BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Wisconsin Electric Power Company, d/b/a We Energies,	)	
Petitioner,	)	
v.	)	**PCB _____ (Appeal – Beneficial Use Determination)**
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
Respondent.	)	

NOTICE OF FILING

To: Pollution Control Board
Attn: Clerk
100 West Randolph
James R. Thompson Center
Suite 11-500
Chicago, IL 60601-3218

Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

PLEASE TAKE NOTICE that on July 30, 2009, we filed with the Illinois Pollution Control Board the attached *Petition for Review* and *Appearance of Cynthia A. Faur*, a copy of which is herewith served upon you.

Respectfully submitted,

Wisconsin Electric Power Company,

By _____
One of its attorneys

Dated: July 30, 2009

Cynthia A. Faur
Quarles & Brady LLP
300 North LaSalle Street
Suite 4000
Chicago, Illinois 60654-3422
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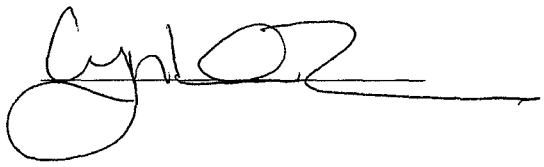
CERTIFICATE OF SERVICE

The undersigned, an attorney, certify that I have served upon the individuals named on the attached Notice of Filing true and correct copies of the *Petition for Review* and *Appearance of Cynthia A. Faur* via First Class Mail, postage prepaid on July 30, 2009.



BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Wisconsin Electric Power Company, d/b/a We Energies,	)	
Petitioner,	)	
v.	)	**PCB _____ (Permit Appeal – Beneficial Use Determination)**
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
Respondent.	)	

Petition for Review

Wisconsin Electric Power Company (d/b/a We Energies), by and through its attorneys, Cynthia A. Faur and Quarles and Brady LLP, hereby petitions the Illinois Pollution Control Board (the "Board") for review of the denial of We Energies' Request for a Beneficial Use Determination pursuant to the § 3.135(b) of the Illinois Environmental Protection Act (the "Act"), 415 ILCS 5/3.135(b). This petition for review is submitted pursuant to §§ 3.135(b) and 40 of the Act, 415 ILCS 5/3.135(b) and 5/40, and in accordance with 35 Ill. Admin. Code Part 105. In support of its petition, We Energies states as follows:

Background

1. We Energies is an electric generating utility with coal-fired power plants located in southeastern Wisconsin. Currently, We Energies operates state-of-the-art Air Quality Control Systems ("AQCS") at its Pleasant Prairie Power Plant ("P4"). This plant is located in Pleasant Prairie, Wisconsin, approximately 3 miles north of the Illinois-Wisconsin border. The AQCS includes a forced oxidation wet limestone flue gas desulfurization system ("FGD") to reduce sulfur dioxide ("SO_2") emissions.

2. We Energies is in the process of expanding and upgrading its Oak Creek Power Plant ("OCPP"), also located in southeastern Wisconsin. Like at P4, OCPP emission controls will include similar FGD systems.

3. The operation of the FGD system produces a calcium sulfate dihydrate ($CaSO_4 \cdot 2H_2O$) product, also know as gypsum.

4. We Energies is committed to the beneficial use of the gypsum created through the operation of its FGD systems. The primary use for We Energies' gypsum has been in the manufacture of wallboard. In 2007, however, We Energies received inquiries from local farmers in southeastern Wisconsin regarding availability of their gypsum for agricultural purposes. As a result of these inquiries, We Energies sought to diversify the beneficial use of its gypsum product beyond wallboard production and into the agricultural marketplace. In March 2008, We Energies received a Conditional Grant of Exemption (the "Exemption") from the Wisconsin Department of Natural Resources ("WDNR"). The Exemption allows gypsum, produced at P4, to be used as an alternative to natural gypsum in appropriate agricultural applications. In May 2008, the Wisconsin Department of Agriculture, Trade and Consumer Protection ("DATCP") issued We Energies a Soil and Plant Additive License (No. 65-017311) to distribute gypsum in Wisconsin. Copies of the Exemption and DATCP license were included as part of the Request for a Beneficial Use Determination (the "Request") submitted by We Energies to the Illinois Environmental Protection Agency ("IEPA" or the "Agency"), a copy of which is attached as Exhibit A.

5. Agricultural benefits of gypsum application include: (1) serving as a source of sulfur and calcium, two plant macronutrients; (2) reclaiming productivity of high sodic

soils; (3) improving soil aggregation, which in turn increases water infiltration; (4) reducing soil crusting and soil runoff; and (5) reducing phosphorus runoff by reducing the availability of phosphorus in soil.

6. By the end of 2008, We Energies reported to WDNR and DATCP that it had distributed approximately 7,000 tons of gypsum for use in agricultural operations in Wisconsin. In 2009, to date, We Energies is on track to exceed the 2008 quantity of gypsum used in Wisconsin agriculture.

7. Because of the success and acceptance of We Energies' gypsum by Wisconsin farmers, We Energies received inquiries from farmers located in Illinois regarding the availability of gypsum for use in the state. Given the proximity of P4 to the Illinois state line, We Energies would like to make its gypsum available to farmers in northern Illinois. To facilitate this objective, We Energies met with representatives from IEPA Bureau of Water on April 1, 2009 and gave a presentation concerning its Request (the "Presentation").[1] A copy of the Presentation, which was also provided to the Agency at the time, is attached as Exhibit B. On April 1, 2009, We Energies also hand delivered the Request, which was submitted pursuant to 415 ILCS 5/3.135(b), to the Agency.

8. Following the April 1, 2009 meeting, We Energies provided additional information (via email to Mr. Al Keller dated April 6, 2009) which also restated their offer to supply any additional information the Agency required to act on their Request. A copy of this correspondence is attached as Exhibit C. We Energies staff also made

[1] When We Energies first approached the Agency concerning a beneficial use determination for its gypsum, there was some confusion as to whether the request should be submitted to the Bureau of Land or the Bureau of Water or whether both bureaus would be involved in this determination. After discussions with both Bureau of Land and Bureau of Water personnel, We Energies met with the Bureau of Water because land application of materials similar to We Energies' gypsum is generally permitted by the Bureau of Water.

numerous attempts to contact the Bureau of Water personnel to determine whether the Agency needed additional information to respond to its Request. Bureau of Water, however, did not contact We Energies following the April 1, 2009 meeting and the submittal of the Request.

9. On July 6, 2009, We Energies received a denial of its Request, dated June 30, 2009. A copy of the denial is attached as Exhibit D. Per the denial, the Request was received by the Bureau of Land on June 24, 2009, 84 days after receipt of the Request by the Agency.

10. The denial of We Energies' Request is timely appealed within 35 days of the service of the denial. 415 ILCS 5/3.135(b); 5/40(a); 35 Ill. Admin. Code § 105.206.

Grounds for Appeal

11. Gypsum created by We Energies FGD systems meets the definition of a coal combustion waste, as defined in § 3.140 of the Act. 415 ILCS 5/3.140. Section 3.135 of the Act defines those instances where a coal combustion waste, like We Energies' gypsum, is beneficially used and appropriately re-classified as a coal combustion by-product ("CCB"). *See* 415 ILCS 5/3.135. Section 3.135(a) sets forth certain enumerated approved uses for CCBs, including use as a functional substitute for agricultural lime as a soil conditioner. *See* 415 ILCS 5/3.135(a)(6). Section 3.135(b) sets forth the legislative intention to "encourage and promote the utilization of CCB in productive and beneficial applications" other than those specifically included in subpart (a) of this provision. 415 ILCS 5/3.135(b). Specifically, § 3.135(b) provides that the Agency must make a written beneficial use determination that coal combustion waste is a CCB if the applicant demonstrates that:

(1) the use will not cause, threaten or allow the discharge of any contaminant into the environment; (2) the use will otherwise protect human health, safety and the environment; and (3) the use constitutes a legitimate use of the coal combustion waste as an ingredient or raw material that is an effective substitute for an analogous ingredient or raw material.

415 ILCS 5/3.135(b).

12. In its Request, We Energies proposed to use gypsum as a fertilizer, which is not one of the enumerated uses of CCB contained in § 3.135(a) of the Act. Accordingly, We Energies provided detailed information in its Request, including the attachments thereto, that demonstrated its proposed use of gypsum satisfied each of the three criteria contained in § 3.135(b) of the Act for use-specific CCB determinations. 415 ILCS 5/3/135(b).

13. In the denial, IEPA stated that We Energies did not meet the criteria of § 3.135(b) of the Act, 415 ILCS 5/3.135(b), in that it failed to demonstrate that the activity would not result in a violation of §§ 9(a); 12(a), or 21(a) of the Act, 415 ILCS 5/9, 5/12(a), 5/21(a), because the following information was not provided:

1. A description of the intermediate storage and processing of the coal combustion by-product ("CCB");

2. A discussion of the site-specific geology and the potential for constituents of the CCB to migrate to groundwater;

3. Volumes and timeframes for the use of CCB to demonstrate that it is not used in excessive amounts; and

4. Justification that the CCB is used beneficially, including procedures to insure that the FGD gypsum will only be used on agricultural land in appropriate volumes where soil types, soil conditions and crops will benefit from application of the FGD gypsum.

14. A careful review of the Request and the Presentation, however, demonstrates that We Energies indeed provided detailed information responsive to each of the items set forth in the denial letter as the basis for the Agency's denial of its Request. We Energies made numerous attempts to reach out to IEPA and respond to any questions that they may have had with regard to the information provided or the need for additional information. As stated above, IEPA did not contact We Energies in response to any of the company's overtures. Accordingly, IEPA's denial of the Request is erroneous, arbitrary, capricious and contrary to applicable law. We Energies addresses each of the alleged information deficiencies in turn.

15. At the outset, it should be noted that We Energies did provide IEPA with information concerning its proposed distribution and agricultural use program for gypsum. Specifically, We Energies noted in its Request that if IEPA did not impose specific conditions in its beneficial use determination, the company intended to "institute a distribution and agricultural use program for Illinois that is consistent with that specified by WDNR's [Exemption]," which was included as part of the Request. The Exemption contains specific requirements for Material Testing (Exemption, p. 4, ¶¶ 3, 4); Land Application (Exemption, p. 4, ¶¶ 5-10); Storage (Exemption, p. 5, ¶¶ 11-13); Hauling (Exemption, p. 5, ¶ 14); and Reporting (Exemption, p. 5, ¶ 15). The company's

proposed program was also detailed in the Presentation. *See generally*, Presentation, Slide 29.

16. With regard to the Agency's first alleged deficiency, We Energies provided IEPA with information concerning its proposed procedures for the intermediate storage and processing of the gypsum both at the April 1, 2009 meeting and as part of the Request. This information included the storage and management of the gypsum after it leaves the plant and the procedures that would be in place to ensure that there will not be excessive loss of the material so that it does not generate pollution through dust, runoff or migration to groundwater.

17. With regard to intermediate storage and processing of the gypsum, We Energies indicated at the April 1, 2009 meeting that its intention was that the gypsum would be hauled from P4 or OCPP to the farm location where it would be applied as a fertilizer.[2] Per the Exemption included as part of the Request, material hauling would be completed in a manner consistent with the requirements contained in Wis. Admin. Code NR 538.16(2), which requires transport of materials in durable, leak-proof containers and loading and hauling of materials in such a manner that its contents do not fall, spill or leak. *See* Exemption, p. 5, ¶14. As this material would originate in Wisconsin, the requirements of Wis. Admin. Code NR 538.16(2) would apply. Further, We Energies committed to conformance with the applicable requirements of 35 Ill. Admin. Code Part 391 Subpart C, which define transportation and storage requirements for the widely land applied sludge, biosolids. *See* Presentation, Slide 29. The Wisconsin and Illinois requirements for transportation of this material are consistent.

[2] Based on discussions with representatives of the Illinois Department of Agriculture, We Energies intends to license the gypsum as a fertilizer in Illinois.

18. With regard to storage of materials at the farm location, We Energies noted in its Request that it proposed to follow the storage requirements outlined in the Exemption. These procedures included outdoor storage of a limited duration in a manner that will prevent excessive dusting and the implementation of best management practices to prevent run-off of the stored material. *See* Exemption, p. 5, ¶¶ 11-13. The proposed hauling and intermediate storage procedures are designed to protect against potential exposure to the air, water or land from these materials prior to their application. Further, We Energies committed to conformance with applicable requirements of 35 Ill. Admin. Code Part 391 Subpart D, which define application requirements for the widely land applied sludge, biosolids. *See* Presentation, Slide 29. Collectively, these procedures satisfy the requirements of §§ 9(a), 12(a) and 21(a) of the Act. 415 ILCS 5/9(a); 5/12(a), 5/21(a).

19. Second, We Energies addressed the Act's requirements related to the protection of groundwater by providing IEPA with information comparing Illinois Class I groundwater standards and leachate (ASTM D-3987-85) generated from We Energies' gypsum and various similar agricultural products. We Energies also provided a comparison of potential heavy metal loadings from We Energies' gypsum application with the Maximum Application Rates for biosolids found at 35 Ill. Admin. Code § 319.420. *See* Request, pp. 4-5.

20. It is We Energies' belief that IEPA's statement concerning site-specific geology and potential for migration stems from a concern that the gypsum will contaminate groundwater. Since We Energies is not currently marketing gypsum in Illinois, it cannot provide site-specific information for the fields where the gypsum will be applied. The

data provided by We Energies, however, demonstrates that the quality of leachate from gypsum is similar to other agricultural products used throughout Illinois and that with regard to heavy metals, the data demonstrates that land application of We Energies' gypsum, at typical agronomic rates of up to 2 tons/acre, is well under Part 391 loading rates. *See* Request, pp 3-5; *see also* 35 Ill. Admin. Code Part 391.420. Additionally, as part of We Energies' proposed distribution and use plan, the company would perform an annual material characterization of the gypsum. *See* Exemption, p. 4, ¶ 3. Accordingly, application of gypsum consistent with typical agronomic rates would pose significantly lower risk to human health and the environment than other materials already approved for use throughout Illinois.

