

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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JUN 04 1996

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SW/APPR

Mr. Kris McKinney
Environmental Licensing
Minergy Corporation
231 W. Michigan Street
Milwaukee, WI 53201

**SUBJECT: Conditional Grant of Exemption for the Minergy Corporation
Fox Valley Glass Aggregate Facility**

Dear Mr. McKinney:

I am pleased to inform you that the department has completed its review of your request for an exemption from solid waste regulations for the processing of paper mill sludge into glass aggregate at the proposed Minergy facility in Neenah. Based on our review of the information you have submitted, the department hereby grants an exemption from the state's solid waste regulations for the processing facility and the glass aggregate product, subject to the conditions enumerated in the attached approval.

Based on our review, we are satisfied that the proposed facility and the glass aggregate product will not adversely affect the environment so long as you carefully follow the conditions in the attached approval and other applicable department permits. We also believe that the proposed facility will conserve valuable landfill space and virgin energy and mineral resources by reusing significant quantities of paper mill sludge. The department considers this project to be an excellent example of beneficial use of materials that would otherwise require disposal as solid waste.

Your request for exemptions under ss. NR 504.07(8) and 506.08(5), Wis. Adm. Code, for construction on a closed landfill, will be addressed in a separate response. Any construction documentation and annual reports required under that response may be combined with those required under the attached approval, so as to avoid unnecessary duplication of effort on your part.

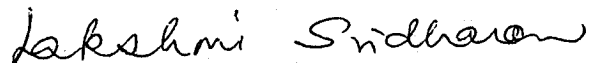
Mr. Kris McKinney - Minergy Corporation

Page 2

On April 30, we sent Minergy a draft of this letter and the attached approval to provide you with an opportunity for comment. On May 30, you responded with 3 comments. The first comment, on Condition 5a, concerned the timeframe for documenting that the glass aggregate meets marketing specifications; we have increased the timeframe to 90 days and clarified that the product need not meet specifications for more than one potential market. Your second comment indicated that it will be necessary to stockpile aggregate between construction seasons when it can be more readily marketed; we have changed Condition 8 to focus on unwarranted accumulations of aggregate that might constitute a nuisance. Lastly, you indicated that it would not be possible to quantify the amount of flyash reinjected to the boiler; we have changed Condition 10a to require a general description of flyash reinjection efforts.

If you have any questions regarding this letter or the attached approval, please contact Jon Brand at (414) 492-5867 or Brad Wolbert at (608) 266-2151.

Sincerely,



Lakshmi Sridharan, Ph.D., P.E., Chief
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management

enc.

cc: Jon Brand - LMD
Dave Misterek - Oshkosh
Gene Mitchell - SW/3

PROJECT SUMMARY

General Information:

Facility Contact: Kris McKinney, Environmental Licensing
Minergy Corporation
231 W. Michigan Street
Milwaukee, WI 53201
Phone: (414) 221-2157

Description of Facility:

The Minergy Corporation Fox Valley Glass Aggregate facility will manufacture a commercial grade glass aggregate material and steam by combusting paper mill sludge in a natural-gas-fired cyclone boiler. The steam will be supplied to a nearby paper mill, P.H. Glatfelter, for use in its papermaking processes. The glass aggregate will be marketed for several uses including abrasives, architectural aggregates, mineral fillers, road base and asphalt aggregates, and chip and slurry seal aggregates.

Facility Location:

The facility will be constructed in the city of Neenah on a city-owned parcel of land along the south shore of Little Lake Butte des Morts. The parcel is adjacent to the P.H. Glatfelter paper company plant and is currently used by Glatfelter for truck trailer parking. The land on which the facility will be built is a closed paper mill sludge landfill.

Generators to be Served:

Sludge feedstock for the Minergy facility will be supplied by the following six paper mills (percent of total in parentheses):

Wisconsin Tissue, Neenah	(50%)
P.H. Glatfelter, Neenah	(30%)
Ponderosa Pulp, Oshkosh	(10%)
Kimberly Clark-Neenah Paper, Neenah	(5%)
Kimberly Clark-Lakeview, Neenah	(3%)
Kimberly Clark-Whiting, Whiting	(2%)

Capacity of the Facility:

The facility will process approximately 350,000 tons of paper mill sludge per year to produce 80,000 tons of glass aggregate annually, and can be operated 24 hours per day for approximately 350 days per year.

Construction and Operation of the Facility:

The Minergy facility will utilize a cyclone boiler capable of burning up to 50 percent paper mill sludge along with its base fuel of natural gas. The sludge will be trucked in from the source paper mills, offloaded for temporary storage in silos, partially dried using process heat, and fed to the boiler. Boiler temperatures of up to 3000 degrees Fahrenheit will burn the organic fraction of the sludge and will cause the sludge's inorganic contents to melt.

