

December 23, 1999

TO INTERESTED PARTIES:

RE: NRG Energy, Inc., Becker Ash Disposal Facility Expansion

Enclosed is the Environmental Assessment Worksheet (EAW) for the proposed NRG Energy, Inc., Becker Ash Disposal Facility Expansion, Sherburne 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 on the day the EAW availability notice is published in the EQB Monitor, which will likely occur in the December 27, 1999, issue.

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

A final decision on the need for an EIS will be made by the MPCA Commissioner after the end of the comment period. If a request for an EIS is received during the comment period, or if the Commissioner recommends the preparation of an EIS, the nine-member MPCA Citizens' Board (Board) will make the final decision. The final EIS need decision will also be made by the Board if so requested by the project proposer, other interested parties or MPCA staff 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 Section
North and South Districts

BGL/lkk

Enclosure

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to reviewers: Comments must be submitted to the Minnesota Pollution Control Agency (MPCA), Responsible Government Unit (RGU), during the 30-day comment period following notice of the Environmental Assessment Worksheet (EAW) in the *Minnesota Environmental Quality Board (EQB) Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an Environmental Impact Statement (EIS).

1. **Project Title:** Northern States Power Company (NSP)/NRG Becker Ash Disposal Facility Expansion

2. **Proposer:** NRG Energy, Inc.

3. **RGU:** MPCA

Contact Person Ed Stoutenburg

Contact Person Kevin Molloy

And Title Transportation Administrator

And Title Project Manager

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4. **Reason for EAW Preparation:**

EIS Scoping Mandatory EAW Citizen Petition RGU Discretion Proposer Volunteered

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

Minnesota Rules, Part 4410.4300, subpart 17, item G. For construction or expansion of a mixed municipal solid waste (MSW) energy recovery Facility, ash landfill receiving ash from an incinerator that burns refuse-derived fuel (RDF) or mixed MSW.

5. **Project**

Location: County Sherburne City/Twp City of Becker

NW 1/4 SW 1/4 Section 7 Township 33N Range 28W

The following are attached to the EAW:

- **Figure 1.** State/County Location Map;
- **Figure 2.** Sherburne County Map;
- **Figure 3.** U.S. Geological Survey 30 x 60 Quadrangle Map;
- **Figure 4.** Site Map;
- **Figure 5.** Annual Ash Volume;
- **Figure 6.** Cumulative Ash Volume;

- **Figure 7.** Site Cross Section;
- **Figure 8.** Stage 1 Isometric View;
- **Figure 9.** Stage 2 Isometric View;
- **Figure 10.** Stage 3 Isometric View;
- **Figure 11.** Liner and Cover Cross Sections;
- **Figure 12.** Leachate Collection Trench Sections;
- **Figure 13.** Leachate Generation Rates; and
- **Figure 14.** Zoning Map.

6. Description:

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

NRG Energy, Inc., proposes expansion of Becker Ash Landfill's final three cells to meet projected RDF ash disposal needs for the duration of a contract (through 2009) with five Minnesota counties (Anoka, Benton, Hennepin, Sherburne, and Stearns) and Great River Energy in Elk River, Minnesota. The landfill, within the city of Becker, has been used for RDF ash disposal since 1991. Based on current annual ash disposal rates (76,400 cubic yards) and future projections, the landfill will reach its permitted capacity between 2005 and 2007. The expansion would allow the landfill, presently permitted to accept a maximum of 1,286,316 cubic yards of RDF ash, to accept an additional 315,000 cubic yards of RDF ash (a 24 percent increase). The facilities will include a Type P double-composite liner system, leachate collection and leak detection systems, an environmental monitoring system and engineered final covers.

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

BACKGROUND

In 1989, NRG Energy, Inc., and Great River Energy (formerly United Power Association) entered into a contract with five counties in central Minnesota (Anoka, Benton, Hennepin, Sherburne, and Stearns) for a 20-year waste-to-energy project for landfill abatement. The project includes processing mixed MSW into RDF at the Elk River Resource Recover Facility in Elk River, Minnesota, burning the RDF for electrical generation at the Great River Energy power plant in Elk River, Minnesota, and disposing of the ash produced by the combustion process at the NRG Energy, Inc., Becker Ash Disposal Facility (Facility) in Becker, Minnesota.

The Facility was permitted and constructed in 1991 and was intended to provide ash disposal capacity for the 20-year contract period which expires in 2009. An EAW was completed in 1991 as part of the original permitting process. The 1991 EAW process concluded with a negative declaration for an EIS (i.e., the project did not present the potential for significant environmental impacts which would require further study in an EIS). The 1991 EAW is attached to this document as Appendix A. The four general issues summarized in the 1991 EAW (Item 32) are identified below, including a discussion of the current status of each.