21. Third, We Energies provided the Agency with information concerning the volumes of material and the timeframes for use of the gypsum in Wisconsin. *See* Request at p. 2. At the meeting, We Energies noted that it anticipated similar market acceptance in Illinois as it has observed in Wisconsin and that distribution would be most likely limited to northeastern Illinois given the proximity of the area to We Energies' plants and the lack of gypsum production north of the Interstate 80 corridor. *See generally* Presentation, Slide 15. As stated above, We Energies has not actively marketed its gypsum in Illinois. Therefore, it is not possible to project the exact volumes of materials that will be used. We Energies did note that agronomic rates are typically up to 2 tons per acre. *See* Request, p. 3.

22. Additionally, We Energies' proposed distribution and agricultural use program for gypsum, as set forth in the Exemption, addresses the application of gypsum in an environmentally sound manner. Under We Energies' proposed agricultural use program,

as embodied in the Exemption, application of gypsum would also be undertaken consistent with accepted agricultural practices. *See* Exemption, p. 5, ¶ 10. Gypsum would not be repeatedly applied so that excessive amounts of hazardous substances would accumulate in the soil or cause a detrimental effect on surface water or groundwater quality, and best management practices for surface water protection would be used. *See* Exemption, p. 5, ¶¶ 8-9. Farmers would be provided with information concerning these agronomic and environmental practices to ensure appropriate application of the gypsum. *See* Exemption, p. 4, ¶ 5. Further, We Energies stated that it was its intention to distribute gypsum in conformance with the public distribution program requirements, contained in 35 Ill. Admin. Code § 391.204, through a contracted distribution partner that would provide agronomic expertise to assure application at rates appropriate for the specific field and crop under consideration. *See* Presentation, Slide 29.

23. Finally, We Energies provided sufficient justification that gypsum would be used beneficially. While as noted by the Agency in the denial letter, gypsum is not needed for all soil types, soil conditions or crops, there are crops and soils that benefit from the use of gypsum. We Energies included in its Request several documents addressing the benefits of gypsum. *See* Request, Attachments: U.S. EPA FGD Gypsum Factsheet, USDA Factsheet, and OSU Gypsum Factsheet. Farmers knowledgeable about their soil and their crops will seek out gypsum where it is needed and will not expend the cost or effort to apply this material where it would not help or would harm their crops. The growing use of gypsum across the Illinois border in southeastern Wisconsin and Indiana suggests that farmland in northeast Illinois may also benefit from gypsum.

24. While We Energies believes that farmers will elect to use gypsum only for those soils and crops where its use is beneficial and cost effective, the company notes that, as part of its proposed distribution and use plan, it would distribute gypsum through a contracted distribution partner that would provide agronomic expertise to assure application at rates appropriate for the specific field and crop under consideration. We Energies is providing information concerning soil and crop application rates to WDNR, the University of Wisconsin Extension offices and the United States Department of Agriculture offices in the counties where the gypsum is being used. *See* Exemption, p. 4, ¶ 7. To the extent soils in Illinois differ, We Energies' distribution partner would make additional determinations, and We Energies would provide that information annually to IEPA and the Illinois Department of Agriculture if that information would be helpful to the Agencies. *See generally*, Presentation, Slide 29. As stated above, information concerning appropriate application rates for gypsum for the various soil types where it may be used will be provided to the farmers purchasing or receiving gypsum. *See* Exemption, p. 4, ¶ 5. These steps will ensure that where farmers believe the use of gypsum is beneficial, it will be appropriately applied with environmental considerations in mind.

WHEREFORE, for the foregoing reasons, We Energies requests that the Board vacate the Agency's denial of We Energies' Request for a Beneficial Use Determination to allow the use of gypsum from its FGDs as a fertilizer in agricultural applications in Illinois. We Energies further requests that the Board find that We Energies' FGD gypsum is a coal combustion by-product, as defined in § 3.135 of the Act, 415 ILCS 5/3.135, and that the Company can market and utilize its FGD gypsum in Illinois in a

manner consistent with its proposed distribution and agricultural use program embodied in WDNR's Conditional Grant of Exemption, attached to its Request and this Petition.

Respectfully submitted,

Wisconsin Electric Power Company,

By _____
One of its attorneys

Dated: July 30, 2009

Cynthia A. Faur
Quarles & Brady LLP
300 North LaSalle Street
Suite 4000
Chicago, Illinois 60654-3422
(312) 715-5000

EXHIBIT A

we energies

231 W. Michigan Street
Milwaukee, WI 53203
www.we-energies.com

March 31, 2009

Mr. Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, IL 62794-9276

SUBJECT: Request for Beneficial Use Determination: Synthetic Gypsum from Flue Gas Desulfurization Process

Dear Mr. Keller:

As provided in 415 ILCS 5 Section 3.135(b), Wisconsin Electric Power Company (doing business as We Energies), a wholly owned subsidiary of Wisconsin Energy Corp. requests the Illinois Environmental Protection Agency (IEPA) review this application and provide a written Beneficial Use Determination (BUD) that synthetic gypsum produced as a by-product of flue gas desulfurization (FGD) is a Coal Combustion By-product (CCB) when used for agricultural purposes in the State of Illinois.

As part of We Energies commitment to upgrade the environmental performance of existing coal-fired generating facilities, state-of-the-art air quality control system were added to the Pleasant Prairie Power Plant (P4) located in Pleasant Prairie, WI. The upgrade included a Selective Catalytic Reduction (SCR) system to reduce NOx emissions and a wet FGD system to reduce SO_2 emissions. Additionally, SCR and wet FGD systems are presently being installed on two existing generating units at our Oak Creek Power Plant (OCPP) to further reduce NOx and SO_2 emissions. Lastly, two new coal-fired generating units are under construction at OCPP and include SCR and wet FGD systems.

The FGD systems at both P4 and OCPP are all very similar wet limestone forced oxidation systems. In this process, as the flue gas passes through the wet scrubber, it is mixed with a limestone ($CaCO_3$) slurry. The limestone slurry reacts with the flue gas, absorbing sulfur dioxide from the flue gas and forming calcium sulfite ($CaSO_3$). Air (oxygen) is then blown into the absorber tank to further oxidize the calcium sulfite into calcium sulfate ($CaSO_4 \cdot 2H_2O$) also known as synthetic gypsum. The synthetic gypsum slurry is dewatered through a hydroclone and a vacuum filter system before it is conveyed to an enclosed storage building prior to shipment to beneficial use markets. A second by-product filter cake, again mostly gypsum, is produced by the FGD wastewater treatment process. This filter cake, managed separately from the synthetic gypsum, is currently landfilled and is **not** a part of this request.

We Energies, in part, selected forced oxidation FGD systems for both P4 and OCPP over other technologies because the production of high purity (>95%) synthetic gypsum has well established beneficial use markets. Production of high purity synthetic gypsum supports We Energies commitment to minimizing the landfilling of beneficially usable coal combustion products.

In 2007, We Energies received numerous inquiries from local farmers regarding the availability of FGD gypsum for agriculture purposes. As a result of these inquiries, We Energies seized the opportunity to diversify the beneficial use of gypsum beyond wall board production. In March 2008, We Energies received a Conditional Grant of Exemption (Exemption) from the Wisconsin Department of Natural Resources (WDNR). The Exemption allows synthetic gypsum produced at P4 to be used as a substitute for natural gypsum in appropriate agricultural applications. In May 2008, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) issued We Energies a permit to distribute synthetic gypsum as a "soil and plant additive" in Wisconsin.

In 2008, the P4 FGD system produced approximately 78,000 tons of synthetic gypsum. By the end of 2008, approximately 7,000 tons of synthetic gypsum were distributed and used in various agricultural applications in Wisconsin. Other than a small inventory of synthetic gypsum remaining at the 2008, the majority of the material produced was utilized in wall board production. In the first couple of months of 2009, more that 4000 tons of gypsum have been delivered to Wisconsin farmers. Wall board production will continue to be We Energies primary market for beneficial use of the high purity gypsum, however, wall board demand for the basic gypsum feedstock varies seasonally as well as from year to year, depending on market demand for wall board.

For years, mined or natural gypsum has been used in agricultural applications as a fertilizer and soil amendment. Agricultural benefits of gypsum include:

- ✓ Source of plant nutrients sulfur (S) and calcium (Ca)
- ✓ Increased productivity of high sodic (sodium; Na) soils
- ✓ Improvement in soil aggregation which in turn increases water infiltration
- ✓ Reduction of soil crusting and soil runoff
- ✓ Reduction of runoff of phosphorus by reducing the availability of phosphorus in the soil

Because of the success and acceptance of P4 synthetic gypsum by Wisconsin farmers we have received inquiry from farmers in Illinois regarding the availability of synthetic gypsum. Given the proximity of P4 to the Illinois-Wisconsin state line, We Energies wishes to make synthetic gypsum available to Illinois farmers.

Attached you will find information that supports the approval of synthetic gypsum as a CCB. We Energies has generated this information to support the initial request for the WDNR Exemption as well as the annual reporting requirements of the Exemption.

- Table 1 provides a comparison of leachate (ASTM D-3987-85) generated from various agricultural products, We Energies P4 synthetic gypsum to Illinois Class I Potable Groundwater Standards. These data illustrate that the quality of leachate from synthetic gypsum is similar to other agricultural products. The data also show that the Class I sulfate standard is exceeded for all comparable agricultural products, which is understandable as these products are purposefully applied to provide a readily soluble form of the plant nutrient Sulfur.

- Table 2 provides a comparison of potential heavy metals loadings from synthetic gypsum with Title 35 Part 391 Maximum Application Rates for sludges. Part 391 rates were selected for comparison given the well established regulatory framework for land application of biosolids and lack of specific criteria within Title 35 Subtitle G regulations. The data demonstrate that land application of synthetic gypsum, at typical agronomic rates of 2 tons/acre, is well under Part 391 loading rate limits.

Also attached are US EPA, USDA and university research factsheets regarding the benefits of gypsum, mined and synthetic.

Collectively, the attached information clearly demonstrates that FGD gypsum satisfies the criteria of 415 ILCS 5 Section 3.135 (b) that the beneficial use:

- ✓ Will not cause, threaten, or allow the discharge of any contaminant into the environment;
- ✓ Will otherwise protect human health and safety and the environment; and
- ✓ Constitutes a legitimate use of the coal combustion (byproduct) waste as an ingredient or raw material that is an effective substitute for an analogous ingredient or raw material

Following your written determination that synthetic gypsum is a CCB it is We Energies intent to register synthetic gypsum produced at P4 with the Illinois Department of Agriculture (IDOA). It is also our intent, if there are no conditions included in your BUD, to institute a distribution and agricultural use program for Illinois that is consistent with that specified by WDNR's Conditional Grant of Exemption (also attached).

On behalf of We Energies, I look forward to working with the Agency staff to expedite this request and address any issues that may arise. Please do not hesitate to call me (414-221-3948) regarding this request, I'd be happy to answer any questions that you may have.

Sincerely,

Robert Paulson

Robert Paulson
Senior Environmental Consultant

Attachments:

Table 1. Synthetic gypsum leachate analytical data
Table 2. Synthetic gypsum bulk analytical data
USEPA FGD Gypsum factsheet
USDA Factsheet
OSU Gypsum factsheet
WDNR Exemption
WDATCP License

Table 1. Comparison of ASTM Water Leach Test Results for Various Agricultural Products and We Energies P4 Synthetic Gypsum with Illinois Class I Potable Groundwater Standards.

Parameter	Units	IL Class I Potable Groundwater Standards	Pelletized Gypsum AC81151	Ammonium Sulfate AC81152	Aluminum Sulfate AC81153	P4 Gypsum Dec-08 AD04436
Dissolved Aluminum	mg/l		0.75	0.016	3500	0.36
Dissolved Antimony	mg/l	0.006	0.00058	< 0.00024	0.028	< 0.00025
Dissolved Arsenic	mg/l	0.05	< 0.0026	< 0.0026	< 0.026	< 0.001
Dissolved Barium	mg/l	2.0	0.083	< 0.0055	< 0.055	0.027
Dissolved Beryllium	mg/l	0.004	< 0.00085	< 0.00085	0.02	< 0.00023
Dissolved Boron	mg/l	2.0	0.083	0.0087	0.2	0.01
Dissolved Cadmium	mg/l	0.005	0.00034	0.00026	< 0.0025	0.00014
Chloride	mg/l	200	8.9	< 0.6	66	0.65
Dissolved Chromium	mg/l	0.1	0.012	0.012	< 0.032	0.000097
Dissolved Cobalt	mg/l	1.0	not analyzed	not analyzed	not analyzed	0.00068
Dissolved Copper	mg/l	0.65	0.0054	0.0019	0.019	< 0.00029
Dissolved Cyanide	mg/l	0.2	0.032	< 0.006	< 0.006	0.0091
Dissolved Fluoride	mg/l	4.0	< 0.06	1.3	3.4	8.0
Dissolved Iron	mg/l	5.0	1.7	0.29	< 2.5	0.031
Dissolved Lead	mg/l	0.0075	0.021	0.00028	0.0021	< 0.000038
Dissolved Manganese	mg/l	0.15	0.5	0.03	0.062	0.065
Mercury	mg/l	0.002	< 0.000012	< 0.000012	< 0.000012	0.00012
Dissolved Molybdenum	mg/l		0.0061	0.0079	0.016	0.00045
Dissolved Nickel	mg/l	0.1	0.014	0.017	0.038	0.0018
Nitrate-Nitrite as N	mg/l	10	0.68	4.3	3.4	0.05
Dissolved Selenium	mg/l	0.05	< 0.0046	0.0049	< 0.046	0.042
Dissolved Silver	mg/l	0.05	< 0.00065	< 0.00065	< 0.0065	< 0.000068
Sulfate	mg/l	400	1750	35300	24900	1400
Dissolved Thallium	mg/l	0.002	0.00012	0.000092	0.0019	< 0.000028
Dissolved Zinc	mg/l	5.0	0.022	0.02	0.6	0.0024

Table 2. Comparison of Synthetic Gypsum Heavy Metals Application Rates with Title 35 Part 391 Maximum Application Rates.

