September 15, 2000

TO INTERESTED PARTIES:

RE: Steele County Landfill Expansion

Enclosed is the Environmental Assessment Worksheet (EAW) for the proposed Steele County Landfill Expansion, Steele 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 <u>Monitor</u>, which will likely occur in the September 18, 2000, 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 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) 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 Molloy of my staff at (651) 296-7376.

Sincerely,

Beth G. Lockwood District Planning Supervisor Operations and Planning Sections North, South & Metro Districts

BGL/lk

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 warrant further investigation, and the need for an EIS. A copy of the EAW may be obtained from the MPCA. An electronic version of the EAW is available at the MPCA Website www.pca.state.mn.us.

1.	Project Title: Steele County Landfill Expansion
2.	Proposer: Steele County, Minnesota 3. RGU: MPCA
	Contact Person Scott Golberg Contact Person Kevin Molloy
	And Title Director, Environmental Services and Title Project Manager
	Address 630 Florence Avenue Address 520 Lafayette Road North
	Owatonna, Minnesota 55060 St. Paul, Minnesota 55155
	Phone (507) 444-7477 Phone (651) 296-7376
	Fax (507) 455-9688 Fax (651) 297-2343
4.	Reason for EAW Preparation: EIS Mandatory Citizen RGU Proposer Scoping EAW X Petition Discretion Volunteered If EAW or EIS is mandatory give EQB rule category subpart number and name: Minn. R. 4410.4300, Subp. 17.B., Solid Waste

Minn. R. 4410.4300, Subp. 17.B. requires the preparation of an EAW for expansion of a mixed municipal solid waste (MMSW) disposal facility by 25 percent or more over the previous capacity of a MMSW disposal facility for up to 100,000 cubic yards of waste fill per year. The current MPCA permitted capacity for MMSW disposal at the existing landfill is 1,409,443 cubic yards (MMSW plus cover). The proposed operational capacity is for an additional 1,400,000 cubic yards of MMSW, therefore, it exceeds the threshold for a mandatory EAW.

5.	Project Location:		:	County	Steele		City/Twp	Aurora		
	1/4	SE	1⁄4	Section	28	Township	106N	Range	19W	

The following are attached to the EAW:

Figure 1. Vicinity and State Map;

Figure 2.	Regional Site Map;
Figure 3.	Existing Site Conditions map and Cross-Section Locations;
Figure 4.	Proposed Expansion Site Map;
Figure 5.	Zoning Districts;
Figure 6.	Site Soil Map;
Figure 7.	Geologic Cross-Section A-A';
Figure 8.	Geologic Cross-Section G-G';
Figure 9.	Water Table Contour Map and Monitoring System;
Figure 10.	Overall Site Development Plan; and
Figure 11.	Final Cover Grades.
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Attachment A	A. County Certification Letter; and

Attachment B Agency Correspondence.

6. Description:

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

Steele County is proposing to expand its current MMSW landfill. The 21-acre proposed expansion will include a composite liner system, leachate collection and leak detection systems, an environmental monitoring system and engineered final covers. Other site modifications include a seven-acre demolition landfill and discretionary site improvements such as a new entrance, office/ticket building, commercial/public drop-off areas, and a maintenance facility. Site development for the expansion area is proposed for 2001. The existing landfill is estimated to reach its permitted capacity by 2002.

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.

Steele County is proposing to expand their existing MMSW landfill and demolition landfill area (both of which are hereinafter referred to as Facility) as detailed below.

Existing Facility

The existing Facility, owned and operated by Steele County, is within a 77-acre site located west of U.S. Highway 218, approximately 12 miles southeast of Owatonna. It is less than one mile northwest of the town of Bixby (see Figures 1 and 2). The Facility has accepted MMSW and demolition waste since 1973. It is currently permitted by the MPCA to accept a total of 1,409,443 cubic yards of MMSW, plus cover, and also demolition debris. 36.6-acres of the site is designated as MMSW landfill area; the demolition landfill area comprises 9.5 acres. All waste brought to the Facility for disposal must be generated within Steele County, unless otherwise approved by the Steele County Board of Commissioners.

The Facility contains several existing MMSW and demolition debris disposal areas. The existing disposal areas are illustrated in Figure 3 and listed below:

- Phase I/II MMSW Landfill (closed 1985)
- Phase III MMSW Landfill (active)
- Phase I South Demolition Landfill (closed 1993)
- Phase II North Demolition Landfill (active)

The existing MMSW landfill is estimated to reach its permitted capacity by 2002. This is based upon the amount of remaining airspace within the permitted area, relative to the amount of space that will be used by additional MMSW and daily cover disposed in the MMSW landfill (approximately 35,000 cubic yards annually). Steele County will need to have an alternative MMSW disposal option available to them by this time; hence, the county is proposing the landfill expansion described below.

Proposed Landfill Expansion

The proposed landfill expansion site (Figures 3 and 4) is located within an 80-acre parcel of land owned by Steele County, immediately south and adjacent to the existing permitted Facility. The proposed expansion will include a 21-acre MMSW landfill (Phase IV), a seven-acre demolition landfill (Phase III), and ancillary support features. The operational capacity of the proposed (Phase IV) MMSW expansion area is 1,400,000 cubic yards; the operational capacity of the proposed (Phase III) demolition area is 326,000 cubic yards. Based on current waste disposed into the Facility, the approximate life of the expansion area is nearly 40 years for MMSW and over 30 years for demolition debris.

Steele County currently uses the expansion site for soil borrow, with portions leased for agriculture. The site also contains a county-owned farmstead with farm outbuildings outside of the proposed expansion area on the eastern portion of the 80-acre parcel. The topography of the expansion site is rolling and typically ranges in elevation from 1,320 feet National Geodetic Vertical Datum (NGVD) to elevations below 1,275 feet NGVD.

Site Development

Initial site development may begin as early as the year 2001 with the construction of a portion of the perimeter berm and access roads in the demolition debris area. In 2002, development of the Phase IV MMSW area will be initiated. The Phase IV MMSW landfill has been designed to be constructed in seven subphases designated IV-1 through IV-7 (Figure 10). Each subphase is sized to provide approximately three years of capacity. The initial MMSW phase (Phase IV-1) will be developed in the northwest corner of the proposed Phase IV MMSW area. Subsequent phases will then be developed in numerical order.

Subbase preparation for the Phase IV MMSW area will include the excavation of soils and construction of perimeter berms and surface water drainage features (ditches and sedimentation ponds). During the Phase IV-1 development, the existing drain tile system in the western portion of the site will be excavated and removed to the southern property boundary. Discharge from the remaining tile system will be rerouted to the newly constructed surface water drainage channel located on the western perimeter. Ground water will be close to subbase grades and seasonal fluctuations may influence construction procedures. If needed, temporary drain tiles will be installed below subbase grades to control ground water during construction.

Other site improvements under consideration include ancillary support features, such as maintenance and entrance structures, commercial and public drop-off areas for oversized recyclable materials and a new maintenance building. A fence will be installed across the eastern limits of the disposal area.

Liner System

The base liner system for the Phase IV MMSW landfill will be a composite liner consisting, from top to bottom, of:

- Minimum seven ounces/square yard geotextile;
- Sixty-mil smooth High Density Polyethylene (HDPE) geomembrane; and
- Two feet of compacted clay liner having a maximum hydraulic conductivity of 1×10^{-7} cm/sec.

The facility design will also include a partial lysimeter for leak detection in accordance with Minn. R. 7035.2815, Subp. 9 (MPCA Solid Waste Rules). This proposed design meets the minimum requirements specified in Minn. R. 7035.2815, Subp. 7 and includes the placement of a geotextile to cushion and protect the geomembrane from puncture and rupture during construction.

Leachate Collection System

A leachate management system will be provided for the entire Phase IV MMSW landfill area. It will consist of a 12-inch granular drainage layer with a two percent slope toward leachate collection pipes that drain to a sump. The leachate collected within the sump will be pumped into a perimeter force main system and discharged into double-lined leachate holding tanks. Leachate collected within the tanks will be disposed of off-site at a wastewater treatment plant, as discussed below.

