STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

Agricultural Use Approval 08-AUA-006
for
Ethanol Stillage and Syrup

Pursuant to the provisions of Section 11506(1)(g) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and specifically R 299.4111 of the administrative rules promulgated under Part 115, ethanol plants located in Michigan (Company) are granted approval by the authorized representative of the Director of the Michigan Department of Environmental Quality (MDEQ) to land apply syrup that contains a minimum of 30 percent solids (Material) produced only at their Michigan facilities.

This document provides the Company with the approved procedures and conditions whereby the Company may land apply the Material. The application of the Material to land shall be in accordance with this approval.

The Company and the Director agree to the following conditions:

SECTION 1

The Company may manage the Material that is produced during the production of ethanol in accordance with the conditions of this document and other appropriate and applicable state and federal laws including, but not limited to, the requirements for land application of the Material under the provisions of Title 40 of the Code of Federal Regulations, Part 257, Criteria for Classification of Solid Waste Disposal Facilities and Practices.

SECTION 2

If the Material is to be applied to agricultural land, the application shall be in accordance with the following conditions and restrictions:

A. Restriction on Applications to Frozen or Snow Covered Soils

The Company shall ensure that the Material is not applied to the soil during the winter or to any sites where the soil is frozen or covered with snow unless:

1. Application of the Material is done in accordance with Section 2.CC of this approval.

2. A plan for land application has been submitted and approved by the Waste and Hazardous Materials Division (WHMD). A land application plan shall include measures necessary to verify there will be no adverse impact on groundwater or surface water including a hydrogeological study and development of a groundwater monitoring program for each site that is proposed to receive the Material under such conditions, unless justification is provided to show that a hydrogeological study and groundwater monitoring program is not warranted.

B. Sampling and Analyses

1. The Company shall analyze a representative sample of the Material from each storage structure, on a quarterly basis, and make the results available to the MDEQ, upon request. The samples shall be representative of each Material to be applied to land. The sample collection and analysis shall be done in accordance with the United States Environmental Protection Agency's (EPA's) methods described in SW-846 or other EPA methods, if authorized by the WHMD. The Material shall be analyzed for total concentrations of the following parameters contained in the Solids and Nutrients list, below, and reported on a dry weight basis. In addition, on an annual basis, a representative sample shall be collected and analyzed for the parameters contained in the Toxicants list, below. The parameters shall be analyzed using the levels of detection contained in Appendix A.

Solids and Nutrients	Toxicants
Percent Dry Solids	Arsenic (milligrams/kilograms [mg/kg])
Percent Total Kjeldahl Nitrogen	Barium (mg/kg)
Percent Ammonium Nitrogen	Cadmium (mg/kg)
Percent Nitrate Nitrogen	Chromium (mg/kg)
Percent Phosphorus	Copper (mg/kg)
Percent Potassium	Lead (mg/kg)
Calcium (mg/kg)	Mercury (mg/kg)
Magnesium (mg/kg)	Molybdenum (mg/kg)
Sodium (mg/kg)	Nickel (mg/kg)
Chloride (mg/kg)	Selenium (mg/kg)
Sulfate (mg/kg)	Silver (mg/kg)
pH	Zinc (mg/kg)
5-Day Biochemical Oxygen Demand	Aluminum (mg/kg)
	Manganese
	Iron (mg/kg)
	Boron (mg/kg)
	Volatile Organic Compounds (EPA Method 8260 "Plus")

If the samples, taken in accordance with these requirements over a two-year period of time, demonstrate that the chemical analysis of the Material is homogeneous, the Company may petition the WHMD for a reduced sampling and testing protocol.

2. The WHMD may request additional analysis due to circumstances such as, but not limited to, changes in applicable laws, substantial changes in ethanol production plant operations, or significant variability in chemical analytical data.

C. Crop Fertilization

The Material shall be applied only to agricultural lands that need fertilization as demonstrated by laboratory soil tests. These fields must currently be in use, or will be

used in the next growing season, for crop production and harvest or pasturing. It is highly recommended that fall applications of Material be restricted to fall planted crops such as winter wheat or forage stands.

