TO INTERESTED PARTIES:

Enclosed is the Environmental Assessment Worksheet (EAW) for the proposed NSP Wilmarth Ash Disposal Facility Expansion, Blue Earth 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 April 19, 1999, issue.

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 nine-member 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 <u>and</u> 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)296-7306.

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, of my staff, at (651)296-7432.

Sincerely,

Joseph L. Esker District Planning Supervisor Operations and Planning Section Metro District

JLE:sjs

Enclosure

Environmental Assessment Worksheet

Note to preparers: An electronic version of this form is available at www.mnplan.state.mn.us.

A booklet, *EAW Guidelines*, is also available at the web site or by calling 651-296-8253. The Environmental Assessment Worksheet (EAW) provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit (RGU) or its agents to determine whether an Environmental Impact Statement (EIS) should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. If a complete answer does not fit in the space allotted, attach additional sheets as necessary. The complete question as well as the answer must be included if the EAW is prepared electronically.

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

1.	Project Title: Wilmarth Ash Disposal Facility Expansion, SW-298				
2.	Proposer: Northern States Power Company 3.	RGU: MN Pollution Control Agency (MPCA)			
	Contact Person Mike Thomas	Contact Person Kevin J. Kain			
	and Title	and Title EAW Project Manager			
	Address 414 Nicollet Mall, Ren. Square 10	Address 520 Lafayette Road North			
	Minneapolis, MN 55401	St. Paul, Minnesota 55155			
	Phone (612) 330-7657	Phone (651) 296-7432			
	Fax	Fax (651) 296-7782			
	D C EAWD				
4.	Reason for EAW Preparation: EIS X Mandatory Citizen	RGU Proposer			
	Scoping EAW Petition	RGU Proposer Discretion Volunteered			
	Scoping retition	Discretion volunteered			
	If EAW or EIS is mandatory give EQB rule category sub-	oart number 4410.4300, subpart 17, G.			
	For construction or expansion of a mixed municipal solid				
	receiving ash from an incinerator that burns refuse-derive	d fuel or mixed municipal solid waste			
5.	Project Location: County Blue Earth	City/Twp South Bend Township			
	NW 1/2 Section 32 Townsl	nin 108N Range 27W			

Attach each of the following to the EAW:

- Exhibit 1: state map
- Exhibit 2: count map
- Exhibit 3: USGS scale map
- Exhibit 4: existing conditions site plan
- Exhibit 5: phasing plan
- Exhibit 6: liner section (Cells 1,2)
- Exhibit 7: liner section (Cells 3-10)
- Exhibit 8: statistical analysis of leachate data
- Exhibit 9: leachate collection pipe trench and piping detail
- Exhibit 10: lysimeter section
- Exhibit 11: final cover section
- Exhibit 12: surface water management
- Exhibit 13: environmental monitoring system
- Exhibit 14: leachate discharge limits
- Exhibit 15: ash testing requirements
- Exhibit 16: water table contour map
- Exhibit 17: traffic volume maps
- Exhibit 18: excerpts from Archaeological Survey date March 26, 1990
- Exhibit 19: Blue Earth County zoning map.

6. Description:

a. 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.

Proposal Summary

Northern States Power Company (NSP) has owned and operated a permanent ash disposal facility in Mankato, Minnesota, under MPCA Permit SW-298 since 1992. Prior to that, 1987 through 1992, NSP operated a temporary ash disposal facility on the site under the Ponderosa Landfill permit, SW-87. The facility is called the Wilmarth Ash Disposal Facility because it receives Municipal Solid Waste (MSW) combustor ash and ash-contaminated materials from NSP's Wilmarth steam plant. The ash generated at the Wilmarth steam plant and disposed of at the Wilmarth Ash Disposal Facility is combined refusederived fuel (RDF) ash, which is a mixture of fly ash and bottom ash resulting from the combustion of RDF. RDF is MSW that has been processed prior to combustion to remove recyclable materials and to achieve a higher British Thermal Unit (BTU) content.

NSP is proposing to expand its ash disposal facility horizontally to the east and south immediately adjacent to the existing landfill to provide future capacity at the site at the same time it repermits its ash disposal facility. NSP submitted a repermit application to the MPCA (November 1998) and included development of additional cells (cells 5-10) to provide future capacity at the site, as well as permit reissuance for the entire facility. The repermit application proposes to increase the disposal capacity at the site by 9,550 cubic yards bringing the total ultimate disposal capacity at the facility to 1,646,400 cubic yards. The increase in permitted capacity will provide NSP with disposal capacity to the year 2016.

Project Description

The recently submitted repermit application proposes a horizontal expansion to the east (Cell 5) and to the south (6-10), as well as an increase in maximum cover slopes which together with the horizontal expansion result in filling over previously closed portions of cells 1 and 2. The additional capacity of 989,550 cubic yards would include the base drainage layer, ash and ash-contaminated materials, and cover materials. Based on a disposal rate of 60,000 cubic yards per year, the expansion would increase the site life to 19 years, which would provide life through the year 2016. To account for the 4,760 tons per year of the lime-conditioning of the ash prior to disposal which increases the waste stream, a disposal rate of 60,000 cubic yards per year was used for the expansion calculations. Cells 5-10 will be constructed in phases to allow final closure of portions of the landfill prior to construction of additional cells. Exhibit 5 presents the phasing sequence of the expansion.

The anticipated site life of each cell is shown below. Construction of each cell would take place the year that the cell would be opened. Closure construction of each cell would take place the year that the cell is expected to close.

	Open Date	Close
Cell		Date
5	2001	2006
6	2005	2007
7	2006	2008
8	2007	2010
9	2009	2013
10	2012	2016

CELL CONSTRUCTION

Liner Design

The proposed liner design for cells 5 through 10 would be the same as that used for Cells 3 and 4 of the disposal facility which is a single synthetic upper liner with primary leachate collection, which is underlain with a composite lower liner with secondary leachate collection.

The liner system will consist of two 60-mil (0.060 inch) high density polyethylene (HDPE) liners, separated by a geonet, overlying a 3-foot compacted clay liner. The clay liner will have a maximum permeability of $1x10^{-7}$ cm/sec, and will be compacted to a minimum of 95 percent standard proctor dry density, with a moisture content 0 to 5 percent wet of optimum. The Hydrologic Evaluation of Leachate Performance (HELP) model calculations verifies that this liner design has an efficiency approaching 100 percent.