Final Cover System

A final cover system will be placed on the Phase IV MMSW landfill to limit leachate generation, control odors, and prevent the release of landfill gas. From top to bottom, the final cover system will consist of:

- Six-inch thick topsoil layer;
- Twelve-inch thick vegetative cover layer;
- Six-inch thick sand drainage layer;
- Thirty-mil PVC, forty-mil HDPE or forty-mil LLDPE; and
- Six-inch thick sand buffer/gas migration layer.

The final cover system will also incorporate a gas management system with the installation of a passive gas well/vent system. The wells/vents will be connected by a series of perforated piping installed in shallow trenches within the landfill cap.

Facility Monitoring

Leachate, ground water, and landfill gas will be monitored in the Phase IV MMSW disposal area. Sample collection and analytical methods will meet MPCA requirements. Laboratories conducting sample analysis will have an approved Laboratory Quality Assurance/Quality Control Plan on file with the MPCA.

Waste disposed of in the demolition landfill will be strictly demolition debris, which should not pose any detrimental environmental impacts. Consequently, monitoring the leachate, groundwater and landfill gas is not proposed for this area, nor is it required.

Leachate Monitoring

The Minnesota Solid Waste Rules do not identify leachate-monitoring requirements for specific parameters. Steele County has an agreement with the city of Owatonna for disposal of leachate from the Phase I/II and Phase III MMSW areas. Therefore, monitoring requirements are established by the city of Owatonna. Steele County is currently working with the city to expand its agreement for disposal of leachate from the proposed MMSW landfill expansion (Phase IV). Steele County also has an agreement for leachate disposal with the Metropolitan Council Environmental Services (MCES) which stipulates its own leachate monitoring requirements. At a minimum, quarterly leachate sampling will be conducted for the Phase IV landfill to meet the city's requirements. MCES requirements would be incorporated, if necessary.

Ground Water Monitoring

The site geology generally consists of interbedded glacial till and outwash units. Beneath the Expansion/Phase IV MMSW area, the water table occurs within Outwash Unit B and is the uppermost-preferred ground water flow path. Outwash Unit B is described in the response to EAW Item 16. The Water Monitoring System (WMS) is specifically designed to monitor this uppermost unit. Due to the projected life of the site and the phasing of the fill area construction, this WMS is only designed to monitor the site for the first five years of operation. After this period, some WMS locations may need to be modified as the size of the fill area increases and ground water flow conditions adjust to site development. If water quality problems are identified, additional WMS locations may also be warranted.

The WMS for the Expansion/Phase IV MMSW area consists of one (1) upgradient well, one (1) sidegradient well, and three (3) downgradient wells. The monitoring wells are located to provide early detection of any contaminated ground water that could potentially leave the disposal area within Outwash Unit B. Ground water samples will be collected from the wells three times per year and analyzed in accordance with Minnesota Rules. In addition, the partial lysimeter underlying the liner will be monitored three times per year for leak detection as part of the WMS.

The WMS will determine compliance of the facility in reference to a site compliance boundary. Given the potential for increased ground water flow conditions in Outwash Unit B, a lateral compliance boundary of 200 feet is proposed (Figure 9). The compliance boundary is described as follows:

- The upgradient (southern) boundary is located 200 feet south of the proposed waste limits and approximately 50 feet inside the southern property boundary. An upgradient monitoring well will provide background water quality data along this boundary.
- The eastern boundary is primarily upgradient from the Phase IV MMSW area and is situated 200 feet east of the proposed eastern waste limits. No additional upgradient wells are proposed at this time to monitor the eastern boundary.
- The western compliance boundary is sidegradient of the Phase IV MMSW area and is situated 200 feet west of the proposed western waste limits and approximately 100 feet east of the property boundary. Initially, one sidegradient well is proposed to monitor the western boundary.
- The northern compliance boundary is directly downgradient of the Phase IV MMSW area and is situated 200 feet south of the proposed northern waste limits. The three downgradient wells described above will monitor the northern compliance boundary. The three wells will be located approximately 125 feet south of the northern waste limits.

No lower compliance boundary is proposed because Outwash Unit B provides a preferential ground water flow path and the site is underlain by low permeability glacial till that restricts the downward migration of ground water.

Landfill Gas Monitoring

Landfill gas produced during biodegradation of the waste can migrate laterally through soils. Landfill gas monitoring is currently being conducted along the northern boundary of the proposed (Phase IV) MMSW expansion area as part of the landfill gas monitoring of the (existing) Phase III MMSW areas. Existing permanent gas probes are located approximately 100 feet north (downgradient) of the proposed Phase IV MMSW waste limits and are spaced 300 to 400 feet apart (Figure 9). For the first five years of operation, one additional permanent gas probe (GP-17) is proposed for future installation between the Phase IV landfill and the western property boundary. The landfill gas monitoring system will need to be expanded as the facility expands. The gas probes will be monitored for methane quarterly (four times per year) in conjunction with the leachate and ground water monitoring.

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

The purpose of the project is to provide adequate MMSW and demolition debris disposal for the citizens of Steele County. As detailed above, the existing Facility is estimated to reach its permitted capacity by 2002. To responsibly manage the solid waste generated within the county after this date, Steele County needs to develop a viable alternative to the existing landfill. The proposed landfill expansion is the alternative the county has chosen. The proposed project's beneficiaries include the citizens and businesses residing within Steele County. The Minnesota Office of Environmental Assistance (MOEA) issued a Certificate of Need to Steele County, certifying that, based upon the information provided, there are no feasible and prudent alternatives to the additional land disposal capacity.

d. Are future stages of this development including development on any outlots planned or likely to happen? \Box Yes \Box No

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

There are no future stages planned beyond those detailed above. As the end of the projected forty-year life span of the landfill draws nearer, the county will be planning accordingly, evaluating which of the solid waste disposal options (available at that time) will be most feasible.

e. Is this project a subsequent stage of an earlier project? \square Yes \square No If yes, briefly describe the past development, timeline and any past environmental review.

The Steele County Sanitary Landfill was originally permitted in 1973 to accept waste for disposal. All past expansions have been completed in accordance with state requirements. An EAW (dated September 16, 1986) was prepared for the Phase III expansion, which resulted in a negative declaration (issued December 11, 1986) on the need to prepare an EIS. Based on current waste flows within the County, the remaining permitted capacity of the landfill will be depleted by 2002. The landfill expansion is designed to meet Steele County's waste disposal needs for nearly 40 years.

7. **Project Magnitude Data**

Total Project Area	21-Acres (MMS	SW)	or Length	n (miles)	N/A	
(acres)*	7-Acres (Dem	no)					
Number of Residential Units	: Unattached	0 A	ttached	0	maximum units pe	r building	0
Commercial/Industrial/Instit	utional Building A	rea (gros	s floor sp	bace):	total square feet	600,000	
Indicate area of specific uses (in square feet):							
indicate area of specific uses	(in square reet):		C		0		

Office	200,000	Manufa	cturing	0
Retail	0	Other In	ndustrial	0
Warehou	se 0	Instituti	onal	0
Light Industrial		Agricul	tural	
(shop)	400,00	00		0
Other Co	mmercial (specify)	0		
Building height 20' to 30' If over 2 stories, compare to heights of nearby buildings				

Building height 20° to 30° If over 2 stories, compare to heights of nearby buildings

*The proposed 21-acre MMSW landfill and seven-acre expansion area is within an 80 acre parcel of land the county owns. The remaining 52-acres will possibly be used for ancillary support structures.

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
<u>Federal</u>		
United States Army Corps of Engineers (USACE)	To be determined	To be applied for
<u>State</u>		
MOEA	Certificate of Need	Granted
MPCA	Solid Waste Permit	Application submitted
MPCA	National Point Discharge Elimination Systems (NPDES) General Construction Permit	To be applied for
MPCA	NPDES Stormwater Permit	To be updated/modified
Local		
Steele County	Grading Permit	To be applied for
Steele County	Septic System	To be applied for
Steele County	Building Permit	To be applied for
Steele County	Wetland Conservation Act Approval	To be applied for

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.