When cooled, the molten liquid will form a glassy solid material that will be stockpiled and sold as aggregate.

Gases generated from the boiler will be passed through air emission control equipment, resulting in the accumulation of a flyash. Part or all of this flyash will be reinjected into the boiler for conversion to glass aggregate.

The facility will be designed to produce steam using the heat from the cyclone boiler. P.H. Glatfelter Company will purchase this steam for use in its papermaking processes, replacing steam formerly produced in its own boilers.

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

CONDITIONAL GRANT OF EXEMPTION
FOR THE
MINERGY CORPORATION
FOX VALLEY GLASS AGGREGATE FACILITY
NEENAH, WISCONSIN

FINDINGS OF FACT

The department finds that:

1. On August 28, 1995, Minergy Corporation ("Minergy") submitted a request for an exemption from solid waste regulations governing the processing of paper mill sludge into glass aggregate.
2. The glass aggregate production facility is proposed to be located in the SE 1/4, Section 21, T20N, R17E, City of Neenah, Winnebago County.
3. The department received the \$500 plan review fee on September 28, 1995.
4. On September 27, 1995, the department's district high-volume industrial waste specialist performed an initial site inspection at the proposed facility location.
5. The department considered the following documents in reviewing the exemption request:
 - a. A report prepared by STS Consultants Ltd., dated June 2, 1995, entitled "Summary of Existing Conditions at the Arrow Head Park Site, Neenah, Wisconsin".
 - b. A letter with attachments from Minergy to Kevin Kessler of the department's Bureau of Solid & Hazardous Waste Management, dated August 1, 1995, providing information on the rationale for the plant.
 - c. The August 28, 1995 exemption request letter and accompanying "Environmental Report" submitted by Minergy.
 - d. Results of physical and chemical testing performed on glass aggregate, submitted with the exemption request as Attachment 2, pages 1-4.
 - e. A letter from Minergy to Marjorie Devereaux of the department's Bureau of Water Regulation and Zoning, dated August 29, 1995, responding to a list of questions concerning the proposed facility.
 - f. A letter from Minergy to Brad Wolbert of the department's Bureau of Solid & Hazardous Waste Management, dated September 25, 1995,

- providing additional information requested in a department letter to Minergy dated September 11, 1995.
- g. A report prepared by Minergy dated December, 1995, entitled "Solid Waste Exemption Request," containing additional information requested by the department in its September 11, 1995 letter.
 - h. A December, 1995 stipulation and settlement agreement between the department, P.H. Glatfelter Corporation, Minergy Corporation and the City of Neenah relating to the use of Arrow Head Park in Neenah as a location for the Minergy facility.
 - i. An initial site inspection letter from Jon Brand of the department's Lake Michigan District, dated January 19, 1996.
 - j. An environmental analysis and decision issued by the department on April 22, 1996.
 - k. A Waste Reduction Grant Report, No. 95-29, dated April 1996, describing the results of a market analysis performed for glass aggregate, submitted to the department by Minergy.
6. Additional facts relevant to the department's review of the exemption request include the following:
- a. The proposed project would divert from landfills a substantial proportion of the waste generated in Winnebago County, for beneficial use and energy recovery.
 - b. The project was developed in response to an initiative by Winnebago County to reduce the amount of paper mill sludge being disposed of in the county landfill, and was selected by the county among 11 other projects as the preferred alternative.
7. On April 30, 1996, the department sent Minergy a draft grant of exemption for comment. The department received comments from Minergy on May 30, 1996.
8. The conditions set forth below are needed to ensure that the Minergy facility and the glass aggregate product will not cause environmental pollution, that the environmental impacts of the proposed facility are minimized and that the facility is operated in a nuisance-free manner.

CONCLUSIONS OF LAW

1. The department has the authority under s. 144.44(7)(f), Stats. and s. NR 500.08(5), Wis. Adm. Code, to grant an exemption from ss. 144.43 to 144.47, Stats., for the purpose of allowing the recycling of any

high-volume industrial waste, if the exemption would not inhibit compliance with the applicable provisions of chs. 30, 31, 144, 147, 160, 162, and ss. 1.11, 23.40, 59.974, 61.351, 61.354, 62.231, 62.234 and 87.30, Stats.

2. The department has the authority to grant an exemption with conditions if the conditions are needed to ensure compliance with chs. 30, 31, 144, 147, 160, 162, and ss. 1.11, 23.40, 59.974, 61.351, 61.354, 62.231, 62.234 and 87.30, Stats.
3. The conditions set forth below are needed to ensure compliance with the applicable provisions of chs. 30, 31, 144, 147, 160, 162, and ss. 1.11, 23.40, 59.974, 61.351, 61.354, 62.231, 62.234 and 87.30, Stats.
4. In accordance with the foregoing, the department has the authority under s. 144.44(7), Stats. and NR 500.08(5), Wis. Adm. Code to grant the following exemption.