The Minn. R. Chapter 7035.2885, subp. 11, states that a Type N liner can be used if the ash leaching characteristics meet the requirements of the table in Chapter 7035.2885, subp. 5. While the significant data collected by NSP on the leachability of the combustor ash has shown that the leaching characteristics consistently meet the requirements for the use of a Type N liner, NSP has chosen to provide the following liner design, shown from top to bottom, which exceeds requirements of a Type N liner:

	Wilmarth Ash Disposal Facility Liner (Cells 3-10)		MPCA Type N Liner
•	At least 12 inches of granular drainage material, which meets Minn. R. Ch. 7035.2885, Subp. 11(H)	•	At least 12 inches of granular drainage material, which meets MINN. R. Ch. 7035.2885, Subp. 11 (H)
•	Synthetic membrane at least 60/1000-inch thick	•	Synthetic membrane at least 60/1000-inch thick
•	Geonet (HDPE)	•	At least 36 inches of clay with a maximum hydraulic conductivity of 1X10 ⁻⁷ cm/sec
•	Synthetic membrane at least 60/1000-inch thick		TATO CHI/SCC
•	At least 36 inches of clay with a maximum hydraulic conductivity of 1X10 ⁻⁷ cm/sec		

Exhibit 7 shows a detail of the liner section for Cells 3 through 10.

Leachate Collection System

Leachate from Cells 5 through 10 will be collected in one continuous collection pipe, which varies in grade from 1 to 5 percent, for transmittal to the Cell 2 sump. Leachate collection is expected to be very efficient since much of the liner in Cells 6 through 10 is at 33 percent grade, and the majority of the base of Cell 5 is steeper than 6 percent grade.

During the past six years the leachate generation rate has been 2,024,000 gallons per year \pm 18 percent. It is reasonable to estimate that the leachate generation will continue to be about 2,000,000 gallons per year. The real variability is a function of season, as expected. The limiting factor for leachate storage is the ability to haul leachate from the site. See Item 18 of the EAW for more leachate information.

Annual Leachate Generation Volumes (gallons)				
1992	1,941,000			
1993	2,272,400			
1994	2,462,900			
1995	1,663,500			
1996	1,782,300			
1997	2,021,700			

Drainage Layer System

The HDPE liner will be overlain by 12 inches of granular drainage layer material. The granular drainage layer will collect leachate and provide drainage to the perforated leachate collection pipes. To protect the pipes from damage, and to provide increased flow performance, they will be embedded in coarse aggregate (5/8-inch to 1½ inch). The granular drainage layer also will function as a protective layer to prevent equipment from damaging the HDPE liner.

The permeability of the drainage layer is specified to be $1x10^{-3}$ cm/sec, or greater. On all sideslopes steeper than 10 percent, a textured HDPE membrane will be utilized to improve stability of the geomembrane/clay interface and geomembrane/drainage layer interface. A leachate collection trench section and piping detail is provided in Exhibit 9.

Collection Pipes

The 6-inch diameter leachate collection HDPE pipe varies in slope from 1 to 5 percent (i.e., as this design calls for on the base liner). A 6-inch HDPE pipe at 1 percent slope has a hydraulic capacity of about 150 gallons per minute. This exceeds the maximum flows expected, but the pipe in this design is not sized for flow capacity, but to provide sufficient strength and to allow for use of standard sewer pipe cleaning and maintenance equipment.

Special care will be taken to properly align the pipes, according to the invert elevations and locations. The perforations will be oriented on the bottom.

The geotextile will be placed first in the pipe trenches above the HDPE liner. A layer of coarse aggregate 3 inches thick will be placed in the trench, and the pipe will be placed and aligned. The remaining coarse aggregate will be placed after the pipe is fully installed. The geotextile will be folded over the coarse aggregate to provide a filter from the overlying granular drainage layer. This geotextile will help stop migration of particles that might otherwise clog the collection pipe. The granular drainage layer material will then be placed over the trench.

Access to the leachate collection pipes for maintenance will be provided by cleanout risers that will extend up the sideslopes. Cleanout of the collection pipes will be conducted annually as required in the Operations and Maintenance Plan.

Secondary Collection System

A secondary leachate collection system will underlie the primary system. The design is similar to that for Cells 3 and 4. The secondary leachate collection system consists of a synthetic drainage layer (geonet) underlain by a secondary 60-mil HDPE liner. Flow in the secondary leachate collection system will collect from Cells 5 through 10 in a sump at the north end of Cell 5. Due to the long flow distance from Cell 10 to Cell 5, an additional collection sump is installed at the flow direction change in Cell 6. The Cell 6 secondary leachate collection pipe cleanout is sized at 12 inches in diameter to allow installation of a submersible pump for potential pumping if necessary. Leachate from the secondary collection system will be pumped from the sumps into the primary collection system.

Lysimeter

A leak detection system will be installed beneath the low points of Cells 5 and 6. The low point of Cells 6 through 10 is designed to be at Cell 6; therefore, lysimeters are not required for Cells 7-10. The leak detection system includes a geotextile beneath the clay barrier. This geotextile will be underlain by coarse aggregate sump, which will, in turn, be underlain by a protective geotextile and a 60-mil HDPE. The leak detection systems will drain to a collection pipe to the north edge of Cell 5, and to the east edge of Cell 6. Within the leak detection system, a 12-inch perforated, SDR-11, HDPE pipe encased in coarse aggregate collects any inflow and transfers it to the leak detection standpipe (12-inch, SDR-11, HDPE). Exhibit 10 presents the configuration of the lysimeter in Cells 5 and 6. The lysimeters in Cells 3 and 4 are the same configuration, whereas the lysimeters in Cells 1 and 2 underlie the entire cells.

FACILITY OPERATIONS

Ash Placement and Operation

Each phase of the ash site will be filled by spreading and compacting the daily ash in 1-foot lifts. After access roads are constructed to the bottom of the cell, trucks will be able to deposit ash at the edge of the fill area. A front-end loader will spread the ash and compact it to an in-place dry density of approximately 80 pounds per cubic foot.

Ash lifts will be built on top of each other to a maximum height of 8 feet. The lifts will then be covered with 1 foot of intermediate cover. The intermediate cover will consist of clays and silts or other low

permeability soils. To minimize the potential for ponding water, intermediate cover will be sloped at 2 percent to direct water to the sedimentation basin of the perimeter ditch.