Land Use and Development

The Steele County property designated for solid waste disposal encompasses approximately 157 acres. The property is bounded on the east by U.S. Highway 218 and 64th Avenue Southeast (Figure 5). The north property boundary abuts the Aurora State Wildlife Management Area. The property is bounded on the West by the Ralph and Geraldyne Berg and Lawrence and Annette Balzer properties and on the south by Gary and Sandra Jirele property. The unincorporated town of Bixby is located approximately one-half mile southeast of the facility on U.S. Highway 218. The property is currently zoned A-1 (Agricultural District) and is not located within any municipal boundary.

Currently, the north 77 acres of the property contains active and closed MMSW and demolition landfills as detailed above in Item #6. The property also contains a maintenance building, ticket office with scale, and a household hazardous waste recycling center. The existing Phase III MMSW disposal area includes two underground leachate storage tanks. A former leachate pond is located north of the Phase I/II MMSW disposal areas; however, it no longer receives leachate and meets the criteria of an on-site wetland. The 80-acre parcel south of the existing disposal facilities was purchased in 1995 for expansion purposes. Currently, portions of this parcel are used by Steele County for soil borrow or are leased for agriculture. The property, prior to the County acquisition, was agricultural. A County-owned farmstead, including farm out-buildings, is also located on the property outside of the proposed expansion area. Two north-south trending drainage tile lines are located on the expansion property.

Regionally, the area surrounding the property is primarily agricultural. Zoning districts surrounding the facility are primarily Agricultural (A-1) and Rural Residential (R-1). Northwest of the facility, the Aurora State Wildlife Management Area is zoned Conservation District (C). In unincorporated Bixby, zoning districts include Rural Residential (R-1) and General Industrial (I).

Compatibility

The development of the landfill expansion is considered compatible with surrounding land uses because the existing landfill is adjacent to the expansion property. The Steele County Planning Department has documented that the expansion of the Steele County Landfill would not conflict with current land use policies (see Attachment A).

Existing Environmental Matters

The past use of the expansion site has been for soil borrow and agriculture. The soil borrow usage does not appear to present any existing hazards. While the land's previous use as agricultural may lend itself to the possibility of soil contamination, from past usage of agricultural products such as fertilizers and pesticides, none is known to exist. Ground water monitoring upgradient of the existing disposal areas indicates the presence of nitrates in ground water. No underground storage tanks are known to have existed on the expansion site.

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	2.7	0	Lawn/landscaping	0	0
Wooded/forest	1.8	1.1	Impervious Surfaces	0	0
Brush/grassland	15.0	17.7	Other:		
			Farmstead	1.4	1.4
			Demolition Landfill	0	7.0
			MMSW Landfill	0	21.0
			Gravel/Unvegetated	22.1	0
			Stormwater/Access		
Cropland	37.0	18.8	Features	0	13.0
			TOTAL	80.0	80.0

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.

Existing wildlife resources on the landfill expansion property are limited to those species commonly found in active row-crop agricultural areas in southeastern Minnesota. This habitat would be lost during the construction and operation of the landfill. Following landfill closure, the area will revert to grassland vegetative cover that will have little or no future disturbance by seasonal agricultural practices and will support species similar to those currently found on the site.

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 MDNR Natural Heritage and Nongame

Research program has been contacted give the correspondence reference number. <u>ES#980317</u> Describe measures to minimize or avoid adverse impacts.

The U.S. Fish & Wildlife Service (UFWS) was contacted to identify any potential impacts to federally threatened or endangered species as a result of facility expansion. No objections to the facility development were noted (see Attachment B). The Minnesota Department of Natural Resources (MDNR), Endangered Species Environmental Review Coordinator, Section of Ecological Services was contacted to identify any threatened or endangered species surrounding the proposed facility expansion. Based upon their review of the Natural Heritage Database, no known occurrences of rare species or natural features are in the area (see Attachment B).

Part of a mature oak stand covering approximately .7 acre will be removed in the vicinity of the demolition expansion area.

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.

National Wetlands Inventory (NWI) maps prepared by the U.S. Fish & Wildlife identified a potential wetland along the north-central property boundary, south of the Phase I/II areas. This wetland was delineated in October 1997 following methods presented in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual and the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. The palustrine emergent seasonally flooded (PEMC) wetland covers approximately 2.7-acres and exhibits evidence of disturbance from past agricultural activities. The wetland is of low quality, dominated by Reed Canary grass, a persistent and aggressive wetland vegetative species. Due to disposal capacity needs and physical site constraints, the wetland will be impacted by development of the demolition debris expansion area.

In order to comply with the MN Wetland Conservation Act (WCA), Steele County is proposing to mitigate the 2.7 impacted acres of wetland in the expansion area by restoring a wetland approximately ½ mile north of the landfill expansion site. A feasibility study of the restoration area was completed in early 2000, and construction of the restored wetland is planned for fall 2000. The restoration project is expected to yield approximately 15 acres of wetland credits on the land owned by Steele County. The WCA requires Steele County to provide 5.4 acres of wetland mitigation.

Steele County submitted a project notification form to local, state, and federal agencies in April 1999. The MDNR Waters Division was the only agency that responded to the project notification form, indicating that the project does not involve work in protected waters; therefore, it does not require a permit from the DNR.

Steele County is currently working with the USACE to identify federal permitting requirements for wetland mitigation.

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 MDNR 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.

A number of wells in the future MMSW expansion area will be abandoned prior to construction (see Figure 9). These wells include:

Site Well <u>Nomenclature</u>	Minnesota Unique <u>Well Number</u>
MW-207A	547058
MW-213A	547060
MW-213B	547070

A number of monitoring wells will be installed to provide long-term monitoring of the expansion area (see Figure 9). These wells include:

Site Well	
<u>Nomenclature</u>	Site Location/Purpose
MW-224A	Downgradient of Phase IV/Detection Monitoring
MW-225A	Downgradient of Phase IV/Detection Monitoring

No change in water supply wells is anticipated.

Although no appropriation of ground or surface water will occur, existing drainage tile on the western portion of the expansion site will be rerouted to accommodate landfill construction. This rerouting will be discussed with neighboring property owner(s) in the event that the tile assists in controlling shallow ground water on their property. No significant change in the source, quantity, and level of ground water affected by the drain tile is anticipated.

Water-related land use management districts. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? □ Yes ○ No

If yes, identify the district and discuss project compatibility with district land use restrictions.

The Steele County Landfill expansion will not be located within shoreland, a 100 year flood plain or within a wild or scenic river land use district. Based upon a review of the Federal Emergency Management Agency's Flood Rate Insurance Map (FIRM), Community Panel Number 270635/0050B for Steele County, Minnesota, the facility is located in Zone C areas of minimal flooding. Established land use districts for wild and scenic rivers listed in Minn. R. ch. 6105 do not include the area in the vicinity of the landfill site. Shoreland is defined in Minn. R. 6120.2500 as land within 1,000 feet of a pond or lake or 300 feet of a river or stream. The nearest lake is 1.5 miles southeast of the property (Oak Glen Lake) and the nearest river is located 1.5 miles south of the site (Straight River).

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: <u>30</u> acres; <u>111,000</u> 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.

No highly erodible soils were identified on-site. The only steep slopes will be associated with the landfill. Erosion and sedimentation measures are discussed below.

Prior to initial construction, a NPDES general storm water construction permit will be obtained from the MPCA and erosion control measures will be followed during the course of construction. Wind erosion during construction will be minimized by using water as a dust suppressant as necessary. To control runoff and erosion, drainage will be diverted from the active fill areas, and silt fencing, hay bales and diversion channels will also be used. The amount of land graded at any one time will be minimized.

During landfill operation, surface water runoff and erosion will be controlled by the surface water management system designed for the site as required by the NPDES General Stormwater permit. Precipitation that falls within the solid waste disposal area that does not come in contact with waste will be controlled by a series of diversion ditches, downslope drainage channels, a perimeter drainage channel, and culverts to discharge into sedimentation basins. Surface water running into the site will be controlled by the perimeter drainage channel. One permanent sedimentation pond, located in the northwest corner of the expansion property, has been designed for the site. A temporary sedimentation pond has been designed to assist in surface water management during the initial phases of development. The temporary pond is located adjacent to the demolition expansion area. The sedimentation ponds act as detention and settling ponds and meet criteria for 25-year, 24-hour storms.