D. Soil Sampling and Analysis

Prior to application, the Company shall ensure that soil samples are obtained in accordance with Michigan State University Cooperative Extension (MSUE) Bulletin E-498 and testing is done to determine soil pH, liming requirements, and nutrient needs, including nitrates, according to procedures and recommendations outlined in MSUE Bulletins E-2904 (field crops) and E-2934 (vegetables) or other procedures and recommendations specifically authorized by the MDEQ for each site that is to receive the Material. In calculating nutrient needs, soil test results shall be applied as credits as well as the estimated nutrients that will be available during the growing season from mineralization or prior organic applications.

E. Fertilizer Equivalency of the Material

The Company shall calculate the fertilizer equivalency of the Material on a per dry ton basis, using the average of N, P, or K as calculated from the results of the appropriate Material analysis obtained in compliance with Section 2.B.1 and the following formulas:

Phosphorus (P) (as P_2O_5)

Percent Total P X 46 = pounds Phosphate (P_2O_5) per dry ton

Potassium (K) (as K_2O)

Percent Total K X 24 = pounds of Potash (K_2O) per dry ton

Percent Ammonium-N (NH_4^+) + % nitrate-N (NO_3^-) = % inorganic-N

Percent TKN-N (Kjeldahl Nitrogen) - % inorganic N = % organic-N

(Percent Inorganic-N X 20) + (Percent organic X 4) = pounds Plant Available Nitrogen/dry ton

F. Material Application Limits

The Company shall ensure that annual applications of the Material and constituents contained in the Material applied to agricultural land do not exceed any of the following:

1. The agronomic rate for the crop to be grown on the site subsequent to the application of Material to the site. Agronomic rates are defined as those rates that provide the nitrogen, phosphorus, potassium, and other nutrient needs of the crop, less credits, but do not overload the soil with any nutrients or other constituents, which may eventually leach to groundwater, limit crop growth, or adversely impact soil quality.

2. The MSUE nitrogen recommendation based on the crop to be grown and expected yields less the nitrate soil test results and estimated mineralization from prior organic applications as indicated in Section 2D of this approval.

3. After incorporation into the soil, the mixture shall not exceed the limits established for organic and inorganic contaminants found in R 299.4115 of the Part 115 administrative rules, as contained in Appendix B. In addition, the Company shall not apply Material that is hazardous waste under the federal Resource Conservation and Recovery Act of 1976, as amended, or Part 111, Hazardous Waste Management, of the NREPA, and the associated administrative rules.

4. The limits established in this section shall take into account all previous applications of commercial fertilizers, animal manures, biosolids, wastes, septage, or wastewater to a site from either the Company's facility or any other business or facility, such that the agronomic rate for nutrients and the annual and cumulative loading of metals and organic pollutants are not exceeded.

5. The concentration of contaminants that would cause the creation of a "facility" as defined by Part 201, Environmental Remediation, of the NREPA. Activity inconsistent with this approval does not constitute a permitted release as defined in Part 201 of the NREPA.

G. Agronomic Rate

The Company shall ensure that the agronomic rate of Material application to agricultural land, as required in Section 2.F.1 of this approval, is based upon the Material analysis, as required in Section 2.B.1 of this approval; the formulas for determining the Material's fertilizer equivalency, as required in Section 2.E of this approval; and the results and recommendations from soil tests conducted, as required in Section 2.D of this approval. Furthermore, the agronomic rates for Material application shall be calculated considering all nutrient additions to the site from commercial fertilizer, food processing residuals, and animal manure.

H. Phosphorus Limit

1. The Company shall ensure that when soil test levels of Bray P1 phosphorus reach 150 pounds per acre (75 parts per million [ppm]), the annual application of phosphorus contained within the Material does not exceed the phosphorus needs of the specific crop being grown on the site receiving the Material.

2. The Company shall ensure that no Material is applied to any site where soil test levels of Bray P1 phosphorus equal or exceed 300 pounds per acre (150 ppm), and that no Material is applied to such a site until the nutrient harvested by the crops reduces the soil test levels of Bray P1 to less than 300 pounds per acre.

