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TO: Anne M. Woiwode, Mackinac Chapter Director
FROM: Alexander J. Sagady, Environmental Consultant
RE: Discussion memorandum concerning CAFOs and groundwater regulations

This memorandum discusses application of MDEQ Part 22 Groundwater Protection administrative rules and their applicability to CAFO operations in the State of Michigan.

1 MDEQ Part 22 Groundwater Protection Regulations

On August 11, 1999, a comprehensive revision to MDEQ Water Resources Protection, Groundwater Quality administrative rules were filed with the Michigan Secretary of State. These rules may ultimately provide some important regulatory authority affecting CAFO operations in Michigan. This memo only addresses regulatory authority contained in MDEQ rules and does not address at all any current MDEQ enforcement of these requirements against Michigan CAFO operations.

These rules contain very broadly applicable requirements defining waste/wastewater discharges. There are permitting requirements for discharges to groundwater and certain permitting exemptions. These requirements are discussed in detail below.

1.1 Applicability of Definitions of “Waste/Wastewater” “Discharges” & “Dischargers” to CAFO Operations

Under the Part 22 rules, a “waste” is defined as:

“Waste” means any **waste, wastewater, waste effluent**, or pollutant that is discharged into water, including any of the following:

- (i) Industrial, municipal, and **agricultural waste**”.....
- (x) **Biological materials.**” (MAC R 323.2203(n)(i) & (x)) (emphasis added)

Under the Part 22 rules, “wastewater” is defined as:

“Wastewater” means **liquid waste** discharged directly or indirectly into the waters of the state or **onto the ground** that results from **industrial and commercial processes** or municipal operations, **including liquid or water-carried process waste**, cooling and condensing waters, and sanitary sewage. MAC R 323.2203(o) (emphasis added)

Under the terms of the definition of “waste” it definitely appears that CAFO wastes are covered by the rule. This is explicitly supported by the permit exemption language covered in a later section. To the extent that CAFO operations are “industrial and commercial processes” that have effluents of “liquid or water-carried process waste,” aqueous wastes from CAFOs must also be considered as covered effluents under the Part 22 regulations.

The Part 22 rules define a “discharge” to groundwaters as:

“Discharge” means any direct or indirect discharge of any of the following into the groundwater or on the ground:

- (i) Waste.
- (ii) Waste effluent.
- (iii) Wastewater.
- (iv) Pollutant.
- (v) Cooling Water.
- (vi) A combination of the items specified in paragraphs (i) to (v) of this subdivision.” MAC R 323.2201(i)

A “discharger” is:

“Discharger” means a person who directly or indirectly discharges any of the following **into the groundwater or on the ground**:

- (i) Waste.
- (ii) Waste Effluent.
- (iii) Wastewater.
- (iv) Pollutant.
- (v) Cooling water.
- (vi) A combination of the items specified in paragraphs (i) to (v) of this subdivision.” MAC R 323.2201(j) (emphasis added)

Under the explicit meaning of the Part 22 Groundwater Quality rules, it should be a forgone conclusion that CAFO operations are subject to these rules. To the writer’s knowledge, nothing in the Water Resource Protection provisions of NREPA would exempt CAFOs from any the requirements under the Groundwater Quality rules.

1.2 General Duty Groundwater Protection Requirements

All groundwater dischargers are subject to general duty requirements under the rules, even if they are exempted from permitting requirements. This means that CAFOs that fall below the permitting exemption thresholds discussed below must still conform to the general duty provisions or be considered in violation.

All CAFOs discharging to the ground (including both lagoons that do not conform to requirements for waste storage facilities and waste spreading operations) may be authorized under the rule as long as....

“The discharge shall not be, or not be likely to become, injurious.” (MAC R323.2204(2)(a))

“The discharge shall not cause runoff to, ponding on, or flooding of adjacent property, shall not cause erosion, and shall not cause nuisance conditions.” (MAC R323.2204(2)(b)). Under the rule, “nuisance conditions” are defined to mean:

“...conditions that cause a substantial unreasonable interference with another person’s use or enjoyment of the person’s property, including but not limited to, interference cause by any of the following: (i) Odors, (ii) Vectors, (iii) Noise, (iv) Pathogens, (v) Changes in aesthetic qualities of groundwater.”
MAC R 323.2202(c)

“The point of discharge shall be located not less than 100 feet inside the boundary of the property where the discharge occurs, unless the discharge is authorized in R323.2210, R323.2211, or R 323.2213 or unless a lesser distance is specifically approved by the department in the authorization issued under these rules.” MAC R323.2204(2)(c)

“The discharge shall be consistent with requirements of R 323.1041 to R 323.117.” MAC 323.2204(2)(e) This rule is intended to ensure that groundwater discharges do not interfere with compliance with Michigan’s surface water quality standards.

