area will include: lighting, heating, electrical power, service air, service water, communications, and fire protection. The unit will be located on existing paved surfaces so a minimal amount of disturbances of soil will occur. Aside from potential changes in traffic patterns during the construction of Unit 3, these operations will largely remain unchanged with the proposed project.

Construction plans are being finalized, and construction is anticipated to begin in the spring of 2010. Assuming a typical 18-month construction period, commercial operation could begin as early as the 2nd quarter of 2011.

**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.**

Pope/Douglas has recently received commitments from Stearns County for 45,000 tons of waste per year and from Stevens County for 5,000 tons of waste per year. This would require the facility to accommodate approximately 50,000 additional tons of waste per year. When operating Units 1 and 2 at 60 tpd each, or 120 tpd total, the Pope/Douglas Waste-To-Energy facility can process approximately 43,800 tons of waste per year. In order to meet the demands of the commitments that they have in place, the Pope/Douglas facility will need to expand.

The construction of Unit 3 has been proposed to meet the rising waste generation needs of both Pope and Douglas Counties, as well as to meet the commitment of additional counties to provide MSW. Beneficiaries of these projects include all regional generators of MSW, and local heating and cooling districts. Steam generated by the facility is currently sold as a source of heat, but could also be used for both heating and cooling systems for future customers.

**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.**

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 project is the expansion of a MSW energy recovery facility constructed in 1986. No previous environmental review has been conducted for this facility.

**7. Project Magnitude Data**

Total Project Area (acres) 0.2 or Length (miles) 0

Number of Residential Units: Unattached 0 Attached 0 Maximum Units Per Building: 0

Commercial/Industrial/Institutional Building Area (gross floor space): total square feet \_\_\_\_\_

Indicate area of specific uses (in square feet):

Office \_\_\_\_\_ Manufacturing 14,000  
 Retail \_\_\_\_\_ Municipal Waste Combustor Building \_\_\_\_\_  
 Warehouse \_\_\_\_\_ Institutional \_\_\_\_\_  
 Light Industrial \_\_\_\_\_ Agricultural \_\_\_\_\_  
 Other Commercial (specify) \_\_\_\_\_  
 Building height 50 feet If over 2 stories, compare to heights of nearby buildings \_\_\_\_\_

The existing Units 1 and 2 building is approximately 50 feet tall. The new building that will be constructed to house Unit 3 will be approximately 58 feet tall.

**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.**

Table 1

Unit of Government	Type of Application	Status
U.S. Fish and Wildlife Service (USFWS)	Threatened and Endangered Species Review	Completed
Federal Aviation Administration	FAA Notification Form 7460-1	Completed
DNR	Minnesota Natural Heritage Database Search	Completed
MPCA	Air Emissions Permit	On public notice beginning November 4, 2009
Minnesota State Historic Preservation Office (SHPO)	Cultural Resources Review	Completed
Office of State Archaeologist	Cultural Resources Review	Completed
City of Alexandria	Building Permit and Zoning Certificate	Future
City of Alexandria	Site Development Plan Review	Future

**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.**

The Pope/Douglas Solid Waste Management facility is located on the southeast side of the city of Alexandria in Douglas County. The facility is located at 2115 Jefferson Street. The facility was constructed in 1986 and began operating on a continuous basis when it started accepting waste in 1987. Prior to development of the facility, the site was a vacant parcel of land outside of the main urban development pattern of the city.

Currently, adjacent land development includes the 3M Company (across the street to the west), including a small strip of land directly adjacent to the Pope/Douglas Solid Waste Management Facility on the south side of the property boundary. Additionally, the facility is surrounded on its north and east sides by property owned by Alexandria Technical College, which is located in an R-2 zoning district (single and two-family residential developments). Southwest of the facility, there are I-B and B-1 zones that allow commercial businesses, such as office buildings. The I-B zoning district prohibits food establishments and hotels. This zone serves as a buffer area for 3M and the solid waste management facility, as various types of development continue to move northward from Interstate Highway 94.

The facility site and 3M properties are zoned for light industrial development. About ¼-mile straight east of the facility, the zoning is single-family residential, but this area is primarily undeveloped land at this time. Item 27 discusses zoning and compatibility with local plans and land use regulations in greater detail.

The Unit 3 building will be constructed on the south side of the existing Pope/Douglas facility in a flat area adjacent to the existing building structure that houses Units 1 and 2. The construction site is currently an impervious bituminous surface. Potential land use conflicts between the project and the existing surrounding land use are not anticipated. No potential environmental hazards due to past or current land uses have been identified or are known to exist.

**10. Cover Types. Estimate the acreage of the site with each of the following cover types before and after development:**

	Before	After		Before	After
<b>Types 1-8 wetlands</b>	0	0	<b>Lawn/landscaping</b>	1.7	1.7
<b>Wooded/forest</b>	0	0	<b>Impervious Surfaces</b>	4.2	4.2
<b>Brush/grassland</b>	0	0	<b>Other (storm water pond)</b>	0.1	0.1
<b>Cropland</b>	0	0			
			<b>TOTAL</b>	6	6

The proposed project would be constructed on an existing site that is approximately 6 acres in size. The majority of the site is impervious surfaces consisting of roof tops, traffic areas, etc. The building to be constructed for the Unit 3 project is currently a bituminous surface.

**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.**

The Unit 3 combustor would be built adjacent to an existing building on ground that is currently a bituminous surface. The work on Unit 1 and Unit 2 will take place within the existing building. Part of the six-acre facility includes a small stormwater sedimentation pond and associated grassy area, which will remain undisturbed. There is a storm sewer system in place, which drains to the sedimentation pond, to address storm water runoff issues. This system falls under the jurisdiction of the Municipal Separate Storm Sewer System (MS4) Permit for the city of Alexandria. No additional impacts to fish, wildlife, or ecologically sensitive resources are anticipated from the proposed project.

- 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 20070809

**Describe measures to minimize or avoid adverse impacts.**

Both the USFWS and the DNR were consulted regarding fish, wildlife, and/or ecologically sensitive resources that may exist on the project site. The USFWS indicated there are no federally listed or candidate species in the proposed project area.

The DNR conducted a review of the Minnesota Natural Heritage database to determine if any rare plant or animal species or other significant natural features are known to occur within one mile of the proposed project site. This review indicated that a known occurrence of one species exists, the Least Darter (*Etheostoma Microperca*). The DNR indicated, however, that based on the nature and location of the proposed project, impacts to any known occurrences of rare features is not likely. (See Appendix A for a short record report from the DNR.) The proposed project is located in Section 30, T128N, R37W, which is not one of the sections identified as having any rare feature occurrences. Additionally, the proposed project is occurring on an existing impervious site, and will not be altering any habitat that would impact the Least Darter.

- 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.**

- 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 facility is currently connected to the municipal water supply in Alexandria, Minnesota. Water is currently used at the facility for ash quenching, boiler make-up water, and employee and general purposes. Average annual usages are 4,354,000 gallons for employee/general use and ash quenching, and 4,026,000 gallons for boiler make-up feed water.

Detailed engineering and water balance calculations have not been completed for the proposed Unit 3 cooling system, therefore the actual quantity of water that will be used at the facility is not known at this time; however, it is believed that a conservative scenario assumes a 50 percent increase in annual water usage. Based on this scenario, the water demand would increase by 4,140,000 gallons annually, going from the current quantity of approximately 8,280,000 gallons to an estimated future quantity of 12,420,000 gallons annually with the addition of the Unit 3 project.

Pope/Douglas has contacted Alexandria Light and Power about the projected increase in water demand. Alexandria Light and Power indicated that there were no anticipated problems in supplying the estimated amount of water needed for the proposed project. In addition the existing infrastructure to the facility is capable of handling the increased demand.

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

- 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.**

Flood Insurance Rate Maps for Alexandria and surrounding areas have not been completed. However, according to the DNR, there are no designated 100-year floodplains within the city of Alexandria. The closest 100-year floodplain is over 8.5 miles from the facility, to the northeast on the Long Prairie River.

There is no lake or river in the immediate vicinity of the project area; therefore, shoreland zoning district and Wild and Scenic River district regulations do not apply.

- 15. Water Surface Use. Will the project change the number or type of watercraft on any water body?**  Yes  No

- 16. Erosion and Sedimentation. Give the acreage to be graded or excavated and the cubic yards of soil to be moved: 0.20 acres; To Be Determined 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 are expected to be minimal. Given that the location for the construction of Unit 3 is currently paved, little grading or excavating will occur with the proposed project. The estimated quantity of soil to be moved has not been determined at this time. Additionally, the area in and around the site is fairly flat with no steep slopes; therefore, little to no erosion or sedimentation will occur with the proposed project. Temporary erosion and sediment control measures will be used where applicable.

Area(s) for equipment staging and materials may prove to be needed, but their size is not expected to significantly change the total area listed above. These areas would be treated with the same erosion and sediment control measures.

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

## **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 no new acres of impervious surface. 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 Unit 3 project and its auxiliaries will be located within enclosed buildings and protected from direct exposure to stormwater. Continuing to use good management 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.**

All site stormwater runoff from the site drains to a sedimentation pond located in the southeast portion of the site. Drainage is collected through facility drains connected to the storm sewer system that discharges into the sedimentation pond. Runoff from the rooftop of the Unit 3 building will be directed to the storm sewer system. The outfall from the sedimentation pond discharges to a Type 3 (shallow marsh) wetland.

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 in the Type 3 wetland.

## **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 facility produces sanitary wastewater generated by the 35 employees working at the plant, along with process wastewater consisting of boiler pretreatment regeneration discharge and boiler blowdown. Upon completion of the Unit 3 project, the facility will employ approximately ten additional people, increasing the quantity of sanitary wastewater discharges slightly. Process wastewater will also increase.

The facility currently produces approximately 10,000 gallons per day (gpd) of wastewater. Approximately 5,000 gpd is from the boiler pretreatment regeneration, 3,000 gpd from the boiler blowdown, and 2,000 gpd from domestic wastewater. It is expected that the volumes of wastewater associated with the boilers will increase by 50 percent and the domestic wastewater will increase by 25 percent. Therefore, the proposed wastewater flows will be approximately 14,500 gpd.