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.

Development of this project will impact approximately 30 acres of watershed area that flows to Turtle Creek for a 25-year, 24-hour storm. The run-off volume for this area is approximately 5.05 acre/foot. During development of the landfill, all surface water from the landfill will be managed via

the sedimentation pond. Discharge from the sedimentation pond during a 25-year, 24-hour storm will be approximately 5.08 acre/foot. Discharge from the sedimentation pond will enter the Turtle Creek watershed area. Runoff, which is directed to the sedimentation ponds, will have water quality parameters typical of a rural area. No waste or leachate-related contaminants will be present. Any surface water that comes into contact with waste in the course of landfill operations will be collected by the leachate collection system and disposed as leachate.

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.

Development of the solid waste disposal area will impact approximately 30 acres of the existing watershed basin, which flows to Turtle Creek. Storm water runoff released from the sedimentation pond will flow down the existing drainage ditches on the western edge of the Phase III disposal areas ultimately reaching Turtle Creek. Since the runoff flow rate released from the site will initially be limited to the undeveloped portion of the site, and sediment will be retained in the sedimentation pond, no receiving water impacts are anticipated. Following placement of final cover on the landfill, the amount of sediment will greatly decrease. However, the sedimentation pond will be maintained for surface water retention.

18. Water Quality – Wastewater.

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

Leachate is generated as water from precipitation and moisture within the waste itself percolates through the waste mass. A leachate management system will be provided for the entire Phase IV MMSW landfill area. It will consist of a 12-inch granular drainage layer sloped two percent toward leachate collection pipes that drain to a sump. The leachate collected within the sump will be pumped into a perimeter force main system discharging into double-lined leachate holding tanks. Leachate collected within the tanks will be disposed off-site at a wastewater treatment plant.

Water balance calculations were performed for the Phase IV MMSW landfill so the quantity of leachate generated could be estimated. Water balance calculations and leachate quantity estimates were completed for both the active and closed landfill site conditions. The water balance was calculated using the Hydrologic Evaluation of Landfill Performance (HELP) model, Version 3, developed in conjunction with the U.S. Army Engineer Water System Experiment Station (WES) for evaluation of water movement through landfills. Based on the HELP analysis under open landfill conditions, the average daily leachate generation rate, based on average monthly precipitation, is approximately 507 gallons per acre, and it is approximately 769 gallons per acre based on peak monthly precipitation. Under closed landfill conditions, the average daily leachate generation rate, based on average monthly precipitation rate, based on average monthly precipitation rate, based on average daily leachate generation rate, based on peak monthly precipitation. Under closed landfill conditions, the average daily leachate generation rate, based on average monthly precipitation, is approximately 86 gallons per acre, and it is approximately 100 gallons per acre based on peak monthly precipitation.

The chemical composition of MMSW leachate varies depending on the waste types placed in the landfill and the dilution factor from precipitation. Several years of data are available for leachate chemistry from the Phase III MMSW area, and this is considered representative of typical leachate generated from Steele County MMSW. Analytical results of detected parameters from June 1998, are provided in Table 1.

TABLE 1 TYPICAL MMSW LEACHATE COMPOSITION STEELE COUNTY LANDFILL

General Chemistry and Metals				
Analytical Parameter Concentration (mg/l)				
Ammonia-Nitrogen	37.7			
Arsenic	0.0171			
Barium	1.061			
Boron	0.968			
Cadmium	0.00060			
Calcium	163			
Chloride	110			
Iron	37.96			
Lead	0.0018			
Magnesium	77			
Manganese	0.809			
Nickel	0.043			
Potassium	41.9			
Phosphorous, Total	0.43			
Phenolics, Total	0.09			
Sodium	173			
Sulfate	44			
Total Suspended Solids	21			
Zinc	208			

Volatile Organic Compounds				
Analytical Parameter Concentration (µg/l)				
1,1-Dichloroethane	0.7			
1,2,4-Trimethylbenzene	1.5			
1,3,5-Trimethylbenzene	1.2			
1,4-Dichlorobenzene	1.2			
Acetone	46.3			
Benzene	1.5			
Choroethane	1.6			
cis-1,2-Dichloroethene	1.9			
Dichlorodifluoromethane	1.9			
Ethyl Benzene	3.5			
Ethyl Ether	21.6			
Methyl Ethyl Ketone	120.0			
Methyl Isobutyl Ketone	5.0			
Methylene Chloride	0.8			
m+p-Xylene	9.0			
Naphthalene	1.1			
o-Xylene	3.4			
p-Isopropylbenzene	1.1			
Tetrahydrofuran	57.7			
Toluene	17.1			

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.

Leachate collected within the on-site storage tanks will be disposed of off-site at a wastewater treatment plant.

Currently, the city of Owatonna has the capacity to treat 1 billion gallons of wastewater annually using an activated sludge with tertiary treatment system. The maximum quantity of leachate generated annually by the Steele County Landfill (two million gallons) is less than one percent of the total capacity of the city's plant. The proposed expansion is not anticipated to add more leachate to the city's wastewater treatment system due, in large part, to the final impervious cap that will be placed over the existing Phase III MMSW area when it closes. However, an agreement with the MCES will be maintained as a back-up treatment alternative.

No ground water discharges are anticipated, other than the flow from an individual sewer treatment system which, by design, will be treated by the soil. Consequently, no significant ground water impacts are anticipated.

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.

Please see answer to Item 18b., above.

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

N/A

19. Geologic hazards and soil conditions.

 Approximate depth (in feet) to Ground water: 2' minimum; 7' average. Bedrock: 85' minimum; 100' average.
 Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

Sinkholes/Shallow Limestone Formations/Karst Conditions

Depth to bedrock at the site is approximately 85 to 115 feet. The uppermost bedrock at the site is either the lower Maquoketa Formation or the uppermost Dubuque Formation of the Galena Group which have been documented to produce karst features throughout southeastern Minnesota. The Hydrogeologic Map of Minnesota: Bedrock Hydrogeology designates the southeast corner of Steele County as a karst region because the uppermost bedrock can form karst features under certain conditions. However, based on discussions with Minnesota Geologic Survey staff in June 1998, no karst features have been documented in southeastern Steele County. In addition, U.S. Geological Survey (USGS) topographic maps from the area were examined to determine if any karst features were reflected as surface depressions; no karst features were evident in the proximity of the site. As a result, karst is not believed to be present in the vicinity of the site.

Soils with High Infiltration Rates

At some on-site locations, the uppermost soils consist of coarse outwash material that has hydraulic conductivities several orders of magnitude greater than the glacial till units. Outwash Unit B is the uppermost, continuous unit beneath the proposed expansion area and provides a consistent monitoring unit. However, Outwash Unit B does not extend downgradient, north of the expansion site beneath the Phase III MMSW area. As a result, the limited downgradient extent of Outwash Unit B minimizes the rate and extent of any potential contamination.

In order to address concerns regarding the coarse outwash and its potential to quickly transport possible contaminants off-site, the landfill liner has been designed to meet the requirements specified in Minn. R. 7035.2815. In addition, base grades of the MMSW landfill were established in order to reduce contact with the ground water.

Abandoned or Unused Wells

Prior to landfill development, the existing and expansion sites included two water supply wells for farmstead use (see Figure 3). On the existing site, the former Fisher well is currently used as the landfill shop well (referred to as the Shop Well in Figure 3). On the expansion site, the former Christiansen well (referred to as the Farm Well in Figure 3) is now utilized for landfill operations. Both wells are tested and maintained by Steele County.

All monitoring wells have been installed in accordance with current Minnesota Department of Health (MDH) well construction requirements and are maintained by Steele County as monitoring points. Wells are inspected several times a year to maintain construction integrity. Of the few wells sealed over the years, each well has been sealed in accordance with MDH requirements.

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.

