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January 27, 2015

Via Email: bitondo@michigan.gov
Mike Bitondo, Permits Section, Water Resources Division
Department of Environmental Quality
P.O. Box 30458
Lansing, Michigan 48909

Re: Public Comments of Environmentally Concerned Citizens of South Central Michigan, the Socially Responsible Agriculture Project, and the Sierra Club (Michigan Chapter) on the Michigan Department of Environmental Quality's Draft General Permit for Concentrated Animal Feeding Operations (MIG010000)

Dear Mr. Bitondo:

Thank you and the entire Department of Environmental Quality (DEQ) for the January 21, 2015 public hearing in Lansing, and for the opportunity to submit written comments on the DEQ's 2014 Draft General Permit for concentrated animal feeding operations (CAFOs), MIG010000 (the "2014 Draft Permit").

Three non-profit organizations that have worked on CAFO issues in Michigan for decades, Environmentally Concerned Citizens of South Central Michigan, the Socially Responsible Agriculture Project, and the Sierra Club Michigan Chapter (collectively the "Commenters"), and together they submit herewith their comments on the 2014 Draft Permit. A CD with the most salient documents are forthcoming in today's mail addressed to your attention. These comments are supported by 9 national and regional co-signing organizations that work in the environmental, public health, and sustainable agriculture areas in Michigan, the Midwest, and nationally. These comments have been prepared by ECCSCM, SRAP, the Sierra Club (Michigan Chapter) with the assistance of Blue River Law, P.C. and the Great Lakes Environmental Law Center.

The Commenters have a ten-point plan for DEQ's immediate improvement of the 2014 Draft Permit, all of which can be achieved and implemented in a revised CAFO General Permit before the expiration of the current General Permit (MIG019000) (the "2009 General Permit") on April 1, 2015:

1. Ban manure application on frozen ground and snow-covered ground to eliminate risk of discharges in these conditions.
2. Equally treat: (a) universal permit coverage for large *and medium* CAFOs, and (b) the same reporting requirements for manifested waste as for CAFO waste to track environmental and public health impacts of waste.
3. Favor precipitation event reporting over rainfall reporting to reduce risks of discharge.
4. Strengthen manure and soil testing requirements to obtain meaningful results for agronomic rate determinations, crop yields, and escapement of CAFO pollution to waters.
5. Add public participation to all "significant" facility changes so affected communities can be heard on issues influencing their health and environment.
6. Strengthen surface water monitoring to obtain meaningful results.
7. Strengthen groundwater monitoring to track efficacy of manure management systems and identify groundwater pollution before it reaches drinking water sources.
8. Track CAFOs' groundwater resource use to protect our state's most valuable resource.
9. Clarify "no-till" definition to *mean* no-till.
10. Trigger 33 U.S.C. §1313(d) (aka 303(d)) protections for waters.

GROUPS

The Sierra Club, Michigan Chapter (the Club) is the 48 year-old statewide voice for the nation's oldest, largest and most influential grassroots environmental organization. Founded in 1892, the Sierra Club's members and supporters number more than 2.1 million across the nation and 62,000 of your friends and neighbors in Michigan. Inspired by nature, we work together to protect our communities and the planet. Please visit us at www.michigan.sierraclub.org.

Environmentally Concerned Citizens of South Central Michigan (ECCSCM) is a 501(c)(3) nonprofit organized to educate the public on the health risks and the environmental damage Confined Animal Feeding Operations (CAFOs) have brought to our community and its watersheds. The ECCSCM website provides documentation on the pollution in our region and promotes sustainable alternatives, including buying local food and *pasture-based* meat. For more information, go to www.nocafos.org.

Socially Responsible Agricultural Project (SRAP)
Provides free, professional assistance to communities working to protect themselves from factory farms and their impact on local communities and populations, and to those who are trying to reclaim agriculture by producing and marketing sustainable agricultural goods. More information about SRAP can be found at www.sraproject.org.

The Club, ECCSCM, and SRAP are joined in their comments by 9 national and regional co-signing organizations, listed at the end of this document.

BACKGROUND

Regardless of their size, CAFOs produce enormous amounts of manure which contains high levels of pathogens, bacteria, nitrogen, phosphorus, and veterinary pharmaceuticals. According to

the EPA, this animal waste "is a primary source of nitrogen and phosphorus to surface and groundwater."[1] The NPDES permit program aims to limit discharges such as phosphorus and nitrogen in order to promote water quality. However, as this summer's algae bloom in Lake Erie clearly demonstrated, there is an immediate need for a stronger NPDES permitting program for CAFOs to control these pollutants. The massive bloom, thought to be caused by increased levels of phosphorus, created a harmful toxin that contaminated the water and made it unsafe to drink.[2] More than 400,000 individuals in Michigan and Ohio were left without potable water for an entire weekend.[3] Months before the bloom, the International Joint Commission (IJC) released a report entitled *A Balanced Diet for Lake Erie: Reducing Phosphorus Loading and Harmful Algae Blooms* which called for a reduction in phosphorus loading from agricultural sources.[4] Other sources also point to animal waste as a priority issue to address.[5]

The Great Lakes are the largest surface freshwater resource in the World; only the polar ice caps contain more fresh water.[6] Michigan is in the basin for four of the five Great Lakes: Superior, Michigan, Huron, and Erie. Hillsdale County, one of the areas ECCSCM focuses on, is the headwaters for two St. Joseph Rivers: the St. Joseph River (Lake Michigan) and the St. Joseph River (Maumee River).

Michigan's unique position as a key state surrounded by the Great Lakes, and the events of this summer highlight the importance of NPDES permitting for CAFOs and prove that greater steps must be taken to protect water quality. With this background and dire need for action, the Commenters' concerns regarding the 2009 General Permit and proposals for the new 2014 Draft Permit are fully set forth below.

COMMENTS

The 2014 Draft Permit contains some welcome additions. For example, some additional specifications on record-keeping, and inclusion of a field-specific spreading plan in the annual report. Without enforcement of these additional reporting requirements, however, their ability to inform DEQ and the public, and protect our waters, will be limited.

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[1] United States Environmental Protection Agency, *Estimated Animal Agriculture Nitrogen and Phosphorus from Manure*, EPA, http://www2.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure.
[2] Kate Abbey-Lambertz, *These Disturbing Photos Show Why Algae Blooms Are A Growing Global Water Threat*, HUFF POST GREEN (Aug. 6, 2014), http://www.huffingtonpost.com/2014/08/04/lake-erie-algae-bloom-2014-_n_5647824.html.
[3] Id.
[4] "The IJC is an independent binational organization created by Canada and the United States under the Boundary Waters Treaty of 1909…[t]he Great Lakes Water Quality Agreement (the Agreement) assigns the IJC a role in assessing progress, engaging the public and providing scientific advice to help the two countries restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes." INTERNATIONAL JOINT COMMISSION, A BALANCED DIET FOR LAKE ERIE: REDUCING PHOSPHORUS LOADING AND HARMFUL ALGAE BLOOMS 3, 70 (2014), *available at* http://www.ijc.org/files/publications/2014%20IJC%20LEEP%20REPORT.pdf.
[5] *See, e.g.,* White House Council on Environmental Quality and ten (10) U.S. Departments' report on the Great Lakes Restoration Initiative Action Plan (FY 2010-2014) (Feb. 21, 2010) at 30 (http://www.greatlakesrestoration.us/pdfs/glri_actionplan.pdf)
[6] U.S. EPA "Great Lakes: Basic Information" (http://www.epa.gov/glnpo/basicinfo.html)

On a contextual note, the Commenters remind DEQ that the permit program comes under the Clean Water Act. The CWA prohibits *any* discharges of pollutants to waters of the state; in this regard the CWA and the CAFO General Permit program is not an outcomes-focused law like the Right to Farm Act or GAAMPs policies. The CWA is a strict liability statute. Even with CNMP requirements in place, manure spills and runoff can occur due to many reasons, such as inadequate site placement or mismanaged nutrient application. Other voluntary programs (e.g. NRCS, MAEAP, GAAMPs) simply do not have the same goals and legal requirements as the Clean Water Act. Thus, in developing the 2014 Draft Permit, DEQ should not shirk its responsibilities under federal law by relying on misplaced hope that other measures will be complied with by the livestock industry, and that they will prevent discharges.