CONDITIONAL GRANT OF EXEMPTION

The department hereby exempts the Minergy Corporation's Fox Valley Glass Aggregate facility from the applicable provisions of ss. 144.43 to 144.47, Stats., for the beneficial use of paper mill sludge in the manufacture of glass aggregate and steam, subject to the following conditions:

General

1. This approval allows for the installation of a glass aggregate/steam manufacturing facility with an approved production capacity of up to 90,000 tons of aggregate per year. Written department approval is required prior to any increase in capacity. This approval applies only to the facility proposed in the August, 1995 Environmental Report. This approval does not replace other department approvals, including a conditional grant of exemption to allow construction on a closed landfill and an air pollution discharge permit, which also apply to this proposed facility.
2. This approval does not relieve Minergy from compliance with any other local, state or federal regulations (e.g., noise ordinances, safety standards for workers, building code requirements).

Construction

3. Minergy shall complete all items of construction as described in the August, 1995 Environmental Report, the December, 1995 Solid Waste Exemption Request, and other relevant submittals by Minergy to the department. Any significant design changes must be approved in writing by the department prior to their implementation.

4. Minergy shall notify the department's district high-volume industrial waste specialist a minimum of one week prior to the initial shakedown of the facility, to allow department representatives to inspect the facility and observe its operation. The department reserves the right to inspect additional construction events.
5. Within 30 days of the start of the shakedown period, Minergy shall provide test results to the department demonstrating that:
 - a. The glass aggregate product does not pose a risk of groundwater contamination or other environmental pollution. Bulk composition, TCLP and ASTM water leach tests shall be performed on at least two independent representative samples of glass aggregate obtained from the facility during the shakedown period.
 - b. The flyash is acceptable for disposal at a municipal solid waste landfill. TCLP tests shall be performed on at least two independent representative samples of flyash obtained from the facility during the shakedown period.

The parameters and detection limits for the bulk composition and ASTM water leach tests shall be the same as indicated in "Attachment 2" of the exemption request documents sent by Minergy to the department on August 28, 1995.

6. Within 90 days after the completion of construction, Minergy shall submit to the department a construction documentation report that meets the general submittal requirements of s. NR 500.05, Wis. Adm. Code. At a minimum, the report shall include the following information:
 - a. A narrative discussing all major aspects of facility construction, any unanticipated field conditions encountered, results of all testing performed, and any design changes that were made during construction.
 - b. A plan drawing of the final layout after construction and the flow of all materials from start to finish.
 - c. Cross-sections of the unit showing location of major components and major design features.
 - d. Appropriate construction details.
 - e. Test results demonstrating that the glass aggregate product consistently meets generally accepted quality assurance standards for the roofing shingle granule, abrasives, or asphalt paving markets. These tests shall be performed on at least five independent representative samples obtained from the facility during the shakedown period.

- f. A series of properly labeled 35 millimeter color prints showing all major components of the processing plant.

Operation

7. Minergy shall ensure that hauling of papermill sludge to or from the Minergy facility is performed only by operators possessing a department license for collection and transportation of solid waste.
8. Minergy shall properly dispose of all product it is unable to market. The department may establish a time limit for disposal of nuisance quantities of stockpiled material.
9. Minergy shall develop a contingency plan for handling sludge on site due to a sudden shutdown of the processing facility, and shall develop a written agreement with a landfill which will accept the onsite and bypassed sludge during a shutdown. Minergy shall provide a copy of the contingency plan and the landfill agreement to the department prior to initial operation of the facility.
10. Each year, Minergy shall submit an annual report to the department by March 31 for the preceding calendar year. The report shall include the following information:
 - a. A general overview of operations, including the amount of papermill sludge consumed in production; the amount of aggregate produced; the distribution of product by type of use; the average and maximum amount of aggregate in on- and off-site storage during the year and the location of any off-site storage; the total amount of flyash produced and a summary of ash reinjection efforts; sludge bypassed to disposal due to facility downtime or insufficient capacity; and the amounts of flyash, off-spec sludge and off-spec aggregate disposed of as waste.
 - b. A discussion of any operational problems that were encountered and any significant plant or operational modifications that were made.
 - c. Identification of any proposed modifications or additions to the facility affecting the capacity of the facility, the quantity or quality of its products or waste streams, or the manner in which papermill sludges are handled.
 - d. Results of annual bulk analysis and ASTM water leach tests performed on representative samples of glass aggregate and flyash. The parameters for the ASTM water leach tests shall be the same as indicated in "Attachment 2, Page 1" of the exemption request package sent by Minergy to the department on August 28, 1995. In addition, if a process or equipment change having the potential to alter the characteristics of the facility's products or waste

streams has occurred, a TCLP test performed on a representative sample of the product or waste stream(s) affected by the change.