- 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 on site; instead they are directed to the Alexandria municipal sanitary sewer system. 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 measures.

- 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 the Alexandria Lakes Area Sanitary Sewer District (ALASSD) system and treated at the ALASSD wastewater treatment plant, which is located at the south end of Lake Winona, adjacent to the Alexandria Municipal Airport. After treatment, water discharges to the Agnes, Henry, and Perch Lakes system, enters a wetland, and then flows into Lake Le Homme Dieu and Lake Carlos, which eventually flow into the Long Prairie River. No pretreatment is currently provided for the industrial wastewater discharged to the municipal sanitary sewer. The ALASSD five-year permit was re-issued by the MPCA in July 2006.

The ALASSD treatment plant is currently in the process of increasing its capacity. Based on their current capacity and anticipated future capacity, the treatment plant is expected to be able to treat the additional wastewater discharges from the proposed Pope/Douglas expansion without additional improvements.

- 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.**

Not applicable.

**19. Geologic hazards and soil conditions.**

- a. Approximate depth (in feet) to**

<b>Ground water:</b>	10	<b>minimum;</b>	12	<b>average.</b>
<b>Bedrock:</b>	285	<b>minimum;</b>	292	<b>average.</b>

**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.**

The bedrock in the Alexandria area consists of granite, gneiss, and schist at a depth of 285 to 300 feet below the ground surface. There are no geologic site hazards to groundwater from sinkholes, shallow limestone, or karst conditions.

- b. Describe the soils on the site, giving Natural Resources Conservation Service 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.**

Soil borings completed (Twin City Testing, 1985) in the area of the proposed project indicate the soils in this area consist of topsoil underlain by a few feet of weathered till, in turn underlain by glacial till with interbedded coarse alluvial silty sands.

The topsoil was encountered to depths of up to two feet below grade. The topsoil was primarily organic sandy lean clay or organic lean clay. The weathered till consists of sandy lean clay, lean clay with sand, or clayey sand. The weathered till generally contained a little gravel. The glacial till soils encountered on the site were predominantly clayey sand with a little gravel.

## **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.**

The Pope/Douglas Waste-To-Energy Facility burns MSW as fuel for generating steam for local industries. The facility has been designed to accommodate the handling and storage of solid waste. The waste is collected from the residents of Pope and Douglas Counties. The construction of Unit 3 will allow the Pope/Douglas Waste-To-Energy Facility to accept additional waste from Stearns and Stevens Counties.

Pope/Douglas also owns and operates an ash mono-fill in Solem Township, Douglas County. The parcel is approximately 80 acres in size, of which 20 acres are being used for the landfill. The 20-acre landfill has a total capacity of 1,030,000 cubic yards. The landfill currently consists of two cells, which are used for disposal of incinerator ash (the byproduct after the solid waste has been burned). The MPCA prepared an Environmental Impact Statement on this project in 1992.

Currently, fly ash from the fabric filters is pneumatically conveyed to the bottom ash hoppers, where the ash mixture is wetted (quenched) in a submerged drag chain conveyor that the bottom ash hoppers extend into. The wetted ash mixture is then conveyed to a roll-off container for transport to the ash mono-fill. All of the ash mixing, conveying, and loadout activities occur indoors. The new ash handling components for Unit 3 will consist of additional fly ash conveyance equipment, a new bottom ash hopper at the exit/base of the Unit 3 combustor that will extend into an additional submerged drag chain conveyor. This conveyor will then move the wetted fly ash/bottom ash mixture from the Unit 3 bottom ash hopper to the ash loadout area. There are no external vented emission points associated with the current or future ash handling system.

The Pope/Douglas Solid Waste Management Plan describes goals to decrease the amount of waste disposed to landfills as well as utilize the latest in waste-to-energy technology. The main components that are utilized to achieve these goals include:

- Local household hazardous waste collection
- Recycling drop-off center
- Material recycling facility
- Mass-burn municipal solid waste combustor that generates steam to sell for local heating systems
- Landfill consisting of ash cells

The Pope/Douglas Waste-To-Energy Facility also operates a household hazardous waste collection program. The program is designed to prevent hazardous materials from entering the waste stream, and to provide a convenient and proper disposal method for household hazardous materials. The collection program works in conjunction with the local education programs to educate residents and provide a comprehensive household hazardous waste disposal program.

The site also operates a recycling center where residents can drop off their sorted recyclables into appropriate storage locations at no charge. Accepted wastes include: aluminum cans, tin food cans, corrugated cardboard, glass jars and bottles, plastic, catalogs and magazines, and newsprint. This program serves to decrease the overall MSW that is disposed of and increase the reuse of available wastes.

Waste that cannot be processed is transported to a large MSW landfill located in Gwinner, North Dakota. The Gwinner MSW Landfill serves as the bypass landfill for the Pope/Douglas SWM facility in the event of a shutdown or other reason that waste cannot be handled. Un-processable waste at the Pope/Douglas Facility includes those wastes that cannot be incinerated or recycled, such as tires, mattresses, and other items. The Pope/Douglas facility has been able to process almost all of the waste it receives and has made agreements with Stearns and Stevens Counties to accept additional waste for incineration once the proposed project is in place.

#### Ash Mono-fill

With the addition of Unit 3 combustor, the ash generation at the facility will approximately double, requiring a new ash handling system. It will also impact the longevity of the ash mono-fill that is currently used for the ash disposal from Units 1 and 2. In a capacity evaluation of the Pope/Douglas ash mono-fill for the MPCA Annual Report, dated January 2007, it was determined that the current remaining operating life of Cell 1A and Cell 1B was approximately 14 years. The total remaining life of the landfill at the current rate is 140 years. This was based on the current ash disposal rates that average 5,950 cubic yards per year, a remaining capacity of the two cells of 83,900 cubic yards, and remaining ultimate design capacity of 935,000 cubic yards. If ash byproduct doubles as a result of the proposed project, the life of the ash mono-fill will be proportionately reduced. Pope/Douglas Solid Waste Management will apply for a permit to expand the mono-fill into one of three remaining undeveloped designed cells as needed to accommodate future ash disposal needs.

- 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 Pope/Douglas Waste-To-Energy facility uses and stores diesel fuel and used oil in quantities necessary to maintain and operate equipment. Boiler treatment chemicals are also stored on the site in 110-gallon, double-walled tanks. Volumes of these materials would be expected to increase in proportion to the operating and maintenance needs of Unit 3. These materials must be properly stored and handled by appropriately trained employees.

- 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 a part of the re-rating or the construction of Unit 3. Pope/Douglas stores both diesel fuel and used oil in two 1,000-gallon above ground storage tanks on site.

21. **Traffic. Parking spaces added:**     0     **Existing spaces (if project involves expansion):**     NA      
**Estimated total average daily traffic generated:**     45      
**Estimated maximum peak hour traffic generated (if known) and its timing:**     NA

**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.**

MSW delivery trucks comprise most of the traffic into and out of the Pope/Douglas Waste Management Facility. The number of trucks entering the facility during 2006 was 5,700 vehicles delivering approximately 31,673 tons of MSW. Due to current waste acceptance agreements, a change in the truck capacity distribution for the facility, and potential waste disposal increase needs within the existing system, it is anticipated that the number of MSW trucks entering the facility post Unit 3 construction will approximately double from current rates.

With respect to idling trucks, the waste haulers schedule their routes so trucks arrive at the Pope/Douglas facility during different times of the day. The majority of the time, there are no trucks at the facility or a single truck arrives, drives over the scale, dumps their load, and leaves. It takes about two minutes for a truck to dump their load into the receiving area. During normal operation, when a truck is on site, there is only a very small amount of idling time.

Ash disposal trucks comprise the second largest traffic segment at the facility. In 2006, 7,321 tons of ash was hauled to the ash mono-fill by 622 truck loads. Again, due to the same factors above, it is anticipated that an approximate doubling of ash disposal traffic can be anticipated as a result of the installation of Unit 3. The current total number of full and part-time employees operating the Pope/Douglas facility is 35. An additional 10 employees are to be hired as a result of operating Unit 3. The additional traffic expected from these employees will not impact the facility or the surrounding area. Additionally, no new parking spaces are being added.

Operation and maintenance vehicles also generate traffic at the Pope/Douglas site. Traffic volumes due to these activities is not expected to increase. However, the duration and quantity of the service calls will increase as a result of operating Unit 3.

Additional traffic will be generated during the construction of Unit 3, but this increase in traffic will be temporary.

- 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.**

All MSW and ash disposal truck traffic occurs on existing paved roadways on the site. Trucks entering and exiting the facility use existing paved city streets and highways before leaving the city limits of Alexandria enroute to the ash mono-fill and bypass landfill locations. These existing paved roadways minimize potential dust/PM impacts from truck hauling on air quality.

Vehicle-related air emissions were estimated using U.S. Environmental Protection Agency (EPA) AP-42 emission factors. Impacts from PM emissions, as a result of this project, are estimated to be less than 2.5 tons per year (tpy). Impacts from carbon monoxide levels generated by vehicle traffic are not expected to be significant with respect to the total project impact.

- 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.**

The proposed project involves the construction of Unit 3, which will have an annual average capacity of 120 tpd. The total facility capacity after the project will be an annual average of 240 tpd.

A permit amendment will be required prior to commencement of construction for the proposed project. The permit amendment will be issued for the construction and operation of Unit 3. The emission calculations below rely primarily on the federal emission limits. For the existing units 1 and 2, the federal emission limits are found in 40 CFR Part 60, sub. JJJ. For the new Unit 3, the emission limits are found in 40 CFR Part 60, sub. AAAA. For mercury, a more restrictive limit than the federal or state emission limits has been taken. For existing Units 1 and 2, a more restrictive total dioxin/furan limit than the federal or state emission limit has been taken. For the additional pollutants that were reviewed in the Health Risk Assessment, stack data from the Olmsted County Waste-to-Energy Facility were primarily used. EPA AP-42 emission factors were also reviewed. The calculations are summarized as follows:

Table 2

Pollutant	Current Facility Actual Emissions (tpy) <sup>1</sup>	Current Facility Potential Emissions (tpy) <sup>2</sup>	Unit 3 Potential Emissions (tpy)	Total Facility Potential Emissions (tpy)
PM	2.2	10.0	9.9	19.9
PM <sub>10</sub>	2.0	15.2	15.1	30.3
PM <sub>2.5</sub>	NA	15.2	15.1	30.3
NO <sub>x</sub>	50.6	96.5**	95.0**	191.5
SO <sub>2</sub>	11.0	44.2	17.2	61.4
CO	2.7	26.5	25.2	51.6
Ozone (as VOC)	0.2	2.8	2.8	5.6
Lead	0.001	0.35	0.043	0.393
Sulfuric Acid Mist	NA	5.47	5.47	10.9
MWC Organics (as Total Dioxins/Furans)	NA	4.32E-06	2.8E-06	7.14E-06
MWC Acid Gases (as SO <sub>2</sub> + HCl)	NA	95.0*	25.4	120.4

\* MWC Acid Gases limited to 95 tpy, expressed as a 12-month rolling sum, was a synthetic minor limit to maintain the facility's status as a minor modification to a PSD major source under Prevention of Significant Deterioration (PSD) rules.