As an administrative matter, the Commenters reviewed DEQ's files from the 2009 General Permit and for this 2014 Draft Permit. The contrast in size and breadth of information in the files was disappointing; the 2009 General Permit clearly received a larger dedication of DEQ staff time and analysis on key issues than the 2014 Draft Permit. Moreover, the files were only received days before the comment period concluded, and only a cursory review of the files could be undertaken. Based on the information reviewed, however, the Commenters believe that this 2014 Draft Permit is being submitted for public comment without DEQ having identified, reviewed, or analyzed sufficient information. In fact, DEQ communications indicate that the state tried to seek industry input on the 2014 Draft Permit *before* issuing the draft to all members of the public,[7] the state the agency wanted to "hold off due to the latest controversies",[8] the DEQ is "leery of making changes right now" and they "won't have much to do."[9] Despite this, DEQ noted the 2014 Draft Permit is "our most complex and controversial GP."[10] Even EPA is not doing its oversight job; EPA even offered to provide "carte blanche" to DEQ's CAFO permits.[11] All of this indicates DEQ must take more careful account of public comments from ECCSCM, SRAP, the Club, and the support of these issues from the co-signers in how it moves forward with the 2014 Draft Permit.

<u>POINT 1:</u> BAN MANURE APPLICATION ON FROZEN AND SNOW-COVERED GROUNDS

The practice of allowing application of manure on frozen and snow-covered ground is a major cause of runoff and water degradation, and it is a source of additional loading of nutrients in soils. A manure ban in Michigan is imperative and of immediate need. For years, the Commenters and other groups have asked DEQ to ban manure applications. In the 2009 General Permit, DEQ inexplicably failed to ban manure applications on frozen and snow-covered fields despite being

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[7] *See, e.g.,* DEQ Email "New CAFO GP" (Dec. 18, 2014).
[8] *See, e.g.,* DEQ Email "CAFO General Permit" (Dec. 19, 2014).
[9] *See, e.g.,* DEQ Email "Cafo gp reissuance" (Aug. 4, 2014).
[10] *See, e.g.,* DEQ Email "CAFO GP" (Jul. 14, 2014).
[11] *See, e.g.,* DEQ Email "Re: New CAFO Permit" (Jan. 30, 2013) (EPA Region 5's NPDES Program Branch Chief Section I, Patrick F. Kuefler stated to DEQ "If we could review that [permit template language] we could likely pass on reviewing a specific permit. If we can get agreement on the standard language to go in all future permits, it might save everyone time.")

aware of the harms this practice causes, and the **unanimous recommendation that it be prohibited from the Livestock Committee**.[12] The Committee recommended as its *primary* recommendation: "Primary Recommendation: The Livestock Committee unanimously recommends that the NDPES General Permit for large CAFOs be revised such that the land application of large CAFO waste to frozen or snow-covered ground is prohibited." DEQ also ignored comments made by its knowledgeable staff to ban winter spreading.[13] For the 2014 Draft Permit, DEQ has again failed to move the ball forward and has ignored this recommendation. This is particularly disappointing given the repeated large toxic algae blooms in Lake Erie, the International Joint Commission and Ohio Task Force recommendations to ban manure applications, and confirmation that winter application practices in the Midwest contribute to the nutrient loading in the Ohio River, the Mississippi River Basin, and the Gulf of Mexico.[14] Due specifically to Lake Erie's vulnerability to phosphorous contamination, the International Joint Commission recommends that Michigan completely "ban the application of manure, biosolids and commercial fertilizers containing phosphorus from agricultural operations on frozen ground or ground covered by snow for lands that drain to Lake Erie."[15]

Currently, the 2009 General Permit authorizes land application of CAFO waste after a field-by-field assessment is conducted to prevent runoff.[16] Still, Michigan State University Extension has recognized that "the fate of manure on frozen and snow-covered ground is not predictable."[17] As the 2014 Draft Permit Technical Standard admits, "there are *no* practices that can ensure the runoff from the fields with surface-applied waste on frozen or snow-covered ground will not be polluted", and the Technical Standard "assumes that surface runoff from snowmelt and/or rainfall will occur, and that the runoff will be polluted if CAFO waste is surface-applied on frozen or snow-covered ground."[18] (emphasis added). *Despite* this known facts and assumptions, the 2014 Draft Permit *still* permits winter applications. This practice must be stopped.

Frozen soil has limited infiltration capabilities due to the saturation of water that has occurred between the alternate freezing and thawing cycles during typical winter weather patterns in the Midwest.[19] Manure and soil thaw at different rates. If manure thaws first and the soil remains frozen, winter-applied manure will not infiltrate the soil. As snow melts and moves toward streams,

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[12] *See* DEQ FOIA 916-15 "WRD Livestock Committee Recommendations on Winter Spreading – Draft" (undated).
[13] *See, e.g.*, DEQ FOIA 916-15 Comments on Permit No. MIG019000 at 14 "Comment [BW 25]: Ban winter spreading."
[14] *See, e.g.,* Alexander et. al, "Differences in Phosphorus and Nitrogen Delivery to The Gulf of Mexico from the Mississippi River Basin". *Environ. Sci. Technol.*, 2008, *42* (3), pp 822–830.
[15] INTERNATIONAL JOINT COMMISSION, *supra* note 5, at 76.
[16] *National Pollutant Discharge Elimination System Wastewater Discharge General Permit for Concentrated Animal Feeding Operations Permit No. MIG019000,* p. 33, MICH. DEP'T OF NATURAL RES. AND ENV'T, *available at* http://www.michigan.gov/documents/deq/wb-npdes-cafo-generalpermit-MIG019000-2010_316373_7.pdf.
[17] Michigan State University Extension, *Part 3: Spreading on Frozen and Snow-covered Ground,* EXTENSION BULLETIN (Feb. 2007), *available at* http://www.maeap.org/uploads/files/Livestock/Keeping-Land-Applied-Manure-in-the-Root-Zone_Frozen-Snow-covered-Ground.pdf.
[18] 2014 Draft Permit at 36.
[19] Owens, Bonta, Shipitalo, and Rogers. *Effects of Winter Manure Application in Ohio on the Quality of Surface Runoff* American Society of Agronomy, Crop Science Society of America. January 2011.

runoff of manure will occur even *without* spring rain events. Thus, any "investment" of manure on a field is lost. Winter application of manure is only beneficial to the soils if the timing of applications and weather, and if the impacts to local and downstream communities, are accounted for. Because Michigan does not ban this practice, and its current Technical Standard provides inadequate protections, manure runoff is a frequent occurrence in CAFO areas in Michigan. Studies in Wisconsin have shown winter applications result in as much as 54% greater runoff.[20] Another Wisconsin study showed that fields with snowmelt that occurred after manure application had higher percentages of dissolved phosphorus and volatile solids than fields that did not apply winter manure.[21] The U.S. EPA reports that snow and ice are arriving later in the fall and starting to melt earlier in the spring, heavy downpours are now twice as frequent as they were a century ago, and these trends are likely to continue.[22] A total ban on manure applications on frozen and snow-covered ground is all the more imperative, and half-measures will not offer the protection citizens and the environment are entitled to have.