Drainage control structures such as temporary berms will be necessary during the ash filling operation. The berms will be constructed by the operator in accordance with the development plans. Temporary or approach roads to the working face of the site must be maintained in good condition and will be passable at all times for vehicles. During inclement weather conditions, the permanent access road on the berm can be utilized for temporary back-dumping into the fill area. The ash can then be spread and compacted as weather conditions improve. Winter operations will require snow removal on service, access, and temporary roads at the site.

Final Cover Design

The cover soils will consist of 18 inches of on-site soil or topsoil. The upper 6 inches will be topsoil capable of sustaining vegetation. The final cover topsoil layer will be mulched and seeded with shallow-rooted, drought-tolerant grasses.

Slopes on the final cover of the facility will be constructed at up to 25 percent grade in order to maximize runoff efficiency. The exceedance of 20 percent final cover slopes is justified because the pozzolanic nature of the ash allows a higher degree of waste mass stability and therefore allows steeper final cover slopes. Significant surface water control features have also been designed to reduce erosion. The highest elevation will be 950.5 feet.

The final cover is designed to contain or divert precipitation from filled areas of the site. The efficiency of the cover system is defined as the amount of precipitation that is rejected or contained in the cover system, and must be at least 90 percent (Minn. R. 7035.2815 Subp. 6.D.(2)). Calculations show the cover system design efficiency to be greater than 98 percent. The barrier layer will consist of a 40-mil LLDPE liner, or equivalent. A 12-inch thick drainage layer with a minimum permeability of $5x10^{-3}$ cm/sec will overlie the top of the liner. Surface water head on the cap is less than 1 inch average, which will be entirely contained in the 12-inch thick drainage layer. A final cover section is provided as Exhibit 11.

Erosion on the final cover will be controlled by strategic placement of drainage swales, collection piping, erosion control mats, and riprap. Run-off will be directed by the final cover drainage swales to sedimentation basins discussed in the next section and shown on the plans. Beneath the final cover drainage swales, there is a slotted, 4-inch, corrugated, polyethylene pipe to intercept and collect the flow from the drainage layer. The drainage swales are lined with erosion control matting.

The drainage swales and underlying subsurface collection pipes both outlet at the same locations. Run-off from off-site and undeveloped areas will be collected in external perimeter channels and natural drainage pathways, and routed away from the site. Water moving through the drainage layer, which is not collected in the drainage swale collection pipes, will be outletted through the coarse aggregate at the toe of the final cover drainage layer.

Surface Water Control

Do you need a storm water permit? Have you checked?

The final cover run-off produced by the design storm at this site will be directed through two sedimentation basins, which will manage, although not contain, the complete volume of the storm event. The ponds have been designed to manage the 25-year, 24-hour Type II storm event of 5.0 inches.

Run-off, channel and riprap sizing, and sedimentation calculations are presented in Appendix D of the November 1998 permit application. The Natural Resources Conservation Service's (NRCS) TR-55 program was used to analyze a 25-year, 24-hour storm event. The entire disturbed area of the site was divided into six subwatershed areas. The NRCS curve numbers were conservatively selected for each area, and used to calculate design storm peak flows for each area.

Drainage swales were designed to produce flows not exceeding a maximum velocity of about 5 fps during peak condition. Downslope drainage structures in the southeast and southwest were designed to accept flow from the drainage swales, and carry the water down the slope without causing significant erosion. Each downslope drainage structure will be lined with geotextile and graded rock riprap for proper chinking. Each downslope structure discharges into a separate sedimentation pond. The features of the surface water management plan are presented in Exhibit 12.

Sediment trapping efficiency of the west basin is such that particles larger than 0.05 mm (coarse silt) will be removed, as well as most medium silts. The west basin outlets through a closed conduit to an existing stream. The stream outlet is equipped with a riprap apron to prevent erosion. The east basin does not have an outlet structure, but is designed so that any overflow would be contained in a ditch at the north end of the fill. This ditch then transfers run-off to the west of the site.

Sediment generation calculations were made using the Universal Soil Loss Equation. The average annual soil loss over the 17 acre site would be 17.1 cubic yards per year, or 1.49 tons per acre per year.

Surface water flowing toward the facility from the south is intercepted in a ditch at the south toe of the facility. This ditch is then outletted to the east and west over riprap discharge structures.

Site Security and Reporting

Access to the site controlled by Blue Earth County.

NSP in conjunction with Blue Earth County will maintain adequate security at the site to control unauthorized access and allow only ash disposal. NSP will keep an operating record of all site activities, including a log of ash volumes placed and the amount of leachate generated and transported for treatment and/or disposal. In addition, NSP will maintain all MPCA inspection reports during operations and document all maintenance or corrective actions that may be required in response to MPCA concerns.

NSP will perform routine inspections to ensure all equipment is operational and functioning property. Inspections and maintenance plans include leachate collection system, groundwater monitoring system, and landfill operation equipment. All regularly scheduled maintenance repairs will also be documented along with other necessary corrective actions found during MPCA inspections.

Post - Closure

A series of monitoring wells will be placed around the ash disposal facility to detect any ground water contamination throughout the proposed site life and for at least 30 years after the site is closed, which is consistent with current regulations. Future regulations may change this time period.

The disposal facility will be inspected and monitored during operation and for at least 30 years following closure. NSP will provide financial assurance for closure, contingency action, and the long-term monitoring and maintenance of the site.

ENVIRONMENTAL MONITORING

To assure that its facilities are operated in an environmentally-sound manner, NSP has established numerous monitoring programs to assess and monitor the effect or potential effect of facility operations on the environment. The environmental monitoring system for the site is shown in Exhibit 13, and is summarized in the following table.

The following paragraphs provide a summary of those programs used by NSP to monitor the Wilmarth Ash Disposal Facility.

Leachate Monitoring Program

The Wilmarth Ash Disposal Facility is designed so that all of the water that runs over the surface of the ash (contact water) and the water that percolates through the ash (leachate) is collected in a leachate storage tank. The contents of this tank, also referred to as leachate, is delivered via tanker truck to the Mankato Wastewater Treatment Plant (WWTP), where it is treated along with municipal wastewater from the City of Mankato. In the event that the Mankato WWTP is not available for use, NSP would use one of the approved Metropolitan Council Environmental Services WWTP in the Minneapolis/St. Paul area.