\*\* NO<sub>x</sub> emissions from Units 1 and 2 combined will be limited to 95.0 tpy, expressed as a 12-month rolling sum, was a synthetic minor limit to maintain the facility's status as a minor modification under PSD rules. NO<sub>x</sub> emissions for Unit 3 will also be limited to 95 tpy ensure the project as a synthetic minor modification to an existing major PSD source.

<sup>1</sup> Actual emissions represent 2006 reported emissions taken from MPCA Web site.

<sup>2</sup> The current facility emissions represent non-insignificant activities, which include Units 1 and 2, and the auxiliary boiler.

CO = Carbon Dioxide

HCl = Hydrochloric Acid

NA = Not Available

NO<sub>x</sub> = Nitrogen Oxides

PM<sub>10</sub> = Particulate matter less than 10 µm in size

PM<sub>2.5</sub> = Particulate matter less than 2.5 µm in size

SO<sub>2</sub> = Sulfur Dioxide

VOC = Volatile Organic Compound

Any municipal waste combustor facility that fires more than 50 tpd and has more than 100 tons of potential emissions is classified as a major source under the federal Prevention of Significant Deterioration (PSD) program. Upon review by EPA Region 5, the existing facility was deemed a PSD major source. The revised emission limits for NO<sub>x</sub> and MWC Acid Gases were synthetic minor limits that allowed the Units 1 and 2 replacements to not be subject to PSD review. The NO<sub>x</sub> synthetic limit on the addition of Unit 3 sources allowed the Unit 3 expansion to not be subject to PSD review.

#### Air Pollution Control Equipment

The current air pollution control equipment configuration for Units 1 and 2 is as follows:

- Dry lime injection for the control of acid gases
- Activated carbon injection for the control of dioxin (and possibly mercury) and other metals
- Reactor vessel (for residence time and agitation)
- Fabric filter for the control of PM and other metals

The basic design of Unit 3 will be the same as Units 1 and 2. Unit 3 will be subject to the same emission control configuration as Units 1 and 2; namely, dry lime injection for the control of acid gases, activated carbon injection for the control of dioxin, and a fabric filter for the control of PM and other metals. Despite Unit 3 being subject to New Source Performance Standards Subpart AAAA that sets emission limits that are generally lower, the good performance of the existing air pollution equipment, the similar design between Units 1, 2, and 3, and the burning of the same MSW justify use of the same air pollution control equipment.

The resulting permit amendment associated with the proposed project requires a major amendment, which will require a public notice and public review period.

The cumulative impacts associated with air emissions include the current contributions of Units 1 and 2, each operating at 60 tpd annual average, and the future contribution from Unit 3 operating at 120 tpd annual average. The addition of Unit 3 was evaluated in accordance with the protocol for the Human Health Risk Assessment.

See Item 29 for discussion of GHG emissions.

#### Air Emissions Risk Assessment

The MPCA has developed an Air Emissions Risk Analysis (AERA) process to provide for: (1) a standardized health review of facility air emissions; and (2) a consistent format for presenting the quantitative risk estimates, along with qualitative information to provide context to these risk estimates. An AERA estimates cancer and non-cancer risks to human health from a proposed project and/or an existing facility. In general, facility risk guidelines have been developed by the MPCA, in consultation with the Minnesota Department of Health (MDH) that are consistent with EPA guidance. The guidelines were established such that the increased risk of a person getting cancer over the course of their lifetime due to exposure to the carcinogenic chemicals emitted from a given facility, should be less than 1 in 100,000 (1E-05). The facility guideline for non-carcinogenic chemicals is that the sum of the risks (called "hazard indices") should be less than 1. If emissions from a facility result in estimated risks in excess of these levels, MPCA staff evaluates whether further refinement of the analysis, or modifications to the facility, or stricter air emissions limits, are warranted. Interested readers can find more detailed information on the air risk analysis process at <http://www.pca.state.mn.us/air/aera.html>.

Pope/Douglas first screened risks from the existing facility and proposed expansion using the AERA process. Pope/Douglas then conducted a more refined analysis using an EPA risk assessment model to estimate potential cancer risks and non-cancer hazard indices to people in the surrounding community from the total facility after the proposed expansion. These analyses assessed risks from over 60 pollutants emitted from the total facility before and after expansion. Due to a combination of increasing the stack height of the current facility and taking more stringent limits on mercury and dioxins/furans, the estimated risks from the expanded facility at the potential maximum emission levels are predicted to decrease as a result of this modification. The estimated risks from the overall expanded facility are below facility risk guidelines, with the exception of risks related to conditions that are unlikely to occur. These conditions (farmer cancer risks and non-cancer ingestion subsistence fisher risks) are discussed below.

#### Farmer Cancer Risks

The farming scenario was evaluated in areas where farming may occur under current zoning, southeast of the facility, and under the conditions where farming is currently occurring. The scenario where farming cancer risks are above facility risk guidelines assumes that an individual gets some fraction of their food supply, including milk, from the impacted area. Approximately 75 percent of the estimated farmer cancer risk is attributable to milk consumption. There is currently no dairy farming done in areas where the farmer cancer risks, including milk production, are higher than facility risk guidelines. Without risks from dairy production, the farmer cancer risks are below facility risk guidelines.

### Non-Cancer Ingestion Subsistence Fisher Risks

If Alexandria residents routinely consumed fish caught in Lake Victoria and Lake Burgen, the non-cancer ingestion risks would be above facility risk guidelines. The assumption underlying this risk estimate was that the fishers would eat about a half-pound of fish four to five times a week. There are existing fish consumption advisories for Lakes Victoria and Burgen advising pregnant women, women who may become pregnant, and children against eating more than one meal per month of northern pike and the general public to eat no more than one meal per week of northern pike because of mercury. One meal per week is roughly equivalent to the recreational fisher consumption level, which did not show risks above the facility risk guidelines. The Subsistence Fisher Risks estimates also assume that residents eat garden produce from the most impacted area, which is just north of the facility on Alexandria Technical College property, closest to the new police training academy. It is unlikely that vegetables are grown at the most impacted area. Subsistence Fisher Risks for the maximally impacted current residential areas are not above facility risk guidelines.

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

The facility has been specifically designed to contain odors within the facility in order to minimize impacts from odors. Delivery trucks unload the waste into the enclosed reception area. Negative pressure is maintained by drawing combustion air from the tipping floor into the furnace. At the temperatures that are encountered within the combustion furnace, odors that are associated with the wastes are removed.

#### Noise

Noise will be generated during the construction of Unit 3 and during normal operation of the facility; however, it is not anticipated to have an adverse affect on the surrounding area. The facility is located on the southeast side of the city of Alexandria, with the nearest residential area approximately 0.5 miles away. Other existing noise sources in the area include several industrial facilities, streets, and four-lane roadways.

Typical noise sources during construction will include cranes and fabrication activities (pneumatic wrenches, saws, welding equipment). Much of this activity will be intermittent in nature during the construction period, which is expected to last approximately 18 months. A significant portion of the construction process will occur inside buildings, mitigating the potential noise impacts on the surrounding area. Construction activities will take place during normal working hours that are set forth by the city of Alexandria.

The main facility operations that would create noise take place inside buildings. Truck traffic is expected to increase as a result of the proposed project, but is not expected to increase the overall noise level along the typical truck haul routes.

#### Dust

Dust will be generated on a temporary basis during the construction of Unit 3; however, the amount is expected to be minimal since the site is already completely paved and there will be no disturbance of land or topsoil. As needed, reasonable measures (e.g., watering of dusty surfaces, sweeping of paved areas) will be taken to minimize dust emissions during construction.

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.**

Since this is an existing facility, no adverse impacts to nearby resources are anticipated as a result of the proposed project. The SHPO and Office of the State Archaeologist were consulted. SHPO indicated that no archaeological sites or historic structures were identified in the search of the Minnesota Archaeological Inventory and Historic Structures Inventory for the project site. (See Appendix A for a copy of the SHPO response.)

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

**If yes, explain.**

Lighting is provided for plant operational purposes. Lighting impacts should be minimal as the expected lighting for Unit 3 will be similar to that of the existing plant.

As flue gas is emitted from the stack, water vapor present in the flue gas can condense to form a visible steam plume. The persistence of this plume is dependant on prevailing weather conditions such as temperature, relative humidity, and wind speed. The plume is more persistent and most visible during winter months when cold and damp conditions typically occur. During typical operating days, however, the visible plume will disperse and evaporate after traveling only a short distance.

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 existing facility and the proposed expansion project are compatible with the current city of Alexandria Comprehensive Plan, which was adopted in June 2007. The Pope/Douglas Facility is located in an I-1 zoning district. According to Chapter 10 of the city zoning ordinance, I-1 zoning districts allow light industrial uses, such as research laboratories, manufacturing, and warehousing. According to city staff, in 1986 when the area was rezoned from single-family to light industrial for the construction of the facility, the facility was considered an "essential service," which is an allowable use in an I-1 zoning district. A conditional use permit was issued in 1991 when the household hazardous waste and recycling center was added on the south side of the facility. The proposed expansion of this facility would require a building permit issued by the city of Alexandria, which includes site development plan review as part of the building permit process.