The department may require the submittal of additional information and may modify this exemption at any time, if in the department's opinion modifications are necessary. Unless specifically noted, the conditions of this exemption do not supersede or replace any previous conditions of approval for this facility.

NOTICE OF APPEAL RIGHTS

If you believe that you have the right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review department decisions must be filed.

For judicial review of a decision pursuant to section 227.52 and 227.53, Stats., you have 30 days after the decision is mailed or otherwise served by the department to file your petition with the appropriate circuit court and serve the petition on the department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

This notice is provided pursuant to section 227.48(2), Stats.

Dated JUN 04 1996

DEPARTMENT OF NATURAL RESOURCES
For the Secretary



Lakshmi Sridharan, Ph.D., P.E., Chief
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management



Brad Wolbert, P.G., Hydrogeologist
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management

Section 5 - Table 3
 Minergy - Fox Valley Glass Aggregate Plant
 Glass Aggregate Product
 ASTM D 3987 Shake Extraction Test Results

Parameter	Units	DNR Detection Limit	Actual Detection Limit	3/9/98 FV GAP-1	3/11/98 FV GAP-2	3/16/98 FV GAP-3	Groundwater Quality Stds		GAP Value Less Than	
							Enforcement Standard	Preventive Action Limit	ES ?	PAL ?
Aluminum	mg/l	0.1	0.011	3.8	3.3	3.9	-	-	-	-
Antimony	mg/l	0.005	0.011	ND	ND	ND	-	-	-	-
Arsenic	mg/l	0.005	0.0012	ND	ND	ND	-	-	-	-
Barium	mg/l	0.04	0.0009	ND	0.004	0.032	2	0.4	YES	YES
Beryllium	mg/l	0.001	0.00023	ND	ND	ND	-	-	-	-
Cadmium	mg/l	0.0002	0.0001	ND	ND	ND	0.005	0.0005	YES	YES
Calcium	mg/l	1.0	0.012	25	14	17	-	-	-	-
Chloride	mg/l	1.0	0.0047	0.053	0.44	1.1	250	125	YES	YES
Chromium	mg/l	0.003	0.0005	0.0026	0.002	0.0012	0.1	0.01	YES	YES
Copper	mg/l	0.003	0.0012	0.0016	0.0023	0.0029	1.3	0.13	YES	YES
Fluoride	mg/l	0.02	0.0028	ND	0.027	0.019	4	0.8	YES	YES
Iron	mg/l	0.1	0.0007	ND	0.024	0.02	0.3	0.15	YES	YES
Lead	mg/l	0.003	0.001	ND	ND	ND	0.015	0.0015	YES	YES
Magnesium	mg/l	1.0	0.0084	0.39	0.39	0.45	-	-	-	-
Manganese	mg/l	0.01	0.0015	ND	ND	ND	0.05	0.025	YES	YES
Mercury	mg/l	0.0002	0.00018	ND	ND	ND	0.002	0.0002	YES	YES
Nickel	mg/l	0.01	0.0044	ND	ND	ND	-	-	-	-
Nitrite & Nitrate	mg/l	-	0.01	ND	0.29	ND	10	2	YES	YES
Phosphorus	mg/l	0.02	0.0039	0.08	0.19	0.26	-	-	-	-
Potassium	mg/l	1.0	0.11	ND	ND	ND	-	-	-	-
Selenium	mg/l	0.001	0.0007	ND	ND	0.0012	0.05	0.01	YES	YES
Silicon	mg/l	10.0	0.0043	7	2.9	3.1	-	-	-	-
Silver	mg/l	0.001	0.00014	ND	ND	ND	-	-	-	-
Sodium	mg/l	1.0	0.022	0.088	1.6	1.3	-	-	-	-
Strontium	mg/l	1.0	0.0022	0.0044	0.0036	0.0065	-	-	-	-
Thallium	mg/l	0.003	0.0012	ND	ND	ND	0.005	0.0025	YES	YES
Zinc	mg/l	0.02	0.0013	ND	ND	ND	5	2.5	YES	YES
pH	N/A	0.1	0.1	10.3	9.3	9.7	-	-	-	-
Conductivity	umhos/cm	10	0.01	167	71	79	-	-	-	-
TDS	mg/l	5	36	58	58	54	-	-	-	-
Sulfate	mg/l	1.0	0.017	0.031	1.2	1.1	250	125	YES	YES
TOC	mg/l	1.0	0.24	0.54	2.9	4.6	-	-	-	-
Total Hardness	mg/l	1.0	1	64	37	44	-	-	-	-
Total Alkalinity	mg/l	1.0	7	79	57	58	-	-	-	-