- *Zoning - The project site will have to be rezoned to industrial use by the city of Becker prior to construction of the Facility.* The site is now zoned Industrial-Power Generation. No zoning changes are required for the proposed expansion.

- *High Infiltration Rates* - The soils under the Facility have high vertical infiltration rates. If leachate were to leak from the Facility, it could migrate through these soils. The environmental protection systems at the Facility (double liner and composite cover), which will be used for the expansion, provides a high degree of protection against leakage into the ground. The environmental monitoring system (sump lysimeters and ground water monitor wells) would provide advanced warning and provide opportunity to capture leakage should it occur. Quarterly sampling and analysis of groundwater indicates that leakage has not occurred in the previous eight years of Facility operation.
- *Leachate* - Chemicals contained in the leachate may occur in concentrations which exceed drinking water standards. Impacts to ground water quality could occur if leachate were to leak from the Facility or if not treated properly after removal from the Facility. As stated above, results of the required environmental monitoring at the Facility demonstrate that there has not been any impact to ground water. Leachate removed from the Facility was previously pumped to an adjacent coal ash scrubber solids pond (Sherco power plant); however, this is no longer occurring. All leachate is now transported either to the Metropolitan Council Environmental Services regional treatment plant in St. Paul, Minnesota (for treatment), or to the Great River Energy power plant in Elk River, Minnesota (source of the ash disposed at the Facility) for recycling in the ash quenching system (defined further under Item 18c.)
- *Dust* - Fugitive dust emissions from the Facility could impact air quality in the vicinity of the site. Based upon inspections of the Facility and its operations (conducted by state, county and local officials), fugitive dust emissions have been virtually non-existent at the Facility, and no overall air quality impacts have been noted as a result of the Facility and/or its operation. Fugitive dust emissions are controlled through several operational practices. First, the ash delivered to the Facility is high in moisture content and this serves to inhibit and/or minimize dust emissions from being generated during ash placement and spreading operations. Second, lime added to the ash in the scrubber at the power plant causes the ash to be self-cementing, reducing the potential for dust emissions after placement. Third, in order to maintain the dust-suppression effects of moist ash, either a fresh lift of moist ash or a layer of soil is placed over previously-placed ash before significant drying occurs.

The Facility was originally designed for an ash generation rate of 63,800 cubic yards per year, and has a currently permitted ash disposal capacity of 1,286,316 cubic yards. Three of six permitted ash disposal cells have been filled and closed. Cell 4 was constructed in 1997 and is currently active. Cell 4 is projected to be filled by the end of the year 2000, and will be closed in 2001. Cell 5 is scheduled for construction in the year 2000.

NEED FOR EXPANSION

As of October 1998, 609,000 cubic yards of ash disposal capacity (48 percent of the currently permitted capacity) had been consumed. However, the current ash production rate is 76,400 (vs. the design rate of 63,800) cubic yards per year and is on an upward trend. The increasing rate results are due, in part, to the following regulatory changes:

- Amendments to the Waste Management Act (Minn. Statutes, Chapter 115A.) have been enacted since the Facility was originally constructed and these have impacted the amount of MSW ash brought to the Facility. For example, MSW generated in the metropolitan area must now be processed before it can be disposed of in a waste disposal Facility, and, if there is at least an 85 percent weight reduction in the solid waste processed and incinerated, additional fees that could be charged for the ash disposal are avoided; hence, there is a financial incentive to ensure this is achieved. These regulatory changes prompted improvements to be made in the waste processing and the energy conversion systems which, in turn, has created a higher volume of ash due to the increased amount of waste processed and converted to energy.

- Changes in air quality requirements. This change has prompted modifications to the air emissions control equipment at the energy conversion plant. More lime is now used for emissions control than was previously used, which adds bulk to the ash and increases the total ash volume.

Ash production rates may peak at up to 92,000 cubic yards per year if further improvements in fuel processing and energy conversion efficiency are achieved. Ninety-two thousand cubic yards per year of ash production would be a maximum rate based upon physical limitations of the energy conversion equipment (the Great River Energy power plant's maximum operating capacity would not produce more than 92,000 cubic yards of ash per year).

Based upon the current upward ash production trend, the maximum potential ash generation rate, and the project duration, it is estimated that there will be a 315,000 cubic yard shortfall in disposal capacity at the Facility. Historical and projected future annual ash generation rates are shown in Figure 5. Cumulative ash volumes, showing the projected needed capacity, are shown in Figure 6.

PROPOSED EXPANSION

The needed additional capacity will be provided entirely within the existing site boundary through a horizontal and slope expansion of currently permitted Cells 4, 5, and 6. Figures 4 and 7 show plan and cross-sectional views, respectively, of the proposed expansion. The proposed horizontal expansion consists of increasing the size of the currently permitted landfill footprint on the east side of Cells 4, 5, and 6, and it would be approximately 202 feet by 513 feet in plan dimension (2.4 acres) while maintaining the 200-foot set-back requirement from the existing site boundary.