To prevent the addition of leachate from NSP's ash disposal facility from negatively impacting the effectiveness of the WWTP, certain discharge guidelines were established. A leachate management and contingency plan was adopted to provide appropriate responses to changes in leachate quality. NSP analyzes monthly composite samples prepared from samples from all the discharge events occurring during that month. The results of the analyses of the monthly composites are used to manage the discharge rates of the leachate into the WWTP. The data obtained from the analysis of nearly 5 years of leachate production suggests that the quality of the leachate generated at this facility approximates drinking water standards for most parameters, particularly the metals. NSP, the City, and the MPCA have concluded that wastewater treatment plants can effectively treat the leachate produced at RDF ash monofills.

NSP routinely monitors the chemical composition of the leachate collected at the Wilmarth Ash Disposal Facility. NSP has compiled extensive data on the leachate generated at this facility. The analysis of this leachate has indicated that the leachate contains no detectable levels of organic materials such as dioxins, furans, and polycyclic aromatic hydrocarbons. The adoption of the Municipal Solid Waste Combustor Ash Rules (Part 7035.2885) provided combustor ash disposal facilities with a performance standard from which to assess the operation of each facility. Subpart 5 of these rules define these performance standards as Maximum Leachable Contaminant Levels (MLCLs).

MLCLs have been defined for arsenic, barium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, and zinc. As mentioned earlier, the MLCLs are presented in Exhibit 8. In addition, more stringent standards have been set for acceptance of leachate at the City of Mankato WWTP. These standards are detailed in the Leachate Management Plan, dated July 1997, revised February 1998. Tables 1, 2 and 3 of Exhibit 14 provide maximum leachate discharge rates to the City of Mankato WWTP. Table 1 presents the maximum hourly leachate discharge rates for all parameters. Table 2 presents the maximum daily discharge rates for manganese and Table 3 presents the maximum daily discharge rates for barium.

Secondary Collection

Cells 5-10 of the facility will be, constructed with a secondary collection system which is designed to collect any leachate which may leak through the primary liner. The secondary collection system is monitored for volume on a quarterly basis. To-date, the volume of leachate collected in the existing leak detection system from Cells 3 and 4 has been negligible

Lysimeters

Cells 1-6 have, or will have (once constructed), lysimeters that underlie either the entire cell (Cells 1 and 2) or the low point of the cell (Cells 3-6). The lysimeters collect leachate that leaks through the primary liner (Cells 1 and 2) or the secondary liner (Cells 3-6). Lysimeters are sampled quarterly for both volume and quality. The low point of Cells 6-10 is designed to be at Cell 6; therefore, lysimeters are not required for Cells 7-10. In addition, as shown on Exhibit 5, the majority of ash placement in Cells 7-10 will be over the liner for Cells 1-4, which has a secondary liner or full-cell lysimeter.

Groundwater Monitoring

The purpose of this monitoring is to assess the impact, if any, on the local groundwater. To-date, as stated in the 1998 NSP Annual Report for the site, no significant water quality impacts as a result of landfill operations have been found. A localized impact was found around the area of MW-16 in 1992, due to a leachate overflow into the lysimeter system, but this was quickly corrected. MW-16 was installed to monitor for remaining impacts, but when none were found, this well was later abandoned for the construction of Cell 3. Detailed discussions of site water quality can be found in the site's annual reports, filed with the MPCA each January. The proposed groundwater monitoring system for the expansion is detailed in Table 1.

Surface Water

Sedimentation ponds will be monitored at a frequency of three times/year to determine if surface water is carrying contaminants from the ash disposal area. The site is designed with the purpose of containing all ash contaminated liquids in the leachate handling system. Testing of the surface water ponds will indicate if any surface water is coming in contact with the ash.

Ash Evaluation Program

In Minnesota, the ash from the combustion of mixed municipal solid waste was classified as a "solid waste" and under state law was not subject to regulation as a potential hazardous waste. RDF ash must be stored and managed in accordance with the "Municipal Solid Waste Combustor Ash Rules" (Pt 7035.2885). However, in May of 1994, the United States Supreme Court ruled that combustor ash was not exempt from regulation as a hazardous waste. As a result, facilities generating waste combustor ash were required to test the ash generated at their facilities on a quarterly basis. NSP has complied with this requirement. The results from the testing of the ash generated from the Wilmarth Ash Disposal Facility showed that the ash is not hazardous, and therefore may be disposed of in accordance with the rules promulgated by the MPCA in April of 1992.

Owners and operators of MSW incineration facilities in Minnesota are also required by the MPCA's Waste Combustor Ash Rules (Pt 7035.2910) to conduct an ash evaluation program. This program requires that facility owners collect, process, and analyze, on a quarterly basis, composite samples of combustor ash collected over a seven-day period. During this period, NSP collects discrete samples of fly ash and combined ash. NSP has completed ash testing since 1989. The ash evaluation program consists primarily of total composition analyses for inorganic parameters, and TCLP Leach Tests. Results obtained from NSP's ash evaluation program showed that trace metals are present in RDF ash. However, concentrations of these elements in the leachate approximate the drinking water standards.

In a letter dated October 18, 1996, the MPCA issued a variance to the ash testing requirements. In a follow-up letter, dated October 28, 1996, NSP submitted a letter clarifying this change in ash testing requirements. This MPCA variance indicated that testing to-date has shown that concentrations of contaminants have been consistently below regulatory thresholds. Consequently, Toxicity Characteristic Leaching Procedure (TCLP) testing, as well as other requirements, may be reduced in frequency. This correspondence is attached to this report as Exhibit 15.

correspondence is attached to this report as Exhibit	t 15.	
b. Explain the project purpose; if the project will be the project and identify its beneficiaries.	e carried out by a govern	nmental unit, explain the need for
The purpose of this project is to extend the site li has been in operation as a permanent ash disposa ash-contaminated materials from NSP's Wilmart	al facility since 1992 and	1 2
c. Are future stages of this development including of ☐Yes ☐ No If yes, briefly describe future stage environmental review.		
 d. Is this project a subsequent stage of an earlier pro If yes, briefly describe the past development, tim 		ronmental review.
As previously discussed in Question 6, within, the existing ash disposal facility. Cells 1 and 2A of the in 1994; Cell 3 in 1996; and Cell 4 in 1998. An Exconstruction of Cells 1 through 4.	e facility were construct	ted in 1992; Cell 2b was constructed
Project Magnitude Data		
Total Project Area (acres) 42 (total NSP proper at the site)	rty or Length (miles)	
Number of Residential Units: Unattached non	Attached none	maximum units per building
Commercial/Industrial/Institutional Building Area	(gross floor space):	total square feet
Indicate area of specific uses (in square feet):		
Office	Manufacturing	
Retail	Other Industrial	
Warehouse	Institutional	
Light Industrial	Agricultural	
Other Commercial (specify)	_	
Building height If over 2 stories, co	ompare to heights of nea	arby buildings

7.