Pope/Douglas Solid Waste Management formed through a partnership created by Pope and Douglas Counties in 1983 to manage the total waste stream generated within the two counties. That same year, the two counties jointly prepared a comprehensive Solid Waste Management Plan, which was approved by MPCA in January 1984. The plan was updated in 1996 and again in 2002. The plan helps guide the Joint Powers Solid Waste Board in their decisions regarding the current and future operation of the solid waste facility. At the time of the 2002 plan update, the Board was beginning to plan for the installation of a third incinerator train. Therefore, this capacity expansion and construction of Unit 3 project will implement the goals of the current Solid Waste Management Plan to better handle the continued generation of solid waste in the area.

Douglas County has a Solid Waste Ordinance, which was established in 1983, with its most recent update effective in 1996. Both Pope and Douglas Counties amended their Solid Waste Ordinances in 1996 to reflect state rules and county directives. The ordinances provide terms for the proper management and disposal of all solid waste within Pope and Douglas Counties, and is used as the primary enforcement tool concerning the proper management of solid waste. According to the 2002 Solid Waste Management Plan, the counties have not experienced any implementation or enforcement problems. A draft Collection and Disposal Ordinance was created by the Board during the 2002 Solid Waste Management Plan update. This ordinance has never implemented, but is available if it is ever deemed necessary.

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.)**

The existing infrastructure and public services can handle the increased demand from the proposed expansion of the Pope/Douglas Solid Waste Management Facility.

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).**

#### Air Quality

Cumulative potential effects to air quality from the proposed project were evaluated using air dispersion modeling analysis. The purpose of the modeling analysis was to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and the Minnesota Ambient Air Quality Standards (MAAQS) and to support a Human Health Risk Assessment for the Pope/Douglas Solid Waste Management Unit 3 project (Pope/Douglas Solid Waste Management Criteria Pollutant Air Dispersion Modeling Report, April 2009).

Background air concentrations were added to the Pope/Douglas Solid Waste Management modeled concentrations to estimate total ambient concentrations. The background concentrations were obtained from MPCA’s Background values document. The Option 2 values were selected for the “Rest of Minnesota” (appropriate for locations outside the Twin Cities Metropolitan area) because there are no significant nearby sources within two miles of the Pope/Douglas Solid Waste Management Facility (MPCA Background Values document).

The results of the modeling analysis showed compliance with the NAAQS and MAAQS standards for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Pb. When background concentrations were added to the modeled concentrations, the impacts remained below the current NAAQS and MAAQS standards. A summary of predicted ambient impacts are shown in the table below.

Based on the air quality modeling analysis for the proposed project, the facility will comply with the applicable air quality standards and is not expected to contribute to an adverse cumulative potential air quality effect.

Table 4  
**Pope/Douglas Predicted Ambient Air Concentrations**

Averaging Period	Pope/Douglas Modeled Concentration (µg/m <sup>3</sup> )	Background Concentration (µg/m <sup>3</sup> )	Total Ambient Impact (µg/m <sup>3</sup> )	National Ambient Air Quality Standard (µg/m <sup>3</sup> )	Minnesota Ambient Air Quality Standard (µg/m <sup>3</sup> )
<b>PM<sub>10</sub></b>					
24-Hour Average <sup>1</sup>	79.1	26	<b>105.1</b>	150	150
Annual Average <sup>2</sup>	8.3	12	<b>20.3</b>	50	50
<b>PM<sub>2.5</sub></b>					
24-Hour Average <sup>3</sup>	9.25	21	<b>30.25</b>	35	65 <sup>6</sup>
Annual Average <sup>4</sup>	1.5	7	<b>8.5</b>	15	15 <sup>6</sup>
<b>SO<sub>2</sub></b>					
1-Hour Average <sup>5</sup>	76.8	21	<b>97.8</b>	---	1,300
3-Hour Average <sup>5</sup>	69.3	10	<b>79.3</b>	1,300	1,300
24-Hour Average <sup>5</sup>	39.9	4	<b>43.5</b>	365	365
Annual Average <sup>4</sup>	3.8	2	<b>5.8</b>	80	60
<b>NO<sub>x</sub></b>					
Annual Average <sup>2</sup>	9.8	6	<b>15.8</b>	100	100
<b>CO</b>					
1-Hour Average <sup>5</sup>	60.4	4,400	<b>4,464.4</b>	40,000	40,000
8-Hour Average <sup>5</sup>	42.8	2,300	<b>2,342.8</b>	10,000	10,000
<b>Lead</b>					
3-Month Average (Rolling)	0.035	0.01	<b>0.045</b>	0.15	1.5 <sup>6</sup>

<sup>1</sup> High sixth high concentration over the modeled period

<sup>2</sup> High annual average concentration

<sup>3</sup> 98<sup>th</sup> percentile concentration

<sup>4</sup> High 3-year average concentration

<sup>5</sup> High second high concentration for an individual year

<sup>6</sup> These Minnesota Ambient Air Quality Standards have not yet been updated with the revisions to the national standards.

There are no future plans to construct a fourth municipal waste combustor or expand the operating capacity of the facility beyond the Unit 3 project. Therefore, there are no cumulative potential effects of related or anticipated future projects that must be addressed.

### Air Toxics or Non-Criteria Pollutants

To form a more complete picture of risks from exposure to outside air pollution to people in the vicinity of the Pope/Douglas Facility, monitoring data from an average of areas in the state with similar population density were considered along with risks from the facility. These averaged risk estimates reflect emissions from industrial facilities, traffic, gas stations, wood-burning stoves, etc. and distant emissions sources that contribute to a regional level of pollutants that have been detected at similar levels across Minnesota. The non-cancer hazard indices reported in Table 5, associated with air monitoring data reflect only the respiratory portions of the total background hazard index values since the inhalation non-cancer hazard indices related to potential Pope/Douglas emissions are based on respiratory system effects. It is standard risk assessment practice that only those pollutant-specific non-carcinogenic hazard quotients be added together that would impact the same human systems or organs, e.g., respiratory system or liver. For potentially carcinogenic pollutants, it is standard risk assessment practice for estimated cancer risks to be added together regardless of tumor location or type.

A combination of increasing the stack height of the current facility and taking more stringent limits on mercury and dioxins/furans will reduce the health risks after the facility expansion at the maximum potential emission levels. Consequently, the cumulative potential risks from the facility plus background levels will also decrease. The contribution to the total cumulative inhalation risks (Table 5) and mercury fish consumption risks (Table 6) with Unit 3, under the post-modification permit and at the maximally impacted receptor, are less than 10 percent.

Table 5  
Risk Estimates from Pope/Douglas and Averaged Ambient Monitoring Data

	Maximum Acute Respiratory Hazard Index	Maximum Chronic Respiratory Non-Cancer Hazard Index	Maximum Cancer Risk
Risks from averaged intermediate population ambient monitoring data	0.6	0.8	4.30E-05
Total facility risks after modification at site of maximum impact	0.8	0.7	2.00E-06
Total Cumulative Sum at site of maximum impact	1.4	1.5	4.50E-05
Risks from Unit 3 alone	0.1	0.04	6.00E-07
Percent Contribution by Unit 3	8%	3%	1%
Total Cumulative Sum at current maximally impacted residential area	1.0	0.9	4.40E-05

Table 6  
Summary of MN Mercury Risk Estimation Method for Fish Consumption Pathway Results

Emissions Scenario	Water Body	Subsistence Fisher <sup>1</sup>				Recreational Fisher <sup>2</sup>			
		Hazard Quotient				Hazard Quotient			
		Ambient	Facility	Total	Percent facility contributes to Total	Ambient	Facility	Total	Percent facility contributes to Total
Pre-Modification Potential to Emit (Units 1 & 2 at 26 lb/yr)	Lake Burgen	9.4	2.5	11.9	21%	2.0	0.5	2.5	20%
	Lake Victoria	9.4	2.0	11.4	18%	2.0	0.4	2.4	17
Post-Modification Potential to Emit, All Units (at 12 lb/yr)	Lake Burgen	9.4	0.9	10.3	9%	2.0	0.2	2.2	9%
	Lake Victoria	9.4	0.8	10.2	8%	2.0	0.2	2.2	9%
Post-Modification Potential to Emit, Unit 3 (at 6 lb/yr)	Lake Burgen	9.4	0.5	9.9	5%	2.0	0.1	2.1	5%
	Lake Victoria	9.4	0.4	9.8	4%	2.0	0.1	2.1	5%
Post-Modification Projected Actual Emissions, All Units (at 1.5 lb/yr)	Lake Burgen	9.4	0.1	9.5	1%	2.0	<0.1	2.1	<5%
	Lake Victoria	9.4	<0.1	9.5	<1%	2.0	<0.1	2.1	<5%

Notes:

<sup>1</sup> Roughly equivalent to 2.2 pounds of fish consumed per week, 52 weeks per year, from the listed water body.

<sup>2</sup> Roughly equivalent to 0.5 pounds of fish consumed per week, 52 weeks per year, from the listed water body.

### Statewide Mercury Total Maximum Daily Load (TMDL)

Many Minnesota lakes already exceed the MPCA water quality threshold for mercury in fish tissue (0.2 parts per million), and are subject to fish consumption advisories. Because many lakes exceed the water quality threshold, they are “impaired” and are included in Minnesota’s Total Maximum Daily Load Pollutant Reduction Plan. The TMDL for mercury allocates reduction requirements for sources contributing mercury to the impaired water bodies in Minnesota. The long-term goal of the mercury TMDL is for the lakes to meet water quality standards; the approach for Minnesota’s share is mass reductions from state mercury sources (MPCA, 2009b).

About 90 percent of the mercury deposition in the state originates from outside the state, so the first cut allocation of the TMDL reduction is a 90 percent federal share. EPA, in its approval of the TMDL, has acknowledged the federal government’s responsibility for meeting its reduction goal. The remaining ten percent reduction allocation is Minnesota’s, for which the MPCA has the responsibility for developing schedules and meeting reasonable assurance requirements of the Clean Water Act.