The proposed slope expansion consists of constructing perimeter berms to a higher elevation and placing additional ash on the slope areas of Cells 4, 5, and 6. The currently permitted ash footprint would remain unchanged on the west and south sides of the Facility. The peak elevation of the Facility would also remain unchanged. The closed portion of the Facility (Cells 1, 2, and 3) would not be disturbed.

CONSTRUCTION

Construction would occur in three stages for each of the two remaining cells. Stage 1 includes construction of the Facility liner, leachate collection system, and perimeter berm. This stage of construction includes topsoil stripping; soil excavation; placement and compaction of excavated soil for berm construction; placement and compaction of imported clay; installation of geomembranes and synthetic drainage nets; screening and placement of excavated sand for drainage layer; placement of topsoil on perimeter berms; and turf establishment.

Stage 2 includes extension of the perimeter berm to a higher elevation and construction of a portion of the final cover. As part of this stage of development, a 30-foot high ash berm with an interim slope of 1.5H:1V would be constructed first, followed by placement of final cover barrier and drainage layers. The perimeter berm extension would then be constructed, overlying and buttressing the ash berm (see Figure 7). The finished slopes of the final cover and exterior perimeter berm would be 5H:1V and 3H:1V, respectively. The 1.5H:1V interim slope on the ash berm can be constructed using standard construction equipment. Similar slopes are currently constructed and maintained on the working face. Stage 2 construction also includes placement and compaction of stockpiled soil for berm construction; installation of geosynthetic clay liner and geomembrane; screening and placement of stockpiled sand for venting and drainage layers; placement of stockpiled soil for rooting soil layer; placement of topsoil on perimeter berms and final cover areas; and turf establishment.

Stage 3 includes construction of remaining final cover and surface water controls. This stage of construction includes installation of geosynthetic clay liners and geomembrane; screening and placement of stockpiled sand for venting and drainage layers; placement of stockpiled soil for rooting soil layer; installation of catch basins, manholes, and storm water pipes; placement of topsoil on final cover areas; and turf establishment.

Figures 8 through 10 show isometric perspective views of the three development stages of the proposed expansion.

The following table lists anticipated construction dates for the development phases.

Construction Phase	Phase Description	Anticipated Construction Date
Phase 1	Cell 5 Liner and Stage 1 Berm	2000
Phase 2	Cell 4 Final Cover	2001
	Cell 5 Stage 2 Berm	2002
Phase 3	Cell 6 Liner and Stage 1 Berm	2005
Phase 4	Cell 5 Final Cover	2006
	Cell 6 Stage 2 Berm	2008
Phase 5	Cell 6 Final Cover	2010

OPERATIONS

Hours of operation are generally from 6:00 a.m. to 4:00 p.m. seven days per week. However, hours of operation sometimes vary to coordinate with plant outages or other power-plant-related operations, which affect the ash production rate. When the Facility first started operations in 1991, ash was hauled 24 hours per day, seven days per week. Since that time, an ash storage Facility has been put into operation at the power plant, which allows hauling operations to occur mainly during daylight hours.

Ash is hauled to the site in 18-cubic-yard-capacity semi-trailer trucks and end-dumped in the active disposal area of the Facility. Approximately 13-truck trips are made per day. Ash is spread in approximate eight-inch lifts and compacted. Previously placed ash is covered within 48 hours with either a lift of fresh ash or soil. Areas, which are inactive for 30 days or more, are covered with a temporary clay cap.

Leachate is pumped from the Facility with automated pumping systems to control the leachate depth over the liner. Leachate is pumped through a double-walled force main to double-wall storage tanks for temporary storage. Leachate is pumped from the storage tanks into 6,000-gallon-capacity tank trucks for transport and disposal. Tank truck loading occurs inside an existing building at the Facility. Since the leachate generation rate varies with the amount of precipitation occurring at the site, the leachate hauling frequency also varies. On average, approximately 270 loads of leachate are hauled annually. Two to four loads are hauled per day during the peak rainfall season in the summer, and one to two loads are hauled per week during the winter.

DESIGN FEATURES

The proposed expansion will include the same liner, leachate collection, and final cover design features that are currently permitted and used for the existing Facility, as described on the following page.

LINER

The horizontal expansion would be constructed with a Type P double-composite liner system as required by Minnesota Rule 7035.2885, Subp. 11P.. Figure 11 shows a cross-sectional view of the liner system. The liner consists of the following materials (listed from bottom to top):

- Three-foot thick compacted clay liner;
- 40-mil High Density Polyethylene (HDPE) geomembrane;
- Synthetic drainage net;
- 60-mil HDPE geomembrane; and
- 12-inch thick sand drainage layer.