8. **Permits and approvals required.** List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans, and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure.

Unit of Government	Type of Application	Status
State		
Minnesota Pollution Control Agency	Repermit application of Permit SW-298	Pending
	National Pollution Discharge Elimination System (NPDES) Stormwater permit	To be determined
County		
Blue Earth County	Sanitary Landfill License	Obtained (renewed annually)
Local		
City of Mankato	Leachate Treatment	Obtained (renewed annually)

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 expansion area is immediately adjacent and contiguous to the existing Ash Disposal Facility. The NSP Wilmarth Ash Disposal Facility is located in the N½ of Section 32, Township 108N, Range 27W in Blue Earth County, Minnesota (approximately 3.5 miles southwest of Mankato). The landfill portion of the facility is located in the NW¼ of the NE¼ of Section 32, and the sedimentation pond is located in the NE¼ of the NW¼ of Section 32. The property encompasses an area of approximately 42 acres. The property immediately to the northeast is owned by Blue Earth County and is operated as the Ponderosa Sanitary Landfill (MPCA Solid Waste Permit SW-87). Exhibits 2 and 3 show the facility location.

NSP has owned and operated a permanent ash disposal facility in Mankato, Minnesota, under MPCA Permit SW-298 since 1992. Prior to that, 1987 through 1992, NSP operated a temporary ash disposal facility on the site under the Ponderosa Landfill permit, SW-87. The facility is called the Wilmarth Ash Disposal Facility because it receives MSW combustor ash and ash-contaminated materials from NSP's Wilmarth steam plant. The ash generated at the Wilmarth steam plant and disposed of at the Wilmarth Ash Disposal Facility is combined RDF ash, which is a mixture of fly ash and bottom ash resulting from the combustion of RDF. RDF is MSW that has been processed prior to combustion to remove recyclable materials and to achieve a higher BTU content.

The site is situated in an old abandoned river meander, now an alluvial terrace, lying approximately 50 feet above the present level of the Blue Earth River. Consequently, it is not in the 100-year floodplain, despite its proximity to the river. The majority of the site is characterized by relatively low natural relief ranging from 830 to 850 feet, Mean Sea Level (MSL). At the south end of the site, the hillsides rise abruptly to approximately 980 feet, MSL where the relief to the south of the crest is again, relatively low. The Blue Earth River lies approximately 600 feet to the northwest of the fill at is nearest point.

No adverse environmental impacts have been detected to date at the ash disposal facility. There should be no potential past or present land use conflicts that would result in significant adverse environmental impacts.

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

	Before	After		Before	After
Types 1-8 wetlands	0	0	Lawn/landscaping	0	0
Wooded/forest	13	10	Impervious Surfaces	0	0
Brush/grassland	0	0	Other (describe)	11	18
Cropland	15	5	Surface water	3	9
			management, access roads, and grading		
			TOTAL	42	42

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.

No fish or wildlife resources are expected to be impacted by this 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? \boxtimes Yes \square 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 Department of Natural Resources
	(DNR) Natural Heritage and Nongame
	Research program has been contacted give the correspondence reference number:
	Describe measures to minimize or avoid adverse impacts.

The National Heritage database compiled by the DNR was searched for sensitive ecological resources in or near the proposed site expansion. Portions of Blue Earth County were recently surveyed (summer 1998). The location of the proposed expansion was not surveyed, however, similar natural areas in the vicinity, only 2.5 miles east of the facility, were found to contain a state species of special concern, the snow trillium. Also found, to a lesser extent, was the American ginseng. According to the County Biological Survey Ecologist it is very likely, therefore, that these species may also be present on the slopes to the south and southeast of the facility.

The presence of the plant in question is still under investigation. A survey of the area is planned for April of this year to determine the existence and/or extent of any significant plant populations. The survey will be coordinated by the local DNR Office in New Ulm and the City of Mankato. By definition, a species is considered a species of special concern if, the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. According to the Minn. R. Chapter 6134.0150, "Species designated as species of special concern are not protected by Minnesota statutes, section 84.0895, or rules adopted under that section."

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

New monitoring wells will be installed, and existing ones will be abandoned as part of the Environmental Monitoring System. The new wells are:

		State Planar Coordinates	
Monitoring	Unique	N I (1	F 4
Location	Well#	North	East
MONITORIN	IG WELLS		
MW-17	577660	736,321.2	2,598,544.4
MW-18	577661	736,159.1	2,599,821.5
MW-19	577662	736,480.5	2,599,903.5
MW-20	577663	736,784.7	2,599,855.1
MW-21	577664	736,599.5	2,599,565.7

The following wells will be abandoned during the expansion activities:

	Well I.D.	Unique Well No.	<u>East</u>	<u>North</u>
	MW-4	411455	736,247.1	2,598,766.4
(1)	P-7	451628	736,266.7	2,598,975.0
	MW-10	479064	736,248.5	2,599,285.3
	MW-14	577582	736,784.3	2,599,720.1
(2)	MW-21	577664	736,599.5	2,599,565.7
	P-5	451626	736,295.6	2,599,678.2

- (1) Will be abandoned prior to construction of Cell 7.
- (2) Will be abandoned prior to construction of Cell 5.

See Exhibit 13 for site location of wells.

The project will not involve the abandonment or installation of any water supply wells.

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? Xes No
	If yes, identify the district and discuss project compatibility with district land use restrictions.

A portion of the facility located in the NE½ of the NW½ of Section 32, specifically the sedimentation pond, is located in a Conservation District which extends to the edge of the Blue Earth River. The property within this zoning designation is used exclusively for surface water management and groundwater monitoring which are allowable practices under the Blue Earth County zoning ordinances.

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

- 16. Erosion and Sedimentation. Give the acreage to be graded or excavated and the cubic yards of soil to be moved:

 11.5* acres; 65,000** cubic yards. Describe any steep slopes or highly erodible soils and and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.
- * Approximately 7 acres is landfill base acreage. The remaining area is grading for, sedimentation ponds, ditching, and perimeter berm construction.