I. Site Selection

The Company shall ensure that its Material is not applied to a site previously used for land application of biosolids, wastes, septage, or wastewater from any other business or facility without a specific written request and written permission of the WHMD. The Company shall also ensure that the Material is not applied to a site previously utilized by the Company for land application of wastes (other than the Material itself), septage, or wastewater generated by the Company.

J. Storage

Storage shall be at the ethanol facility, shall not cause releases or nuisances, and shall be in accordance with the facility's Storm Water Pollution Prevention Plan, implemented pursuant to Part 31, Water Resources Protection, of the NREPA.

K. Stockpiling

The Company shall ensure that the Material is not stockpiled or staged at any application site for a period to exceed 48 hours in an unconfined manner that may cause an unpermitted release to the environment or cause nuisance conditions. The temporary staging areas shall comply with the isolation distances for surface application specified in Section 2.O of this approval.

L. Incorporation and Application to Forage Crops

The Company shall ensure that the Material, which is surface applied to agricultural land, is incorporated into the soil using mechanical equipment within 48 hours after application to land, unless approval for an alternate time frame is obtained from the WHMD. If the Material is surface applied to an existing forage stand that cannot be disturbed by mechanical incorporation, the Material must be applied within seven days following harvest of the forage. Forage harvest means the gathering and physical removal of a forage grown on the application site.

M. Pooling and Ponding

The Company shall ensure the Material is not applied in a manner that adversely restricts soil permeability or causes ponding or pooling beyond midnight of the day of application, or ever causes runoff from the application site.

N. Slope Limit

The Company shall ensure that the Material is not surface applied to slopes exceeding a 6 percent grade or injected into slopes that exceed a 12 percent grade.

O. Isolation Distances

The Company shall ensure that the Material is not applied or stored per Section 2.J of this approval within the following isolation distances for the application methodology used at the application site:

	Application Methodology Distance in Feet	
	Surface	Subsurface
Municipal Water Supply	2,000	2,000
Domestic Wells	150	150
Homes and Commercial Buildings	500	100
Public Roads and Property Lines	150	25
Surface Water	150	50

Isolation distances to property lines may be disregarded when the Material is being applied to two adjoining properties.

P. Site Delineation

The Company shall ensure that flags or other markers to delineate areas that are not to receive Material are placed onto the site before land application begins.

Q. Depth to Groundwater

The Company shall ensure that the Material is not applied to an application site unless the water table is at least 30 inches below the surface of the soil at the time of application.

R. Direct Discharges

The Company shall ensure that the Material or constituents contained in the Material do not come into direct contact with surface water, groundwater, or a wetland area as defined by the NREPA and the administrative rules promulgated thereunder, unless approved or permitted by the MDEQ. If any Material reaches surface water drainage, then application to the site must cease immediately and the Company shall contact the WHMD.

S. Erosion and Sedimentation Control

The Company shall ensure that application of the Material does not cause erosion or sedimentation in accordance with Part 91, Soil Erosion and Sedimentation Control, of the NREPA, and the administrative rules promulgated under Part 91.

T. Prohibition of Mixture with Other Wastes

The Material shall contain no wastewaters, rinse waters, chemicals, cleaners, excess chemical additives or antibiotics, or otherwise be different than normal production quality of syrup. Prior to application of the Material, the Company shall ensure the Material covered in this approval is not mixed before transport or after transport with other wastes or wastewaters from the subject facility or from other facilities that are not inert as defined by Part 115 or the Part 115 administrative rules, unless specific approval from the Director of MDEQ is obtained and other appropriate approvals or permits as required by state and/or federal law are obtained.

U. Air Quality

The Company shall ensure that the Material removed, stored, transported, or land applied from its treatment or storage facility is managed in such a way so as to prevent nuisance conditions or the release of fugitive dust or visible emissions in violation of Part 115 or Part 55, Air Pollution Control, of the NREPA, or the administrative rules promulgated under Part 55. The MDEQ may require the land application of Material to cease if the MDEQ, Air Quality Division, verifies a violation of R 336.1901 of the Part 55 administrative rules.