The upper sand drainage layer and 60-mil geomembrane function as the primary liner and leachate collection system. The synthetic drainage net, 40-mil geomembrane, and clay liner function as a secondary containment system to detect and capture leachate.

LEACHATE COLLECTION AND REMOVAL SYSTEM

The leachate collection system currently permitted for Cells 5 and 6 would be extended into the horizontal expansion area. The leachate collection system meets the requirements of Minn. R. 7035.2885, subp. 13. Figure 12 shows cross-sectional views of the leachate collection trench.

The leachate collection system for the primary liner consists of six-inch diameter perforated polyethylene pipe and a two-stage aggregate filter installed in leachate collection trenches, and a sump with extraction pump. The secondary leachate collection system consists of three layers of synthetic drainage net installed in leachate collection trenches, and a separate sump and extraction pump.

Leachate is pumped from the primary and secondary sumps through a double-wall force main to double-wall storage tanks. Liquid level in the sump is monitored and controlled using automated level-control equipment. Leachate is pumped from the storage tanks and managed as described in Item 18 below.

ENVIRONMENTAL MONITORING

The existing environmental monitoring systems (ground water monitor wells and sump lysimeters) will continue to be used for the proposed expansion area. The need for additional monitoring facilities for the expansion area will be reviewed as part of the process for modification of the Facility's MPCA solid waste permit. However, the expansion area is located on the upgradient side (with respect to ground water flow direction) of the Facility, and it is anticipated that the existing monitoring systems will sufficiently provide the required coverage.

FINAL COVER

The final cover system currently permitted for Cells 4, 5, and 6 would be used for the horizontal and slope expansion areas. The final cover system meets the requirements of Minnesota Rule 7035.2885 subp. 10.C.3. Figure 11 shows a cross-sectional view of the final cover system. The final cover system consists of the following components (listed from bottom to top):

- Six-inch-thick gas-venting sand layer;
- Geosynthetic clay liner barrier layer;
- 40-mil LLDPE geomembrane;
- 12-inch-thick sand drainage layer;
- 12-inch-thick rooting soil layer;
- Six-inch-thick top soil layer; and
- Vegetation.

SUMMARY

The proposed expansion would provide additional ash disposal capacity required to fulfill the existing contract for the waste-to-energy project. A change in regulations has served, in part, to increase the amount of MSW RDF ash disposed at the Facility. The proposed expansion would occur within the existing Facility boundary and would utilize many existing features of the existing Facility. The proposed expansion would use the same ash and leachate containment design features (double liner and composite cover, sump lysimeters, double-wall force mains and storage tanks) currently installed at the Facility (to date, their effectiveness in preventing any negative, leachate-related environmental impacts at this Facility has been demonstrated). Monitoring systems and monitoring data, as reported in the Facility's annual reports to the MPCA, indicate that operation of the Facility has not resulted in any adverse environmental impacts.

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

The purpose of the proposed expansion is to provide additional disposal capacity for RDF ash. The Facility is one component of a waste-to-energy project for MSW landfill abatement operating under a contract between the Minnesota counties of Anoka, Benton, Hennepin, Sherburne, and Stearns, NRG Energy, Inc., and Great River Energy. The project processes MSW generated in the listed counties into fuel for use in electrical generation at the Great River Energy power plant in Elk River, Minnesota. The ash remaining from RDF combustion at the power plant is disposed at the Facility.

The overall waste-to-energy project accomplishes the following environmental goals: abatement of unprocessed MSW landfilling, conservation of existing landfill airspace, and reduction in use of fossil fuels for electrical generation. The project abates by over 85 percent (in weight) the MSW landfill use by the counties. The abatement figure is calculated on a monthly basis in accordance with MPCA requirements and is reported to the MPCA on a quarterly basis. For the year 1999 (as of October 31, 1999), the average amount of MSW that has been reduced (by weight) through the waste-to-energy project is 88.3 percent.

The ash resulting from the project requires approximately 17 to 18 percent of the landfill space that would have otherwise been required for the MSW had it been landfilled directly without first being processed. For example, in 1998, approximately 302,000 tons of RDF was converted to electricity rather than being landfilled as MSW. If landfilled, 302,000 tons of RDF would have occupied approximately 432,000 cubic yards of landfill space (if compacted to a typical MSW landfill density of 1,400 pounds per cubic yard). The ash resulting from the energy conversion process for 302,000 tons of RDF occupied approximately 76,400 cubic yards of airspace at the Facility, or 17.7 percent of the corresponding MSW airspace.

In addition, approximately 185,000 megawatt-hours of electricity are generated annually by the project, producing a beneficial use from MSW, which would otherwise be landfilled.