The EPA approved Minnesota's Statewide Mercury Total Maximum Daily Load Pollutant Reduction Plan in March 2007. Since then, the MPCA has worked with stakeholders representing a broad range of interests to identify strategies and timelines that would be included in an implementation plan. The stakeholders' recommendations, completed in June 2008, are contained in the Implementation Plan for Minnesota’s Statewide Mercury TMDL “Mercury Implementation Plan”) (available on the MPCA Web site at <http://www.pca.state.mn.us/air/mercury>). The Mercury Implementation Plan includes reduction goals for various mercury emission sources by category. Municipal waste incineration has not been targeted for future reductions in the Mercury Implementation Plan because mercury emissions from the industry are already highly controlled. Municipal waste incinerators are one of the few industrial groups that already have mercury emission limits established by rule.

The Mercury TMDL deals with existing sources separately from new or modified sources. How increases in mercury emissions for new and modified sources are addressed in the TMDL framework can be found in the Mercury Implementation Plan. The plan states that after May 1, 2008, new and expanding air emission sources of mercury will be allowed provided the following measures are employed to ensure that the new and expanding sources do not result in an eventual exceedance of the TMDL goals:

1. The source is required to achieve best control.
2. The source must complete environmental review as applicable, including evaluation of local and cumulative impacts.
3. The source must submit a plan to the MPCA to account for the proposed emission. New or modified sources are expected to offset new emissions by arranging a reduction equal to the new emissions from existing sources in the state beyond those otherwise required in the reduction strategy for the existing sources. If mercury reductions from an existing facility in Minnesota cannot be identified, a new or expanding facility may propose alternative mitigation strategies in lieu of in-state air emission reductions. If an expanding source can demonstrate net increases less than three pounds per year from their proposed project, no additional offsets are required.

Pope/Douglas has submitted a strategy document (Attachment 1) to the MPCA that describes the equivalent reductions in mercury emissions that Pope/Douglas will secure should annual emissions from Unit 3 exceed three pounds. The strategy has been incorporated into a compliance agreement that will be executed by the MPCA with Pope/Douglas prior to the permit being issued for the new unit.

## GHG Emissions

A GHG inventory was developed for the Pope/Douglas Solid Waste Management (PDSWM) facility and proposed project, following MPCA *General Guidance for Carbon Footprint Development in Environmental Review* (publication *p-ear1-07*, July 2008). The MPCA General Guidance follows The Climate Registry *General Reporting Protocol* (Version 1.1, May 2008). The methodologies provided in the MPCA General Guidance were followed for estimating GHG emissions for the baseline year scenario and for a future projected year scenario. The year 2007 was chosen as the baseline year as it is the most recent year of compiled and verified operational data for the facility. The future project year, with the proposed project accounted for, was based on the maximum capacities of the units.

The GHG inventory includes emissions of carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), and methane (CH<sub>4</sub>). The other GHGs (hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF<sub>6</sub>]) are not applicable to the facility. The GHG inventory included the following sources:

- Scope 1 – Direct Sources
  - Stationary Combustion – Municipal Waste Combustion
  - Stationary Combustion – Auxiliary Boiler
  - Mobile Combustion
- Scope 2 – Indirect Sources
  - Purchased Electricity
- Biogenic Sources Scope
  - Stationary Combustion – Municipal Waste Combustion

Scope 1 and 2 sources are the typical minimum requirements of a GHG emissions inventory. They are for emission sources within the organizational boundary of the company. For the Pope/Douglas Facility, the organizational boundary is limited to the facility itself (see EAW Figure 3). Scope 3 sources are optional for reporting in the inventory and include such things as upstream or downstream emissions from purchased and saleable goods, employee business travel and commuting, etc. (i.e., a lifecycle analysis). Scope 3 was not included in this inventory.

Mixed MSW includes both plastics and organic materials. Therefore, GHG emissions from the combustion of these materials include both a fossil and organic material (biogenic) component. For the Biogenic Sources Scope, the combustion of biomass from direct (stationary or mobile) sources is included in this inventory; however, they are required to be kept separate from Scopes 1-3. As stated in the Climate Registry Protocol, “CO<sub>2</sub> emissions from biomass combustion are reported separately because the carbon in biomass is of a biogenic origin – meaning that it was recently contained in living organic matter – while the carbon in fossil fuels has been trapped in geologic formations for millennia. Because of this biogenic origin, the Intergovernmental Panel on Climate Change (IPCC) *Guidelines for National GHG Inventories* requires that CO<sub>2</sub> emissions from biomass combustion be reported separately. .

The waste that is combusted by Pope/Douglas is first processed within the Materials Recovery Facility (MRF). The MRF removes non-processible items, as well as glass/grit, ferrous and non-ferrous metals and large cardboard items. The post-MRF waste stream is a well-blended mixture of plastics and organic materials (e.g., wood, paper, food waste). To estimate biogenic CO<sub>2</sub> emissions from waste combustion at this facility, emission factors for refused derived fuel (RDF) were selected. The MPCA provided emission factors for the fossil fuel and biogenic portions of a typical RDF waste stream.

Emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O were converted to Carbon Dioxide Equivalents (CO<sub>2</sub>E) to account for the global warming potential for each chemical. As stated in the MPCA General Guidance, “A one ton CO<sub>2</sub>-equivalence emission of a substance is an emission with the same global warming potential over a given period as the emission of one ton of fossil CO<sub>2</sub>.” Per the MPCA General Guidance, equivalence factors used were: 1 for CO<sub>2</sub>, 25 for CH<sub>4</sub>, and 298 for N<sub>2</sub>O.

The following summarizes the baseline and future projected emissions as CO<sub>2</sub>E from the PDSWM Facility:

Table 3

Emission Source	2007 Baseline (CO <sub>2</sub> E tons/year)	Future Projected with MWC #3 (CO <sub>2</sub> E tons/year)	Baseline to Future Difference (CO <sub>2</sub> E tons/year)
<b>Scope 1 Sources</b>			
Stationary Combustion – RDF to MWC	12,222	42,856	30,634
Stationary Combustion – Auxiliary Boiler	104	2,554	2,450
Mobile Combustion	4	15	11
<b>Scope 2 Sources</b>			
Purchased Electricity	2,676	9,385	6,709
Total	15,007	54,810	39,804
Biogenic Sources Scope	16,296	57,141	40,846

In accordance with Minn. Stat. § 216H.02, subd. 2, the Commissioner of Commerce, in consultation with other state agency commissioners, completed a process to determine how GHG emissions will be reduced in the state to meet statutory goals and a Climate Change Action Plan that meets the requirements of the statute submitted to the legislature on February 1, 2008. A copy of that report may be found at the following Web site: <http://www.pca.state.mn.us/publications/climatechange-legislative-report-0208.pdf>.

Early indications from the stakeholder processes for implementing Minnesota’s Climate Change Action Plan are that the Waste-to-Energy model will continue to be an important part of the solid waste processing hierarchy in Minnesota (i.e., for the fraction of solid waste that is not otherwise reduced at the source, reused, or recycled).

When regulations related to climate change or other air pollution issues are established, this proposed project, as well as other GHG emission sources, will be required to meet any applicable regulations. The current EPA regulatory framework related to climate change includes two recent actions: 1) a proposed mandatory GHG reporting rule and, 2) proposed endangerment and cause or contribute findings.

On September 22, 2009, the EPA finalized a “Mandatory Greenhouse Gas Reporting Rule.” This rule will provide an inventory of GHG emissions in the United States. A facility that directly emits GHGs, if part of a Source Category defined by the EPA, would report actual GHG emissions annually beginning in 2011 for calendar year 2010. A source such as the Pope/Douglas facility that has combustion units will be required to report if the source directly emits greater than 25,000 metric tons of CO<sub>2</sub>E a year.

On April 17, 2009, the EPA released a “Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act.” This proposal is in response to a 2007 Supreme Court decision (*Massachusetts v. EPA*, 549 U.S. 497) that found that GHGs are air pollutants covered by the Clean Air Act and held that the EPA Administrator must make a determination on endangerment. Following section 202(a) of the Clean Air Act, the proposal had two distinct findings (see EPA Web site <http://www.epa.gov/climatechange/endangerment.html>):

- **Endangerment Finding:** That the current and projected concentrations of the mix of six key GHGs (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** That the combined emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key GHGs and hence to the threat of climate change.

As stated on EPA's Web site, "This proposed action, as well as any final action in the future, would not itself impose any requirements on industry or other entities. An endangerment finding under one provision of the Clean Air Act would not by itself automatically trigger regulation under the entire Act."

**Traffic**

Traffic was addressed in item 21 of this EAW. However, it should be noted that although the truck traffic into and out of the facility will increase, the number of trucks hauling waste over the four counties contributing waste to the facility will remain the same.

- 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 impacts identified.

- 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.**

No additional impacts or issues identified.

**RGU CERTIFICATION.**

I hereby certify that:

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

Name and Title of Signer:



Craig Affeldt, Supervisor, Environmental Review Unit  
St. Paul Office  
Regional Division

Date:

10-29-09

The format of the 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 Street, St. Paul, Minnesota, 55155, 651-201-2499, or at their Web site <http://www.eqb.state.mn.us/review.html>.