Approximately 56,000 cubic yards will be excavated for the expansion. Fill requirements are 65,000 cubic yards. The remaining fill requirement will be obtained from an on-site stockpile.

All soils adjacent to the landfill are susceptible to erosion if vegetation is removed. Construction activities at the landfill will require preparation of an erosion control plan, and an NPDES construction activity permit will be obtained if more than 5 acres are disturbed. Erosion and sedimentation control measures to be employed during and after construction include mulching, rapid-growing vegetation, fabric mats, hay bales, filter barriers, and sediment traps. The cap of the landfill will be planted to shallow-rooted native prairie grasses and forbs. A sedimentation pond is included in the design of the landfill. Drainage ditches will generally be grass-lined. Where high run-off velocities are expected, ditches will be rock-lined to provide further erosion protection. Run-off erosion and sedimentation will also be controlled by minimizing the amount of land being graded at any one time. Wind erosion during construction will be minimized by the use of water, as necessary. Any soils where vegetation is disturbed or removed would be revegetated by seeding and mulching.

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.

As previously discussed in Question 6 of this EAW, landfill development typically increases the natural run-off from the site. There will be few water quality impacts since the surface water run-off will not come into contact with the deposited waste material. The final cover run-off produced by the design storm at this site will be directed through two sedimentation basins, which will manage, although not contain, the complete volume of the storm event. The NRCS TR-55 program was used to analyze a 25-year, 24-hour storm event. The ponds have been designed to manage the 25-year, 24-hour Type II storm event of 5.0 inches.

Drainage swales were designed to produce flows not exceeding a maximum velocity of about 5 fps during peak condition. Downslope drainage structures in the southeast and southwest were designed to accept flow from the drainage swales, and carry the water down the slope without causing significant erosion. Each downslope drainage structure will be lined with geotextile and graded rock riprap for proper chinking. Each downslope structure discharges into a separate sedimentation pond. The features of the surface water management plan are presented in Exhibit 12.

Sediment trapping efficiency of the west basin is such that particles larger than 0.05 mm (coarse silt) will be removed, as well as most medium silts. The west basin outlets through a closed conduit to an existing stream. The stream outlet is equipped with a riprap apron to prevent erosion. The east basin does not have an outlet structure but is designed so that any overflow would be contained in a ditch at the north end of the fill. This ditch then transfers runoff to the west of the site.

Sediment generation calculations were made using the Universal Soil Loss Equation. The average annual soil loss over the 17 acre site would be 17.1 cubic yards, or 1.49 tons per acre per year.

Surface water flowing toward the facility from the south is intercepted in a ditch at the south toe of the facility. This ditch is then routed around the landfill to the east and west over riprap discharge structures.

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

The sedimentation pond on the west side of the site outlets to an existing unnamed stream which eventually outlets to the Blue Earth River. The proposed surface water features should improve the quality of run-off to the existing stream.

18. Water Quality: wastewaters

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

The facility produces leachate, consisting predominantly of rain and snowmelt, which infiltrates the ash and percolates through it to the leachate collection system. The leachate collection system consists of perforated pipes bedded in coarse aggregate. Leachate enters the perforated pipes and flows by gravity to a lift station, which pumps it to a 20,000-gallon leachate storage tank. All of the leachate collected in this system is transported from the landfill in tanker trucks capable of transporting 6,000 gallons per trip. The leachate is discharged to an intercept located at the Mankato WWTP. No other wastewater is produced or treated at the site.

<u>Anr</u>	<u>ual Leachate</u>	Generation	Volumes	(gallons)
199	2 1,94	1,000		
199	3 2,27	2,400		
199	4 2,462	2,900		
199	5 1,663	3,500		
199	6 1,783	3,300		
199	7 2,02	1,700		

It is expected that leachate from the proposed cell expansion would have a composition similar to that which has been seen in the existing facility, since the ash would continue to come from the current source. The leachate monitoring results are provided in Exhibit 8.

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.

The leachate is not treated on-site. It is hauled off-site to the City of Mankato Municipal WWTP. The acceptable pH range for the treatment of leachate at the WWTP is 6 to 10. The pH is determined prior to transport. pH adjustment, if necessary occurs in the leachate storage tank at the ash disposal facility prior to transport.

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.

NSP is permitted to discharge the leachate generated from this facility into the Mankato WWTP. The discharge of the leachate into the system is accomplished in accordance with the MPCA Solid Waste Permit, SW-298, the Minnesota Municipal Solid Waste Combuster Ash Rules, the MPCA approved Leachate Management Plan, and the City of Mankato WWTP Wastewater Discharge Permit #1013 for NSP Wilmarth Ash Landfill. Leachate is hauled off-site in a 6,000-gallon tanker truck and discharged to the City of Mankato sewer system at an intercept location approved by the City. The leachate flows to the Mankato WWTP, where it is treated with other wastewater from the City. The WWTP effluent is discharged to the Minnesota River.

Concentrations of various leachate constituents are limited in order to prevent the leachate discharge from adversely impacting the effectiveness of the WWTP. If leachate concentrations of one or more constituents increase above allowable limits, the allowable leachate discharge rate is reduced correspondingly to prevent adverse impacts on the WWTP or excessive discharge of leachate constituents to the river.

NSP will conduct leachate disposal operations in accordance with these limitations. This will ensure that the WWTP and its effluent would not be adversely affected by the leachate discharge. No WWTP improvements will be required in order to continue the proposed leachate disposal program. The leachate can be treated effectively at the Mankato WWTP.

All aspects of this hauling and discharge are carried out in accordance with the "Leachate Management Plan" approved by the MPCA in October 1998. It documents the leachate discharges and sampling procedures.

Under the terms of NSP's current agreement with the City of Mankato, NSP must adhere to strict guidelines for the discharge rates of leachate to the WWTP. Tables 1, 2 and 3 of Exhibit 14, provide the discharge guidelines which are dependent specific parameter concentrations.

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.

None

19.	Geo	ologic hazards and soil condition	18				
	a.	Approximate depth (in feet) to	ground water:	50	_ minimum;	30	average.
			bedrock:	40	minimum;	5*	average.
	Describe any of the following geologic site hazards to ground water and also identify them on the					on the site	
		map: sinkholes, shallow limesto	one formations or	karst conditio	ns. Describe i	measures to av	oid or
		minimize environmental problem	ns due to any of the	hese hazards.			