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

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

The proposed expansion is a subsequent development of the existing Facility as shown on Figure 4. The Facility was originally permitted, constructed, and began receiving ash in 1991. Development of the Facility has progressed by construction of new cells, as previously constructed cells were filled and were capped. Cells 1, 2, and 3 have been filled to their permitted capacity and have received final cover. Cell 4 is currently being used and is projected to be filled to the permitted capacity in late 2000. Construction of Cell 5 is scheduled for the summer of 2000.

Past environmental review includes an EAW, which was completed in 1991 during permitting of the original Facility. The 1991 EAW is attached as Appendix A.

7. Project Magnitude Data

Total Project Area (acres) _____ Expansion Area: _____ or Length (miles) _____
 2.4 Acres*

Number of Residential Units: Unattached 0 Attached 0 Maximum units per building NA
 Commercial/Industrial/Institutional Building Area (gross floor space): Total square feet NA
 Indicate area of specific uses (in square feet): NA

Office _____ Manufacturing _____
 Retail _____ Other Industrial _____
 Warehouse _____ Institutional _____
 Light Industrial _____ Agricultural _____
 Other Commercial (specify) _____
 Building height _____ If over two stories, compare to heights of nearby buildings _____

*The currently permitted ash disposal Facility occupies 17.2 acres of the 41.3-acre site. The expansion area would cover an additional 2.4 acres at the southeast corner of the existing Facility as shown on Figure 4.

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.

<u>Unit of Government</u>	<u>Type of Application</u>	<u>Status</u>
MPCA	Solid Waste Permit Modification	Application submitted
MPCA	National Pollutant Discharge Elimination System (NPDES) Storm Water Permit Modification	To be obtained
Sherburne County	Solid Waste License Modification	To be obtained
City of Becker	Conditional Use Permit Modification	To be obtained

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

The proposed expansion is located on a 41.3-acre parcel in the southern part of the city of Becker, Minnesota. The site resides within the Industrial Power Generation Zoning District. The proposed expansion would not change the land use at the site or on adjacent lands. The currently permitted Facility covers approximately 17.2 acres of the parcel. Of the currently permitted Facility, approximately 11.6 acres have been developed (beginning in 1991). The remaining 5.6 acres are scheduled for future development. The proposed expansion would cover an additional 2.4 acres within the 41.3-acre site.

The Mississippi River is approximately 1,500 feet to the southwest of the site. Trunk Highway 10 is located one mile to the north. The land immediately surrounding the site is primarily agricultural. A limited number of wooded areas are located in the area, primarily along the Mississippi River. The site is adjacent to the Mississippi River Scenic and Recreational District.

The site is zoned industrial, therefore, the proposed expansion is consistent with the intended land use plan. There are no past or current land use conflicts involving environmental matters/hazards, and since the Facility already exists, the proposed expansion will be compatible with adjacent land uses.

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

	Before	After		Before	After
Types 1-8 wetlands	0	0	Lawn/landscaping	0	0
Wooded/forest	0	0	Impervious Surfaces	0.1	0.1
Brush/grassland	24	21.6	Other (Ash Disposal Facility)	17.2	19.6
Cropland	0	0	TOTAL	41.3	41.3

At closure, the ash disposal Facility areas will be revegetated grassland.

11. **Fish, Wildlife, and Ecologically Sensitive Resources**

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

The proposed expansion would occur at the location of an active soil stockpile in a previously disturbed area of the site. Construction of the proposed expansion in this area would not affect fish, wildlife, or habitat resources.

- 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 Department of Natural Resources (DNR) Natural Heritage and Nongame Research program has been contacted give the correspondence reference number: ES910207 Describe measures to minimize or avoid adverse impacts.

The DNR Natural Heritage and Nongame Research Program indicates that the proposed expansion area will not affect any known occurrences of state-listed species, rare plant communities, or sensitive ecological resources. Correspondence from the DNR Natural Heritage and Nongame Research Program is included in Appendix B.

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

13. **Water Use**

Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)?

Yes No

If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

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

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

The site on which the existing Facility and the proposed expansion are located, borders, but does not encroach upon, the Mississippi River Scenic and Recreational District to the west.

15. **Water Surface Use.** Will the project change the number or type of watercraft on any water body?

Yes No

If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

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

12.1* acres; 97,000* 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.

*This includes the acreage and cubic yards for the entire remaining site development, including both the currently permitted and proposed expansion areas and also the perimeter berms. 203,000 cubic yards of fill, already stockpiled on site, will also be used; no additional soil will need to be brought to the site.

Existing terrain is flat and not highly susceptible to erosion. Steeper slopes will be constructed as part of the Facility development. During construction, temporary drainage ditches, diversion berms, and silt fences will be used as necessary to minimize erosion and route surface water into the existing sedimentation pond.