Parameter	Synthetic Gypsum Concentration (as applied basis)		Part 391.420 Maximum Application Loading Rates Heavy Metals		Lifetime applications (tons/acre) to reach lifetime loading rate	Maximum annual application rate (tons/acre)
			Lifetime	Annual		
	mg/kg	lb/ton	lb/acre	lb/acre		
Antimony	0.13	0.00026	700		2692308	
Arsenic	< 0.43	0.00086	100		116279	
Cadmium	0.042	0.000084	10	2	119048	23810
Chromium	< 0.06	0.00012	440	44	3666667	366667
Copper	1.2	0.0024	250		104167	
Lead	1.5	0.003	1000		333333	
Manganese	< 0.026	0.000052	900		17307692	
Mercury	0.97	0.00194	7		3608	
Nickel	2.6	0.0052	100		19231	
Selenium	12	0.024	8		333	
Silver	< 0.63	0.00126	178		141270	
Zinc	5.5	0.011	500		45455	

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Agricultural Uses for Flue Gas Desulfurization (FGD) Gypsum

What Is Gypsum?

Gypsum is calcium sulfate dihydrate, or $CaSO_4 \cdot 2H_2O$, which can come from a number of sources. Mined gypsum is a common mineral found around the world in sedimentary rock formations, from which it is mined or quarried. FGD gypsum is a synthetic material of identical chemical structure produced as a byproduct from coal-fired electric utilities. Other sources of gypsum include phosphogypsum, citrogypsum and fluorogypsum, which are byproducts of different chemical manufacturing processes[1].

Gypsum has many beneficial uses, including agricultural applications, wallboard products for residential and commercial buildings, as an ingredient in portland cement manufacturing, and as a filler ingredient in some foods and toothpaste. Because of its relatively high degree of purity, FGD gypsum can be used as a substitute for mined gypsum in many uses, while also realizing important environmental benefits that result from recycling this byproduct material.

Gypsum in Agriculture

Both mined and FGD gypsum can be used as a soil amendment in a range of soil and hydrogeologic conditions. Gypsum can be used as a nutrient source for crops; as a conditioner to improve soil physical properties, and water infiltration and storage; to remediate sodic (high sodium) soils; and to reduce nutrient and sediment movement to surface waters, among other uses. The United States Environmental Protection Agency (USEPA) and the United States Department of Agriculture (USDA) support the use of FGD gypsum in appropriate soil and hydrogeologic conditions as an effective method of soil conservation and industrial material recycling. However, before applying any fertilizer or other soil amendment, including FGD gypsum, it is important to first assess the amendment material and soil conditions to determine compatibility and appropriate application rates.

1 This brochure does not address these sources of gypsum.

FGD Gypsum

FGD gypsum is created by forced oxidation scrubbers attached to coal-fired power plants to limit emissions of the sulfur which is released when coal is burned. The scrubbers spray liquid lime or limestone slurry into the flue gas path, where it reacts with sulfur in the gas to form calcium sulfite, an intermediate product with little practical value. However, when the chemical reaction is pushed further by the introduction of air into the FGD absorber tank, the calcium sulfite reacts to become gypsum. The material is then dewatered and processed; the end product is a consistent, finely divided powder. This process is known as flue gas desulfurization (FGD), and the gypsum produced is known as FGD gypsum.

The term FGD gypsum is the name most often used by generators of the material. Other names include recaptured gypsum, byproduct gypsum, and synthetic gypsum. All of these terms refer to the same material produced by the forced oxidation process. The gypsum in both FGD gypsum and mined gypsum has the same basic chemical makeup— $CaSO_4 \cdot 2H_2O$; however, the amount and types of trace materials and unreacted sorbents found in the gypsum can vary among power plants and among mines[2]. If you are considering using FGD gypsum products as a soil amendment, it is appropriate that the chemical analysis of the material be provided by all commercial sources to support decision-making in their use, as States may have regulations and standards that need to be followed. To this end, it is advisable to contact your State's department of agriculture or State extension service before FGD gypsum is used as a soil amendment.

The Future of FGD Gypsum

According to the American Coal Ash Association's annual Coal Combustion Product Production and Use Survey, total production of FGD gypsum in 2006 was approximately 12 million tons. Close to 9 million tons of FGD gypsum was put to beneficial use, while the remainder was landfilled. Of the amount used, approximately 80 percent was used in wallboard products, and about 2 percent (168,190 tons) was used in agriculture, with most of the rest being used in concrete and cement applications. In the future, FGD gypsum may find more use as filler in plastics and fiberglass, as well as in reducing mine subsidence, re-contouring landforms, and improving soil conditions at mining sites.

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2 Information about constituent concentrations in mined and FGD gypsum may be found at http://www.epa.gov/epaoswer/osw/conserve/c2p2/ccps/fgd.htm.

Over the next ten years, annual production of FGD gypsum may double as more coal-fired power plants come online, and as scrubbers are added to existing power plants to comply with the EPA's Clean Air Interstate Rule and other requirements. It is anticipated that the majority of the new scrubbers will produce FGD gypsum, although in some parts of the country power plants may select dry scrubbers, resulting in materials other than FGD gypsum. This increased supply is an opportunity to explore the expanded use of FGD gypsum as a soil amendment. Ongoing and future research and demonstration projects will be able to assist people in making decisions about the use of FGD gypsum.

Agricultural Applications of Gypsum

There are three general uses of gypsum in agricultural applications:

- A source of nutrients for plants
- Improvement of soil physical and chemical properties
- Reduction in the transport of nutrients, sediment, pesticides and other contaminants to surface waters

Current Uses of Gypsum in Agriculture

Nutrient Source

Gypsum is rich in calcium and sulfur, two nutrients essential to all crops. The most common application of gypsum is to crops that have high calcium requirements, or to areas that have calcium-poor soils. Peanuts have particularly high calcium requirements, and gypsum often is added to peanut fields to increase yield and quality of the crop. Many fruits, vegetables, and cereals also can benefit from increased calcium availability; in particular, fruits such as tomatoes and cantaloupes need calcium for skin strength, and growers may add calcium to produce fewer blemishes and a longer shelf life.

Sulfur fertilization also is required for many crops, and gypsum can be an effective sulfur source. There is a growing need for sulfur addition to soils, since atmospheric deposition of sulfur has decreased, and most nitrogen and phosphorus fertilizers no longer contain significant amounts of sulfur. Sulfur is sometimes a constituent of nitrogen and phosphorus fertilizers, but gypsum also can be an effective sulfur source for some crops. In addition to calcium and sulfur, gypsum, depending on its source, may provide essential micronutrients to plants.

Soil Improvement

Gypsum is helpful in treating sodic soils and soils suffering from crusting and other structural problems. Gypsum is more readily soluble in water than other calcium-rich soil amendments such as limestone, and therefore moves throughout the soil column more easily. Calcium ions from gypsum displace excess sodium

and other ions, which then become mobile and diffuse. The calcium ions reduce dispersion of soil particles by promoting the aggregation of clay particles. This improves soil structure and stability and prevents soil crusting. Reduced crusting and better particle aggregation allow for greater water infiltration and storage in soil, thereby reducing runoff and erosion. These soil structural improvements also ease the emergence of seedlings and allow roots to penetrate further into the soil to take advantage of the additional stored moisture.

Mitigation of Contaminant Transport to Surface Water

In addition to water quality benefits associated with reduced runoff and erosion, FGD gypsum application can reduce the solubility of nutrients such as phosphorus in livestock and poultry manure and soils treated with manure. Gypsum converts readily soluble phosphorus to less-soluble forms, which can reduce the runoff of phosphorus into adjacent streams, lakes, or ground water. Excess phosphorus in runoff leads to water quality problems, including algal blooms and eutrophication of water bodies.

Gypsum Decisions in Agriculture

Recycling coal combustion products (CCPs) and other industrial materials can result in significant environmental benefits, including reduced greenhouse gas emissions, less use of virgin materials, and decreased use of landfills. The USEPA's Coal Combustion Products Partnership (C2P2) (http://www.epa.gov/epaoswer/osw/conserve/c2p2/) aims to increase recycling of CCPs, including FGD gypsum. In addition to its environmental benefits, FGD gypsum may be less expensive for users than mined gypsum, although transportation costs can be a factor in evaluating the practicality of using FGD gypsum as a gypsum source.

As with any fertilizer or chemical additive, there are a range of considerations that should be kept in mind when deciding whether to apply gypsum. Gypsum is not suitable for all soil types, soil conditions or crops. Appropriate application rates should be determined to accomplish specific soil improvement goals, while not exceeding state limits on the use of individual constituents. In general, application rates of up to two tons per acre should be sufficient to accomplish most agronomic and horticultural objectives[3].

In situations where there is excess sulfur in the soil, the amount of gypsum to be added should be balanced against copper nutrition in animals, as high levels of sulfur in feed can interfere with copper absorption. Boron concentrations in FGD gypsum typically are higher than in natural gypsum sources; therefore, crops sensitive to boron uptake such as cherry, peach and kidney bean may require lower application rates. The high calcium and sulfur content of gypsum can cause an imbalance in other soil nutrients, such as magnesium; therefore, soil nutrient characteristics, and potential plant and animal uptake, of these and other constituents should be understood and considered before deciding whether to use any gypsum product.

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3 Donstova et al. and other sources

In determining the environmental suitability of FGD gypsum for a particular location, you may find the USEPA's Industrial Waste Management Evaluation Model (IWEM) and the chapter on land application (Chapter 7) in the associated *Guide for Industrial Waste Management* (http://www.epa.gov/epaoswer/non-hw/industd/guide/index.htm) to be useful resources. You should also consult with your State's department of environmental protection to comply with any regulations pertaining to the management of CCPs. You may also find it helpful to consult with your State's department of agriculture and agricultural extension service, and with the USDA Natural Resources Conservation Service.

FGD Gypsum Beneficial Use Considerations		
Decision	Things to Consider	Resources
1. Is gypsum a good choice for my needs?	• Types of crops • Nutrient requirements of crops • Soil structure • Soil chemical profile	• State department of agriculture/ag. extension agency • USDA Natural Resources Conservation Service
2. If gypsum is a good choice, should I use FGD gypsum?	• Trace element sensitivity of crops • Purity of available FGD gypsum • Cost differential	• State department of agriculture/ag. extension agency • Fertilizer supplier
3. Is the use of FGD gypsum environmentally protective?	• Ground water • Direct exposure • Ecosystem impacts • Surface waters	• State departments of environmental protection • EPA's *Guide for Industrial Waste Management*

References and Websites

The references and Websites below provide additional information and studies about the uses of gypsum in agriculture.

Clark, R.B., K.D. Ritchey, and V.C. Baligar (1999) "Benefits and Constraints for use of FGD Products on Agricultural Land." *Fuel*, 80:821-828.

Donstsova, K., Y.B. Lee, B.K. Slater, J. M. Bigham (no date) *Gypsum for Agricultural Use in Ohio – Sources and Quality of Available Products*. Ohio State University Extension Fact Sheet. School of Natural Resources, The Ohio State University, Columbus, OH. Available online at: http://ohioline.osu.edu/anr-fact/0020.html.

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Stout, W.L., J.L. Hern, R.F. Korcak, and C.W. Carlson (1988) *Manual for Applying Fluidized Bed Combustion Residue to Agricultural Lands*. RS-74. U.S. Department of Agriculture, Agricultural Research Service, Washington, DC.

USGS (2005) *Major- and Trace-Element Concentrations in Soils from Two Continental-Scale Transects of the United States and Canada*. Open-File Report 2005-1253, U.S. Geological Survey. Available online at: http://pubs.usgs.gov/of/2005/1253/. Accessed September 13, 2007.

For More Information

--USDA Natural Resources Conservation Service:
http://www.nrcs.usda.gov/partners/for_farmers.html

--USEPA C2P2 Website: http://www.epa.gov/epaoswer/osw/conserve/c2p2

--USEPA Industrial Waste Management Website:
http://www.epa.gov/epaoswer/non-hw/industd/guide/index.htm

--FGD Products Website: http://www.fgdproducts.org/

--Information sheets on agricultural gypsum use from a leading distributor:
http://www.gypsumsales.com/gyp_whitepapers.html

--A paper on agricultural gypsum use from a distributor:
http://www.dktgypsum.com/news_content7.html

--Information sheet on FGD gypsum from the American Coal Ash Association: http://www.acaa-usa.org/PDF/EnvFocusFinal3g2.pdf

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-- American Coal Ash Association
-- Electric Power Research Institute

United States Department of Agriculture

Agricultural Research Service

USDA

National Soil Erosion Research Laboratory

275 S., Russell St., West Lafayette, IN 47907-2077

FACT SHEET: GYPSUM

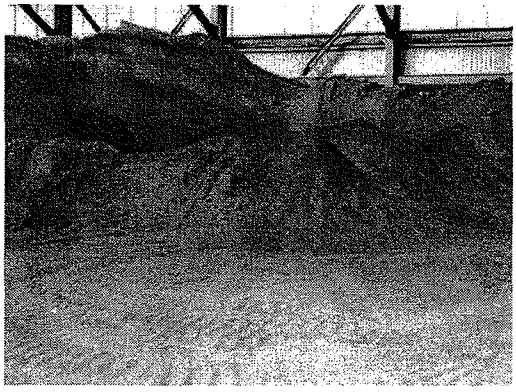
Micrograph of soil surface sealed after a two inch rainfall event. The seal limits water infiltration and air exchange between the soil and the atmosphere.

Gypsum factoids

- Gypsum is a natural substance
- Primary component of drywall
- Byproduct of pollution reduction in coal fueled power plants
- Dissolves in rainwater
- Normal application rates of 1-2 ton/acre to soil surface
- Primary cost is shipping

Random corn plants with the same fertility, planting date and genetics from the same field without gypsum on the left and with gypsum on the right.

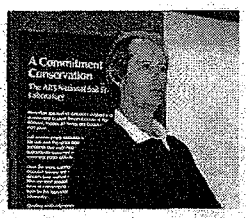
Gypsum is a naturally occurring mineral that most people know as the main component in sheet rock or gypsum board. It is normally mined for this purpose but increasingly large quantities are produced from the scrubbing of flue gases from coal fired combustors to achieve clean air standards (Synthetic gypsum). Gypsum is calcium sulfate dihydrate ($CaSO_4 \times 2H_20$) with a widely varying range of impurities depending on the geologic formation and it also varies widely in particle size due to the grinding procedure.