Recent DEQ lists of enforcement actions and violations do not reference any violations for winter applications. ECCSCM, however, documented approximately 6 applications on frozen and snow-covered ground so far in the winter of 2014-2015. These applications occurred *after* DEQ sent its October 2014 "Winter Application Monitoring" letter to most CAFOs in Michigan. DEQ promised in the letter to focus its attention on winter applications and asked for CAFOs' voluntary compliance with the Technical Standard. Has DEQ ensured these applications are compliant with the current Technical Standard? Did DEQ follow-up to confirm no runoff occurred? The best solution is to simply ban winter applications of manure.

There are different approaches to controlling winter applications of manure, none of which are appropriate for Michigan and the practice should be banned. The USDA's recommended NRCS Standard 590 precludes manure spreading on frozen and/or snow-covered soils and when the top two inches of soil are saturated from rainfall or snow melt.[23] Michigan's approach is a field-by-field assessment. Under the NRCS standard, exceptions can be made for surface-applied manure when specified conditions are met and adequate conservation measures are installed to prevent the offsite delivery of nutrients. The adequate treatment level and specified conditions for winter applications of manure must be defined by NRCS in concurrence with the water quality control authority in the State. At a minimum, the following site and management factors must be considered:

- slope,
- organic residue and living covers,

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[20] University of Wisconsin Discovery Farms. "Considerations for Early Winter Applications of Manure." September, 2013. Website. http://fyi.uwex.edu/discoveryfarms/2013/12/considerations-for-early-winter-applications-of-manure/

[21] Panuska, J.C., Karthikeyan, K.G., Norman, J.M. "Sediment and Phosphorus Losses in Snowmelt and Rainfall Runoff from Three Corn Management Systems." American Society of Agricultural and Biological Engineers. 51 (1). 95-105. 2008.

[22] U.S. EPA "Climate Impacts in the Midwest" (visited Jan. 18, 2015) http://www.epa.gov/climatechange/impacts-adaptation/midwest.html

[23] NRCS Conservation Practice Standard - Nutrient Management Code 590 at 3 (Jan. 2012) http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046896.pdf

- amount and form of nutrients to be applied, and
- adequate setback distances to protect local water quality.

Michigan's 2014 Draft Permit relies on its prior strategy of allowing winter applications where a field-by-field assessment has been conducted. First, the field-by-field assessment accounts for 12 different factors, but it does not account for the influence of a natural event on these factors: weather. Second, the Commenters' review of DEQ's facility and enforcement files raises serious questions about the diligence DEQ performs in verifying that the field-by-field assessments have been conducted, and whether DEQ has done so properly. There is no confirmation that Michigan DEQ analyzes CAFOs' MARIs, or does so with the diligence required to confirm that runoff will not occur if winter applications proceed. Even fields with low MARI scores are only considered to have "reasonably good" potential for winter spreading; this is insufficient to justify spreading when so many other sources recommend against it. Lastly, the MARI is not designed to meet Clean Water Act criteria, but to meet those lesser standards of Michigan's Right to Farm law and Generally Accepted Agricultural and Management Practices.[24] The NPDES General Permit is a program authorized by the federal *Clean Water Act*, not the different – and less protective of the environment - standards of agricultural protection laws. The best solution is simply to ban winter applications.

Michigan's 2014 Draft Permit leaves our state in a rapidly dwindling group of states. Under the 2014 Draft Permit, Michigan will remain in the increasing minority of states that still allow winter applications despite the practice's proven risks. Many states ban winter applications and restrict it in ways more consistent with the goals of the Clean Water Act than does Michigan.[25] Even states with significantly less snowfall have better practices than we do! Missouri has an outright ban of winter manure applications,[26] as do Minnesota and Ohio.[27] Maryland is phasing in winter application bans as part of their new NMP regulations.[28] North Carolina employs a total ban in its NPDES general permits for swine, poultry and cattle CAFOs where "[w]aste shall not be applied on land that is flooded, saturated with water, frozen, or snow covered at the time of land application."[29] Illinois'

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[24] Grigar, J. et al. "A Procedure for Determining the Land Available for Winter Spreading of Manure In Michigan." Available at http://animalagteam.msu.edu/uploads/files/20/marihandoutnoshade.pdf

[25] DEQ already knows this. *See, e.g.* DEQ Email "RE: list of winter application regulations, selected states" (Jan. 13, 2014).

[26] Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard (2009) II. Nutrient Management Requirements, A2(3)d. Note also that Missouri's General Permit was reviewed by DEQ staff in conjunction with the 2009 Draft Permit, yet in 2009 and again this year DEQ refused to ban winter applications.

[27] Minn. Admin. R. 7020.2225(6), Ohio Admin. Code 1501:15-5-05(B)(2).

[28] Maryland Department of Agriculture, Fact Sheet (March 26, 2013).
http://www.montgomeryscd.org/NMtimelineregsfinal.pdf;
http://mda.maryland.gov/resource_conservation/Pages/nutrient_management_overview.aspx

[29] *Swine Waste Management System NPDES General Permit NPDES Permit No. NCA200000*, p. 7, N.C. ENVTL. MGMT. COMM'N DEP'T OF ENV'T AND NATURAL RES, *available at*
http://www.ncdenr.gov/c/document_library/get_file?uuid=a63f6515-e3ad-48c0-ac6b-e69505c51d81&groupId=38364;
Liquid Poultry Waste Management System NPDES General Permit NPDES Permit No. NCA400000, p. 7, N.C. ENVTL. MGMT. COMM'N DEP'T OF ENV'T AND NATURAL RES, *available at*
http://www.ncdenr.gov/c/document_library/get_file?uuid=4768e70a-48e0-4b16-8a87-9a5605903e75&groupId=38364;
Cattle Waste Management System NPDES General Permit NPDES Permit No. NCA300000, p. 7, N.C. ENVTL. MGMT.

general rule prohibits winter applications on sloped fields.[30] Iowa, for example, bans liquid manure applications from December 21 – April 1 if ground is snow-covered, and February 1-April 1 if the ground is frozen, except in emergency situations.[31] Indiana bans it except in emergency situations.[32] Wisconsin bans surface applications of solid and liquid manure in February and March.[33] Vermont has a wintertime ban.[34]

Clearly, the best solution for Michigan and Michiganders its to ban winter applications.