V. Transport and Prevention of Spills

The Company shall ensure that vehicles used to transport the Material comply with the Michigan Vehicle Code, 1949 PA 300, as amended (MVC), and the administrative rules promulgated under the MVC. The Material shall be transported in sealed tanks to prevent loss to the environment during transport and delivery to application sites. A vehicle licensed under Part 117, Septage Waste Servicers, of the NREPA, shall not be used to haul the Material unless written approval is received, in writing, from the MDEQ.

W. Compliance

The Company shall ensure that all contractors, subcontractors, and other persons involved with the land application of the Material comply with these conditions.

X. Accurate and Uniform Application

The Company shall ensure that the Material is applied to soils in a uniform manner and that the amount of the Material applied per acre is known by calibration of application equipment or another method that accurately determines the quantity of Material delivered to a known area of land.

Y. Other Disposal

The Company shall ensure that all Material that is not land applied in accordance with the conditions and restrictions contained herein is disposed of at an appropriately licensed disposal facility.

Z. Recordkeeping

The Company shall maintain records on the amount of the Material applied at each application site, the site identification number (per the Sample Site Identification Form [SIF] contained in Appendix C), and the property description of each application site used. The Company shall maintain all records for five years after the Material was last applied and shall make them available for review and copying by the Director of the MDEQ, or his/her authorized representatives, upon request.

AA. Annual Report

The Company shall submit a report to the WHMD by January 31 of each year listing the total quantity of Material produced per month for the preceding year, a listing of the land application sites and the quantity of Material applied to each site, the total amount of Material land applied, and the total amount of Material reused or disposed of in a manner other than land application. The land application rates shall be defined as the Material inches of water applied per month and per year and the Material dry tons of solids applied per month and per year.

BB. MDEQ Access and Informed Consent

The Company shall allow access by authorized representatives of the MDEQ to all land receiving the Material that was produced by the facility. For those sites that the Company does not own, the Company shall obtain the consent of the landowner(s) to apply the Material, in writing, prior to placing the Material on the land. The written consent shall indicate that the landowner has been informed of the nature of the Material, including Material Safety Data Sheets (MSDSs) representative of the Material, and grants the Company permission to apply the Material to a specific site. The written consent shall include a statement allowing authorized representatives of the MDEQ access to the sites for inspection, sampling, photographs, and other gathering of evidence. If the consent is terminated by the landowner(s), then the site is thereby removed from the Company's land application program. If there is a change in land ownership, then the Company shall notify the WHMD in the annual report required in Section 2.AA of this approval. Upon termination of consent by the landowner(s) or change in land ownership, the Company shall immediately cease application of the Material to the application site until the consent of the new landowner(s) is obtained and a copy is submitted to the WHMD.

CC. Winter Application

The MDEQ does not approve of winter application of waste materials to land on a continual basis. If it is necessary for the Company to land apply the Material on a continual basis, refer to Section 2.A of this document. Those facilities that need to winter apply because of inadequate storage for winter, equipment failure, or unavailable alternate disposal options, shall only winter apply the Material in accordance with the following:

1. The facility shall notify the WHMD, in writing, 21 days in advance of the need to winter apply any time from December 21 to March 21. The notification shall include, at a minimum, an explanation of the needs or contingent needs to winter apply, the maximum volume (gallons and dry tons of solids) of the Material intended to be winter applied and justification for that volume, a mass balance for the proposed application period, and an explanation of how existing storage will be utilized to the maximum extent possible to minimize the volume of Material to be winter applied. The facility shall also submit a plan describing the actions that will be taken to ensure that land application will not be needed for subsequent winters. The WHMD will provide timely review of the notification, will approve or deny the plan verbally, and shall follow up in writing.

2. All Material that is winter applied shall be subsurface injected such that no Material is present on the land surface or in the injection furrow in contact with ambient air. The Material must be completely covered by soil in the injection furrow to minimize odors related to the Material, to reduce the potential for vector attraction, and to eliminate the possibility of off-site movement of the Material via surface runoff. If any Material reaches surface water drainage, then application to the site must cease immediately and the Company shall contact the WHMD.