Gypsum ready for field application

Synthetic gypsum is normally much purer and has nearly constant silt sized particles due to the nature of the production process. Synthetic gypsum is lower in heavy metals than soil that it is applied to and contains 19% Calcium (Ca) and 15% Sulfur (S) which are both essential plant nutrients that most farmers have not traditionally been concerned with. Most of our soils are naturally high in Ca except when ammended with Dolomitic lime or subjected to acid weathering from addition of acidifying fertilizers. Because of this, the amount of Ca decreases from the natural levels and is replaced by acid, Magnesium (Mg) or Aluminum (Al). Ca for many plants is required in large amounts because of its involvement in such basic cellular processes as cell wall health and strength and must be added to many crops when the ability of the soil to supply Ca is less than the plant requirement. Unlike agricultural lime which needs acid to react with soil, gypsum will react with rainwater and dissolve at a rate of 475 lbs per acre after 1 inch of rainfall. The Ca ions move into the soil where they displace Al ions (if present) which are a major source of soil acidity. Gypsum, per se, is not a liming material since in most states liming materials are defined based on acid neutralizing capacity, however, it may increase pH when the soil acidity is due to exchangeable Al. Since gypsum is a neutral salt the equilibrium pH is 6.7 which is within the optimum range of pH for soil to provide nutrients to plants. **Another significant difference between agricultural liming materials and gypsum is that gypsum can dissolve and move the Ca to lower soil layers where it can alleviate toxic Al effects at depth in the soil profile.** Thus allowing greater depth of rooting which can make significant differences in yields especially when production is limited by available water.

Field after Gypsum applied at 1 ton/ac



Dr. Darrell Norton
USDA-ARS
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275 S. Russell Street
West Lafayette, IN 47907-2077
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"Both President Thomas Jefferson and Benjamin Franklin were early American agriculturalists who saw the value of using gypsum. Actually, Franklin applied gypsum to a hillside near Hershey, PA to read prominantly in green 'This Hill has Been Plastered' an early name for gypsum, hence, the name "land plaster".

USDA
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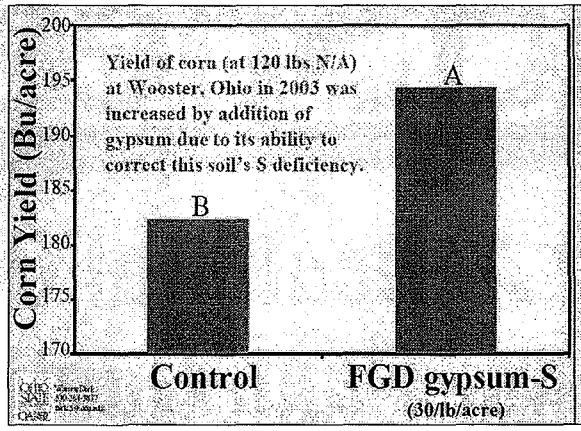
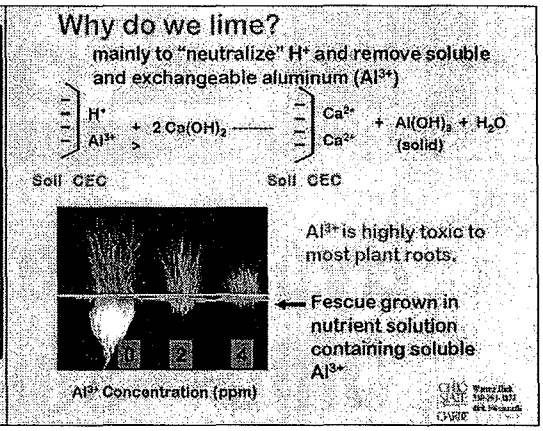
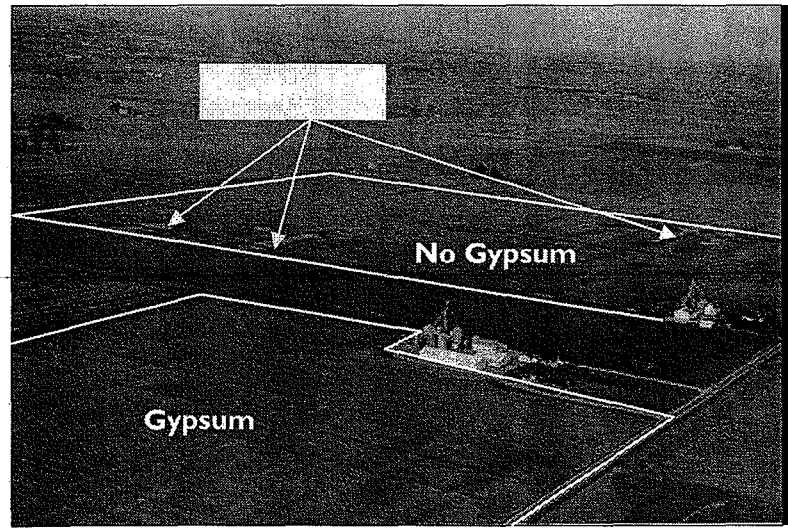
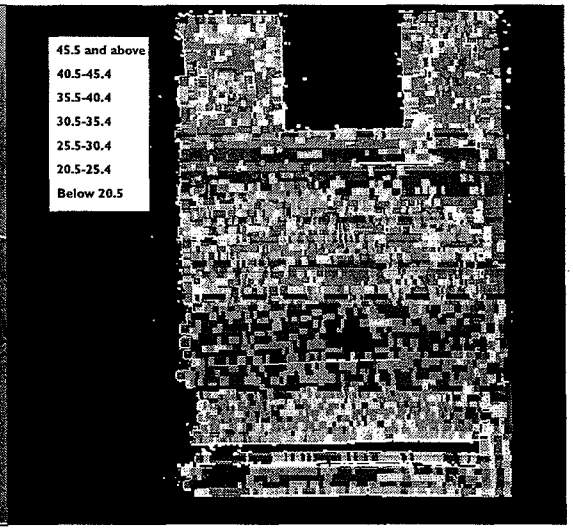




- Gypsum is a soluble source of S for plants.
- Sulfur is important for protein formation in plants.
- Studies (see above) from Dr. Warren Dick of the Ohio State University, Wooster, Ohio show S in rainfall has been greatly reduced since the late 1970's
- These same studies show a yield increase in corn from S fertilization.
- This leads to reduced erosion and improved water use efficiency that is well documented in the scientific literature and leads to increased available water and crop yield as shown in yield map below.
- "The greatest benefit of gypsum addition is on better water/air infiltration and drainage and stabilizing soil structure which results in decreased crusting.", L. D. Norton



Effect of Gypsum on infiltration/drainage on a Paulding clay.



Soybean yield with 1t/a surface applied gypsum in 2005 on Blount complex field. Treated area inside black dashed line.

January 2006

THE OHIO STATE UNIVERSITY EXTENSION

Extension FactSheet

ANR-20-05

School of Natural Resources, 2021 Coffey Road, Columbus, Ohio 43210

Gypsum for Agricultural Use in Ohio—Sources and Quality of Available Products

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The Role of Gypsum as a Soil Amendment

Gypsum is hydrated calcium sulfate ($CaSO_4 \cdot 2H_2O$), and is often marketed as a soil "conditioner" for improving soil "tilth." Compared to most other calcium-rich soil amendments, such as limestone, gypsum is relatively soluble in water, dissolving up to 2 g per liter. The solubility of gypsum, when either incorporated or surface applied, permits a quick release of calcium (Ca^{2+}) and sulfate (SO_4^{2-}) ions into the soil solution. The supply of dissolved salt and Ca^{2+} ions, in particular, may reduce soil crusting (Figure 1) and otherwise benefit soil structure. The aggregation of clay particles that help to form and stabilize soil structure is clearly enhanced by the presence of calcium on clay exchange sites.

It is important to note that pure gypsum is not a liming agent, and it cannot be used to raise soil pH. However, gypsum has the potential to relieve aluminum (Al^{3+}) toxicity in acid soils and to supply calcium and sulfur (S) for plant nutrition. Some natural and synthetic sources of gypsum also contain other chemical compounds, such as calcium carbonate (agricultural lime), calcium oxide (burned lime), or calcium hydroxide (hydrated lime). These materials *do* have a liming effect when applied to soil, but are not discussed further in this publication.

The objectives of this fact sheet are to review possible sources of gypsum for agricultural use in Ohio, and to report results from chemical and mineral analyses of representative samples.

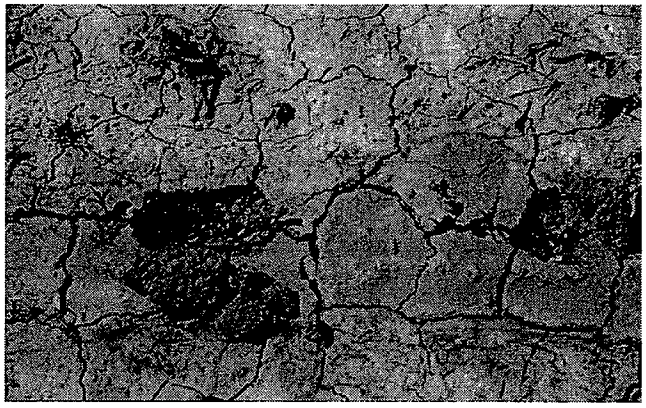

Figure 1. Inhibition of soybean seedling emergence by severe surface crusting.

Sources and Mineral Composition of Gypsum Materials

There are several possible sources of gypsum currently available for agricultural use in Ohio.

These include:

- Natural gypsum mined from geologic deposits
- Synthetic gypsum produced as a by-product of electricity generation
- Recycled casting gypsum from various manufacturing processes
- Recycled drywall gypsum

Natural Gypsum

Gypsum has been obtained by mining geologic deposits in northern Ohio, Michigan, and other locations for many years. Mineral purity of natural samples varies with the local geology and the mining technology employed at the site. Samples obtained from northern Ohio mines near Port Clinton were predominantly gypsum, but also contained dolomite [$CaMg(CO_3)_2$] and quartz (SiO_2) (Table 1). Small quantities of quartz have no effect on soil properties, whereas dolomite is a liming agent and is a good source of magnesium (Mg).

Table 1. Mineralogical composition of gypsum samples.

Source	Minerals* present
Synthetic gypsum[1]	gypsum, quartz
Natural gypsum[2]	gypsum, quartz, dolomite
Cast gypsum[3]	gypsum, quartz, anhydrite
Drywall gypsum[4]	gypsum, quartz, portlandite, calcite

[1] Samples obtained from the W.H. Zimmer Station in Moscow, OH, owned by Cinergy Corporation
[2] Samples obtained from the Kwest Group at Port Clinton, OH
[3] Samples obtained from Mansfield Plumbing Products, LLC of Mansfield, OH
[4] Samples obtained from Transfer Services, LLC of Columbus, OH
* gypsum = $CaSO_4 \cdot 2H_2O$, quartz = SiO_2, dolomite = $CaMg(CO_3)_2$, anhydrite = $CaSO_4$, portlandite = $Ca(OH)_2$, calcite = $CaCO_3$

Synthetic Gypsum

Synthetic gypsum is produced at some coal-fired power plants as a by-product of pollution control measures. The Clean Air Act Amendments of 1990 mandate that electrical utilities install systems for removal ("scrubbing") of sulfur dioxide (SO_2) from flue gases that are generated during the burning of coal. The resulting materials are termed *flue gas desulfurization* (FGD) by-products. Depending on the process, these by-products can have a variety of mineral constituents. The forced oxidation procedure used at the W.H. Zimmer Station in Moscow, Ohio, results in a high purity product (Table 1), and the material is marketed as synthetic gypsum.

In the process used at Zimmer Station, the flue gases are first exposed to a slurry of hydrated lime, and calcium sulfite ($CaSO_3 \cdot 0.5H_2O$) is initially formed by capture of SO_2 (Figure 2). The calcium sulfite is then oxidized to form gypsum. During the oxidation process, washing of the by-product with water removes undesirable chemical contaminants such as boron (B) and mercury (Hg). The final step of the process involves partial removal of water by a combination of centrifugation and vacuum filtration.

The final product is available for drywall manufacturing or for agricultural applications. To be acceptable for drywall manufacture, the material must have less than 600 parts per million (ppm) of total dissolved solids in the pore water, and a water content of less than 15% by weight. Material that does not meet these criteria is marketed as agricultural gypsum, and total dissolved solids is the major

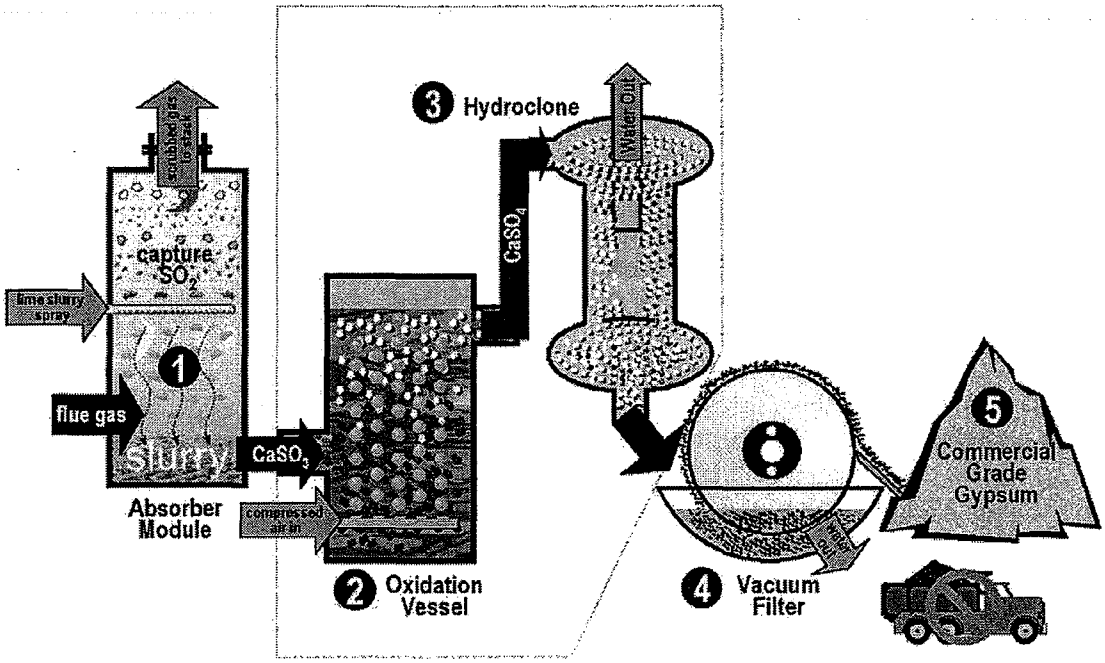

Figure 2. The scrubbing process and gypsum production at Zimmer Station (Figure courtesy of CINERGY Corp.).

criterion for diverting material to agricultural uses. Power plant gypsum in Ohio is permitted as a fertilizer material through the Ohio Environmental Protection Agency, and is monitored by the Ohio Department of Agriculture for Ca and S contents.