These general duties apply to all CAFO groundwater dischargers even if they are subject to the exemption from groundwater permitting requirements discussed in a subsequent section.

For CAFOs subject to requirements for groundwater discharge permits, the following additional general duties apply covering isolation distances from specific groundwater wells (these rule requirements cover all permitted discharges and not just CAFO permitted discharges):

Required Isolation Distances of Groundwater Discharges from Water Supply Wells¹	
Well Types for Which Isolation is Required	Mandatory Isolation Distance
Large CAFOs with Individually Issued Groundwater Discharge Permits (MAC R 323.2218)	
Type I Public Water Supply Well	2000 ft
Type IIa Public Water Supply Well	2000 ft
Type IIb Public Water Supply Well	800 ft
Type III Public Water Supply Well	800 ft
Domestic Well, serving an individual household	300 ft
Large CAFOs Issued Discharge Authorization under Future Scheme for Permit by Rule or Through a General Permit²	
Type I Public Water Supply Well	200 ft
Type IIa Public Water Supply Well	200 ft
Type IIb Public Water Supply Well	75 ft
Type III Public Water Supply Well	75 ft
Domestic Well, serving an individual household	50 ft

1.3 Wastewater Treatment or Storage Lagoons

The MDEQ Groundwater rules contain a number of provisions on the design of lagoons and treatment systems. Rules 323.2230 and 323.2231 on treatment system requirements and the design, operation, maintenance, limitation and monitoring of treatment systems appear to be keyed to facilities subject to permitting system requirements. However, the rules contain one section entitled “Wastewater treatment or storage lagoons” at Rule 323.2237 which appears to be freestanding and not necessarily keyed only to permitted lagoons. As such, it appears that this rule may be applicable to all CAFO lagoons, even if the facility is not permitted. The first provision of the rule reads:

¹ All such isolation distances may be authorized with lesser or greater isolation distances in an individual case based on groundwater flow direction, volume, and constituents of the discharge; geological, surface, and other site conditions; and the degree of threat to the well or wells.

² At this writing, CAFO discharges have not been addressed by permit by rule or by a DEQ issued general permit, but the requirements on isolation from wells are provided here to illustrate what the applicability would be for a future potential regulatory option.

“Except as provided in subrule (4) of this rule, wastewater treatment or storage lagoons associated with a discharge shall consist of a composite liner with a base that meets the requirements of subrule (2) of this rule and a liner as described in subrule (3) of this rule.” (Emphasis added) MAC R 323.2237(1)

At CAFO facilities all such animal waste storage lagoons would be associated with making discharges when the lagoons are emptied. As such, the broad applicability provision which says nothing at all about a permit requirement appears to sweep all CAFO lagoons into applicability for Rule 2237 requirements under this language.

Rule 323.2237(2) goes on to specify requirements for the base of such lagoons as either natural soil barriers, compacted soil barriers or a geocomposite clay liner, each with specific design and performance specifications designed to contain any leaks of waste that could pollute groundwater.

Rule 323.2237(3) provides requirements for flexible membrane liners to be placed on the base of lagoons, being either 40 mil polyvinyl chloride or 60 mil high density polyethylene. This liners must be covered by soil or other material to minimize the danger of puncture and ultraviolet light deterioration.

An register professional engineer must certify that the base and liner were constructed according to requirements of the rule.

There is no requirement in the rule for any kind of double liner system with the capability to detect leaks and failures in the primary liner, which are known to occur in municipal solid waste settings.

Adherence to these lagoon construction requirements are assumed to ensure that no discharge to groundwater is taking place at the lagoon itself. An operator could potentially say that they were not subject to lagoon design requirements if they could successfully maintain that the seepage from the lagoon did not cause injurious effects to groundwater. This would be very difficult to do with the type of wastes presented by CAFO lagoons.

1.4 Groundwater Discharge Prohibition

Rule 323.2205(1) provides that a person shall not discharge [to the groundwater] without an authorization under rule 323.2204. In addition to the general duty requirements under rule 323.2204, this rule also specifically references the general requirement of Part 31 of NREPA which requires a permit for discharges to waters of the state. Rule 323.2204 provides:

“For a discharge to meet the requirements of section 3112(1) of the act, authorization must be granted in conformance with the applicable procedural requirements of R 323.2028 and a person shall be authorized by 1 or more of the following:

- (a) An exemption established by R 323.2210
- (b) A permit by rule established in R 323.2211 or R 323.2213
- (c) A general permit issued under R 323.2215
- (d) A permit issued under R 323.2216 or R 323.2218.” MAC R 323.2204(3).

Presently, most CAFOs other than very large facilities are “authorized” by an exemption under R 323.2210 discussed in the next section.