<u>Soils</u>

The Steele County Soil Survey (Figure 6) shows the soil associations for the landfill areas as Hayden-Webster-Lester association and Bixby-Dakota-Biscay-Estherville association. The Hayden-Webster-Lester association is generally described as well-drained and poorly drained, nearly level to steep, loam soils. The Bixby-Dakota-Biscay-Estherville association is generally described as poorly drained to somewhat excessively drained, nearly level, loamy soils.

A number of soil types are present on the existing and expansion portion of the sites. The following soil types and their descriptions have been identified on the Steele County Landfill site:

Chelsea loamy fine sand. Deep, gently sloping to moderately steep, excessively drained, sandy soil; form in fine to medium sandy sediment; native vegetation of oak and brush; permeability is rapid; water table is greater than ten feet.

Dundas silt loam. Deep, nearly level, poorly drained, loamy soil; form in calcareous glacial deposits; native vegetation is dominantly oak; permeability is moderately slow; seasonal water table ranges from two to five feet.

Glencoe clay loam. Deep, nearly level, very poorly drained soils; form in clay loam and silty clay loam alluvium over loam or clay glacial deposits; native vegetation of sedges and water-tolerant grasses; permeability is moderately slow; water table is zero to three feet.

Hayden sandy loam and loam. Deep, gently undulating to hilly, well-drained, loamy soils, form in loamy glacial till; native vegetation of mixed hardwood forest; permeability is moderate, water table is greater than ten feet.

Lester-Estherville-Storden complex. Deep, gently undulating to very steep, well-drained, loamy soils; form in loamy glacial till; native vegetation of mixed hardwoods, principally oak; permeability is moderate, water table is greater than ten feet.

Le Sueur clay loam. Deep, nearly level to gently undulating, moderately well-drained and somewhat poorly drained, loamy soils; form in friable loam or clay loam glacial till; native vegetation of mixed hardwood; permeability is moderate; water table is five to ten feet.

Muck. Slightly decomposed to well-decomposed organic material from reeds and sedges; native vegetation include water-tolerant plants; water table at zero to three feet.

Webster clay loam. Deep, nearly level, poorly drained, loamy soils; form in calcareous, loamy glacial deposits, native vegetation of water-tolerant grasses; permeability in drained areas is moderate; water table is one and one half to three feet.

Site Geology

The site geology was characterized during the hydrogeologic evaluation, which consisted of geotechnical and exploratory borings, soil testing, and geologic interpretation. The full interpretation is included in the Phase-II Detailed Site Investigation Report (Rust Environment & Infrastructure, September 1998). The cross section locations are shown in Figure 3; the cross-sections, themselves, are shown in Figures 7 and 8. A summary of the soils at the site is provided in the following paragraphs.

Over much of the County, limestone forms the bedrock surface beneath the glacial deposits and is believed to include the Solon Member of the Cedar Valley Formation, the Clermont and Elgin Members of the Maquoketa Formation, and the Dubuque Formation of the Galena Group. The upper surface of the bedrock has been weathered into residuum. Depth to bedrock or residuum has been documented to range from 85 to 115 feet on the expansion site.

The surficial deposits encountered during the hydrogeologic investigation generally consist of topsoil, fill, outwash, and glacial till. The physical properties of the topsoil and fill vary across the site with a limited thickness and extent and, consequently, they are not discussed as a separate unit. The outwash occurs as discontinuous seams as well as distinctive outwash units that include bedded coarse and fine-grained sediment associated with glaciofluvial deposition as well as organic soils from wetland deposits. For purposes of site characterization, the distinctive units are simply referred to as outwash units, which are comprised of outwash-related material depicting the range of environments present at the time of deposition. The outwash deposits typically are interbedded within or associated with specific glacial till deposits. Four major glacial till deposits with three associated major outwash deposits were recognized on-site. From youngest to oldest, they are referenced as follows:

- New Ulm Till;
- Red Till Unit and Outwash Unit A;
- Loamy Till Unit and Outwash Unit B; and
- Clayey Till Unit and Outwash Unit C.

The following sections describe the physical characteristics of the surficial deposits as four separate units.

New Ulm Till

The New Ulm Till is limited to the uppermost till unit found in the northwestern corner of the expansion site and the southwestern corner of the existing landfill site. The New Ulm Till across the entire site (existing and expansion) ranges from zero to 15 feet thick, with the greatest thickness occurring in the northwest corner of the expansion site. The till generally appears to increase in thickness toward the borrow source area west of the expansion site.

The till is primarily described as a mottled, yellowish-brown (where oxidized) and dark gray (where unoxidized), silty or sandy lean clay with gravel. Because of the higher average liquid limit (37 percent) and plastic limit (21 percent), the till is typically classified as a sandy lean clay with gravel (CL). Although no significant sand seams were observed, discontinuous clay, silt, and fine to medium-grained sand seams were identified within the till unit, typically less than one-inch in thickness. The average grain-size distribution by weight is one percent gravel, 32percent sand, 34 percent silt, and 33 percent clay. The average natural moisture content (24 percent) reflects the rather high clay content of the unit.

Red Till and Outwash Unit A

A reddish-brown sandy till unit interbedded with outwash overlies a gray loamy till across the southern two-thirds of the expansion site. Soil borings conducted during the hydrogeologic evaluation that penetrated the Red Till Unit indicated it ranged in thickness from three to 15 feet. Outwash Unit A ranges from two to 23 feet in thickness and has been used extensively on-site as a sand and gravel borrow source. Much of Outwash Unit A and some of the Red Till Unit has been or will be excavated in the MMSW expansion area as part of past and future borrow activities.

The color of the till is described as a mottled, light olive brown or yellowish-brown where oxidized and brown, dark brown, and strong brown where unoxidized. The till was typically classified as a clayey sand with gravel (SC) and sandy lean clay with gravel (CL). However, numerous cobbles and boulders have been encountered in the till. The grain-size distribution by weight is: five percent gravel, 51 percent sand, 28 percent silt, and 16 percent clay.

Outwash Unit A is typically described as a brown to light brown, poorly graded medium to coarsegrained sand with gravel (SP), well graded sand (SW), and clayey sand (SC). Within excavations, Outwash Unit A is bedded with one to two-foot beds of gravel, pebbles, and cobbles. Boulders from one-foot to several feet in diameter have also been removed from this unit during borrow excavations. The average grain-size distribution is eight percent gravel, 75 percent sand, 12 percent silt, and five percent clay.

Loamy Till Unit and Outwash Unit B

The entire expansion site and nearly all of the existing site (except the extreme northern edge) is underlain by a gray loamy till interbedded or overlain by an outwash unit. This unit is overlain by the New Ulm Till in the western edge of the site and by the Red Till/Outwash Unit A in the southern two-thirds of the expansion site. The loamy till and Outwash Unit B are the uppermost unit over the northern one-third of the expansion site. Soil borings that penetrated the loamy till unit during the hydrogeologic evaluation indicate it ranged in thickness from 13 to 53 feet. Outwash Unit B ranges from two to 16 feet in thickness and was found to be a continuous isolated unit across the western portion of the expansion site. In general, the thickness of the Loamy Till decreases toward the north and is nonexistent north of the existing landfill area where the underlying Clayey Till Unit or Outwash Unit C is present at the surface.

The soil borings encountered an unoxidized gray to dark gray sandy lean clay with gravel (CL) and clayey sand with gravel (SC). The lower clay content appears to reduce the average liquid limit (26 percent) and plasticity index (12 percent) of the loamy till. The till is mottled to a light olive color near the surface where it has been oxidized. Similar to the Red Till Unit, numerous cobbles were encountered during drilling causing poor sample recovery. The average grain-size distribution by weight are as follows: five percent gravel, 44 percent sand, 31 percent silt, and 20 percent clay. The average natural moisture content (17 percent) reflects the lower clay content of the unit.

Outwash Unit B is typically described as a brown to yellowish brown to dark gray, poorly graded medium-grained sand (SP), well graded sand (SW), and silty sand (SM). However, as indicated above, numerous cobbles were encountered during drilling particularly in the northwest corner of the expansion site. The average grain-size distribution from five samples is 14 percent gravel, 62 percent sand, 16 percent silt, and seven percent clay.