Figure 1

# Minnesota

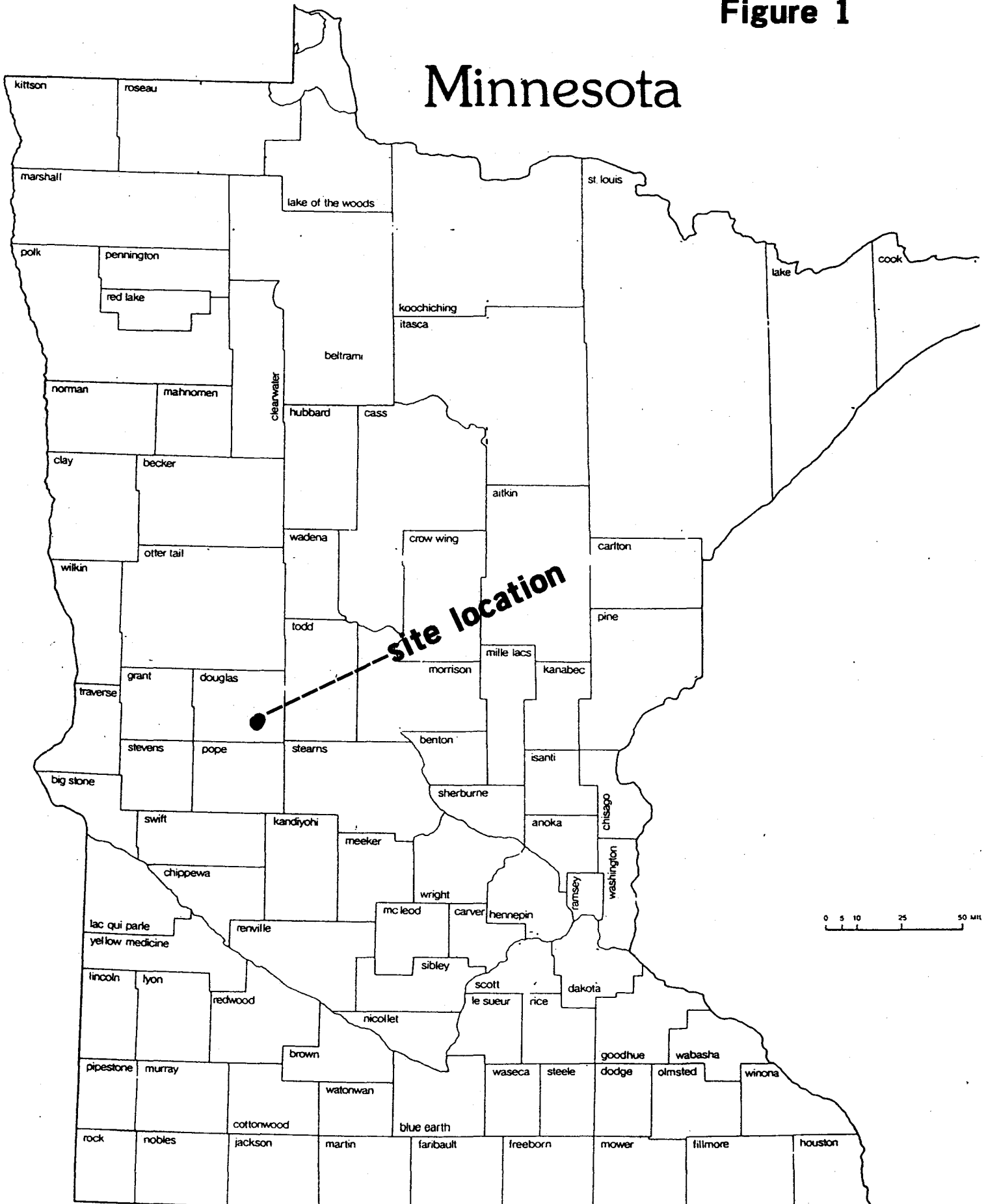
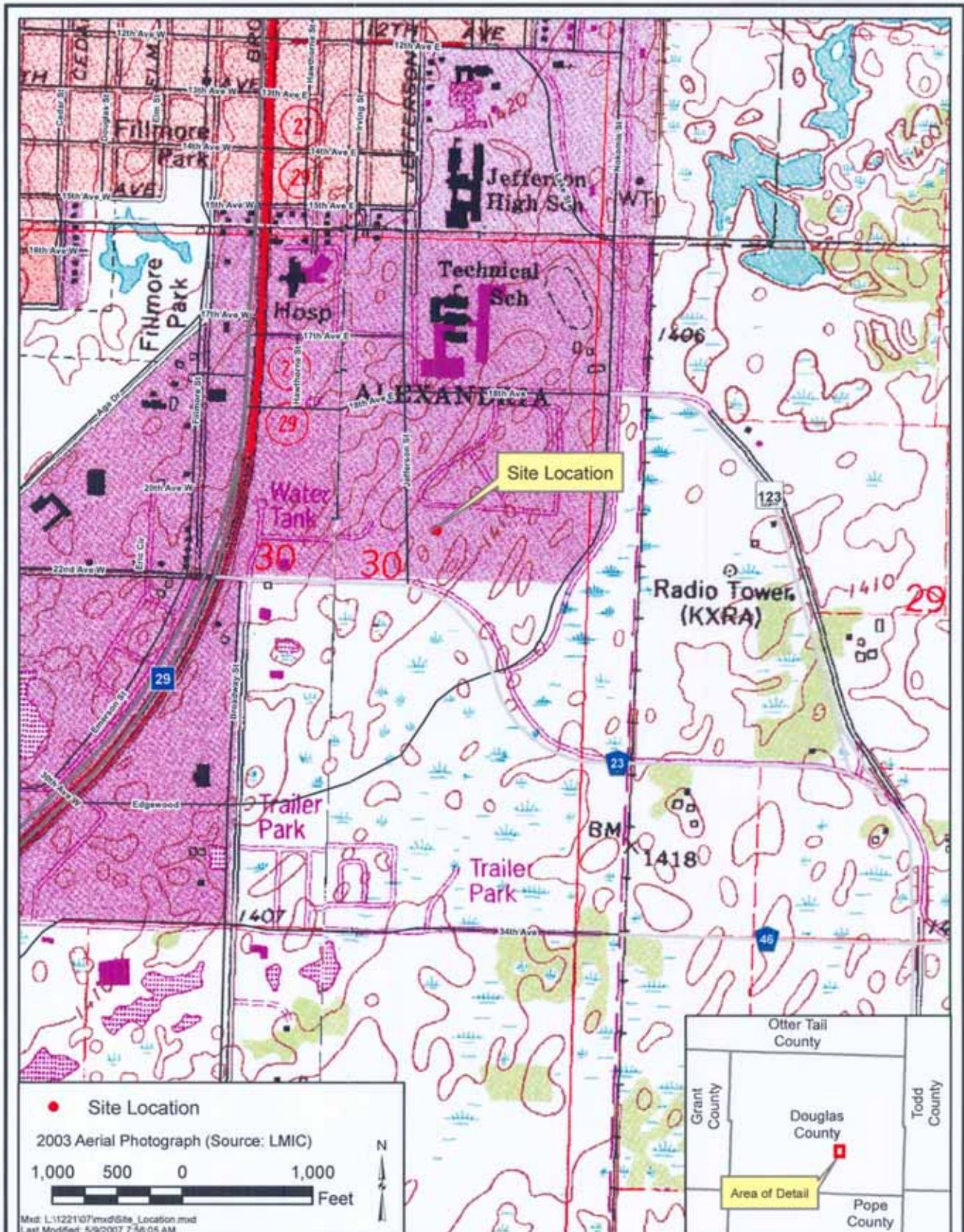


Figure 2



POPE/DOUGLAS SOLID WASTE MANAGEMENT

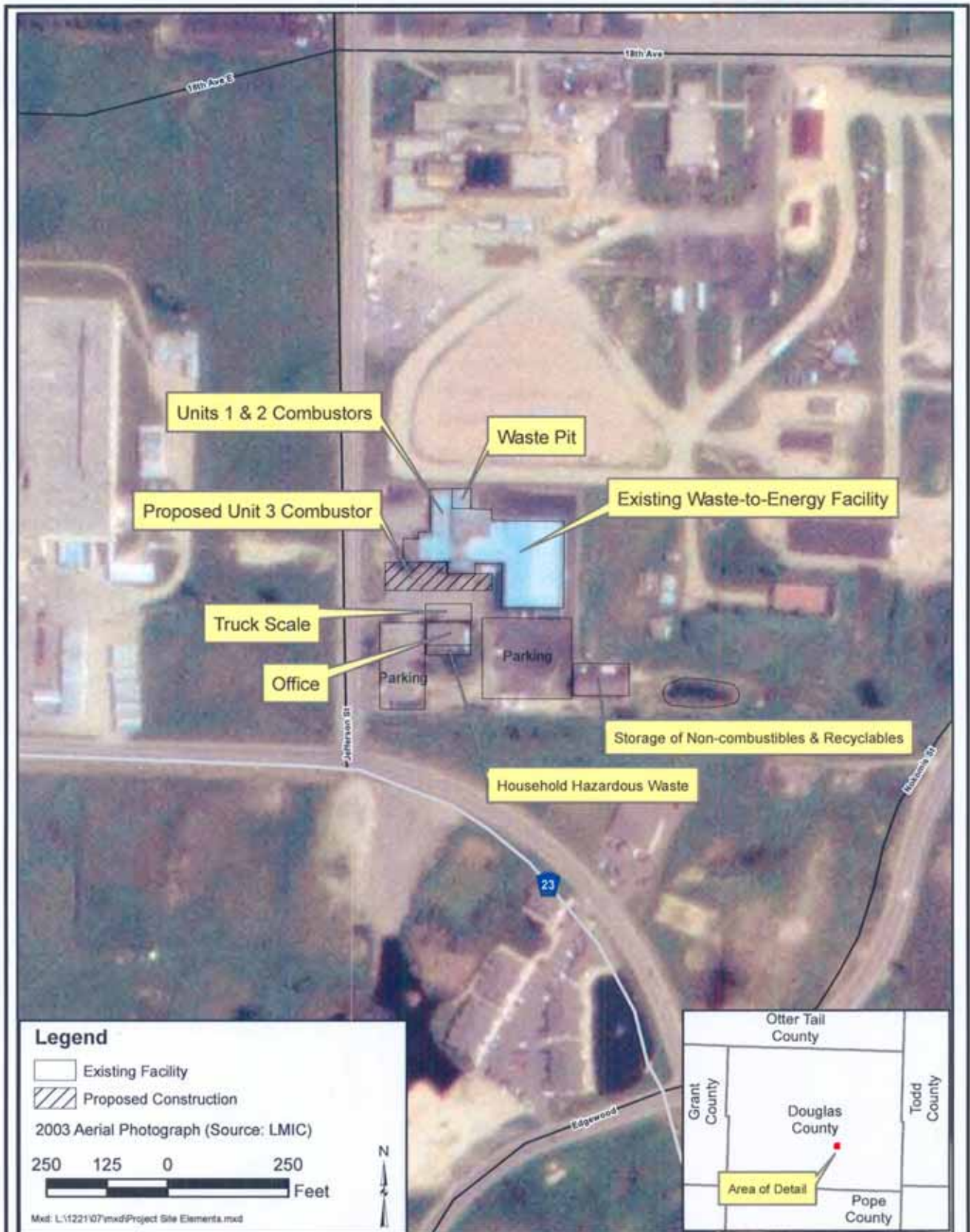
Site Location

 **Wenck**  
Wenck Associates, Inc. 1800 Pioneer Creek Center  
Environmental Engineers Maple Plain, MN 55359-0429

JUNE 2007



**Figure 3**



**POPE/DOUGLAS SOLID WASTE MANAGEMENT**

**Project Site Elements**

**Wenck**  
 Wenck Associates, Inc. 1800 Pioneer Creek Center  
 Environmental Engineers Maple Plain, MN 55359-0429

**JUNE 2007**



Figure 4



POPE/DOUGLAS SOLID WASTE MANAGEMENT

HRA Receptor Location Map

Wenck Associates, Inc. 1800 Pioneer Creek Center  
Environmental Engineers Maple Plain, MN 55359-0428

SEP 2009



# Attachment 1

## Strategy for Mitigation of Mercury-Containing Air Emissions for the Pope/Douglas Solid Waste Management Unit 3 Project September 2, 2009

### INTRODUCTION

This document discusses strategies for minimizing potential mercury air emissions from the proposed Unit 3 addition to the Pope/Douglas Solid Waste Management Facility (Pope/Douglas) in accordance with the Minnesota Pollution Control Agency's (MPCA) mercury reduction plan under the TMDL.