Cast gypsum

The manufacture of some products, such as plumbing fixtures, requires gypsum casts or molds. The used molds can potentially be ground and recycled for other uses. The recycled material analyzed for this report contained mostly gypsum with a small admixture of the mineral anhydrite (Table 1), probably due to the dehydration of gypsum during the casting process. Anhydrite ($CaSO_4$) is calcium sulfate without water of hydration, and is usually similar in behavior to gypsum when applied to soils.

Drywall gypsum

Drywall consists of gypsum with a thin paper backing. About 30 billion square feet of gypsum wallboard are manufactured each year in North America, and a considerable quantity is discarded during the construction of homes, offices, and other structures. Up to 25% of the waste produced at new construction sites is drywall material. The recycled drywall analyzed in this study was obtained entirely from new construction projects and is regularly monitored by the Ohio Department of Agriculture as a fertilizer. The samples contained quartz, calcium hydroxide [$Ca(OH)_2$] or portlandite, and calcium carbonate ($CaCO_3$) or calcite (Table 1). Demolition drywall is another possible source of gypsum but should probably be avoided for land application because of potential chemical contamination from paint or other wall coverings.

Physical Properties of Gypsum Materials

The cost and ease of land application are heavily dependent on factors such as water content, particle size, and purity of the gypsum product. The samples collected for this study included products taken directly from the sources as well as materials stockpiled in the field in preparation for land application (Figure 3). As a result, the water contents varied considerably (Table 2). Water content was consistently small (< 1%) for the mined gypsum and the recycled cast material, neither of which were exposed to rainfall. Water contents of the synthetic FGD-gypsum were below 10%, even though the manufacturer reports that the product has an average water content of 12%. Drywall gypsum contained 1% water at the recycling facility, whereas contents were as high as 19% after storage in the field.

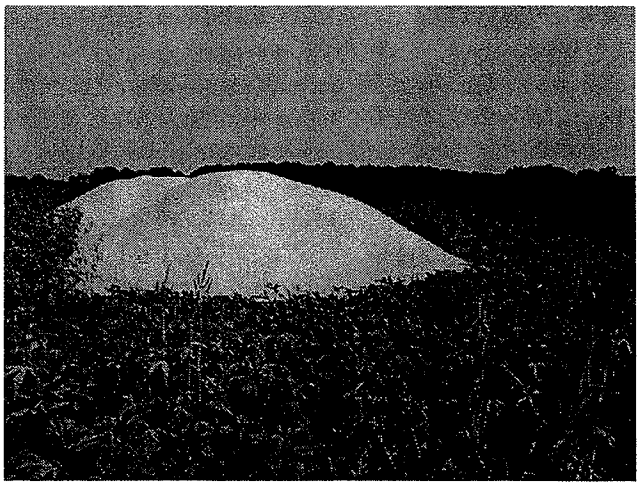

Figure 3. Gypsum stockpiled in the field for post-harvest application.

The waste drywall material was crushed and sorted through a 0.5-inch screen at the recycling center. For agricultural uses, this material is best spread with a wet lime spreader. Fertilizer spreaders do not work well because the feeder holes are not sufficiently large to pass larger particles. The synthetic FGD-gypsum, by contrast, generally has excellent spreading characteristics.

Most products sampled for this study were high purity and yielded < 3% water insoluble residues (Table 2). The mined gypsum, on the other hand, contained up to 19% undissolved residue after 3 days equilibration in acidified water. Much of the residue was dolomite, which did not dissolve due to large particle size and relatively low solubility.

Table 2. Physical properties and price (as of 12/2004) of gypsum.

Material	Water content[1]	Particle size	Price $/ton	Insoluble residue[2]
	%			%
Synthetic gypsum	5.55 (3.04)[3]	120 μm	7.00	0.4 (0.2)
Natural gypsum	0.38 (0.48)	NA	12.75	12.9 (8.1)
Cast gypsum[4]	0.15 (0.21)	NA	NA	0.2
Drywall gypsum	10.1 (12.8)	<0.5 inch	11.00	2.2 (0.3)

[1] Dried overnight at 60 degrees Celsius.
[2] Following dissolution for three days at pH <3.
[3] Standard deviation included in parentheses.
[4] Material is not yet available for sale for agricultural application.
NA = not available

Table 3. Selected macro- and micronutrient[1] concentrations in the gypsum samples.

Measure	Units	Museum specimen[2]	Synthetic gypsum	Natural gypsum	Cast gypsum	Drywall gypsum	Ideal analysis[3]
Calcium	%	22.6	23.0 (0.0)[4]	19.1 (2.2)	22.4 (0.0)	21.9 (0.2)	23.3
Magnesium	%	0.01	0.03 (0.01)	1.35 (0.30)	0.05 (0.00)	0.22 (0.01)	
Sulfur	%	18.6	18.7 (0.1)	15.1 (1.2)	19.3 (0.2)	18.1 (0.3)	18.6
Boron	ppm	<13.1	26.7 (8.7)	9.4 (0.9)	0.4 (0,4)	7.3 (4.5)	
Iron	ppm	<1	264 (129)	1045 (148)	44 (7)	547 (92)	
Manganese	ppm	0.1	5.5 (2.3)	14.6 (2.9)	9.1 (0.0)	9.4 (1.6)	
Phosphorus	ppm	3.8	16.7 (9.4)	30.6 (7.6)	7.5 (0.3)	51.6 (3.5)	

[1] Micronutrient data obtained by EPA method 3050 (USEPA, 1996).
[2] The museum specimen is included as a pure sample of gypsum.
[3] Calculated content in a 100% pure product.
[4] Standard deviation included in parentheses.

Table 4. Trace metal content[1] of gypsum from different sources compared with U.S. EPA Part 503 pollutant concentration limits for excellent quality biosolids.

Pollutant (ppm = mg kg^{-1})	Museum specimen	Synthetic gypsum	Natural gypsum	Cast gypsum	Drywall gypsum	Part 503 Table 3[2]
Arsenic	<0.52	0.56 (0.05)[3]	<0.52	<0.52	0.98 (0.11)	41
Cadmium	<0.48	<0.48	<0.48	<0.48	<0.48	39
Chromium	0.01	1.30 (0.85)	1.38 (0.32)	0.07 (0.00)	1.09 (0.09)	1200
Cobalt	<0.48	<0.48	0.53 (0.04)	<0.48	<0.48	NR[4]
Copper	<0.48	1.16 (0.66)	1.33 (0.30)	1.40 (0.21)	0.95 (0.14)	1500
Lead	< 0.48	0.80 (.30)	2.92 (0.30)	0.57 (0.08)	0.70 (0.02)	300
Mercury	<0.26	<0.26	<0.26	<0.26	<0.26	17
Molybdenum	<0.24	0.51 (0.26)	1.28 (0.04)	<0.24	<0.24	—[5]
Nickel	<0.24	0.73 (0.18)	1.42 (0.23)	< 0.24	0.83 (0.12)	420
Selenium	<1.45	5.51 (3.47)	<1.45	<1.45	1.85 (0.04)	36
Zinc	<0.24	3.88 (2.78)	0.91 (0.49)	<0.24	3.08 (0.45)	2800

[1] Data obtained by EPA method 3050 (USEPA, 1996).
[2] Part 503—Standards for the Use or Disposal of Sewage Sludge; 503.13, Table 3. (USEPA, 1993).
[3] Standard deviation included in parentheses.
[4] NR = not regulated.
[5] Ceiling concentration limit for molybdenum is 75 ppm; 503.13, Table 1. (USEPA, 1993).

Plant Nutrient Content of Gypsum Samples

All the materials tested would be excellent sources of Ca and S for plant nutrition (Table 3). Because of its dolomite content, the mined gypsum is also a source of Mg.

Boron is a plant micronutrient and some crops have a relatively high demand for B; however, others can be sensitive to elevated levels. Unwashed FGD by-products can have levels of B sufficiently high to result in toxicity to corn. Washing of the by-product in the process of gypsum formation lowers B contents to safe levels if recommended application rates are used.

Trace Metal Content of Gypsum Samples

Chemical analyses of the gypsum materials collected in this study showed that trace metals were present at low concentrations in all samples (Table 4). As a point of reference, the metal contents were much lower than concentration limits identified by government regulations for land application of excellent quality biosolids (USEPA, 1993), and calculated metal loadings with application rates of 2.23 ton $ac^{-1}yr^{-1}$ (5 Mg $ha^{-1}yr^{-1}$) were 100 to 10,000x lower than annual loading rates permitted by these same regulations (see Part 503—Standards for the Use or Disposal of Sewage Sludge; 503.13, Tables 1–4, for details). Gypsum from any of the sources examined could thus be applied without restriction for trace metal loading; however, *samples from a given source should always be tested prior to application.* There is also no demonstrated benefit of application rates greater than 2 ton $ac^{-1}yr^{-1}$ for agronomic or horticultural crop production in Ohio, and biennial applications are probably adequate. Greater quantities could result in seedling damage to salt intolerant species, especially if applied near the time of planting. Autumn applications are recommended.

References

U.S. EPA. 1993. 40 CFR Part 503—Standards for the use and disposal of sewage sludge: Final rule. Federal Register 58:9248–9415. Washington, DC.

U.S. EPA. 1996. Method 3050. Acid Digestion of Sediments, Sludges, Soils and Oils. SW-846. Washington, DC.

Acknowledgement

This publication was produced through a cooperative effort between Ohio State University Extension and the College of Food, Agricultural, and Environmental Sciences.

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212-3128
FAX 414-263-8606
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March 20, 2008

MAR 2 5 2008

Robert Meidl, Senior Engineer
We Energies
333 W. Everett Street
Milwaukee, WI 53203

FID:230056310
Kenosha County
SW/APP

Subject: Conditional Grant of Exemption for Beneficial Use of FGD Gypsum from the We Energies Pleasant Prairie Power Plant, Pleasant Prairie, Wisconsin

Dear Mr. Meidl:

The Department is issuing this conditional grant of exemption from regulation under s. 289 Stats., for the use of flue gas desulfurization (FGD) gypsum generated at the We Energies Pleasant Prairie Power Plant (P4) as a agricultural fertilizer or soil additive. The FGD gypsum is generated as a byproduct of the exhaust scrubbers installed at the plant to control sulfur dioxide emissions from the combustion of coal to generate power. The agricultural use of this byproduct will be subject to the conditions of this exemption. Other beneficial uses of the FGD gypsum (i.e. for wallboard production or Portland cement) will continue to be subject to the requirements of ch. NR 538 Wis. Adm. Code.

This grant of exemption allows the use of FGD gypsum from a specific source for agricultural use as a fertilizer or soil additive and will terminate in five (5) years from the date of this approval. At that time, We Energies may apply to the Department for an extension of the exemption based on documentation of the performance of the gypsum use. We Energies may also apply to the Department at any time to amend the exemption to include FGD gypsum from other units, provided they can demonstrate that the gypsum is produced in a substantially similar manner and has similar chemical properties and physical characteristics as the P4 FGD gypsum included in this exemption.

The conditions of the approval include annual byproduct characterization, determination of appropriate application rates, use of best management practices for application, storage and transportation of the gypsum, and annual reporting requirements. The conditions require that We Energies, or its broker, inform any potential agricultural end user of the recommended application rates and practices and other requirements for its responsible use. The annual reporting requirements may be submitted to the Department along with the annual reporting required for the other beneficial reuses of We Energies byproducts.

Licensing of manufacturers and distributors of agricultural fertilizers and related products is managed through the Department of Agriculture, Trade and Consumer Protection (DATCP). Please contact Charlene Khazae, DATCP Program Manager at (608) 224-4541 to determine what other requirements may be needed prior to sale or distribution of this byproduct for agricultural use.

Under the authority of the grant of exemption, FGD gypsum that is beneficially used in agricultural applications is exempted from tonnage fees.

If you have any questions concerning this grant of approval, please contact Philip Fauble, Beneficial Use Coordinator, at (608) 267-3538.

Sincerely,

Frank Schultz, Supervisor
Waste and Materials Management Program
Southeast Region

Cc: Philip Fauble – WA/3
Suzanne Bangert – WA/3
Dennis Mack – WA/3
Bizhan Sheikholeslami – SER, Waukesha

Mr. Robert Meidl, 03/20/2008

FLUE GAS DESULFURIZATION (FGD) GYPSUM FOR AGRICULTURAL USE SUMMARY

To comply with the provisions of the 1990 Clean Air Act, coal fired power plants statewide have begun installing systems to reduce their emissions of sulfur dioxide gas. These are commonly referred to as flue gas desulfurization (FGD) systems. FGD systems installed on utility boilers to date have typically been one of three main technologies – Wet Scrubbers, Spray Dry Scrubbers, or Dry Scrubbers. These systems involve injecting a calcium or sodium based alkaline reagent into the boiler exhaust gas, which reacts with sulfur dioxide and removes it from the exhaust gas. Solids formed in the process from the reaction between the reagents and sulfur dioxide are removed from the system and are typically referred to as flue gas desulfurization materials. Flue gas desulfurization systems that utilize a calcium based reagent (typically limestone or lime) generally produce a calcium sulfate or calcium sulfite based material depending on the scrubber technology employed.Spray dry and dry scrubbers employing a calcium based reagent typically produce a calcium sulfite (CaSO3) material which is removed from the flue gas system with or without the majority of the fly ash in a precipitator or fabric filter system depending on where the reagent is injected. This approval does not apply to FGD material produced by dry spray or dry scrubber systems.

Wet scrubbers employing a calcium based reagent typically produce a material that is mostly in the form of calcium sulfite (CaSO3) with lesser amounts of calcium sulfate (CaSO4). Plants that stop at this step of the process are left with a FGD material which can be difficult to dewater and must be stabilized with fly ash or other materials prior to disposal or beneficial use. Some wet scrubber operations choose to process the FGD material further by initiating a forced oxidation process that blows air into the calcium sulfite to convert it into a relatively pure calcium sulfate (gypsum) byproduct. We Energies Pleasant Prairie Power Plant Unit 1 and 2 have wet scrubbers employing a calcium based reagent (limestone) in a slurry form and a forced oxidation system which produces calcium sulfate slurry in an absorber tower upstream of the flue gas chimney. The calcium sulfate slurry is sent to be dewatered on a vacuum filter belt to approximately 10% moisture to produce a greater than 90% pure gypsum product (commonly referred to as FGD gypsum). A small fraction of the calcium sulfate slurry is regularly removed or blown-down to a water treatment system prior to dewatering to remove chlorides and fines from the process. The solids from the water treatment system are ultimately captured and removed in a filter press. This material is typically referred to as water treatment system filter cake and consists of fine gypsum particles, unreacted limestone fines, calcium sulfite particles and a minor amount of fly ash.