POINT 2: EQUALLY TREAT CAFOs AND WASTE: (A) UNIVERSAL PERMIT COVERAGE FOR LARGE *AND* MEDIUM CAFOS AND (B) SAME REPORTING REQUIREMENTS FOR MANIFESTED WASTE

(A) UNIVERSAL COVERAGE

The 2014 General Permit must apply to medium *and* large CAFOs, and any AFO that discharges. Michigan's livestock industry is expanding and the permit must account for this growth. According to ECCSCM, based on information compiled from public records documents, over 12.8 million CAFO animals are raised in the combined area of Michigan's and Ohio's western piece of the Lake Erie watershed.[35] Based on DEQ records, as of 2013 approximately 42,000 of these animals are in Lenawee and Hillsdale Counties alone. These two counties' land areas are approximately 1,347 square miles so that means there are 31.18 animals per square mile.

CAFOs are defined as "point sources" under the federal Clean Water Act. 33 U.S.C. § 1362(14). Historically, CAFOs in Michigan were primarily dairy operations. As of October 2014, Michigan has nearly 300 large, permitted CAFOs but only approximately 40% were dairy operations. The others include swine (38%), poultry (broilers and eggs) (7%), beef (5%), turkey (4%), and other (mixed, heifers, veal, or other) (4%). Approximately 14 facilities (5% of the total) have "no potential to discharge" determinations; most of these facilities are turkey, poultry, or a limited number of swine facilities. Michigan has, additionally, many more large CAFOs, medium CAFOs, and small

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COMM'N DEP'T OF ENV'T AND NATURAL RES, *available at* http://www.ncdenr.gov/c/document_library/get_file?uuid=7f119cda-889b-4961-826a-83d8b42e96e2&groupId=38364.

[30] Illinois Livestock Management Facilities Act 510 ILCS 77/20(f)(9).

[31] IOWA ADMIN. CODE R. 459.313A.

[32] 327 IND. ADMIN. CODE 19-14-4(e)-(h).

[33] Wis. Admin. Code NR 243.14 and Wisconsin DNR Guidance Document "CAFO Applications When Ground is Frozen, Snow-Covered or Saturated." http://dnr.wi.gov/topic/AgBusiness/documents/WinterSpreading.pdf

[34] *See, e.g.,* Vermont Agency of Agriculture Food & Markets "Winter Manure Spreading Ban Ends on April 1 - But Should You Begin Spreading Manure?" http://agriculture.vermont.gov/news//winter_manure_spreading_ban_ends_april_one_but_should_you_begin_spreading_maure

[35] *See* ENVIRONMENTALLY CONCERNED CITIZENS OF SOUTH CENTRAL MICHIGAN, http://nocafos.org/news.htm (last visited Oct. 11, 2014). The Commenters note that as a general matter despite their best efforts over many years, publicly-available information regarding the number of animals continues to be sorely out of date, inconsistent, inaccurate, and does not reflect "significant changes" approved at facilities.

AFOS that are all unpermitted. The exact number is unknown, and thus DEQ barely has a handle on a small portion of the manure problem in our state.

Approximately 83% of Michigan's 274 permitted large CAFOs are covered by the 2009 General Permit. Nearly 10 years ago, DEQ estimated that Michigan had nearly 15,000 acres of land used by CAFOs for manure applications *for the entire state*.[36] In reviewing DEQ's 2013 data, as reported by 13 CAFOs in the Hillsdale and Lenawee Counties in their annual reports, ECCSCM estimates that in Hillsdale and Lenawee Counties at least 17,872 acres are being used for land applications. The impact of DEQ's action on this 2014 Draft Permit is extremely important to water quality and public health. Michigan's definition of "CAFO" for purposes of the 2014 Draft Permit includes "large" CAFOs. However, Michigan has many "medium" CAFOs only a few cows below the threshold. The difference between the amounts of manure a "medium" and "large" CAFO produce is of no consequence; already "medium" CAFOs are producing significant amounts of manure. The Clean Water Act is a "no discharge" statute. That means no discharges are allowed for point sources regardless of their size. Medium CAFOs' risk of discharge is no lesser than the risk of discharge, or other impacts, on a community or the environment. Thus large and medium CAFOs should be regulated identically.

(B) MANIFESTED WASTE

Based on DEQ's 2013 records, ECCSCM estimates that CAFOs in Hillsdale and Lenawee Counties alone produce nearly 793,636 tons of manure a year. Much of this waste – upwards of 90% in some areas - is exported off-site to third parties. ECCSCM estimates that including the Ohio Maumee River areas, south central Michigan and Ohio CAFOs produced more than *5 billion* pounds of manure in 2013 (2.5 million tons). Under the 2014 Draft Permit, the CAFO operator must record certain information, notably the quantity of manifested waste, the recipient of manifested waste, and the nutrient content of the waste for land application purposes.[37] However, that is where DEQ currently ends obligations to track and monitor CAFO waste. This is far from the cradle-to-grave approach contemplated by federal and state environmental protection laws.

DEQ's approach is to wash its hands of the problem once it leaves the CAFO, which ignores DEQ's obligations under the Clean Water Act (a person receiving manifested waste and applying it would still be a "discharger"), turns a blind eye to a major pollution problem and is contrary to region-wide efforts to control manure pollution. DEQ does not require agronomic rate applications or any other regulatory controls for manifested waste. Additionally, ECCSCM and SRAP have documented (and reported to DEQ) that through the use of shell-corporations, CAFOs are manifesting waste back to themselves. DEQ's current position is that this practice is acceptable and unenforceable. Manifested manure is the same product that CAFO owners / operators apply to their fields; there is no rational reason why manifested waste should not be held to the same legal

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[36] *See* DEQ Presentation "Manure: How Much Is Applied to Land?" http://www.deq.state.mi.us/documents/deq-whm-eac-manure-ppt.pdf (undated).
[37] 2014 Draft Permit, Section C (9).

requirements as a CAFO's waste. Michigan does not allow toxic waste, medical waste, or other industrial waste to go untracked in the course of its disposal; CAFO waste is also a pollutant with environmental and public health consequences.

Michigan DEQ must require tracking and control of waste use and disposal for manifested waste as part of the permit. The first step in this direction would be to enforce the requirement that manifest forms be filed with DEQ in the first place; the Commenters' review of 11 facility files in the south central Michigan area confirmed that there is a large void of manifest forms, and the very minimal number that are filed are incomplete and sporadic. If nearly 793,636 tons of manure is produced in only two counties a year, and DEQ can't track 90% of it because it is not enforcing the reporting requirement, then DEQ is clearly failing to enforce the law and blatantly putting Michigan's waters and citizens at risk.

Along the lines of tracking manure, the Commenters remind DEQ that public records demonstrate repeated examples of stockpiling waste at Michigan CAFOs in impermissible locations. Stockpiling is permitted in "manure storage areas" but not in other areas (e.g. production areas or land application areas). If the CAFOs have so much waste that they can't manifest enough of it, or store it in the authorized locations, then facilities should decrease the number of animals to control their waste production.

POINT 3: PREDICTED PRECIPITATION – ELIMINATE PIGGYBACKING

The 2014 Draft Permit provides CAFO operators with instructions on how to account for anticipated and predicted precipitation so they do not land apply manure when the chances of runoff exist, and are increased in risks. (Part I(B)(e)(4)). The 2014 Draft Permit addresses "rainfall". There are many other additional kinds of precipitation events besides "rainfall" though that can cause the same or similar problems as "rainfall", and the Commenters request that DEQ change the language in the 2014 Draft Permit to the more all-encompassing term "precipitation event."