Constructed features of the Facility will be protected using temporary and permanent erosion control measures. Temporary measures include hay bales, silt fence, berms, and ditches. Permanent erosion controls include side slope berms and ditches on Facility slopes, turf establishment on all topsoil-covered areas, erosion blankets in ditch bottoms, and riprap at storm water pipe outlets. Surface runoff from all constructed features is routed to the on-site sedimentation pond.

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.

There will be very little difference in the quantity and quality of site runoff before and after the project. Undeveloped areas of the site produce very little runoff due to the flat terrain and permeable soils. After development, runoff from the proposed expansion will be routed to an on-site sedimentation/infiltration pond, reducing the volume of runoff, which leaves the site. The approximate location of the pond is identified in Figure 4; however, the precise location and size may be adjusted during the permitting phase of the proposal to comply with technical requirements.

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

All surface water from developed areas of the site is collected and/or managed as leachate (see Item 18) or routed to an on-site sedimentation/infiltration pond. Water routed to the pond discharges by infiltration and evaporation. The pond does not discharge to a receiving body.

18. Water Quality: wastewaters

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

Wastewater generated at the Facility consists of water, which comes into contact with the RDF ash, and is referred to as leachate. Leachate is collected by the Facility's leachate collection system, pumped through a double-wall force main, and temporarily stored in double-wall tanks prior to disposal. The proposed expansion will utilize the existing leachate collection, transmission, and storage system.

Leachate quantities and chemical composition have been monitored at the existing Facility by NRG since the Facility began receiving ash in 1991. Figure 13 shows the total monthly leachate generation rates from 1992 through 1998. Table 1 shows the leachate disposal quantities for the last three years. Table 2 shows the analytical results of quarterly samples of leachate for the last three years. It is anticipated that the chemical composition of the leachate will not change as a result of the proposed expansion.

The leachate contains manganese concentrations exceeding the MPCA maximum leachable contaminant level (MLCL). An exceedence of an MLCL triggers changes to liner and cover design requirements. As a result, Cells 3 and 4 have been, and Cells 5 and 6 will be, constructed with a Type P liner (double liner) in accordance with MPCA rules for the MLCL exceedence. Cells 1 through 3 have been and Cell 4 through 6 will be covered with a composite final cover system as required by MPCA rules for the MLCL exceedence.

Future leachate generation rates should not vary significantly from historical data. Leachate generation rates are a function of precipitation and open area. During the initial operation of Cells 5 and 6, leachate generation rates could be somewhat higher than previous rates due to the fact that each cell would have a larger lined area than the previous cells. Once ash has been filled to the perimeter berm height, however, a temporary clay cap is placed over inactive areas and is sloped to drain water away from the Facility, reducing the amount of leachate produced.

Leachate produced at the Facility is used at the site for dust control within lined areas of the Facility under the provisions of an MPCA permit, transported to and recycled at the Great River Energy power plant in Elk River, and transported to and discharged for treatment at the MCES waste water treatment plant in Saint Paul, Minnesota. The off-site recycling and disposal activities are discussed under Item 18c. below.

Sanitary wastewater generated at the Facility office is treated on-site via an individual sewer treatment system (ISTS) that was installed in 1991 in accordance to applicable rules.

- 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.

No leachate is discharged on site or treated for on-site discharge. On-site treatment of leachate is limited to the addition of hydrogen peroxide for odor control for that leachate which is recycled at the Great River Energy power plant. Hydrogen peroxide is added to the leachate at a rate of one gallon of hydrogen peroxide per 2,000 gallons of leachate. This pre-treatment is performed within the tank truck by the landfill operators at the time of loading.

Pollution prevention efforts include all of the Facility's containment and monitoring systems, including:

- Double liners to prevent release of leachate from the Facility;
- Double-contained force mains and storage tanks to prevent leakage during pumping and storage;
- Tank truck loading performed inside the existing garage building to avoid weather-related issues;
- Sump lysimeters to monitor liner performance;
- Ground water monitoring for early detection of release of leachate to ground water;
- Temporary clay capping to minimize leachate generation during operations; and
- Composite final cover system to minimize leachate production after closure.

The ISTS for the sanitary wastewater from the Facility's office was installed (in 1991) in accordance with rules and regulations and in soils that were deemed suitable for the system.

- 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.

The existing leachate management practices will be used for the incremental amount of leachate produced by the proposed expansion. These include using the leachate at the site for dust control within lined areas of the Facility, transporting leachate to the Great River Energy power plant in Elk River where it is recycled as ash quench water (described below), and transporting leachate to and discharge for treatment at the MCES waste water treatment plant in Saint Paul, Minnesota.