FGD gypsum and the water treatment filter cake produced in the flue gas desulfurization system at Pleasant Prairie Power Plant are defined as an "industrial byproduct" in accordance with s. NR 538.03(3) and (4), Wis. Adm. Code and can be beneficially used under this Code. The gypsum is typically of a quality suitable for beneficial use in wallboard or Portland cement production under s. NR 538.10(1) Wis. Adm. Code and, in

fact, most of the gypsum produced at the Pleasant Prairie Power Plant is currently being shipped for use in wallboard manufacturing.

We Energies also requested approval from the Department to utilize their gypsum byproduct for agricultural uses. While the gypsum is defined as an "industrial byproduct" that can be regulated under Ch. NR 538, Wis. Adm. Code, agricultural uses are not included as an accepted beneficial reuse under the code. Landspreading is addressed in Ch. NR 518, Wis. Adm. Code, but the rules are directed more at specific landspreading facilities rather than approval for wholesale distribution and use. Therefore, the best option was to approve the agricultural use of the FGD gypsum under the statutory exemption provisions of s. 289.43(8) Stats.

We Energies based their request for agricultural use of the FGD gypsum on mined gypsum's historic use as a soil amendment in certain applications. The benefits of gypsum for agriculture include acting as a source of sulfur that is lost during phosphorus additions, as a source of calcium for improved plant growth, and as a method for altering soil properties in clay to improve water infiltration. Synthetic gypsum actually has some advantages to mined gypsum in that it tends to be finer-grained and more soluble.

Analyses submitted by We Energies indicate that the byproduct gypsum produced at the Pleasant Prairie Plant (P4) is similar in composition to mined gypsum currently being marketed for agricultural use. In fact, the FGD gypsum tends to be a more pure gypsum product than mined gypsum. The possible exception is the wastewater filtercake material which is currently being regulated under ch. NR 214 Wis. Adm. Code and the plant's WPDES permit and is not included in this approval.

The analyses also show that sulfate is leachable from the FGD gypsum at levels that far exceed the ch. NR 140 groundwater enforcement standards. However, this very property is what makes the FGD gypsum valuable for agricultural applications. As with most agricultural fertilizers and soil amendments (i.e. pesticides, ammonia, lime), these applications only cause detrimental effects if they are not used properly. The conditions included in this approval should assure that the FGD gypsum is applied properly.The manufacture and distribution of agricultural products that claim to be either a fertilizer or soil additive is regulated by the Department of Agriculture, Trade and Consumer Protection (DATCP) under chapter 40, Wis. Adm. Code. The FGD gypsum byproduct appears to meet their general definition of a gypsum fertilizer in that it contains more than 70 percent calcium sulfate with combined water.

Mr. Robert Meidl, 03/20/2008

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

CONDITIONAL GRANT OF EXEMPTION
FOR THE BENEFICIAL USE OF
FLUE GAS DESULFURIZATION GYPSUM
IN AGRICULTURAL APPLICATIONS

FINDINGS OF FACT

The Department finds:

1. We Energies owns and operates the Pleasant Prairie Power Plant (P4) located along 95th Street in the Village of Pleasant Prairie, in Kenosha County, Wisconsin.

2. To reduce sulfur dioxide emissions, We Energies installed a system at their Pleasant Prairie Power Plant that adds limestone slurry to the exhaust gas from their coal-fired boilers. The limestone reacts with sulfur dioxide gas to produce a flue gas desulfurization (FGD) material as a byproduct.

3. The Pleasant Prairie Power Plant contains two FGD systems that, combined, produce approximately 100,000 to 150,000 tons of material per year. The FGD systems operate as a forced oxidation process to produce both a relatively pure FGD gypsum byproduct (over 95 percent hydrous calcium sulfate – gypsum) and a mostly gypsum wastewater treatment filter cake.

4. The majority of the FGD gypsum is currently being beneficially used to produce wallboard in accordance with s. NR 538.10(1) Wis. Adm. Code.

5. On May 24, 2007, We Energies submitted an Exemption from Solid Waste Regulation request for use of their FGD gypsum as an agricultural supplement, and supporting documentation.

6. Subsequent to the submission of the original Exemption Request, We Energies withdrew the request to include the FGD water treatment system filter cake as part of the exemption for use as an agricultural supplement.

7. Based on the bulk analysis submitted to the Department by We Energies, none of the metals concentrations in the P4 FGD gypsum exceeds the high quality pollutant concentration limits in Table 3 of s. NR 204.07(5) Wis. Adm. Code for the land application of sludge.

8. Additional documents considered in connection with the review of the exemption request include the following:

   a. Bulk Analysis and ASTM D3987 leachate test results conducted by We Energies in accordance with s. NR 538.06(3) Wis. Adm. Code from the P4 FGD gypsum and wastewater treatment filter cake.

   b. "*Agricultural applications of FGD gypsum in soil and water management*" by L. Darrell Norton (2007) and "*Barriers to Increased FGD Land Application Uses*" by EPRI (2006).

   c. Communications with Department Wastewater staff (Paul Luebke, October 8, 2007) and the Department of Agriculture, Trade and Consumer Protection staff (Charlene Khazae, August 24, 2007).

   d. Meeting between Department staff and We Energies officials along with a tour of the FGD process at the Pleasant Prairie Power Plant on November 29, 2007.

9. Additional facts relevant to the review of the exemption request include:

   a. We Energies is required to comply with air pollution control requirements to reduce emission concentrations of sulfur, which it has decided to achieve by, among other processes, the use of a forced oxidation flue gas desulfurization system, which produces FGD gypsum..

   b. Analytical results indicate that the FGD gypsum has a high gypsum content, low concentrations of contaminants such as metals, and does not contain natural or synthetic organic chemicals.

   c. Gypsum has value as a soil conditioner, soil amendment and fertilizer for certain field crops and soil types, if applied at agronomic rates determined by soils tests and crop needs.

   d. FGD gypsum is produced as a fine-grained filtered precipitate, light brown in color, with soil-like consistency, no odor, and low moisture content, and can be readily handled by conventional loading and field application equipment.

   e. Agronomic use of FGD gypsum displaces use of naturally-occurring gypsum from nonmetallic mines and captive gypsum from other industrial or recycling processes.

   f. Agronomic use of gypsum includes transport of bulk product by truck, stockpiling, loading and spreading by agricultural machinery, and incorporation into soil.

g. Impacts due to mishandling or excessive application of FGD gypsum should be limited to temporary adverse changes to soil texture or structure and plant nutrition and to increased sulfate concentrations in groundwater and surface water, if concentrations of other contaminants are maintained at low levels as shown in analytical results.

10. The special conditions set forth below are needed to ensure that agricultural use of P4 FGD gypsum is conducted so as to minimize environmental effects, that appropriate records are kept of FGD gypsum quality and volumes utilized, and that the program for agricultural use of FGD gypsum will be assessed periodically.

CONCLUSIONS OF LAW

1. Flue gas desulfurization gypsum is an industrial byproduct in accordance with s. NR 538.03 (3) and (4) Wis. Adm. Code and s. 289.01(33) Stats.

2. The Department has the authority under s. NR 538.08(7) Wis. Adm. Code to conditionally approve a beneficial use that does not meet the beneficial uses or standards specified in ch. NR 538 Wis.Adm. Code on a case-specific basis in accordance with s. 289.43(4), (7), and (8) Stats.

3. The Department has the authority under ss. 289.43(8), Stats. to issue a grant of exemption from regulation under s. 289 Stats. and to authorize an individual generator to utilize a specified solid waste at a site other than a licensed solid waste disposal facility.

4. The Department has the authority under s. 289.43 (8)(c), Stats., to impose periodic testing and other conditions on a grant of exemption.

5. The conditions set forth are needed to ensure that the use of flue gas desulfurization gypsum from the Pleasant Prairie Power Plant for use as an agricultural fertilizer or soil additive will not result in environmental pollution as defined in s. 289.01 (8), Wis. Stats.

CONDITIONAL GRANT OF EXEMPTION

The Department hereby grants an exemption to We Energies to beneficially use FGD gypsum generated from Pleasant Prairie Power Plant as an agricultural fertilizer, soil conditioner, and/or soil additive under the following conditions:

General

1. This grant of exemption shall apply only to the forced oxidation process FGD gypsum material produced at the We Energies Pleasant Prairie Power Plant and not to the filtercake material produced by the FGD water treatment system.

2. This grant of exemption shall apply for a period of five years from the date of signing. After that time, We Energies may request a renewal of this grant of exemption.

Material Testing

FGD gypsum Characterization

3. We Energies shall perform a material characterization as specified below, prior to its use.

   a. A total elemental analysis in accordance with EPA SW-846 test methodologies, for the metals listed in NR538.22 Table 1B.
   b. pH
   c. Nutrient content including nitrate and nitrite-nitrogen, Kjeldahl-nitrogen, phosphorus and potassium.
   d. Salt content including boron, calcium, chloride, flouride and sulfate.

   The testing shall be performed by a Wisconsin certified laboratory and the results submitted to the Department.

4. The FGD gypsum shall be characterized in accordance with Condition #3 (above) and reported to the Department annually or whenever the facility changes its flue gas desulfurization process.

Land Application of FGD Gypsum

Information Distribution

5. We Energies shall inform those customers that receive or purchase FGD gypsum of the following agronomic and environmental practices specified in conditions 6 through 14 of this conditional grant of exemption regarding the use of FGD gypsum as a fertilizer, soil conditioner, or soil amendment. Guidance information shall include a recommendation to apply the FGD gypsum within one year or as soon as practical.

Application Rates

6. We Energies shall determine, either in the field or through published research, appropriate application rates for each soil type where the gypsum may be used and the amount needed to achieve the desired effect. The application rates shall include both a recommended and maximum loading rate per acre as well as recommendations regarding timing of the application and appropriate intervals between applications.

7. All information generated by We Energies regarding soil application rates shall be submitted to the Department and the UW-Extension and USDA offices in the counties where the FGD gypsum will be applied.

Mr. Robert Meidl, 03/20/2008

Environmental Considerations during Application

8. FGD gypsum shall not be repeatedly applied such that excessive accumulation of hazardous substances occur in vegetation or soil, or cause a detrimental effect on surface water or groundwater quality.

9. Recognized best management practices for surface water protection shall be utilized to eliminate
impacts to wetlands or surface water bodies, especially if application is done in winter. These practices include plowing, disking or otherwise incorporating the FGD gypsum into the soil layer at appropriate intervals to minimize storm water runoff. A vegetative buffer strip shall also be maintained between any navigable water and the application area and no FGD gypsum may be deposited in areas containing ponded or standing water.

10. All applications of FGD gypsum are to be performed in accordance with accepted agricultural practices.

Storage

11. FGD gypsum may be stored outdoors at the application site prior to use for no more than one (1) year after the delivery date. FGD gypsum stored under cover may be stored longer than one year or as long as is practical prior to application.

12. All FGD gypsum shall be stored at farm sites in a manner that will prevent excessive dusting.

13. Best management practices should be followed to prevent runoff of the stored material.

Hauling

14. All transportation of the FGD gypsum to the application site shall be done in accordance with s. NR 538.16(2) Wis. Adm. Code requirements.

Reporting

15. We Energies shall submit an annual report to the Department no later than April 1st on the use of FGD gypsum in the previous calendar year. This information may be included with the Annual Certification form for other industrial byproduct uses reported to the Department by We Energies in accordance with s. NR 538.14(2) Wis. Adm. Code. The report shall contain the following information:

    a. Total number of tons of FGD gypsum generated.
    b. Total number of tons of FGD distributed for agricultural use.

c. The name and address of all persons or brokers to whom FGD gypsum was sold or distributed over the past year, including the amount utilized by each user.
d. The results of the material characterization analyses required per Condition #4 of this approval.

We Energies and/or any of its agents will be responsible for obtaining and complying with any applicable federal, state or local licensing or permitting requirements regarding the application, production, distribution or sale of FGD gypsum for agricultural use.

The Department retains the jurisdiction to either require the submittal of additional information or to modify this approval at any time if, in the Department's opinion, conditions warrant further modifications. Unless specifically noted, the conditions of this approval do not supercede or replace any previous conditions of approval for this facility.

NOTICE OF APPEAL RIGHTS

If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes, administrative codes and case law establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, sections 227.52 and 227.53, Stats., establish criteria for filing a petition for judicial review. Such a petition shall be filed with the appropriate circuit court and shall be served on the Department. The petition shall name the Department of Natural Resources as the respondent.

Dated: March 20, 2008

DEPARTMENT OF NATURAL RESOURCES
For the Secretary

Frank Schultz, Supervisor
Waste and Materials Management Program
Southeast Region

State of Wisconsin
Jim Doyle, Governor

Department of Agriculture, Trade and Consumer Protection
Rod Nilsestuen, Secretary

Division of Agricultural Resource Management
Permit to Distribute Soil-and-Plant Additive Product
Section 94.65 (3), Wisconsin Statutes

This certifies that:

Wisconsin Electric Power Co
dba We Energies
231 W Michigan St
Milwaukee WI 53203

Wisconsin Soil-and-Plant Additive License Number: 65 - 017311

is hereby issued a permit to distribute the following soil-and-plant additive in Wisconsin, in accordance with section 94.65, Wisconsin Statutes:

We Energies Gypsum
(permitted label attached)

This permit is "non-transferable and remains in effect until substantial changes are made in the product formulation, label or advertising literature:

1) The active ingredients;
2) The recommended amount or frequency of the product; and
3) Any performance, use or efficacy claims which exceeds the approved label and promotional materials.

Charlene Khazae, Fertilizer Program Manager
Agricultural Resource Management Division
(608) 224-4541

Issue Date: 5/5/2008

Soil-and-Plant Additive Permit #: 017311 - 329

RECEIVED MAY 20 2008
Environmental Dept.