### PURPOSE

As required by the Clean Water Act, the Minnesota Pollution Control Agency (MPCA) evaluated and established a total maximum daily load (TMDL) of mercury to lakes and rivers, statewide, in order to meet established water quality standards. This TMDL was approved by the state in December 2006, and approved by the US EPA in March 2007. Because air emissions of mercury are understood to impact water quality, this TMDL plan also establishes an air emission target of 789 pounds of mercury per year, as a total for all Minnesota sources. Following the US EPA approval of the TMDL plan, the MPCA solicited stakeholder input regarding how best to reach the established goals; the recommendations were finalized in June 2008.

Following the stakeholder recommendations, in order to ensure that any existing permitted facility does not adversely impact the state plan, the Minnesota Pollution Control Agency (MPCA) developed "Guidelines for New and Expanding Mercury Air Emission Sources" (Guidelines) to address any proposed new facility, or any proposed expansion to an existing facility, where the proposed project has a potential to emit greater than 3 pounds of mercury per year. The June 2, 2009 version of the Guidelines identifies the following steps for applicable new and expanding sources:

1. Employ the best mercury control available. The MPCA expects facilities to explore all pollution prevention opportunities and utilize the best control technically feasible considering environmental, energy and economic impacts. If best controls reduce emissions by less than 90%, the new source will be subject to periodic review for opportunities for improved control efficiency.
2. Complete environmental review as applicable, including evaluation of local and cumulative impacts per MPCA guidelines.
3. During permitting, the facility will provide an assessment of whether its added emissions will impede progress toward attaining the sector's lb/year air emission goal. The MPCA will track the sector's progress in reaching interim and final goals and may periodically request that this assessment be updated as the sector's goal approaches.

4. For new or expanding facilities expecting to emit more than 3 lb per year (expected actual emissions after applying best controls) the facility will arrange for a reduction equal to the new emissions from existing sources in the state. The MPCA will refer to these as “equivalent reductions.” Equivalent reductions must be beyond those otherwise required in the state’s mercury emission reduction plan for existing sources. Equivalent reductions can also be accomplished by reducing emissions ahead of schedule.
5. If equivalent mercury reductions from another facility in Minnesota can not be identified, a new or expanding facility may propose alternative mitigation strategies in lieu of an equivalent in-state air emission reduction. The MPCA views this approach as a last resort after all other equivalent reduction possibilities have been fully explored. Alternative mitigation strategies will demonstrate an environmental benefit related to mercury and will be consistent with the objectives of the TMDL. Alternative mitigation strategies may include air emission reductions from sources located outside of the state.
6. During permitting, the new or expanding facility will submit a plan to the MPCA describing the facility’s specific plan for reductions described in 1 - 5 above. The MPCA will provide additional plan guidance on the MPCA’s web site.

This document satisfies Item 6 of the Guidelines. Please refer the section beginning “MPCA Mercury Guidelines Discussion” for details on Items 1-5 as they pertain to Pope/Douglas and the proposed Unit 3 expansion.

## **BACKGROUND**

Pope/Douglas is an existing municipal waste combustion (MWC) facility. The facility has two municipal solid waste incinerators, Units 1 & 2. The existing facility has a total waste combustion capacity of 120 tons per day—each individual incinerator can operate at a rate up to 60 tons per day—expressed as an annual average.

In the permit application submitted on October 3, 2007, Pope/Douglas proposed to install an additional municipal solid waste incinerator, Unit 3, which will have a total waste combustion capacity of 120 tons per day. Unit 3 will be of a similar design and operation as Units 1 & 2. The Unit 3 addition is required in order to meet the facility’s solid waste incineration demands (i.e., to begin serving additional counties in 2010), as well as to provide increased capacity to serve existing customers’ increasing steam loads (e.g., 3M Company and Douglas County Hospital) and to provide additional steam generating capacity for serving new customers beginning in 2010 (e.g., Alexandria Technical College). An additional 1,055 kW steam turbine generator will also be installed. The existing facility and the proposed Unit 3 expansion project will help fulfill the Governor’s 25% by 2025 Renewable Energy mandate.

## MERCURY AIR EMISSIONS SUMMARY

The proposed Unit 3 addition to Pope/Douglas will have a potential to emit (PTE) greater than 3 pounds of mercury per year, and therefore is subject to the Guidelines.

At the potential throughput capacity of 120 tons of municipal solid waste (MSW) per day for Units 1 & 2, combined; using the proposed, state-only annual emission limit of 14 micrograms per dry standard cubic meter ( $\mu\text{g}/\text{dscm}$ ); and using the US EPA AP-42 Chapter 2.1 conversion factor of  $9.85\text{E-}06$  pounds of mercury emissions per ton of MSW per microgram per dry standard cubic meter ( $\text{lb}/\text{ton}$  per  $\mu\text{g}/\text{dscm}$ ), the potential mercury emission rate is 6.0 pounds per year. Proposed Unit 3 will have the same potential throughput capacity of 120 tons of MSW per day, and will have the same state-only annual emission limit of 14  $\mu\text{g}/\text{dscm}$ , and therefore is also expected to have a PTE of 6.0 pounds of mercury per year.

All three units employ, or will employ, fuel sorting as a function of Pope/Douglas's material recycling facility (MRF) front-end, as well as carbon injection plus fabric filter baghouse add-on control technologies, to reduce and control stack emissions of mercury. This configuration represents 'best control' for reduction of mercury emissions from waste-to-energy facilities. Moreover, the 14  $\mu\text{g}/\text{dscm}$  emission limits discussed herein are less than 18 percent of the comparable federal emission limit (0.080  $\text{mg}/\text{dscm}$  or 80  $\mu\text{g}/\text{dscm}$ ) for new waste combustors.

It is important to recognize that, for an equivalent amount of post-recycling MSW, solid waste landfilling is suspected to be a larger source of mercury emissions – through transfer station and landfill working face volatilization – than those from well-controlled waste-to-energy facilities. Because all incoming MSW at Pope/Douglas undergoes MRF sorting and subsequent 'best control' stack emissions reduction for waste-to energy processing, any waste that is delivered to the Pope/Douglas system instead of a solid waste landfill is believed to undergo greater capture and removal of mercury than would have otherwise been emitted through MSW transfer stations and landfill volatilization.

While the Unit 3 addition will be subject to the Guidelines based on a PTE of 5.6 lbs/yr, its expected actual emissions are less than one pound. Stack test results from March 2005 demonstrated actual emission rates of 2.0  $\mu\text{g}/\text{dscm}$  for Unit 1 and 0.78  $\mu\text{g}/\text{dscm}$  for Unit 2, which are significantly lower than the proposed state-only 14  $\mu\text{g}/\text{dscm}$  annual limits on these units. Even at the potential throughput capacities, actual emission rates of this magnitude would result in less than one pound of mercury emissions per year. As Unit 3 is expected to operate similarly—if not identically—to Units 1 & 2, expected actual emissions for the proposed expansion, alone, are expected to be less than one pound per year.

## MPCA MERCURY GUIDELINES DISCUSSION

This section addresses Items 1-5 of the Guidelines as they pertain to Pope/Douglas and the proposed Unit 3 expansion.

## **Guidelines Item 1 – Pollution Control Equipment**

*Employ the best mercury control available. The MPCA expects facilities to explore all pollution prevention opportunities and utilize the best control technically feasible considering environmental, energy and economic impacts. If best controls reduce emissions by less than 90%, the new source will be subject to periodic review for opportunities for improved control efficiency.*

Considering all environmental, economic, and energy impacts, Pope/Douglas already employs the best technically feasible mercury control technology for MWC Units 1 & 2—specifically a fabric filter baghouse and activated carbon injection—and plans to employ identical control for the proposed Unit 3. Pope/Douglas expects Item 1 of the Guidelines to be satisfied with this control technology suite.

In addition to employing the best add-on pollution control equipment to reduce stack air pollutant emissions, Pope/Douglas also operates a front-end Material Recycling Facility (MRF). All MSW feed for Units 1 & 2, and for the proposed Unit 3, undergoes a rigorous sorting process—mechanical, automated sorting plus hand sorting—to remove recyclables, noncombustible materials, and hazardous materials, including mercury containing materials such as thermometers and light bulbs.

For waste-to-energy facilities, Mercury emissions are a function of the MSW mercury concentration. As the concentration in the MSW varies, so too will the mercury emissions from the MWC. Therefore the establishment of a baseline, “uncontrolled” mercury emission rate is not realistic. That said, it is believed that the existing Pope/Douglas control technologies and procedures function to reduce mercury air emissions by greater than the 90% requirement as stated in the guidelines. Actual emissions from Units 1 & 2, which are 95% lower than the existing permit limit, support this assertion. Moreover, the operation of the MRF serves to further reduce stack mercury emissions compared to those associated with unprocessed MSW firing in waste-to-energy facilities. Therefore, Pope/Douglas does not expect that the periodic review requirements of Item 1 will be necessary.