- * Jordan Sandstone bedrock located in extreme northwest corner is found at shallow depths. Elsewhere, bedrock is usually greater than 50 feet.
 - b. Describe the soils on the site, giving SCS classifications, if known. Discuss soil granularity and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

According to the Blue Earth County soil survey, the majority of the site is covered by Lasa fine sand, which contain a predominant fine sand to silt rich component. The remainder of the site is covered by Terril loam and LeSueur clay loam.

The discontinuous nature of the deposits above the water table at this site are important for understanding this site, due to the depth to water table. In the past, a concern was that possible leachate leakage from the fill areas would travel along clay lenses located above the water table, and thus not enter the water table until the leachate was "outside" the network of monitoring wells, thereby escaping detection. These cross-sections show that this situation is unlikely to occur here, because the clayey formations are not sufficiently continuous above the water table downgradient of the fill areas.

A supplemental investigation of the proposed expansion areas largely confirmed the results of the previous investigations, but extended the information more to the south and east. Basically, the site lies within an old, cut-off meander bend of the Blue Earth River, cut into the underlying Jordan Sandstone, and filled back in with alluvial deposits. The adjacent hillside and upland areas are composed of glacial drift draped over the underlying bedrock.

The borings done for the site show stratigraphy typical of meandering alluvial stream deposits. The strata consist of interfingering cobble, gravel, sand, silt, and clay lenses, most of which are not laterally continuous. However, beneath apparently all of the site is a thick, poorly-graded silty sand to sand unit draped over the bedrock surface, which usually has the water table within it. Another important unit is the clayey unit overlying much of the southern and southeastern portions of the site. The remaining units are of much lesser extent, and are interpreted to be either channel deposits (the coarser units), or overbank deposits (e.g., levee or floodplain deposits; fine-grained deposits).

At the present time, 16 monitoring wells and five piezometers monitor the groundwater beneath the site. Of these 21 wells or piezometers, 19 monitor the water table, and two monitor the aquifer at deeper levels. Additional monitoring wells monitor the Ponderosa Landfill site to the north, some of which are useful for the NSP site.

Water level data for May 15, 1998, were plotted on a base map, and a water table contour map developed (Exhibit 16). This map shows water table relief across the site is quite low, and varies from a high of 792.60 feet, MSL at MW-21 to a low of 790.67 feet at P-11 in the northwestern corner of the property, a difference of only 1.93 feet. This low relief is typical of permeable sediment sites. Basically, the water table configuration indicates flow to the north, northeast, or northwest, depending on the portion of the site. Flow is generally off the topographic high to the south, and then north towards the Blue Earth River.

For both of these May 1998 water table monitoring events, the water table was at its maximum beneath MW-21, indicating mounding adjacent to the lined areas. However, this may be related to the very wet spring experienced this year, together with the attendant high infiltration rates in this low area of the site. This will be checked over the next few quarters of monitoring, to see if this mound remains.

A flow divide exists beneath the site, positioned approximately north-south from MW-21. This flow divide has been reported in previous reports, and shows up well in this current study. Flow from the east side of this divide flows northeast towards the Ponderosa Landfill (Note: None of this area is currently filled.), while flow on the west side is towards the northwest and the Blue Earth River. Past experience at this site has shown that this basic pattern shifts somewhat in response to changes in the nearby river level. Rises in river level shifts the pattern more northwards, while lowered levels shift patterns more westerly. This shows that the water table at the site is in good hydraulic connection with the Blue Earth River, probably due to the presence of the poorly graded sand formation that lies beneath the site.

The water table occurs within both the Jordan Sandstone and the surficial soils, depending on the bedrock topography. It lies within the Jordan Sandstone bedrock high beneath the northwest part of the site, and within the surficial soils beneath the rest of the site, mainly in the poorly graded sand formation. Generally, the water table lies well beneath the surface at depths ranging from a low of slightly over 30 feet at MW-14, to nearly 80 feet at MW-18. Typical depths, however, are 40 to 60 feet.

Limited perched water table conditions do exist at the site, but are generally limited to along the south property line, off the glacial clay drift, and as shown by the presence of the small spring south of P-7, and small portions of the southeast corner (i.e., MW-1, now abandoned). This perched water is not continuous

beneath the site, and does not significantly affect potential contaminant flow pathways, due to its position south of the fill areas. Therefore, it is not monitored at this site.

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.

None

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 groundwater. 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.

None

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.

One, double-walled 20,000-gallon underground tank is presently used to store collected leachate on the site. Leachate is pumped out of the storage tank to a tank trailer. It is transported to Mankato WWTF for treatment and disposal. See Question 18 within, for details on leachate handling.

21.	Traffic. Parking spaces added0) <u> </u>	Existing spaces (if project involves expansion)
	Estimated total average daily traffic ge	nerated	Estimated maximum peak hour traffic
	generated (if known) and its timing:		Provide an estimate of the impact on
	traffic congestion affected roads and de	escribe a	any traffic improvements necessary. If the project is within
	the Twin Cities metropolitan area, disc	uss its i	mpact on the regional transportation system.

Ash is hauled to the site via U.S. Hwy. 14, U.S. Hwy. 169, Blue Earth County Roads 33 and 34. According to the Minnesota Department of Transportation office in Mankato, the 1997 traffic volumes for the affected portion of the roads on the route are:

U.S. Hwy. 14	26,200
U.S. Hwy. 169	16,100 - 21,400
Blue Earth County Road 33	1,350
Blue Earth County Road 34	850

There will be no change in traffic volumes to the site generated by the expansion of the facility. Operations at the site will remain unchanged, therefore the ash hauling and leachate hauling volumes will be unchanged.

During construction of the expansion phases, and closure of filled areas, additional traffic will be expected on a temporary basis. Dumptrucks will bring granular drainage layer and coarse aggregate materials to the site from off-site locations yet to be determined.

Traffic volume maps are included for the affected portion of Blue Earth County and the City of Mankato in Exhibit 17.

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.

Because operations are expected to be unchanged, no changes in vehicle-related air emissions is expected. Construction-related exhaust during construction of the new cell will be greater due to more trucks and heavy equipment operating at the site, but will be of a temporary duration.

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.

None

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.)