We Energies
Gypsum

Material Description:
We Energies Gypsum is a high purity gypsum material derived from a flue gas desulfurization (FGD) process installed at the Pleasant Prairie Power Plant. It is available as a bulk powder material with a light tan color and typical moisture levels between 3% and 20%.

Active Ingredient:
Calcium Sulfate Dihydrate ($CaSO_4 \cdot 2H_2O$).....90% (minimum)

Inert Ingredients:
Calcium Sulfite Hemihydrate.....5% (maximum)
Calcium Carbonate.....5% (maximum)

Information regarding the levels of trace metals in We Energies Gypsum is available from We Energies (414-221-4274)

Location: We Energies Gypsum is produced at:
Pleasant Prairie Power Plant:
8000 95th Street
Pleasant Prairie, WI 53158

Transportation:
We Energies Gypsum is typically loaded into open top, end dump trailers for transportation to end use locations. Trailers must have locking tailgates and cover tarps to prevent dust and spills during transport.

Net Weight:_____(Shipment weight will depend on trailer capacity)

Typical Use:
Research has shown that when applied at proper rates, gypsum functions as a soil additive to...
- loosen heavy clay soils
- promote water infiltration, drainage and aeration
- prevent surface crusting
- reduce runoff and erosion

Application Rates:
Apply We Energies Gypsum at rates recommended by local county extension agents and agricultural specialists.

We Energies makes no guarantee as to the performance of We Energies Gypsum when used as a soil additive and recommends consulting agricultural specialists prior to use.

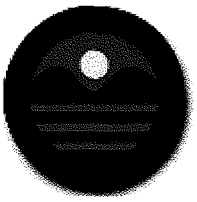
Manufacturer and permit holder:
We Energies
333 W. Everett St
Milwaukee, WI 53203
414-221-4274

EXHIBIT B

Proposed FGD Gypsum Use In Agriculture

Presented to

Illinois Environmental Protection Agency



By
Bruce Ramme, PhD, PE
Robert Paulson
April 1, 2009

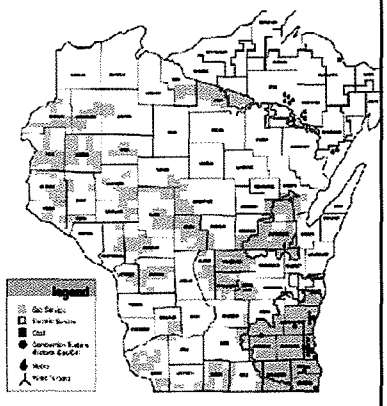
we energies

Agenda

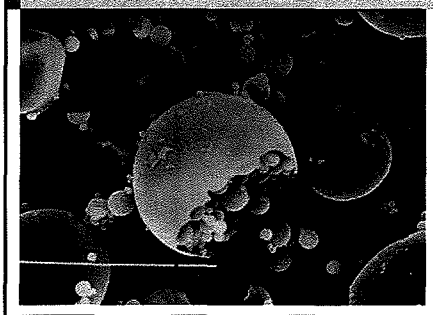
- Introductions
- Short Overview Presentation
- Application Request
- Discussion
- Follow-up

We Energies

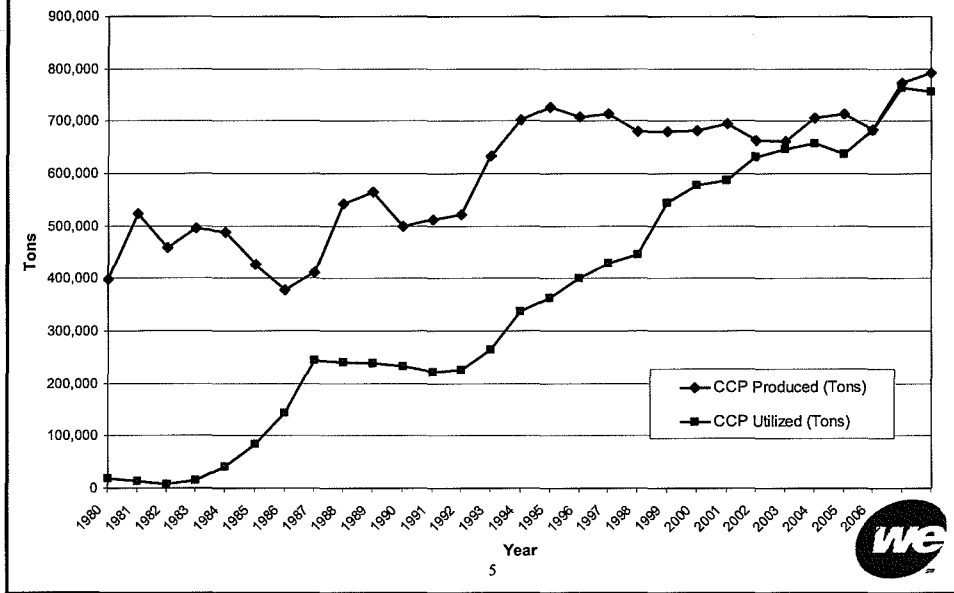
- 23,400 sq mi service territory in WI and Upper Peninsula of Michigan
- 2.4 million people served
  - Electric
  - Natural Gas
  - Steam
  - Water
- 26 generating facilities
  - Coal
  - Natural Gas
  - Hydro
  - Wind
- Current generating capacity of 5676 MW
- Power the Future
  - Emission control upgrades – SCR & FGD
    - Pleasant Prairie Power Plant (P4)
    - Oak Creek Power Plant (OCPP)
  - Expansion
    - 1230 MW generating capacity at OCPP
    - SCR and FGD
  - On-line 2007-2012



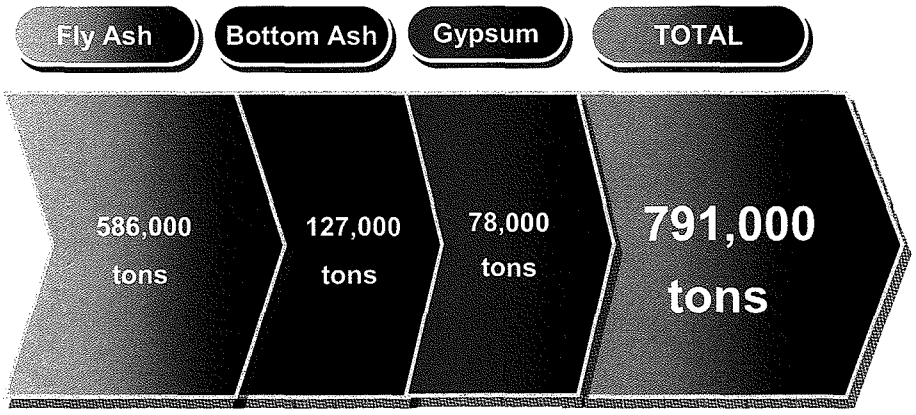
Coal Combustion Products Utilization




We Energies Coal Combustion Products Production & Utilization



2008 Annual Quantity of Coal Combustion Products



6

We Energies Overall 2008 CCP Utilization (tons) ~ 95%

■ Concrete	215,000
■ Ash Fuel	101,000
■ Sub-Base (Bottom Ash)	106,000
■ Manufactured Aggregate	88,000
■ Mine Subsidence Prevention	75,000
■ Cement Raw Feed	54,000
■ Stabilization (Soil & Asphalt)	29,000
■ Miscellaneous	10,000
■ Gypsum	
■ Wallboard Manufacturing	62,000
■ Agriculture	7,000
■ Stock Pile	9,000

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FGD Gypsum Production and Use

- 2007 Production
  - ACAA National = 12,300,000 tons
- 2007 U.S. Reported Utilization (75%)
  - Wallboard = 8,254,849 tons
  - Concrete = 118,406 tons
  - Cement = 656,885 tons
  - Agriculture = 115,304 tons
  - Other = 393,063 tons

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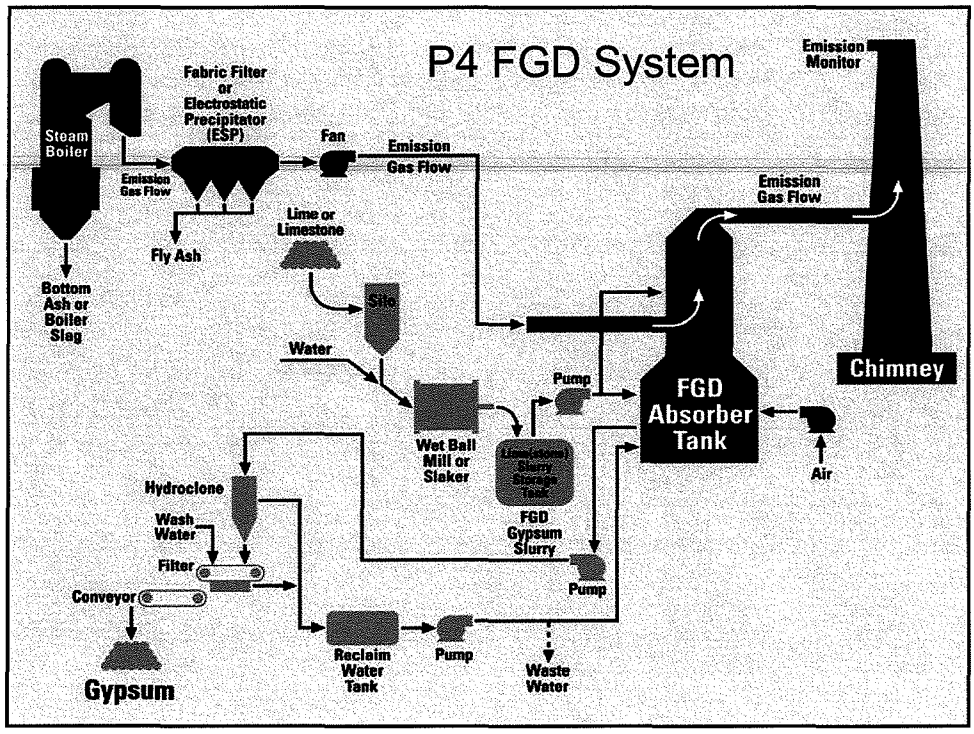
Pleasant Prairie Power Plant (P4)


P4 – FGD Gypsum ($CaSO_4 \cdot 2H_20$)


P4 FGD System
Steam Boiler
Fabric Filter or Electrostatic Precipitator (ESP)
Fan
Emission Gas Flow
Emission Monitor
Emission Gas Flow
Emission Gas Flow
Lime or Limestone
Fly Ash
Bottom Ash or Boiler Slag
Silo
Water
Pump
FGD Absorber Tank
Chimney
Wet Ball Mill or Slaker
Limestone Slurry Storage Tank
Air
Hydroclone
Wash Water
Filter
FGD Gypsum Slurry
Pump
Conveyor
Reclaim Water Tank
Pump
Waste Water
Gypsum

We Energies Use of Gypsum in Agriculture

We Energies Use of Gypsum in Agriculture

- Spring of 2007 – Farmers calling We Energies for information on availability of gypsum
- Background information collection (current use, why, how much, etc.)
- Analysis of P4 gypsum, commercial gypsum-containing products
- WDNR Solid Waste Exemption Request submitted – 5/24/07
- WDNR Conditional Grant of Exemption received – 3/20/08
- WI DATCP Soil and Plant Additive License granted – 5/5/08

WI Exemption

- Initial 5 year term
- Annual FGD Gypsum characterization
- Property owner notification
- Application rates
- Storage requirements
- Transportation
- Annual reporting

We Energies FGD Gypsum Future

- We Energies continued commitment to cost effective beneficial use of coal combustion by-products
- Increased FGD gypsum production with Oak Creek Power Plant (OCPP) expansion and upgrades coming on-line in 2009-2012
- Current market trend in wall board production
- Successful agriculture usage in 2007/2008 and increasing demand for product in 2009
- Inquiry from IL agricultural community regarding availability of P4 gypsum
- Close proximity to additional agricultural acreage not covered by WI approval
- No natural or FGD gypsum produced north of I-80 corridor

Beneficial Use Determination (415 ILCS 5)

- Sec. 3.140. "Coal Combustion Waste" means any fly ash, bottom ash, slag, or *flue gas or fluid bed boiler desulfurization by-products* generated as a result of combustion of:
  - 1) coal
- Sec. 3.135 (a). "Coal Combustion By-product" (CCB) means coal combustion waste when used beneficially in any of the following ways:.....
- Sec. 3.135 (b). To encourage and promote the utilization of CCB in productive and beneficial applications, upon request by applicant, the Agency shall make a written beneficial use determination that coal combustion waste is CCB when used in a *manner other than* those specified in subsection (a) of this Section if the applicant demonstrates that the use of coal combustion waste satisfies all of the following criteria:
  - The use will not cause, threaten, or allow the discharge of any contaminant into the environment;
  - The use will otherwise protect human health and safety and the environment; and
  - The use constitutes a legitimate use of the coal combustion waste as an ingredient or raw material that is an effective substitute for an analogous ingredient or raw material

The use will otherwise protect human health and safety and the environment

Trace Elements (mg/kg) in Gypsum and Soils

Trace element	FGD Gypsum [1]	Mined Gypsum [1]	National Background Soil [1]	IL Soil Background[2]	P4 Gypsum 12/2008
Antimony	2.0 - 9.1	0.02 - 0.28	0.3	3.3	0.13
Arsenic	0.6 - 4.0	0.19 - 3.0	4.21	11.3	< 0.43
Cadmium	0.2 - 1.2	< 2	0.19	0.5	0.042
Chromium	1.3 - 42.0	8.7 - 30.5	28.6	13	1.9
Lead	0.8 - 12.0	< 5.0	14.5	20.9	1.5
Mercury	0.01 - 1.4	0.00044 - 0.025	0.039	0.05	0.97
Molybdenum	0.5 - 12.0	< 3.0	0.44	---	0.31
Nickel	0.73 - 20.1	< 4 - 11.9	11.8	13	2.6
Selenium	2.0 - 30.0	11.3 - 21.1	0.21	0.37	12
Thallium	0.6 - 2.0	< 15.0	0.3	0.42	0.12
Vanadium	< 1.0 - 73.2	< 2.0 - 12.7	45.9	25	1.1
Zinc	3.4 - 47.5	13.1 - 27.5	36.8	60.2	5.5