Second, in South Central Michigan, CAFO operators have interpreted the precipitation language to allow manure applications when there is a 100% chance of *any* quantity of rain within a 12-hour period, just so long as the *24-hour* criteria are met. In other words, the provision is interpreted as allowing manure to be land applied when a heavy rainfall is imminent within 12 hours, so long as the 24-hour prediction is less than 70% for ½" of rain. This approach completely circumvents the purpose of the prohibition to apply manure when rain events are predicted or anticipated. ECCSCM members have seen occasions where the Q24 threshold would permit applications, but the Q12 threshold would not, and by "averaging" the two numbers a CAFO operator attempts to justify an application that then results in runoff. The simplest way to remedy this loophole is to change the language regarding application of waste before predicted precipitation to the following:

> GFS MOS (MEX) Text Message by Station Forecast: If ***Q12 and/or*** Q24 is 4 and ***P12 and/or*** P24 is ***50*** or more for the same time period, or the ***Q12 and/or*** Q24 is 5 or greater (with any P number), than CAFO waste land application shall be delayed until the ***Q12***

and/or Q24 is less than 4 or both the *Q12 and/or* Q24 is less than 5 and the *P12 and/or* P24 is less than 50 for the same time period.

Heavy downpours occur twice as frequently now in the Midwest as they did a century ago.[38] Climate change means wetter spring conditions,[39] which means fewer options to apply manure when spring rains do arrive. Thus, NPDES General Permit conditions, and the accompanying CNMPs, must be drafted and construed more stringently to account for increased precipitation conditions in the Michigan.

POINT 4: INCREASE FREQUENCY AND FOCUS OF MANURE AND SOIL SAMPLING TO MAKE TESTING MEANINGFUL

The 2014 Draft Permit must include meaningful manure and soil testing, and requirements for how to use the sampling results. While CAFO waste is to be sampled annually, soils at land application sites are only currently required to be sampled a minimum of once every three years, and by the CAFOs.[40] Some individual permits require even less soil sampling. Manure and soil environments are not static. It is nonsensical that manure testing only occurs annually, while the soil (to which that manure is applied) is only tested every three years (or less frequently). A more accurate sampling program would include sampling of (1) manure (and other applied substances such as wastewater) prior to each application for at least the constituents of ammonia, nitrites, nitrates, phosphorus, metals, veterinary pharmaceuticals, arsenic, manganese and iron, and of (2) soils pre-planting and post-harvest for similar constituents. Agronomic rates of applying manure cannot be achieved using inaccurate and outdated information.

The Commenters support a more rigorous and meaningful manure and soil testing program in the 2014 Draft Permit that requires sampling be performed pre-planting and post-harvest. The Commenters also support testing for more than simply phosphorus. Arsenic, manganese, and iron levels are also high in some CAFO areas in Michigan. Veterinary pharmaceuticals in soils and waters are of concern for public health, and can appear in soils and groundwater. Other factors are very important to determining soil health and agronomic application rates to obtain ideal crop yield and also to protect surface and groundwaters. These include constituents such as ammonia, nitrate, and nitrite levels, and soil moisture content. If a soil is already moist, this information is imperative for the CAFO to know the kind and amount of manure to apply. If a particular batch of manure is high in a certain constituent because of a feed-related issue, this must be taken into account in light of the present status of the manure, and the soil. If a feed-related matter changes the constituents of manure, it should be measured before each field application. Furthermore, an eight inch vertical core depth is simply insufficient to obtain meaningful soil samples. Soil constituents such as nitrates migrate through the root zone and into groundwater. Many of the crops grown in Michigan, e.g.

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[38] U.S. EPA "Climate Impacts in the Midwest" (visited Jan. 18, 2015) http://www.epa.gov/climatechange/impacts-adaptation/midwest.html

[39] Id.

[40] 2014 Draft Permit Part I(B)(3)(b).

corn and alfalfa, have much longer root zones. These crops take their nutrients from the entire soil column, not just the top 8 inches, and residual levels of constituents must be taken into account to determine proper agronomic rates. Soil sampling must occur below the root zone, to a depth of five feet.

Lastly, the Commenters advocate a much more stringent limit for phosphorus in soil. The draft Permit proposes a limit of 150 parts per million (ppm) for phosphorus. There is no reliable basis explained for the proposed introduction of this level. A significantly lower rate (40ppm) is the agronomic rate listed in Michigan's Phosphorus Risk Assessment Phosphorus Index.[41] The Commenters' review of DEQ files both for the 2009 General Permit and the 2014 Draft Permit and for 11 facilities in the south central Michigan region indicate that soil testing is infrequently performed, so DEQ has not linked its own thinking on this issue with the realistic practices and needs of Michigan's soils. The Commenters argue that this 150ppm level is excessively high, unfounded, and the proper limit is 40ppm for phosphorus, and that the numerical rate should apply throughout the permit (not narrative rates). Because the phosphorus level should be 40ppm, the issue of how many applications per year or over the course of several years should be permissible is moot. Neither does the 2104 Draft Permit propose agronomic rates for nitrogen in soil.

POINT 5: PUBLIC PARTICIPATION FOR "SIGNIFICANT" CHANGES

The 2014 Draft Permit provides that "[p]rior to a significant change in the operation of the CAFO" a CNMP shall be revised.[42] The revision, however, does not automatically trigger a public comment period. This is a major flaw in the current 2009 General Permit and 2014 Draft Permits. The "significant" changes made to a CAFO are highly likely to dramatically affect citizens, their environment, and their communities. Public comment on this issue is a key tool for communities to engage in public process and to protect themselves and their waterways. The 2014 Draft Permit currently defines "significant change" as five criteria:

> 1) An increase in the number of animals that results in a greater than or equal to 10 percent increase in the volume of either the manure alone or the total CAFO waste generated per year as compared to the volumes identified in the application, as a cumulative total over the life of the COC.
>
> 2) An increase in the number of animals that results in a decrease in the waste storage capacity time, as identified in the application, by 10 percent or greater, as a cumulative total over the life of the COC.
>
> 3) An increase in the number of animals, where the CAFO waste generated by the livestock requires more land for its application than is available at the time of the increase.

[41] Michigan's Phosphorus Risk Assessment Phosphorus Index, Version 2 at 6 (2014).
[42] 2014 Draft Permit, Part I(B)(e)

4) A decrease in the number of acres available for land application, where the CAFO waste generated requires more land for application than will be available after the decrease.

5) The construction of a new animal housing facility or waste storage facility.

Each of these changes is likely to increase the impact of the CAFO on the local community. More animals mean more dust, noise, smell, and manure. More manure means more lagoons, field applications, and manifesting. If the current fields are insufficient, it means more applications throughout the community thus spreading the problem even farther afield. More animals also mean more water usage, and more trucks on the roads. Simply because a CAFO has succeeded in getting a permit for its initial operation does not give it "carte blanche" to continue to grow and overtake the surrounding area. Citizens must be allowed to participate in this process, and the 2014 Draft Permit should incorporate this protection.

POINT 6: SURFACE WATER QUALITY

The Commenters seek increased monitoring of surface water quality, increased enforcement of violations, and commencement of industry-specific contaminants and tracers such as veterinary pharmaceuticals. Monitoring points are necessary to identify discharges and to monitor the efficacy of CAFOs' manure management systems. ECCSCM and SRAP have conducted their own sampling, and have shared their results with DEQ. Many of these sampling events with high levels of pollutants were not investigated by DEQ.