Clayey Till Unit and Outwash Unit C

The entire landfill site (existing and expansion) is underlain by a dark gray clayey till. This unit is overlain by the Loamy Till Unit over the entire site, except the very northern edge of the existing site where it is present at the surface. On-site, the Clayey Till Unit lies directly on bedrock or residuum (weathered bedrock). The soil boring that encountered residuum contained about 32 feet of the Clayey Till Unit and approximately 50 feet of the Clayey Till Unit present in the vicinity of the Christianson Farm Well. Outwash Unit C, which consists of coarse and fine-grained sediment as well as organic soils, ranges from zero to 20 feet in thickness and is nearly continuous across the site. It appears to be absent in the north-central and very western edge of the existing site.

The soil borings typically describe the till as an unoxidized dark gray to dark greenish gray silty or sandy lean clay (CL). The high clay content increases the average liquid limit (56 percent) and plasticity index (55 percent) of the clayey till. The till is sometimes slightly oxidized and mottled to a light olive green at its upper surface including the contact with the overlying outwash. Very few cobbles were encountered. The average grain-size distribution is: zero percent gravel, 27 percent sand, 34 percent silt, and 39 percent clay. The till can contain greater than 50 percent clay by weight. Discontinuous silt seams and fine- to medium-grained sand seams were identified within the till at typically less than 1-inch in thickness. The till did not appear fractured. The average moisture content (24 percent) reflects the rather high clay content.

Outwash Unit C ranges from coarse-grained sediment (deposited in higher energy glaciofluvial environments) to fine-grained sediment (deposited in lower energy environments) to peat deposits (deposited in stagnant water deposits). The diverse depositional environment produced the full range of soil classifications including poorly graded medium-grained sand (SP), well graded sand (SW), silty sand (SM), clayey sand (SC), lean clay (CL), fat clay (CH), and lean organic clay (OL). The color of samples also varied considerably, ranging from gray to dark gray to grayish brown. Organic soils typically were very dark gray to light olive brown. The average grain-size distribution is six percent gravel, 71 percent sand, 15 percent silt, and 8 percent clay.

Site Hydrogeology

The uppermost major bedrock aquifer system within Steele County is the Cedar Valley-Maquoketa-Galena aquifer system up to 300 feet in thickness and directly underlying glacial drift. Around the landfill property, residential wells used for human consumption are typically screened in this aquifer. Identified shallow glacial drift wells are used for livestock.

Site hydrogeologic conditions have been monitored since the mid-1980s through a number of monitoring wells across the existing site and bordering the expansion site. Due to the site geology, wells across the expansion and existing sites are screened in any of the four geologic units described above. Based on monitoring well data, the depth to the water table across the expansion site ranges from two to 15 feet.

A water table contour map prepared using static water levels from September 25, 1997, illustrates ground water flow. Over much of the site, flow is toward the north-northwest with a small southerly component of flow in the southeast corner of the site. A more detailed description is presented below.

The horizontal average linear flow velocity beneath the proposed MMSW and demolition landfills are two to three orders of magnitude greater than the vertical average linear flow velocities. Based on the evaluation of ground water flow conditions across the expansion site, the water table within the Loamy Till Unit, Outwash Unit B, and Outwash Unit A provides a preferential flow path. The underlying Loamy Till Unit and the Clayey Till Unit at this depth reduce the potential for ground water movement.

Although water levels vary seasonally, flow directions and horizontal hydraulic gradients show little variation. Horizontal gradients across the MMSW and demolition expansion sites are rather uniform averaging 0.044 ft/ft northwest and north-northeast, respectively. The horizontal gradient in the northwest corner of the site decreases to 0.020 ft/ft north-northwest as the ground water enters higher permeability Outwash Unit B. Across the eastern portion of the site, horizontal gradients range from 0.020 ft/ft southeast to 0.062 ft/ft northwest. Slug tests conducted on the water table monitoring wells resulted in horizontal hydraulic conductivity values with geometric averages ranging from 1.3 x 10^{-4} and 9.6 x 10^{-6} cm/sec in New Ulm Till and the Loamy Till Unit, respectively, and 1.6×10^{-3} and 8.0×10^{-4} cm/sec in Outwash Unit A and Outwash Unit B, respectively. Applying information for the geologic unit present at the water table and its relative hydraulic conductivity, horizontal average linear flow velocities across the MMSW and demolition expansion areas are rather uniform averaging 127 feet/year northwest and north-northeast and decreasing to about 57 feet/year to the north-northwest in the northwest corner. Across the eastern portion of the site, horizontal average linear flow velocities range from six feet/year to the northwest and 127 feet/year to the southeast.

Vertical gradients across the expansion site are downward except at one location near the western edge of the proposed MMSW expansion area. An isolated sand unit hydraulically connected with the underlying Outwash Unit C was encountered at depth under flowing artesian conditions. Vertical gradients across the existing site appear to transition into upward gradients as ground water discharges into the wetlands. All nested wells across the expansion site have the Loamy Till Unit between the shallow and deep well. Downward vertical gradients range from 0.045 to 0.337 ft/ft. The lower vertical gradients appear to be present where the intervening Loamy Till Unit contains coarser fractions of soils. Laboratory tests of undisturbed, natural permeability samples collected of the Loamy Till Unit resulted in horizontal hydraulic conductivity values with a geometric average of 1.7×10^{-6} cm/sec. Vertical average linear flow velocities through the Loamy Till Unit range from 0.7 to 5.8 feet/year downward.

In order to address concerns regarding the coarse outwash and its potential to quickly transport possible contaminants off-site, the MMSW landfill liner has been designed to meet the requirements specified in Minn. R. 7035.2815. The landfill liner is underlain by a partial lysimeter that provides leak detection and pump-out capabilities. In addition, base grades of both the MMSW and demolition landfill were established to reduce contact with the ground water. Should contaminants ever enter the ground water, the ground water monitoring system has been specifically designed to enable monitoring for the hydrogeologic conditions described in detail above.

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 Steele County Solid Waste Disposal Facility has been designed to comply with Minn. R. ch. 7001 and 7035. The facility will accept general MMSW and demolition debris for disposal. The following wastes will not be accepted at this facility:

- Hazardous wastes, categorized according to Minn. Stat. ch. 115B and 116 and Minn. R. ch. 7045, or wastes that have not been evaluated pursuant to Minn. R. 7045.0214 or 7045.0217;
- Sewage sludge, septic tank pumpings, sewage sludge compost, or sewage unless it has been treated or will be treated by a process to significantly reduce pathogens pursuant to Minn. R. 7040.0100 to 7040.4700 or 7035.2835;
- Infectious wastes, unless approved by the agency;
- Waste oil;
- Radioactive waste;
- Wastes containing free liquids; and
- Free liquids.

Household hazardous waste (HHW) will be accepted at the site and managed in accordance with the MPCA approved HHW Plan. HHW will not be disposed of in the Steele County landfills. Approved, non-hazardous industrial special wastes will be accepted in accordance with the Industrial Solid Waste Management Plan.

Demolition debris that will be accepted for disposal consists primarily of construction rubble including concrete, brick, bituminous concrete, untreated wood, masonry, glass, trees, rock and plastic building parts. Asbestos products will not be accepted for disposal in the demolition landfill.

The county is also considering accepting oversized public/commercial recyclables such as metal siding, old farm implements, plumbing fixtures, oversized metal tubing and duct work, household gutters and doors, etc.

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.

As stated under Item 20a., above, household hazardous waste will be accepted at the site and managed in accordance with the county's HHW Plan; however, none will be disposed of in the landfills. The HHW Plan details several measures that are to be followed to prevent any groundwater contamination.

Used oil and oil filters are also accepted and stored at the landfill office in accordance with applicable rules and regulations (regulated by the MPCA). These rules and regulations were promulgated, in part, to prevent these materials from causing groundwater contamination. Up to 500 gallons of used oil is allowed to be stored, and a maximum of 200 oil filters. The used oil and oil filters are then collected by a private contractor and processed off-site.

To manage the day-to-day upkeep with vehicle maintenance associated with landfill operations, automotive products (e.g., oil, fuel, antifreeze, hydraulic oil) are used at the shop. These products are only used for their intended purpose and they are safely stored in the shop, a building with no floor drain, when they are not being used.