1-From: P. Grevall, USEPA. Presentation at Agricultural & Industrial Uses of FGD Gypsum Workshop. October 23, 2007

2- Title 35 Part 742 Appendix A Table G: Concentrations of Inorganic Chemicals in Background Soils – Counties Outside Metropolitan Statistical areas

P4 Gypsum ASTM D3987-85 Leachate Results

Parameter	Units	IL Class I Potable Groundwater Standards	P4 Gypsum Dec-08 AD04436
Dissolved Aluminum	mg/l		0.36
Dissolved Antimony	mg/l	0.006	< 0.00025
Dissolved Arsenic	mg/l	0.05	< 0.001
Dissolved Barium	mg/l	2.0	0.027
Dissolved Beryllium	mg/l	0.004	< 0.00023
Dissolved Boron	mg/l	2.0	0.01
Dissolved Cadmium	mg/l	0.005	0.00014
Chloride	mg/l	200	0.65
Dissolved Chromium	mg/l	0.1	0.000097
Dissolved Cobalt	mg/l	1.0	0.00068
Dissolved Copper	mg/l	0.65	< 0.00029
Dissolved Cyanide	mg/l	0.2	0.0091
Dissolved Fluoride	mg/l	4.0	8.0
Dissolved Iron	mg/l	5.0	0.031
Dissolved Lead	mg/l	0.0075	< 0.000038
Dissolved Manganese	mg/l	0.15	0.065
Mercury	mg/l	0.002	0.00012
Dissolved Molybdenum	mg/l		0.00045
Dissolved Nickel	mg/l	0.1	0.0018
Nitrate-Nitrite as N	mg/l	10	0.05
Dissolved Selenium	mg/l	0.05	0.042
Dissolved Silver	mg/l	0.05	< 0.000068
Sulfate	mg/l	400	1400
Dissolved Thallium	mg/l	0.002	< 0.000028
Dissolved Zinc	mg/l	5.0	0.0024

Sulfate

- Readily soluble souce of Sulfur one reason for application
- Sulfate leaching of other sulfate containing fertilizers/amendments
  - Ammonium sulfate – 35,300 mg/L sulfate
  - Aluminum sulfate – 24,900 mg/L sulfate
  - Pelletized mined gypsum – 1750 mg/L sulfate
  - P4 gypsum – 1400 mg/L sulfate

FGD gypsum application rates relative to land application of biosolids

Parameter	Synthetic Gypsum Concentration (as applied basis) mg/kg	lb/ton	Part 391.420 Maximum Application Loading Rates Heavy Metals Lifetime lb/acre	Annual lb/acre	Lifetime applications (tons/acre) to reach lifetime loading rate	Maximum annual application rate (tons/acre)
Antimony	0.13	0.00026	700		2692308	
Arsenic	< 0.43	0.00086	100		116279	
Cadmium	0.042	0.000084	10	2	119048	23810
Chromium	< 0.06	0.00012	440	44	3666667	366667
Copper	1.2	0.0024	250		104167	
Lead	1.5	0.003	1000		333333	
Manganese	< 0.026	0.000052	900		17307692	
Mercury	0.97	0.00194	7		3608	
Nickel	2.6	0.0052	100		19231	
Selenium	12	0.024	8		333	
Silver	< 0.63	0.00126	178		141270	
Zinc	5.5	0.011	500		45455	

- 2006 MWRDGC Hg concentrations in land applied biosolids averaged 1.69 mg/kg (0.059 to 4.19 mg/kg)

The use will otherwise protect human health and safety and the environment

- Chemically the same as natural gypsum
- Leachate meets Class I Potable Groundwater Standards
  - Sulfate - leaching potential no greater than other common agriculture products used in Illinois including:
    - Mined Gypsum
    - Fertilizers
      - Ammonium sulfate
      - Aluminum sulfate
- Heavy metal application rates well within lifetime and annual loading rates established for land application of biosolids

The use constitutes a legitimate use of the coal combustion waste as an ingredient or raw material that is an effective substitute for an analogous ingredient or raw material

FGD Gypsum Nutrient Value
(as applied basis @ 10% free moisture)

- Ammonia Nitrogen: <4.0 mg/kg (<0.01 lb/ton)
- Total Kjeldahl Nitrogen: 24 mg/kg (0.05 lb/ton)
- Phosphorus: 18 mg/kg (0.04 lb/ton)
- Potassium: 95 mg/kg (0.2 lb/ton)
- Calcium: 204,300 mg/kg (409 lb/ton)
- Sulfate: 153,900 mg/kg (308 lb/ton)
- Gypsum ($CaSO_4 \cdot 2H_2O$): > 95% (air dry basis)

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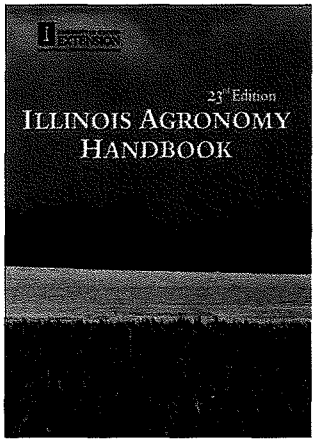
Illinois Nutrient Management

- NRCS Nutrient Management (Code 590)
- Nutrient Application Guidelines
  - Calcium
  - Sulfur
  - Gypsum



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FGD Gypsum

- FGD gypsum is a soluble source of Calcium and Sulfur for plant uptake
- Improves soil physical properties for increased crop yields
- Increases soil permeability and water infiltration reducing erosion and lower silt loadings in field runoff
- Source of Ca for rehabilitation of high Mg, Al or Na soils

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FGD Gypsum is an Effective Replacement

- Lower cost gypsum alternative for region's agricultural producers
- Lower fuel usage and emissions with shorter haul distance for "locally produced" commodity
- Reduced mining and associated impacts elsewhere
- Preserves mined gypsum supplies for use by future generations

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FGD Gypsum Summary

- Functional equivalent of other agricultural chemicals
- Safe as land applied biosolids
- Gypsum widely marketed and used throughout Midwest
- Already approved for another FGD gypsum source in Illinois

Request

- Beneficial Use Determination that FGD gypsum is Coal Combustion By-product
- Conditional approval for use of We-Energies gypsum in Illinois agriculture
  - Allow marketplace to determine acceptance by agricultural community as it has with mined gypsum
  - Distribute through channel partner(s)
    - Located and registered in Illinois
    - Provides agronomy expertise for appropriate application
  - Conform with applicable elements of Title 35 Part 391
    - Consistent with Part 391.101(c): "These criteria apply to projects for the land application of sludge that has been determined to be non-hazardous and non-toxic."
    - Part 391.204 Public Distribution Program
      - We Energies remains responsible party
      - Extension of established WI program
      - Annual reporting
    - Part 391 Subpart C: Transportation and Storage
    - Part 391 Subpart D: Sludge Application Design Criteria


Thank for your time.
Gladly answer questions???

EXHIBIT C

Paulson.Robert

From: Paulson.Robert
Sent: Monday, April 06, 2009 9:00 AM
To: 'al.keller@illinois.gov'; 'darin.lecrone@illinois.gov'; 'jeff.hutton@illinois.gov'
Cc: Ramme.Bruce
Subject: We Energies Gypsum Notification Sheet

Attachments: DATCP Permit to Distribute.pdf

Hello Al,

To follow up on the open item from our meeting last Wednesday, attached is the WI DATCP permit that also includes the WE Gypsum information sheet. This information sheet accompanies each load of gypsum use in Wisconsin agriculture.

I also had a chance to look into the issue you brought up about the Pollution Control Facility. Interesting powers that are given to what I can only imagine is a very diverse set of agendas. One thing that I did not pay attention to before was the definition of a Pollution Control Facility in Section 3.330. As I read S.3.330(a)(8) and it's subsequent reference to S.21(r)(2) and (3) it seems that coal combustion wastes can be excluded from the Pollution Control Facility definition if they are permitted under any Illinois rule or regulation, say under a state operating permit or experimental permit, with conditions.

Again, Bruce and I would like to thank you and your staff for taking the time to meet with us and consider our application to use our FGD gypsum in Illinois agriculture. If there is any clarification of the material we presented or additional material that would assist your review, do not hesitate to contact me directly. We look forward to hearing of the resolution of your internal discussions and a positive response to our application.

Best Regards,

Bob

DATCP Permit to Distribute.pdf...

Robert Paulson
Senior Environmental Consultant
We Energies
333 Everett Street
Milwaukee, WI 53203 USA

email: robert.paulson@we-energies.com
phone: (414) 221-3948
cell: (920) 420-3464

State of Wisconsin
Jim Doyle, Governor

Department of Agriculture, Trade and Consumer Protection

Rod Nilsestuen, Secretary

Division of Agricultural Resource Management
Permit to Distribute Soil-and-Plant Additive Product
Section 94.65 (3), Wisconsin Statutes

This certifies that:

Wisconsin Electric Power Co
dba We Energies
231 W Michigan St
Milwaukee WI 53203

Wisconsin Soil-and-Plant Additive License Number: 65 - 017311

is hereby issued a permit to distribute the following soil-and-plant additive in Wisconsin, in accordance with section 94.65, Wisconsin Statutes:

We Energies Gypsum
(permitted label attached)

This permit is "non-transferable and remains in effect until substantial changes are made in the product formulation, label or advertising literature:

1) The active ingredients;
2) The recommended amount or frequency of the product; and
3) Any performance, use or efficacy claims which exceeds the approved label and promotional materials.

Charlene Khazae, Fertilizer Program Manager
Agricultural Resource Management Division
(608) 224-4541

Issue Date: 5/5/2008

Soil-and-Plant Additive Permit #: 017311 - 329

We Energies
Gypsum

Material Description:
We Energies Gypsum is a high purity gypsum material derived from a flue gas desulfurization (FGD) process installed at the Pleasant Prairie Power Plant. It is available as a bulk powder material with a light tan color and typical moisture levels between 3% and 20%.

Active Ingredient:
Calcium Sulfate Dihydrate ($CaSO_4 \cdot 2H_2O$).....90% (minimum)

Inert Ingredients:
Calcium Sulfite Hemihydrate.....5% (maximum)
Calcium Carbonate.....5% (maximum)

Information regarding the levels of trace metals in We Energies Gypsum is available from We Energies (414-221-4274)

Location: We Energies Gypsum is produced at:
Pleasant Prairie Power Plant:
8000 95th Street
Pleasant Prairie, WI 53158

Transportation:
We Energies Gypsum is typically loaded into open top, end dump trailers for transportation to end use locations. Trailers must have locking tailgates and cover tarps to prevent dust and spills during transport.

Net Weight:_____(Shipment weight will depend on trailer capacity)

Typical Use:
Research has shown that when applied at proper rates, gypsum functions as a soil additive to...
- loosen heavy clay soils
- promote water infiltration, drainage and aeration
- prevent surface crusting
- reduce runoff and erosion

Application Rates:
Apply We Energies Gypsum at rates recommended by local county extension agents and agricultural specialists.

We Energies makes no guarantee as to the performance of We Energies Gypsum when used as a soil additive and recommends consulting agricultural specialists prior to use.

Manufacturer and permit holder:
We Energies
333 W. Everett St
Milwaukee, WI 53203
414-221-4274

EXHIBIT D

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

DOUGLAS P. SCOTT, DIRECTOR

217/524-3300

June 30, 2009

Certified Mail
7008 1140 0004 7344 4993

We Energies
Mr. Robert Paulson, P.E.
231 W. Michigan Street
Milwaukee, Wisconsin 53202

Re: 9550795178 -- Wisconsin
We Energies
Date Application Received: June 24, 2009
We Energies Beneficial Use Determination
Log No. 2009-331
Permit File
Permit Denial

Dear Mr. Paulson:

The Illinois EPA has reviewed your request for a beneficial use determination to use a coal combustion by-product (CCB). Specifically, We Energies has requested a determination that their flue gas desulfization (FGD) material resulting from the coal fired boilers at the Pleasant Prairie Power Plant (P4) and Oak Creek Power Plant (OCPP) be approved as a substitute for gypsum for various agricultural purposes. The Illinois EPA has evaluated your application for a beneficial use determination to use a coal combustion by-product in accordance with 3.135(b). Your request for a beneficial use determination has been denied. You have not provided proof that the FGD will be used beneficially and not cause, threaten or allow the discharge of contaminates into the environment and that the use will otherwise protect human health and safety and the environment. In accordance with Section 3.135(b) of the Illinois Environmental Protection Act, the Agency is required to provide reasons for denial. The applicant has failed to demonstrate that the activity would not result in a violation of Sections 9(a), 12(a) or 21(a) of the Act because the following information was not provided:

1. A description of the intermediate storage and processing of the CCB. Methods for storage and management of the FGD once it leaves P4 or OCPP have not been described. Procedures should have been sufficient to insure that the FGD is managed to prevent excessive loss of the material and the FGD does not generate pollution through dust, runoff or migration to groundwater;

2. A discussion of the site-specific geology and the potential for constituents of the CCB to migrate to groundwater;

3. Volumes and timeframes for use of the CCB to demonstrate that it is not used in excessive amounts; and

4. Justification that the CCB is used beneficially. Information provided by the applicant and from other sources indicates that gypsum is not suitable for all soil types, soil conditions or crops. The application did not include procedures to insure that the FDG will only be used on agricultural land in appropriate volumes where soil types, soil conditions and crops will benefit from the application of the FGD.

Within 35 days after the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this permit, your application or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This permit does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Any resubmission should be a complete application without referencing previous submissions. Any questions or requests for assistance may be directed to Mark Schollenberger, P.E., at 217/524-3307.

Sincerely,

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:MAS:bjh\091852s.doc

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

Wisconsin Electric Power Company, d/b/a We Energies,	)	
Petitioner,	)	
v.	)	**PCB _____ (Appeal – Beneficial Use Determination)**
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
Respondent.	)	

APPEARANCE OF CYNTHIA A. FAUR

The undersigned, as one of its attorneys, hereby enters an Appearance on behalf of Wisconsin Electric Power Company (d/b/a/ We Energies).

Respectfully submitted,

WISCONSIN ELECTRIC POWER COMPANY

By _____
One of its Attorneys

Dated: July 30, 2009

Cynthia A. Faur
Quarles & Brady LLP
300 North LaSalle Street
Suite 4000
Chicago, Illinois 60654-3422
(312) 715-5000