CAFOs are specifically included as "point sources" of pollution under the Clean Water Act. 33 U.S.C. § 1362(14). CAFOs must obtain DEQ authority to operate. In Michigan, CAFOs that do not discharge may apply for a "no potential to discharge" determination and CAFOs that discharge must apply for coverage under a General Permit or an individual permit. The scope of a "discharge" includes discharges from a CAFO's production area to waters of the state, and it includes discharges from land application fields. 40 C.F.R. §122.23(e). The exception, agricultural storm waters (33 U.S.C. § 1362(14)), includes applications performed agronomically. While Michigan's 2014 Draft Permit purports to regulate CAFO waste both at production areas and land application areas, DEQ's own files indicate that the current permit is not being complied with, and records submitted to DEQ are not being reviewed by staff to identify or appropriately respond to instances of non-compliance.[43] If little work goes into preparing a General Permit, into compliance, monitoring, or enforcement of it, then it is a wholly ineffective tool in the DEQ's implementation of the NPDES program. DEQ is playing a risky game; only 7 years ago the Michigan Court of Appeals concluded that the state's CAFO program did not comply with the Clean Water Act for its failure to include the required effluent limitations in the General Permit.[44] Now DEQ's permit is serving as

[43] See, e.g. DEQ Email M. Kennedy to J. Van Pelt at SMD (Sept. 12, 2013) ("We did not assess the contents of the documents [an annual report] for full permit compliance.")
[44] The Michigan Supreme Court denied DEQ's appeal.

window-dressing and is not being enforced. The Commenters are interested in an effective NPDES CAFO Program, and the 2014 General Permit has the potential to provide this, but it must be correctly designed, implemented, and enforced. All of these administrative factors affect surface water quality.

Without increased meaningful monitoring efforts, enforcement becomes an impossible task for DEQ. The self-reporting discharge requirements of the 2014 Draft Permit allow a lax self-policing system that is ineffectual. Current CAFO management requirements are not designed to monitor and catch discharges. There must be regular monitoring sites to identify discharges before they reach astronomical proportions. There is no incentive to self-report; self-reporting puts a CAFO under scrutiny by DEQ and exposes it to potential legal liability, fines, and penalties for violations. Enforcement however is DEQ's obligation. A review of DEQ's enforcement files shows a "light touch" in identifying, addressing, and remedying pollution caused by CAFOs; even when citizens highlight violations for DEQ, DEQ does not follow-up. Over the years, ECCSCM has identified several permit violations, very few of which were enforced by DEQ.

Animal agriculture is the largest user of drugs in the United States; 80% of antibiotics sold in the U.S. are used in the animal agriculture industry.[45] Veterinary pharmaceuticals are commonly used for a number of production-related reasons: first, large numbers of animals confined together increase risk and transmission of disease and infections which increases the use of therapeutic use of drugs; second, drugs are used to increase animal growth rates, increase feed efficiency, and to facilitate reproduction (sub-therapeutic uses). Numerous petitions and lawsuits have been filed with federal agencies seeking the ban and control of drug use because of their impacts on the environment, human health, and animal welfare.[46] The U.S. EPA has identified antibiotics and veterinary pharmaceuticals in drinking water and soils in CAFO regions.[47] In Michigan, water samples have found antibiotic-resistant bacteria in waters near CAFOs.[48]

Veterinary pharmaceuticals are pollutants, threaten public health, wildlife, and the environment, and without identification of the threat Michigan DEQ is ignoring its obligations. DEQ must immediately start monitoring for veterinary pharmaceuticals used by Michigan's livestock industry. This is not something that can wait until, as DEQ estimated in its Livestock Committee Meetings notes obtained through FOIA, for the 2020 General Permit. Without even establishing a baseline testing program, DEQ is allowing pollutants to permeate our environment.

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[45] U.S. Food & Drug Administration, 2009 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals (September 2014).
[46] *See, e.g.* Petitions and lawsuits filed with the FDA seeking to better regulate ractopamine (http://www.centerforfoodsafety.org/search/ractopamine) and arsenic (http://www.centerforfoodsafety.org/search/arsenic).
[47] *See, e.g.,* U.S. EPA Region 10, "Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley, Washington" (March 2013) Available at http://www.epa.gov/region10/pdf/sites/yakimagw/nitrate_in_water_wells_study_march2013.pdf
[48] West, B. et al "Antibiotic Resistance, Gene Transfer, and Water Quality Patterns Observed in Waterways near CAFO Farms and Wastewater Treatment Facilities." Water Air Soil Pollution (Aug. 25, 2010).

The 2014 Draft Permit must also account for the fact that the Clean Water Act is a technology-forcing statute. See e.g. 33 U.S.C. §§ 1316(a)(1), 1317(a)(2) (CWA's best available demonstrated control technology and best available technology economically achievable). The idea of technology-forcing statutes is that by law, Congress and agencies charged with implementing the law "can order into being technological achievements not now enjoyed by a particular industry."[49] The reason for technology- forcing statutes is an assumption that "existing market forces fail to produce an appropriate level of pollution control, either because of explicit collusion among manufacturers or because of the inability of spillover victims to communicate and enforce their needs within the market."[50] New technologies are appearing on Michigan's CAFO landscape, such as manure digesters and livestock water recycling programs. The livestock water "recycling" programs require large amounts of chemicals as part of their waste treatment, and seriously tax the local water supply. DEQ's 2014 Draft Permit in no way reflects whether these practices are common, are increasing in use, or whether they should be addressed in the 2014 Draft Permit. Obviously an Individual Permit is the more appropriate tool in most circumstances, but the General Permit is not updated to reflect any technology changes in the Michigan CAFO landscape. The 2014 Draft Permit needs to account for changes in technology; one of the ways to address this is, as discussed further below, to continue to keep the certified operator requirement intact.

POINT 7: PROTECT GROUNDWATER QUALITY

Because the quantity of surface water in the Great Lakes Basin is so large, groundwater is often overlooked.[51] Groundwater however is very important to hydrology and ecosystem health, including fish and wildlife. The amount of groundwater in the Great Lakes Basin is estimated at more than 1,000 mi^3, approximately the quantity of water in Lake Michigan.[52] Approximately 8 million people in the Great Lakes Basin depend on groundwater for their drinking water,[53] approximately 43% of them are Michiganders.[54] In 1999, the International Joint Commission recommended that "Governments should immediately take steps to enhance groundwater research in order to better understand the role of groundwater in the Great Lakes Basin."[55] The Great Lakes Basin groundwater feeds Michigan's surface waters.[56] To view the aquatic ecosystem of our state as solely the domain of surface waters is to ignore the complex network of waters that our beautiful lakes depend upon. Groundwater is the lifeblood of our surface waters. In large parts of south central Michigan where ECCSCM focuses its efforts, 80-90% of surface water is comprised of groundwater.[57] Groundwater keeps streams flowing during low surface water times.[58] Because the

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[49] William H. Rodgers, ENVIRONMENTAL LAW. Vol. I § 3.25(A) at 393 (1986 and Supp. Summer 2014)).
[50] Id.
[51] USGS 2000 at 1.
[52] Id.
[53] Id. at 6 and Figure 4.
[54] Ervin, J. et al. "Assessment of Rural Groundwater Contamination by Agricultural Chemicals in Sensitive Areas of Michigan." Institute of Water Research – Michigan State University (April 1988) at 1. Available at http://gwmap.rsgis.msu.edu/reports/116.pdf
[55] IJC interim report (1999) at 30.
[56] USGS 2000 at 1
[57] Id. at 10, Figure 11
[58] Id. at 11

groundwater – surface water interaction is difficult to observe and measure, it has "commonly been ignored in water management considerations and policies."[59]