1.5 Permit Exemption Thresholds for Individually Issued Groundwater Discharge Permits Allow All but Very Large CAFOs to Escape Permit Requirements

Rule 323.2210 provides exemptions for discharges that can be established without issuance of a groundwater permit. One of these exemption provisions establishes permitting thresholds for CAFO operations:

“A discharge from an animal feeding operation that has less than 5,000 animal units if the discharge is determined by the director of the department of agriculture or his or her designated representative, to be in accordance with generally accepted agricultural and management practices, as defined in Act No. 93 of the Public Acts of 1981, as amended, being §§286.471 to 286.474 of the Michigan Compiled Laws, and known as the Michigan right to farm act. For purposes of this rule, 5,000 animal units is equal to 5,000 head of slaughter or feeder cattle, 3,500 mature dairy cattle, 12,500 swine weighing more than 25 kilograms or approximately 55 pounds, 50,000 sheep or lambs, 2,500 horses, 275,000 turkeys, 150,000 laying hens or broilers, or 25,000 ducks. An animal feeding operation is a lot or facility, or series of lots or facilities under 1 ownership which are adjacent to one another or which use a common area or system for the disposal of wastes, that meets both of the following conditions:

- (i) Animals, other than aquatic animals, have been, are, or will be stabled or confined and fed or maintained for a total of 45 calendar days or more in any 12-month period.
- (ii) Crops, vegetation, forage growth, or postharvest residues are not sustained in the normal growing season over the portion of the lot or facility where animals are confined.” MAC R 323.2210(f)

Under this language, any CAFO or any size that did not comply with GAAMPS would have to obtain a groundwater discharge permit. However, the decision of whether the facility is complying with GAAMPS is placed with the Director of the Department of

Agriculture or his designee.³ For facilities at or above the thresholds in the rule, requirements for groundwater permits clearly apply with no roll provided to the Director of Agriculture..

The following language potentially has special meaning for complex and multiple animal feeding operation sites:

“An animal feeding operation is a lot or facility, or series of lots or facilities under 1 ownership which are adjacent to one another or which use a common area or system for the disposal of wastes...” (Emphasis added) MAC R 323.2210(f)

The plain meaning of this language is that multiple facilities under the same ownership that all use the same lands for waste disposal (or potentially the same equipment for spreading the waste) can be aggregated for purposes of applicability to the rule, even if they are not directly adjacent to each other.

1.6 Summary Required Elements of Groundwater Permitting

Once the applicability requirement for groundwater permitting is triggered, the full weight of substantive and procedural requirements of the permitting process in the Part 22 rules is also triggered. Given the extensive requirements, only the briefest summary will be provided here.

If a facility’s discharge is not otherwise described by Rule 2210 through 2216, all groundwater permitting must proceed according to the provisions of the full fledge procedures of R 323.2218.

Groundwater dischargers seeking a permit under R 323.2218 must provide an application on forms provided by MDEQ, specify the basis of design (R 323.2218(2)), review alternatives technologies and disposal methods under the rule (R 323.2219), provide a detailed characterization of their waste/wastewater (R 323.2220) and provide a hydrogeological report (R 323.2221).

If applicable under the rules, certain discharge standards apply (R 323.2222(5)), a monitoring plan may be required (R 323.2223), land treatment information may be required

³ Since GAAMPS are largely voluntary guidelines and are frequently not written in a form that can be legally enforced with clearly delineated thresholds and performance standards, this type of regulatory scheme might be subject to a challenge on the basis of that requirements were unconstitutionally vague and overbroad or that the Director of Agriculture was engaging in selective enforcement or abusing his discretion by allowing demonstrated problems to escape regulation.

(R 323.2233- 323.2236) and lagoon requirements may apply under R 323.2237 and other provisions.

Perhaps most importantly, permits up for approval under Rule 323.2218 are subject to public notice, involvement and review provisions triggered at Rule 323.2208(6), with extensive references to the Part 21 rules on wastewater permitting. Some of the features of the Part 21 permit issuance process include:

Discharger must apply 180 days prior to commencement of discharge. R 323.2106(2).

Public notice required. R 323.2117

Public may comment for 30 days and such comments must be considered by DEQ. R 323.2119.

DEQ fact sheet on proposed action required for any discharge greater than 500,000 gallons per day or discretionary for an important discharge issue if less than 500,000 gallons. R 323.2121 The Fact Sheet must contain specific information under R 323.2122.

A person may request to be placed on a mailing list to receive public notices and fact sheets on proposed permits, either for the entire state or for selected portions and watersheds. R 323.2124

Public may inspect documents related to applications and permits. R 323 2127.

Any person may petition for a public hearing during the comment period and such a public hearing must be held. R 323.2130. Notices of public hearing must contain specific information. R 323.2131

Permits subject to issuance and denial procedures and may be appealed. R 323.2133

Permit terms are not to exceed 5 years. R 323.2150.