3. The slope of winter application sites shall not exceed 6 percent. All injection applications shall be done perpendicular to the slope fall line to minimize rill erosion in the ejection furrows from melt waters and precipitation events.

4. Soil frost shall not exceed three inches.

5. For each winter application site, the facility shall submit the information included in the Sample SIF, with all the information required to be submitted in accordance with Section 3 of this approval. The information included in the Sample SIFs shall be received by the WHMD at least three weeks prior to winter application, unless the WHMD approves an alternate time frame due to unforeseen circumstances. At the end of the three-week period, if the WHMD has not identified the reasons that a site should not be used, then the site may be used by the facility for winter application.

6. Winter application of the Material shall not degrade groundwater or surface water.

7. Winter application of the Material shall be in accordance with these and all other conditions of this approval.

SECTION 3

A. Site Information Submitted to the MDEQ

Prior to applying the Material to a land application site, the Company shall submit the information required on an SIF to the supervisor of the appropriate WHMD District Office listed in Appendix D. The Company shall also submit written confirmation from the landowner that the site has not been, and will not be, utilized for septage, biosolids (sludge), or any other regulated waste disposal. The SIF shall be received at least ten days prior to application, unless the WHMD approves an alternate time frame due to unforeseen circumstances. At the end of the ten-day period, unless an alternative time frame has been approved, if the WHMD has not identified the reasons why a site should not be used, the site may be used by the Company for land application of the Material in accordance with these conditions.

B. Site Information Submitted to Neighbors and Local Officials

The Company shall ensure that copies of the SIF, a plat map identifying the application site(s), and a letter explaining the proposed activity (i.e., that the Material will be applied to the lands indicated on the SIF) are received by the township supervisor, local health

department, and all property owners whose lands are within 200 feet of the area upon which the Material will be applied. The SIF, plat map, and letter shall be sent at least three weeks prior to application, unless the WHMD approves an alternative time frame due to unforeseen circumstances. If the Company is unable to provide notice as required by this subsection, the WHMD may waive, in writing, portions of the notice requirements or allow the Company to use a substitute means of providing notice.

SECTION 4

Operations Manual

The Company shall develop and maintain a manual that outlines how the Company and its employees will comply with the requirements of Sections 1 through 3 of this approval, and shall make the manual available for review by the Chief of the WHMD, or his/her authorized representatives, upon request. The manual shall include nutrient values of the Material, also include an emergency spill response plan for responding to vehicle accidents involving transport equipment.

SECTION 5

MDEQ Access to Facility

Authorized representatives of the MDEQ, upon presentation of their credentials, shall have access to review and obtain copies of any records, logs, and manuals; shall be allowed to enter the Company facilities at any reasonable time during normal business hours subject to company safety rules in order to observe the operations, verify measurements, and collect and analyze samples of the soil, air, water, runoff, Material, wastewater, and groundwater; and shall be allowed to inspect any treatment facilities, storage units, monitoring methods, or equipment.

SECTION 6

Term of Authorization to Land Apply

The Company is authorized to begin land applying the Material pursuant to the conditions of this approval on the effective date. The effective date of the approval is the date signed by the Chief of the WHMD. This authorization to land apply, including sites identified and used per Section 3 of this approval, shall expire five years from the effective date.

SECTION 7

Reasons for Revocation of Approval

This approval shall immediately become void for any of the following reasons:

1. The Company does not comply with the conditions of this approval.

2. Additional information demonstrates that the Material is not appropriate for agricultural or silvicultural use.

3. Additional information demonstrates that the Material is causing environmental contamination.

4. The Company makes or experiences changes in operations or conditions that result in changes in the chemical characteristics of the Material and render it unsuitable for application to agricultural or silvicultural soils.

5. New state or federal regulations are promulgated that would cause this approval to be invalid.

Any violation of the conditions of this approval is subject to enforcement provisions of Parts 31, 55, 91, 111, 115, and 201 of the NREPA, and/or other applicable state and federal laws/statutes.

STATE OF MICHIGAN
Department of Environmental Quality

By: _____
George W. Bruchmann, Chief
Waste and Hazardous Materials Division

Date: 12-5-08

Attachments