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.

Material Stored	Number of Tanks	Quantity (gals.)	
Landfill Leachate	2	10,000 each	

In accordance with applicable rules, both leachate collection tanks will be double lined with a leachate detection system. The details of the emergency response containment plan for this specific component of the operation can be found in the MPCA-approved Steele County Landfill Contingency Action Plan, a detailed document the county was required to prepare and use in the event any landfill emergency arises.

21. Traffic. Parking spaces added: <u>0</u> Existing spaces (if project involves expansion): <u>0</u> Estimated total average daily traffic generated: <u>no change</u> Estimated maximum peak hour traffic generated (if known) and its timing: <u>no change</u> 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.

No change is proposed in the waste accepted in the current facility and, therefore, no change in current traffic patterns are anticipated. On average, approximately 15 trucks haul refuse to the Facility per day.

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.

No change is proposed in the current vehicle traffic and heavy equipment operation on-site; therefore, no change is anticipated in vehicle-related air emissions.

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.

Based upon review of the air emissions potential of the Steele County Landfill, the national ambient air quality will not be violated. The Steele County Landfill is located in an attainment area for all criteria pollutants. The facility's potential emissions primarily consist of fugitive dust and non-methane organic compounds contained in landfill gas. About 90 percent of the non-methane organic compounds are volatile organic compounds (VOC), a regulated pollutant (40 CFR Subpart WWW).

The landfill has approximately 1.5 million cubic yards of capacity left in existing Phase III and new Phase IV. The total design capacity of the landfill is approximately 2.8 million cubic yards or 2.14 million cubic meters. Although the site currently accepts less than 50,000 cubic yards per year, over the life of the landfill it has averaged 112,000 cubic yards per year, or 76,204 Mg/yr, since 1973. Based on a Non-Methane Organic Compound (NMOC) concentration of 595 ppmv (parts per million per volume) for MMSW landfills from US EPA AP-42 Section 2.4, October 1997, the annual NMOC emissions from the landfill can be estimated using the equation shown below:

$$M_{NMOC} = 2 L_o R(e^{kc} - e^{kt}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where, M_{NMOC} = total mass emission rate of NMOC from the landfill, Mg/yr

- Refuse methane generation potential; $L_o = 170^* (m^3/Mg)$
- Average annual acceptance rate; R = 76,204 (Mg/yr)
- Methane generation rate constant; $k = 0.05^* (1/yr)$
- Years since closure, (c = 0 for active landfills); c = 0 (years)
- Age of landfill; t = 25 (years)
- Concentration of NMOC; $C_{NMOC} = 595$ (ppmv as hexane)
- Conversion factor = 3.6×10^{-9}

 $M_{NMOC} = 2 (170) (76,204) (e-(0.05) (0) - e -(0.05) (25)) (595) (3.6 \times 10^{-9})$

 $M_{NMOC} = 36.9 \text{ Mg/yr}$

* Default values

Based on these calculations, the emissions from the landfill are not significant enough to affect the National Air Quality Standards. The emissions are below the 100 ton/year Title V permitting threshold for VOCs.

Based on the 50,000 cubic yards per year waste acceptance, the site will receive approximately 200 cubic yards per day. There are approximately 15 trucks per day unloading waste. The dust generated from this amount of activity will be minimal.

24. Odors, noise and dust. Will the project generate odors, noise or dust during construction or during operation? Xes 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 private residence to the facility is the Lawrence and Annette Balzer farmstead located approximately 1,500 feet west of the Phase IV MMSW area. The residence is located on the landfill property that is owned by Steele County and leased as a private residence.

Fugitive dust emissions are primarily generated by traffic on access and maintenance roads, dusty loads disposed of in the active face, or general construction activities such as soil liner construction, etc.. Gravel roads will be watered as directed by the site operator to minimize dust caused by vehicular movement. Construction roads will be maintained by the contractor to minimize fugitive dust. Soil excavation will expose moist soil and dust potential should be minimal. Construction areas will be limited to as small an area as practical. Soils will be watered during construction to limit dust potential, if necessary. Dust from final and intermediate cover areas will be limited by proper revegetation and mulching. Dusty loads dumped in the active area will be covered immediately by daily cover.

Proper operation of the active area, including placement of daily cover and proper compaction of waste, will assist in controlling odor development. In addition, wastes that are particularly odorous will be covered immediately. Additionally, the gas extraction system will assist in limiting gas migration through the cover, thus controlling odors.

Noise is generated at the landfill by hauling trucks and landfill equipment. The noise is controlled by restricting operations to regular business hours Monday through Friday. Noise will be created by excavation equipment during construction. This impact will be short term and also restricted during business hours.

- 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? \square Yes \square No
 - c. Designated parks, recreation areas, or trails? \Box Yes \boxtimes No
 - d. Scenic views and vistas? 🗌 Yes 🖂 No
 - e. Other unique resources? \Box Yes \boxtimes No

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

The U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) was contacted to identify the presence of unique farm land within one mile of the facility. Based upon information provided by NRCS, the proposed expansion will disturb some prime farmland. Prime farmland has been identified as Dundas silt loam, LeSueur clay loam, and Hayden loam. Much of these areas on-site are made tillable by drainage tile. The area covered by Dundas silt loam and LeSueur clay loam has also been disturbed by sand and gravel excavation. The Hayden loam soil on the eastern half of the property is not proposed to be developed. It appears that less than 20 acres of prime farmland will be affected by landfill development. Alternatives to the conversion of farmland have not been identified because the impact is considered minimal.

The Minnesota Historical Society was contacted to identify any archeological or historical sensitive sites within one mile of the facility. Based upon their review, no properties within one mile of the proposed facility expansion are listed on the National Register of Historic Places (see Attachment B).

No designated parks, recreation areas, or trails have been established in the vicinity of the landfill. However, the north property limits of the existing landfill abuts the Aurora State Wildlife Management Area. The wildlife management area was established after the development of the landfill. Because the existing landfill is situated between the expansion site and the wildlife management area, the expansion would not effect the resources of the wildlife management area. In addition, the USFWS had no objections to the facility development. The MDNR Endangered Species Environmental Review Coordinator, Section of Ecological Services was contacted to identify any threatened or endangered species surrounding the proposed facility expansion. Based upon their review of the Natural Heritage Database, no known occurrences of rare species or natural features are in the area.

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.

Steele County has established a screen of trees and shrubs around the entire perimeter of the expansion to protect aesthetic aspects of the landfill operation. As the trees mature, the landfill operations will become less visible from neighboring properties.

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 development of the landfill expansion is considered compatible with surrounding land uses because the existing landfill is adjacent to the expansion property. The Steele County Planning Department has documented that the expansion of the Steele County Landfill would not conflict with current land use policies.

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.)

Other site improvements are under consideration including ancillary support features such as maintenance and entrance structures, commercial and public drop-off areas for oversized recyclable materials and a new maintenance building. A fence will be installed across the eastern limits of the disposal area. Any new building will require extension of electrical utilities. **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).

Past and Present Projects

As noted under Item 6b. above, the Facility contains two existing MMSW landfill areas. The Phase I/II MMSW section in the eastern half of the site, which was closed in 1985 in accordance with state requirements, are unlined areas (i.e., no synthetic or clay liner was installed prior to waste being deposited); however, an MPCA-approved underground perimiter leachate collection system was installed in 1984. Monitoring results demonstrate that the unlined area is not causing any significant environmental impacts to the groundwater.

Underlying the existing, active MMSW landfill area (Phase III) is a four-foot clay liner system and a leachate collection system to prevent leachate from entering the groundwater. Leachate collected from the Facility is taken to the Owatonna wastewater treatment facility. Groundwater monitoring wells are installed outside the perimeter of the landfill area. The Facility must follow the MPCA-approved Post-Closure Plan and Contingency Action Plan to prevent the lateral migration of any potential contaminants off-site. In addition, hydrogeologic conditions at the site are favorable for reducing the potential for impacts to the underlying aquifer. The groundwater within the underlying aquifer is under pressure, producing an upward gradient toward the ground surface and naturally restricting any downward migration of potential contaminants.