Leachate is recycled to the greatest extent possible at the Great River Energy power plant for use in the ash quenching system. Hot bottom ash produced from the combustion chambers is cooled in a quench tank at the power plant before being hauled to the Facility. Previously, the power plant used river water as the source of quench water. In 1996, NRG Energy, Inc., installed storage and delivery systems to allow use of leachate produced from the Facility as a source of quench water. The quantity of leachate used for quench water varies, as shown in Table 1. Operation of the quench water system is performed solely by the power plant. NRG Energy, Inc., furnishes leachate to the power plant for use in the ash quenching system, but does not control the quantity actually used by the power plant operators.

- 4) The Superior glacial till ranges in thickness from 9.0 to 9.5 feet. The till can be classified as medium-dense to very-dense sandy lean clay, sandy silt, and silt.
- 5) The Granitic bedrock was encountered at depths ranging from 73.0 to 113.5 feet.

The hydrogeologic investigation determined that the average horizontal ground water flow is from northeast to southwest, towards the Mississippi River. There is very little vertical movement of the ground water.

Laboratory permeability tests were performed on representative soils from the site. Tests on the Grantsburg glacial till reveal permeabilities ranging from 1×10^{-3} cm/s to 1×10^{-8} cm/s. The most common and thickest till has a permeability on the order of 1.10^{-6} cm/s. The deeper portion of the Grantsburg till has the lowest permeability, 1×10^{-8} cm/s, and should provide some protection of the ground water.

In-situ horizontal hydraulic conductivities were as high as 3×10^{-2} cm/s in the saturated zone of the shallow drift aquifer. Using the values established for flow gradients and hydraulic conductivities, average flow velocities for the site were calculated. Horizontal groundwater flow velocities range from 0.22 feet per day to 0.35 feet per day across the site.

20. **Solid Wastes, Hazardous Wastes, Storage Tanks.**

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

No solid or hazardous wastes are produced at the Facility.

- 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.

NA

- 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.

Two underground 12,000-gallon double-wall fiberglass tanks are used for temporary storage of leachate. These tanks are located at the northeast corner of the existing Facility near the office/garage as shown on Figure 4. These tanks would remain in operation to service the proposed expansion.

A double-contained 990-gallon above ground tank is used to store Diesel fuel for off-road equipment at the Facility. The tank is installed within a concrete containment barrier. Any spills from the tank would be captured in the containment barrier, and would be managed appropriately. The proposed expansion would have no effect on the storage tank.

21. Traffic. Parking spaces added	0	Existing spaces (if project involves expansion)	0
Estimated average daily traffic generated:	(See below)		Estimated maximum peak hour traffic
Generated (if known) and its timing:	NA		Provide an estimate of the impact on

Traffic congestion affected roads and describe any traffic improvements necessary. If the project is within the Twin Cities metropolitan area, discuss its impact on the regional transportation system.

The estimated total average daily traffic generated will be 13 to 17 trucks (this includes both ash and leachate haul trucks) accessing the Facility, and four personal vehicle trips per day. Traffic generated by the Facility consists primarily of covered 18 cubic yard capacity semi-trailer trucks used for ash hauling, and 6,000-gallon semi-trailer trucks used for leachate hauling. Currently, approximately 13 truckloads of ash per day are hauled to the Facility. Zero to four truckloads of leachate are hauled per day from the Facility. Ash haul-truck traffic travels along Minnesota Highway 10, between Elk River and Becker, and on 137th Street between Minnesota Highway 10 and the Facility. Leachate haul-truck traffic travels from the Facility on 137th Street to Minnesota Highway 10, then follows either Minnesota Highway 10 or I-94 to the MCES waste water treatment plant on 3rd and Commerce Streets in St. Paul. With the proposed expansion, the Facility would initially continue to operate with the same volume of truck traffic, potentially adding two or three additional ash truckloads per day over the next five years. Leachate haul truck traffic is not expected to increase significantly. The potential impact to traffic resulting from an additional two to three truck trips per day is negligible.

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.

Currently, approximately 13 to 17 truck trips are made to/from the site each day. If future ash generation rates increase as projected, up to three additional truck trips per day would be made. Current operations at the Facility include the use of dozers, loaders, and similar equipment for ash placement and compaction. No changes to current operations will occur due to the proposed expansion. The effect on local and regional air quality resulting from vehicle-related air emissions associated with the proposed expansion is negligible.

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.

There are no stationary source emissions associated with the project. The proposed expansion will not produce additional significant fugitive dust emissions. The only potential fugitive dust emissions are related to Facility operations, and the proposed expansion would not significantly change existing operations.

Potential fugitive dust emission sources include vehicle traffic, placing and spreading ash, and wind erosion. Fugitive dust emissions were evaluated qualitatively for the 1991 EAW for the Facility (see Item 25 in Appendix A). The previous evaluation concluded, and eight years of operations have demonstrated, that fugitive dust emissions do not present a significant potential for environmental impact. The Facility is formally self-inspected weekly and regularly inspected by state, county, and city officials.