Groundwater is part of "waters of the state" as defined in Michigan. Administratively, Michigan DEQ's division of groundwater and surface water issues into two separate departments, and two permitting schemes. The permitting scheme is regulatory construct that does not reflect the legal definition of "waters of the state" nor does it reflect the hydrologic connection of groundwater and surface water in the Great Lakes Basin. Failure of the NPDES General Permit to incorporate and recognize groundwater protections is a failure to protect the "waters of the state." The regulatory foundation of the state's groundwater permitting system is also an inaccurate reflection of the industry (*see, e.g.* recent permit list with approximately 15 of 274 large permitted CAFOs just below the 5,000 animal unit threshold for groundwater permits, yet only 2 groundwater permits exist in the state). For example, public records show Bakerlads didn't have to get permit despite the multi-tiered swamp waste filtration system in a wetlands. Another CAFO had a groundwater permit in 2011, but it was not renewed.[60] Even when that CAFO did have the groundwater permit, substantive groundwater quality monitoring *was not required.* And DEQ's approach to facilities with common ownership and groundwater protection must be revisited so they are not insulated from permitting requirements by paperwork. Thus, calling Michigan's CAFOs as 'regulated' for groundwater is farcical and the NPDES General Permit must account for the DEQ's abandonment of the state's groundwater permitting program.

Recharge in the Great Lakes Basin takes place in surface waters.[61] What groundwater is not extracted for commercial, public supply, industrial, or agricultural use is returned as surface water effluent.[62] Thus the health of our groundwater supplies is critical to understand and monitor to protect our surface waters, and the recharge cycle of our groundwater. Pollution of one is pollution of them all. It is estimated that 48% of Lake Erie's waters are groundwater and 79% of Lake Michigan's.[63] Industrial animal agricultural use can contaminate groundwater with substances such as nitrates, phosphorus, and veterinary pharmaceuticals. All of these contaminants can pose health risks. The levels of some of these contaminants are regulated by MCLs, others are not.

Groundwater is a critical source for maintaining human health and healthy ecosystems.[64] In particular, groundwater flow is an important part of wetland function.[65] Many of Michigan's CAFOs are constructed in areas with high groundwater levels. Some CAFOs' manure management structures are constructed *below* the groundwater table. Groundwater quality is at serious risk, and so are Michiganders. Hillsdale, Kalamazoo and St. Joseph Counties, where many CAFOs are located, were included in a MSU study on aquifer vulnerability from agriculture use, including the findings

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[59] Id. at 10
[60] Bisher Farms Permit No. MI0057669.
[61] USGS 2000 at 3.
[62] Id. at 6
[63] Id. at 11
[64] Id. at 2.
[65] Id. at 11.

indicating nitrates above the MCL of 10 ppm.[66] Additionally, the Commenters note that local well programs do not provide the information the public is entitled to; the Commenters reviewed well logs at local health departments and there is a void of necessary testing upon well completion, and a void of follow-up sampling since then. Nor should the responsibility for monitoring the effects of CAFOs on the quality of drinking water be upon the local community.

The NPDES program was established to promote water quality and limit the discharge of pollutants into surface waters.[67] Because groundwater is often "hydraulically connected" to surface water,[68] the EPA has recognized that "CAFO impacts on ground water quality can…be considered as an emerging risk issue for surface water quality."[69] Therefore, the DEQ should include greater groundwater protection mechanisms in the general permit to protect Michigan's groundwater and surface water resources. Under Section 510 of the Clean Water Act, states are allowed to adopt more stringent standards than are required under the federal statute.[70] As a state with delegated authority to administer the NPDES permit program, Michigan includes groundwater within its definition of "waters of the state."[71] Therefore, as the DEQ retains the authority to regulate and protect groundwater under the NPDES general permit for CAFOs, it is imperative that the agency does so to promote overall water quality.

Thus increased monitoring, and increase enforcement of violations under the 2014 Draft Permit is required. The groundwater monitoring would require upgradient and downgradient monitoring wells for each CAFO, and regular reporting that is available to the public who depend on these waters for their drinking water. Sampling should occur at least for phosphorus, ammonia, nitrite, nitrate, and veterinary pharmaceuticals.

The DEQ must take further action to protect groundwater through the general permit as nitrates from CAFO waste can percolate into the groundwater aquifers. Nitrates are able to seep into the groundwater from both the surface application of CAFO waste and waste leakage from storage lagoons.[72] According to the U.S. Geological Survey, "[b]eneath agricultural lands, nitrate is the primary form of nitrogen. It is soluble in water and can easily pass through soil to the ground-water table. Nitrate can persist in ground water for decades and accumulate to high levels as more nitrogen is applied to the land surface every year."[73] The USGS study found that significant regions across the state of Michigan are experiencing high nitrogen input on areas with high aquifer

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[66] *See* Ervin Study (1988).
[67] *National Pollutant Discharge Elimination System*, DEP'T OF ENVIRONMENTAL QUALITY, http://www.michigan.gov/deq/0,4561,7-135-3313_3682_3713-10197--,00.html (last visited Oct. 12, 2014).
[68] *Ground Water and Surface Water: A Single Resource*, U.S. GEOLOGICAL SURVEY, 1 (1998), http://pubs.usgs.gov/circ/circ1139/pdf/circ1139.pdf (last visited Oct. 12, 2014).
[69] *Case Studies on the Impact of Concentrated Animal Feeding Operations (CAFOs) on Ground Water Quality,* ENVIRONMENTAL PROTECTION AGENCY, 2 (Sept. 2012) http://nepis.epa.gov/Adobe/PDF/P100F9DI.pdf (last visited Oct. 12, 2014).
[70] 33 U.S.C.S. § 1370 (LexisNexis 2014).
[71] MICH. ADMIN. CODE R. 323.2203(p)(i).
[72] *See Case Studies on the Impact of Concentrated Animal Feeding Operations (CAFOs) on Ground Water Quality*.
[73] *A National Look at Nitrate Contamination of Ground Water*, U.S. GEOLOGICAL SURVEY http://water.usgs.gov/nawqa/nutrients/pubs/wcp_v39_no12/ (last visited Oct. 12, 2014).

venerability.[74] High nitrate levels in groundwater can have detrimental effects on human health. Elevated nitrate levels consumed through drinking water have been linked to increased cancer rates.[75] To further protect groundwater, the general permit should require that groundwater monitoring systems be employed to determine the amount of nitrogen and other constituents that are seeping into the state's groundwater resources due to CAFO waste.

POINT 8: CONTROL GROUNDWATER USE

Additionally CAFOs use a significant amount of water. Withdrawal and depletion of groundwater by CAFOs is not considered but should be as part of the permit. Groundwater conflicts were predicted to increase nearly 15 years ago; the installation of high capacity wells by MilkSource are but one example of increased water usage that is going unchecked and depleting ground and surface water supplies. Hydrogeologic characterizations are necessary to make determinations of what are sustainable withdrawal rates from Great Lakes Basin aquifers,[76] and DEQ should commence this immediately. Additionally, pumping can change groundwater flow, which must be considered when evaluating groundwater resources.[77] ECCSCM has reported problems with groundwater use to DEQ; the south central Michigan area near Battle Creek – Jackson where ECCSCM focus much of its CAFO work has the second highest withdrawal rate in the state.[78] The IJC recommends applying a precautionary principle with respect to removal and consumptive use of groundwater.[79] In 1965, the Michigan Water Resources Commission concluded that the River Raisin (in the area ECCSCM primarily focuses its efforts) "even with the fullest possible augmentation of low streamflow….the most complete waste treatment that can be applied, if population and industries continue to grow, the waste discharges in this basin will ultimately exceed the river system's waste assimilating capacity."[80] One option for DEQ may be to limit the number of livestock allowed to be over a drinking water aquifer. Additional options include limiting CAFOs' water use to ensure Michigan's water source laws are adhered to, and charging CAFOs for their water use.