The nearest noise receptors are three farmsteads located on upland areas, approximately 1,200 to 2,000 feet to the south. There is a 130-foot bluff wall which is covered with vegetation and with mature deciduous trees to buffer them from the landfill.

<u>Dust</u>: Dust can be generated by a number of sources on and off-site both during and after construction. The issue of RDF combustor ash dusting has been raised and evaluated in several previous EAWs or permits for ash storage facilities.

Since RDF combustor ash is known to contain low concentrations of toxic components, such as heavy metals or organic products of incomplete combustion (e.g., dioxins), the concern exists that humans and animals may be exposed to these contaminants through various routes. Concerns have been raised that ash deposited on the site would be subject to wind erosion and therefore create fugitive dust emissions. NSP has conducted an air modeling study at Becker, Minnesota for the RDF Landfill to determine the likelihood of wind erosion of RDF ash. Previous studies have determined that ash dusting would not occur in sufficient quantities to cause detrimental impacts to humans or the environment. The low concentrations of heavy metals and organics present in the ash would also minimize potential environmental impacts.

The ash delivered to the site by covered semi-trailer trucks would have a moisture content of 25 percent to 35 percent. The maximum rate of natural drying is 8 percent per day. Earth cover or moist ash would be applied to the deposited ash at least every seven days. Exposed ash, therefore, would experience a maximum natural drying rate of 8 percent per day for seven days.

There is no definitive research that specifies a threshold moisture content at which exposed dried ash becomes susceptible to wind erosion. Modeling done at Becker for the RDF Ash Landfill by NSP indicates that a 17 mile per hour (mph) wind would initiate wind erosion at 1 percent moisture content. A 20 mph wind is needed to initiate wind erosion if the moisture content is 5 percent to 15 percent. Average wind speeds of this velocity are not common at this site for extended durations. Moisture conditions of roughly 4 percent should be sufficient enough to eliminate or minimize dust emissions.

A number of measures would be taken to ensure that fugitive dust is not a serious problem. The moisture content of the ash is similar to that of a moist sand (22 to 29 percent) and is self-cementing. The ash would be compacted and moist ash would be periodically added to increase the moisture content. This would be the primary method used to prevent significant ash dusting. Site operations would be restricted during windy weather to prevent significant ash dusting problems. The exposed surfaces for ash filling would also be minimized and the site would be re-seeded after placement of intermediate and final cover. Observations at the Wilmarth landfill indicate that the combined bottom and fly ash tend to solidify on the surface layers. This crust also helps to prevent significant ash dusting. These factors, in conjunction with the proper operation of the landfill, reduce the potential for fugitive dust releases.

Odors: Ash landfills do not typically generate odors because there are no organic materials present that can decompose and cause odors.

Noise: Heavy construction equipment would be operated during landfill construction and operation. The bulldozers to be used at the landfill have been measured at a noise level of 84 decibels (dBA) at a distance of 50 feet and 64 dBA at a distance of 500 feet. This equipment would typically be operated at a distance of 500 feet or more from the NSP property line, where estimated noise levels would be in compliance with State of Minnesota noise standards (Chapter 7030). These noise levels should not be sustained for long durations. It is not expected that state noise standards would be violated at the facility. The Blue Earth County Ponderosa Landfill owners/operators say that there has never been a noise complaint issued towards their operation, and since the nearest resident will be more than ½ mile from the proposed facility, it is not expected that noise will be a future problem with the proposed project.

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

	a. Archaeological, historical, or architectural resources?
	b. Prime or unique farmlands or land within an agricultural preserve? X Yes No
	c. Designated parks, recreation areas, or trails? ☐ Yes ☒ No
	d. Scenic views and vistas? Yes No
	e. Other unique resources? Yes No
	* In March 1990, prior to development of the permanent facility, NSP performed a Phase I Cultural Resource Survey of the site. The survey, performed for NSP by Stemper and Associates, indicated that two prehistoric sites exist in the parcel of land surveyed but neither of them are eligible for the National Register of Historic places. The sites apparently contained sparse artifacts, were culturally nondiagnostic partially because the site has been disturbed by past activities. Excerpts from the Archaeological Survey and location map are included in Exhibit 18. If yes, describe the resource and identify any project-related impacts on the resources. Describe any
	measures to minimize or avoid adverse impacts.
	A portion of the site is considered to be prime farmland by the SCS. This classification is based solely on soil characteristics and weather. The criteria did not take into consideration past or present use of the site.
	Approximately 70 percent of the total surface area in Blue Earth County is classified as prime farmland by the SCS. The Blue Earth County Land Use Plan categorizes the site as secondary agricultural use. The Blue Earth County Zoning Ordinance identifies the site as a limited agricultural district. The entire site is a part of the designated Blue Earth County Ponderosa Landfill.
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.
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 majority of the property is currently zoned A-2, Limited Agricultural District, which allows landfilling. A small portion of the property is zoned C-1, Conservation District. However, the property within C-1 is used exclusively for surface water management and groundwater monitoring, which are allowable practice within this zoning designation. Section 7, Part 0100.0702, Sup. 1.C. of the Blue Earth County zoning ordinances permits the use of flood control and watershed structures in a conservation district. Exhibit 19 indicates zoning designations. The conservation district boundary location is shown on Exhibit 13.

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.)

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

The landfill expansion extends the site life through the year 2016 based on constant filling rates. Impacts of any traffic, noise, dust, odor, etc. issues related to landfill operations would be continued, but not cumulative.

The disposal facility will be inspected and monitored during operation and for at least 30 years following closure. A series of monitoring wells will be placed around the ash disposal facility to detect any ground water contamination throughout the proposed site life and for at least 30 years after the site is closed, which is consistent with current regulations. NSP will provide financial assurance for closure, contingency action, and the long-term monitoring and maintenance of the site. Future regulations may change this time period.

- 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.
- 31. **Summary of issues.** Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW. 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.

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

I hereby certify that:

• The information contained in this document is accurate and complete to the best of my knowledge.

•	The EAW describes the complete project; there are no other projects, stages or components other than those
	described in this document, which are related to the project as connected actions or phased actions, as
	defined at Minn. R. parts 4410.0200, subparts 9b and 60, respectively.

•	Copies of this	EAW are	being sent to	the entire	EOB	distribution	list.
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Name and Title of Signer:	
	Wayne Anderson, District Planning Supervisor,
	Operations and Planning Section, South District

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 St., St. Paul, MN 55155, 651-296-8253, or www.mnplan.state.mn.us.