Potential fugitive dust emissions are a function of material characteristics (soil and ash) and operational activities (vehicle types, travel distances, size of the active working face). The proposed expansion will not change either the material characteristics or operational activities, therefore no changes to current minimal levels of fugitive dust emissions will result.

The ash has initial moisture content of approximately 27 percent when delivered to the site, which effectively suppresses fugitive dust emissions from the ash. Previously placed ash is covered with fresh ash at least every 48 hours. Significant drying of the ash generally does not occur prior to placement of a fresh lift. During especially hot, dry and windy periods, water is applied to ash surfaces as needed to suppress dust emissions.

24. **Odors, noise and dust.** Will the project generate odors, noise or dust during construction or during operation?

Yes No If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

The leachate produces a hydrogen sulfide odor, particularly when agitated or heated; however, the odor is not normally released as the leachate is contained in a closed system (force main piping and storage tanks). The odor is noticeable in the leachate load-out garage during loading operations when hydrogen peroxide pre-treatment is not used. Such odors are rapidly dispersed and are not noticeable outside the building.

Pretreatment of leachate with hydrogen peroxide is performed for that leachate which is recycled at the Great River Energy power plant because, without the pretreatment, odor from the leachate would permeate the power plant during the ash quenching process (due to the leachate being heated). Hydrogen peroxide treatment has proven effective at controlling the hydrogen sulfide odor at the power plant.

Noise issues during Facility construction and operation were addressed in Item 25 of the 1991 EAW (see Appendix A). The proposed expansion will result in phased construction projects occurring every one to two years for berm, liner, and final cover construction (see Item 6 above). Construction activity occurs in the summer months and lasts for two to three months, during which time large earth moving equipment would generate dust (from soil excavation and filling) and noise. Dust is controlled during construction by the use of water. There are no nearby receptors of either noise or dust.

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

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

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

The site is located adjacent to, but does not encroach upon, the boundary of the Mississippi River Scenic and Recreational District. (see Item 14).

An archeological survey of the site, which included the proposed expansion area, was completed in August, 1990, prior to construction of the Facility. Although two prehistoric sites were discovered, both sites lacked culturally diagnostic artifacts and exhibited very little research potential. Neither site was deemed eligible for the National Register of Historic Places, and approval of the project was recommended in the report. A copy of the report is included in Appendix C.

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.

Visual impacts were addressed in Item 26 of the 1991 EAW (see Appendix A). The proposed expansion will not increase the peak elevation of the originally permitted Facility.

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 41.3-acre parcel containing the Facility was re-zoned by the city of Becker to accommodate the Facility prior to construction of the Facility in 1991. The entire parcel, including the proposed expansion area, is now zoned as Industrial Power Generation. A city of Becker zoning map is included as Figure 14. A copy of the City Council minutes approving the zoning change is included in Appendix D.

Operation of the Facility is subject to a Conditional Use Permit issued by the city of Becker. Facility operation is in compliance with the permit. Modification of the Conditional Use Permit will be required for the proposed expansion.

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

29. **Cumulative impacts.** Minn. R. 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).

This EAW, for the proposed RDF ash landfill expansion, contains a detailed past and present summary of the overall project that results in ash being disposed in the Facility. The proposed expansion would allow continued operation of the Facility through the year 2009, as originally planned, using the existing leachate management facilities, rather than discontinuing operations sometime between 2005 and 2007 when the current capacity is exhausted. Post-closure leachate management would be extended for a few years (relative to if the Facility closed earlier), but it is within the same time frame as the originally permitted project. The increased footprint of the proposed expansion area presents additional liner area from which leaks could occur. Potential impacts relating to operation of the Facility would be continued; however, the pollution preventative measures identified within this EAW, in tandem with the Facility’s operating record, demonstrate that the Facility is being managed responsibly and in a manner that has not been detrimental to the environment.

As for the future projects that may affect this landfill, suffice it to say that no other waste will be disposed at the Facility, other than the MSW (RDF) ash identified in the EAW. In preparation of the expiration of the contract between NSP, Great River Energy and the five counties, it is reasonable to anticipate that, should those parties wish to renew a similar contract to process MSW using the same waste-to-energy method, future landfill disposal cells would have to be constructed to accept ash after 2009. Future landfill development would then need to be completed in conjunction with leachate collection, cell closure and environmental monitoring systems required by permit.

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

No other potential environmental impacts are anticipated that haven't otherwise been addressed in items 1-28.

31. **Summary of issues.** *Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.* List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

The technical information required for the review of the proposed ash landfill expansion and the necessary permit reissuance has been submitted. The proposed expansion does not significantly change any of the original design or operational aspects of the Facility.

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

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge;
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minn. R. 4410.0200, subps. 9b and 60, respectively; and
- 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 Section, North/South Districts**

Date:

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, Minnesota 55155, 651-296-8253, or www.mnplan.state.mn.us.