## **Guidelines Item 2 – Environmental Review**

*Complete an environmental review as applicable, including evaluation of local and cumulative impacts per MPCA guidelines.*

Pope/Douglas is in the process of completing all applicable and required environmental reviews as part of the permitting process for the proposed Unit 3, including but not limited to an Environmental Assessment Worksheet (EAW), with Air Emissions Risk Assessment (AERA) and a Minnesota Mercury Risk Estimation Method (MMREM) assessment. As part of the EAW review, MPCA requested that Pope/Douglas conduct a discretionary health risk assessment using the Industrial Risk Assessment Protocol (IRAP) model, to which Pope/Douglas agreed. The EAW and IRAP modeling report are under review at MPCA. Pope/Douglas expects Item 2 of the Guidelines to be satisfied with this level of environmental review.

### **Guidelines Item 3 – Progress Assessment**

*During permitting, the facility will provide an assessment of whether its added emissions will impede progress toward attaining the sector's lb/year air emission goal. The MPCA will track the sector's progress in reaching interim and final goals and may periodically request that this assessment be updated as the sector's goal approaches.*

Pope/Douglas does not expect that Unit 3 will impede progress towards attaining the sector's air emission goal. As discussed previously, expected actual emissions from Unit 3 are less than one pound per year.

### **Guidelines Items 4 & 5 – Equivalent Reductions & Alternative Mitigation Strategies**

*For new or expanding facilities expecting to emit more than 3 lb per year (expected actual emissions after applying best controls) the facility will arrange for a reduction equal to the new emissions from existing sources in the state. The MPCA will refer to these as "equivalent reductions." Equivalent reductions must be beyond those otherwise required in the state's mercury emission reduction plan for existing sources. Equivalent reductions can also be accomplished by reducing emissions ahead of schedule.*

*If equivalent mercury reductions from another facility in Minnesota can not be identified, a new or expanding facility may propose alternative mitigation strategies in lieu of an equivalent in-state air emission reduction. The MPCA views this approach as a last resort after all other equivalent reduction possibilities have been fully explored. Alternative mitigation strategies will demonstrate an environmental benefit related to mercury and will be consistent with the objectives of the TMDL. Alternative mitigation strategies may include air emission reductions from sources located outside of the state.*

As discussed in previous sections, Pope/Douglas expects actual mercury air emissions from Unit 3 to be less than one pound per year, after applying control technologies and practices consistent with the existing waste combustor units. Based on the Guidelines, new or expanding facilities with expected actual emissions less than three pounds per year are not required to arrange for equivalent reductions or implement alternative mitigation strategies.

However, if the proposed Unit 3 addition results in actual emissions in excess of 3 lb/yr, Pope/Douglas will consider the following possibilities to satisfy Guidelines Item 4 and/or Item 5:

- Pursue expansion of Pope/Douglas's existing Fluorescent Bulb recycling program. Currently only residents and businesses who have Alexandria Light and Power (ALP) or Runestone Electric Association (REA) as their service provider may dispose of their fluorescent bulbs free of charge at Pope/Douglas. Under this item, Pope/Douglas would approach additional electric cooperatives in the waste service area at the time of invoking this Plan. As fluorescent (and compact fluorescent) light

bulbs contain some mercury, expanding the recycling availability to include residents and businesses in the expanded Pope/Douglas service area would be expected to capture mercury that would otherwise enter the environment via landfills. Pursuant to the Guidelines, this plan should be considered as an alternative mitigation strategy in lieu of an equivalent reduction from another existing source.

- Pursue development of an expanded, “button battery” recycling program to include residents and businesses within the expanded Pope/Douglas service area. These devices, which may contain mercuric oxides as part of the positive electrode, are prevalent in many small consumer devices. Providing an outlet for proper disposal and recycling of these “button” batteries would be expected to capture mercury that would otherwise enter the environment via landfills. Pursuant to the Guidelines, this plan should be considered as an alternative mitigation strategy in lieu of an equivalent reduction from another existing source.
- Pursue development of an outreach program, the function of which would be to educate local companies within the Pope/Douglas waste service area on potential mercury sources in their wastes and/or products, and the proper end-of-life procedures (e.g. recycling) for those products. Following proper end-of-life procedures for mercury containing products and wastes would be expected to capture mercury that would otherwise leach into the environment and/or enter the environment through landfills. Pursuant to the Guidelines, this plan should be considered as an alternative mitigation strategy in lieu of an equivalent reduction from another existing source.
- Pursue entering a “Product” sector partnership with another existing, mercury-emitting source (e.g., crematoria, or similar businesses or operations) to accelerate the partner’s mercury reductions. Pursuant to the Guidelines, this plan should be considered as an equivalent reduction from one or more other existing sources. It is expected that MPCA would assist in identifying candidate facilities in the event that this mitigation strategy becomes necessary.
- Pursue entering a cross-sector partnership with another existing, mercury-emitting source (e.g., facilities within the “Electrical Generation” sector) to accelerate the partner’s mercury reductions or to increase the partner’s reductions through superior performance. Pursuant to the Guidelines, this plan should be considered as an equivalent reduction from one or more other existing sources. Similar to the previous item, it is expected that MPCA would assist in identifying candidate facilities in the event that this mitigation strategy becomes necessary.

Please note that this list is not comprehensive. Should the proposed Unit 3 addition result in actual emissions in excess of 3 lb/yr, Pope/Douglas may choose to pursue alternate approaches to establish equivalent reductions and/or to establish alternative mitigation strategies. All alternate approaches would be discussed with the MPCA prior to implementation.

# Attachment 2



## Minnesota Department of Natural Resources

Natural Heritage and Nongame Research Program, Box 25  
300 Lafayette Road  
St. Paul, Minnesota 55155-40....

Phone: (651) 259-5109 Fax: (651) 296-1811 E-mail: lisa.joyal@dnr.state.mn.us

June 13, 2007

Ms. Amy Denz  
Wenck Associates, Inc.  
P.O. Box 249  
Maple Plain, MN 55359

Re: Request for Natural Heritage information for vicinity of proposed Pope/Douglas Solid Waste Management Capacity Expansion, T128N R37W Section 30, Douglas County  
NHNR Contact #: ERDB 20070809

Dear Ms. Denz,

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the area indicated on the map enclosed with your information request. Based on this review, there is 1 known occurrence of a rare species or native plant community in the area searched (for details, please see the enclosed database printouts and the explanation of selected fields). However, based on the nature and location of the proposed project I do not believe it will affect any known occurrences of rare features.

The Natural Heritage database is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Services, Department of Natural Resources. It is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. Its purpose is to foster better understanding and protection of these features.

Because our information is not based on a comprehensive inventory, there may be rare or otherwise significant natural features in the state that are not represented in the database. A county-by-county survey of rare natural features is now underway, and has been completed for Douglas County. Our information about native plant communities is, therefore, quite thorough for that county. However, because survey work for rare plants and animals is less exhaustive, and because there has not been an on-site survey of all areas of the county, ecologically significant features for which we have no records may exist on the project area.

The enclosed results of the database search are provided in two formats: short record report and long record report. To control the release of locational information, which might result in the damage or destruction of a rare element, both printout formats are copyrighted.

The short record report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an Environmental Assessment Worksheet, municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the short record report for any other purpose, please contact me to request written permission. **The long record report includes more detailed locational information, and is for your personal use only. If you wish to reprint the long record report for any purpose, please contact me to request written permission.**

Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on *rare natural features*. It does not constitute review or approval by the Department of Natural Resources as a whole. If you require further information on the environmental review process for other natural resource-related issues, you may contact your Regional Environmental Assessment Ecologist, Paul Stolen, at (218) 755-4068.

DNR Information: 651-296-6157 • 1-888-646-6367 • TTY: 651-296-5484 • 1-800-657-3929


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An invoice in the amount of \$66.33 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for map and database search and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Lisa A. Joyal  
Endangered Species Environmental Review Coordinator

encl: Database search results  
Rare Feature Database Print-Outs: An Explanation of Fields

Minnesota Natural Heritage & Nongame Research Program  
Short Record Report of Element Occurrences within 1 mile radius of:  
Pope/Douglas Solid Waste Management Capacity Expansion  
T128N R37W Section 30  
Douglas County

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Douglas County, MN						
<u>Etheostoma microperca</u> (Least Darter) #119		SPC	S3	G5	2005-05-19	31650
Location Description: T128N R37W S29, T128N R37W S27, T128N R37W S21, T128N R37W S22, T128N R37W S28						

Records Printed = 1

## Attachment 3

Amy J. Denz

---

**From:** Cinadr, Thomas [thomas.cinadr@mnhs.org]  
**Sent:** Thursday, May 17, 2007 8:06 AM  
**To:** Amy J. Denz  
**Subject:** RE: Pope/Douglas Solid Waste Management Capacity Expansion

### **THIS EMAIL IS NOT A PROJECT CLEARANCE.**

**This message simply reports the results of the cultural resources database search you requested. The database search produced results for only previously known archaeological sites and historic properties. Please read the note below carefully.**

**For further information contact Kelly Gragg-Johnson by phone at 651-259-3455 or email at [kelly.gragg-johnson@mnhs.org](mailto:kelly.gragg-johnson@mnhs.org).**

No archaeological sites or historic structures were identified in a search of the Minnesota Archaeological Inventory and Historic Structures Inventory for the search area requested.

The result of this database search provides a listing of recorded archaeological sites and historic architectural properties that are included in the current SIPO databases. Because the majority of archaeological sites in the state and many historic architectural properties have not been recorded, important sites or structures may exist within the search area and may be affected by development projects within that area. Additional research, including field survey, may be necessary to adequately assess the area's potential to contain historic properties.

With regard to Environmental Assessment Worksheets (EAW), a negative known site/structure response from the SHPO databases is not necessarily appropriate information on which to base a "No" response to EAW Question 25a. It is the Responsible Governmental Unit's (RGU) obligation to verify the accuracy of the information contained within the EAW. A "No" response to Question 25a without written justification should be carefully considered.

If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic architectural properties, you may need to hire a qualified archaeologist and/or historian. Please contact the SHPO by phone at 651-259-3450 or by email at [mnshpo@mnhs.org](mailto:mnshpo@mnhs.org) for current lists of professional consultants in these fields.

The Minnesota SHPO Survey Manuals and Database Metadata can be found at <http://www.mnhs.org/shpo/survey/inventories.htm>

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