There are no other known projects that have interacted with this project, and none are planned in the future. In summary, then, the proposed landfill expansion, due to the level of required environmental controls, is not anticipated to interact with the past and present landfills in such a way as to cause significant environmental effects due to cumulative impacts.

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 adverse environmental impacts are anticipated other than those addressed in this EAW.

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.

Impact on Ecological Resource

Due to disposal capacity needs and physical site constituents, a portion (.7 of an acre) of a stand of mature oak trees will be removed in the vicinity of the demolition expansion area. Alternatives to the loss of trees have not been identified because the impact is considered minimal.

Physical Impact on Water Resources

A PEMC wetland covering approximately 2.7 acres will be impacted by site development. The wetland exhibits evidence of disturbance from past agricultural activities. It is dominated by Reed Canary grass, a persistent and aggressive wetland vegetative species.

As noted under Item 12., above, in order to comply with the WCA, Steele County is proposing to mitigate the 2.7 impacted acres of wetland in the expansion area by restoring a wetland approximately ½ mile north of the landfill expansion site. The restoration project is expected to yield approximately 15 acres of wetland credits on the land owned by Steele County. WCA requires Steele County to provide 5.4 acres of wetland mitigation. The DNR Waters Division indicated that the project does not involve work in protected waters and does not require a permit from the DNR.

Steele County is currently working with the U.S. Army Corps of Engineers to identify federal permitting requirements for wetland mitigation

Ground Water Appropriation

Although there will be no appropriation of ground or surface water, the existing drainage tile on the western portion of the expansion site will be rerouted to accommodate landfill construction. Rerouting of this drain tile will be discussed with neighboring property owner(s) in the event that the tile assists in controlling shallow ground water on their property. No significant change in the source, quantity, and level of ground water affected by the drain tile is anticipated.

Erosion and Sedimentation

Prior to initial construction, a general storm water permit will be obtained from the MPCA and erosion control measures will be followed during the course of construction. Wind erosion during construction will be minimized by using water as a dust suppressant as necessary. To control runoff and erosion, drainage will be diverted from the active fill areas, and silt fencing, hay bales, and diversion channels will also be used. The amount of land that is being graded at any one time will be minimized.

During landfill operation, surface water runoff and erosion will be controlled by the surface water management system designed for the site. Precipitation that falls within the solid waste disposal area and does not come in contact with waste will be controlled by a series of diversion ditches, downslope drainage channels, perimeter drainage channel, and culverts to discharge into sedimentation basins. Surface water running onto the site will be controlled by the perimeter drainage channel. One permanent sedimentation pond, located in the northwest corner of the expansion property, has been designed for the site. A temporary sedimentation pond has been designed to assist in surface water management during the initial phases of development. The temporary pond is located adjacent to the demolition expansion area. The sedimentation ponds act as detention and settling ponds and meet criteria for 25-year, 24-hour storms.

Water Quality - Wastewater

Leachate is generated as water from precipitation and within the waste itself percolates through the waste mass. The chemical composition of the leachate will be typical of MMSW with a variety of potentially harmful contaminants dissolved within the water. In order protect the environment from the contaminants the Phase IV MMSW landfill will be constructed with a base liner system consisting of a composite liner from top to bottom:

The base liner system for the Phase IV MMSW landfill will be a composite liner consisting, from top to bottom, of:

- Minimum seven ounces/square yard geotextile;
- Sixty-mil smooth HDPE geomembrane; and
- Two feet of compacted clay liner having a maximum hydraulic conductivity of 1×10^{-7} cm/sec.

The facility design will also include a partial lysimeter for leak detection in accordance with Minn. R. 7035.2815, Subp. 9 (MPCA Solid Waste Rules). This proposed design meets the minimum requirements specified in Minn. R. 7035.2815, Subp. 7 and includes the placement of a geotextile to cushion and protect the geomembrane from puncture and rupture during construction.

In addition, the landfill design includes a leachate management system to collect the leachate for off-site disposal and a final cover system to ultimately reduce the generation of leachate. From top to bottom, the final cover system will consist of:

- Six- inch thick topsoil layer;
- Twelve-inch thick vegetative cover layer;
- Six-inch thick sand drainage layer;
- Thirty-mil PVC, forty-mil HDPE, or forty-mil LLDPE; and
- Six-inch thick waste buffer/gas migration layer.

Ground Water – Potential for Contamination

At some locations on-site, the uppermost soils consist of coarse outwash material that has hydraulic conductivities several orders of magnitude greater than the glacial till units and therefore, will have a high infiltration rate. The horizontal and vertical extent of the outwash units are sufficiently defined. Outwash Unit B is the uppermost, continuous unit beneath the MMSW landfill expansion and provides a consistent monitoring unit. However, Outwash Unit B does not extend downgradient, north of the expansion site beneath Phase III MMSW area. As a result, the limited downgradient extent of Outwash Unit B minimizes the rate and extent of any potential contamination.

In order to address concerns with the coarse outwash quickly transporting potential contaminants off-site, the landfill liner design meets the requirements specified under Minn. R. 7035.2815 with a composite liner including two feet of compacted clay. In addition, base grades of the MMSW landfill were established in order to reduce contact with the ground water.

Air Emissions, Dust, Noise, and Odor

Based upon review of the air emissions potential of the Steele County Landfill, the national ambient air quality will not be violated and the emissions from the landfill are not significant enough to affect the National Air Quality Standards. The emissions are below the 100 ton/year Title V permitting threshold.

Fugitive dust emissions are primarily generated by traffic on access and maintenance roads, dusty loads disposed of in the active face, or general construction activities such as soil liner construction, etc. Gravel roads will be watered as directed by the site operator to minimize dust caused by vehicular movement. Construction roads will be maintained by the contractor to minimize fugitive dust. Soil excavation will expose moist soil and dust potential should be minimal. Construction areas will be limited to as small an area as practical. Soils will be watered during construction to limit dust potential, if necessary. Dust from final and intermediate cover areas will be limited by proper revegetation and mulching. Dusty loads dumped in the active area will be covered immediately by daily cover.

Proper operation of the active area will limit odor concerns. Placement of daily cover and proper compaction of waste will assist in controlling odor development. In addition, wastes that are particularly odorous will be covered immediately. Additionally, the gas extraction system will assist in limiting gas migration through the cover, thus controlling odors.

Noise is generated at the landfill by hauling trucks and landfill equipment. The noise is controlled by restricting operations to regular business hours Monday through Friday. Noise will be created by excavation equipment during construction. This impact will be short term and also restricted during business hours.

Prime Farmland

The U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) was contacted to identify the presence of unique farmland within one mile of the facility. Based upon information provided by NRCS, the proposed expansion will disturb some prime farmland. Prime farmland has been identified as Dundas silt loam, LeSueur clay loam, and Hayden loam. Much of these areas on-site are made tillable by drainage tile. The area covered by Dundas silt loam and LeSueur clay loam has also been disturbed by sand and gravel excavation. The Hayden loam soil on the eastern half of the property is not proposed to be developed. It appears that less than 20 acres of prime farmland will be affected by landfill development. Alternatives to the conversion of farmland have not been identified because the impact is considered minimal.

Impact on Infrastructure

Other site improvements are under consideration including ancillary support features such as maintenance and entrance structures, commercial and public drop-off areas for oversized recyclable materials and a new maintenance building. A fence will be installed across the eastern limits of the disposal area. Any new building will require extension of electrical utilities.

Related Developments

The Steele County Sanitary Landfill was originally permitted in 1973 to except waste for disposal. All past expansions have been completed in accordance with state requirements. Based on current waste flows within the County, the remaining permitted capacity of the landfill will be depleted within four years. The landfill expansion is designed to meet Steele County's waste disposal needs for nearly 40 years.

The proposed expansion will also include a 7-acre demolition landfill (Phase III) with a capacity of 326,000 cubic yards to provide over 30 years of demolition disposal in addition to MMSW disposal. Initial site development may begin as early as the year 2001 with construction of a portion of the perimeter berm and access roads in the demolition debris area.

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:

Beth G. Lockwood, District Planning Supervisor Operations and Planning Sections, North, South and Metro Districts

Date:

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