POINT 9: CHANGE CROP MANAGEMENT DEFINITIONS: (1) NO-TILL MEANS NO-TILL, AND (2) "PERENNIAL" SHOULD NOT ALLOW MANURE APPLICATIONS TO BARE GROUND

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[74] Id.
[75] *Probability of Nitrate Contamination of Recently Recharged Groundwaters in the Conterminous United States*, U.S. GEOLOGICAL SURVEY, http://water.usgs.gov/nawqa/nutrients/pubs/est_v36_no10/est_v36_no10.html#DISC (last visited Oct. 12, 2014).
[76] USGS 2000 at 4.
[77] Id. at 4, Figure 5, 7.
[78] Id. at 4, Figure 4.
[79] Id. at 10 (citations omitted).
[80] Michigan Water Resources Commission, "Water Resource Conditions & Uses In the River Raisin Basin." (1965) at 1.

(1) "No till" means No Till

According to the 2014 Draft Permit proposes to define no till practices as "No Till Practices means where the field will not receive tillage from the time of land application until after harvest of the next crop."[81] First, this is not "no till", and the Draft Permit's usage of "no till" demonstrates that DEQ does not understand that "no till" means just that. The true meaning of "no till" is that a field *never* receives tillage. Injection or incorporation are not permissible practices on no till fields. Reduced tillage has great value for soil health, and "a technique known as 'organic no-till' is becoming more popular. While proper tillage is greatly important to soil health, and it can promote runoff of sediment, fertilizers, nutrients, and pesticides into surface waters. "Tillage is a root cause of agricultural land degradation—one of the most serious environmental problems worldwide—which poses a threat to food production and rural livelihoods, particularly in poor and densely populated areas of the developing world…Furthermore, tillage can promote the runoff of sediment, fertilizers and pesticides into rivers, lakes and oceans. No-till farming, in contrast, seeks to minimize soil disruption. Practitioners leave crop residue on the fields after harvest, where it acts as a mulch to protect the soil from erosion and fosters soil productivity."[82] Thus, on no till fields, where manure is land applied, it will remain there unincorporated until after the next crop is harvested. In Michigan, we grow very few crops overwinter, thus the timing between crops is too long to allow manure to simply sit on a field. If manure is applied to a field, it must be incorporated within 24 hours, not months, 30 days, or a week.

The effect of Michigan's proposed "no till" definition does not prevent runoff, or protect water quality. Michigan's definition *still* allows for manure to be land-applied just after a harvest, then it sits unincorporated overwinter, and does not get incorporated until springtime. This is a major problem because post-harvest rains can cause runoff, frozen ground in winter will not absorb nutrients from manure that is not incorporated, and spring rains then again can cause more runoff. This is not an abstract hypothetical; the Commenters have witnessed this practice occurring.

(2) Forage Crops and Perennial Crops

The 2014 Draft Permit also proposes to universally change the word "forage crops" to "perennial crops" as it relates to manure applications. DEQ defines perennial as " a plant that has a life cycle of more than two years."[83] Forage crops are distinctly different from perennial crops when it comes to manure application issues, and DEQ's proposed changes are not ministerial. Forage crops are annuals and complete their life cycle within one year and die. Perennial crops live for more than two years.

DEQ does not provide any guiding parameters for when perennial crops should or should not be land-applied. This is a failure because there is a higher risk of contamination in field tile to

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[81] 2014 Draft Permit, Part II (A) at 24.
[82] Huggins, D. et al. "No-Till: the Quiet Revolution." Scientific American p. 70-77 (2008).
[83] 2014 Draft Permit, Part II (A) at 24.

waterways due to over application of nitrogen and phosphorus. Many of Michigan's fields are tile-drained fields.[84] Some estimates placed the number as high as 50%, the majority of which was for manure application fields.[85] DEQ's proposed changes would allow widespread and repeated manure applications *without incorporation* because incorporation would destroy the growing perennial crop. Failure to incorporate significantly increases volatilization of manure, leaves nutrients and pathogens *on the surface of the soil* dramatically increasing the chances of runoff, contamination of surface waters, and health and environmental impacts.[86] Most manures are contaminated with pathogens, nitrates, hormones, antibiotics, pesticides, disease organisms, heavy metals, and other undesirable substances that can accumulate in perennial crops.

Perennial crops also decrease both uniform applications of manure and site-specific applications. DEQ's 2014 Draft Permit does not address the fact that tile-drained fields, like many of those in Michigan, can drain nutrients and pathogens 30 minutes after applications and certain application protocols can minimize the impacts of manure applications.[87]

With increased lands to apply manure to because of perennial crop field availability, DEQ's 2014 Draft Permit opens up the door for more applications but provides no additional protections to the environment or public health. Lastly, manure applications on perennial crops can increase the chances of weeds growing in perennial crop fields, decreasing the quality of the crop. The reasons behind DEQ's proposal may be, as, the U.S. Dairy Forage Research Center identified, that land-to-animal ratios are shrinking.[88] The Commenters believe that the solution to this problem is not to increase spreading manure across the state, but to control the number of animals producing the waste in the first place.

POINT 10: TRIGGER PROTECTIONS FOR IMPAIRED WATERS NEEDED

Michigan's treatment of TMDLs in relation to CAFOs is inadequate and allows unchecked CAFO pollution to enter our sensitive waters. A recent FOIA clearly indicates that in advance of the 2009 General Permit, Michigan knew very well the TMDL issue had to be dealt with more thoroughly with yet it did not do so. This time, DEQ has continued in the same vein. The DEQ 2014 Annual Report estimates that Michigan has 1,983 river and stream miles not supporting designated uses because of "animal feeding/ handling,", 2,107 miles for "grazing", 2,036 miles for

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[84] As a testament how pervasive tile drain use is at Michigan's CAFOs, Lenawee County alone maintains over 1,500 miles of drains. *See* http://www.lenaweedrain.com.

[85] MAEAP Workgroup Paper, "Potential Downward Flow of Manure Water into Tile Lines: Mitigating a Negative Surface Water Impact" at 2 (February 4, 2004).

[86] See, e.g. "Applying Manure on Perennial Forage" (Alberta, Canada Agriculture & Rural Development) (2006) http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex10727

[87] Michael Russelle et al. "Easy does it with manure on alfalfa and grass." U.S. Dairy Forage Research Center (undated) Available at http://www.ars.usda.gov/sp2UserFiles/Place/36553000/px-based_v3.2/educ-matrls/pdfs/FS_manure-apply-perennial-forage.pdf

[88] Id.

"crop production, and 569 miles for "land application / waste sites."[89] There are § 303(d) impaired streams for E. Coli, biota, dissolved oxygen, nitrogen, and phosphorus in many CAFO areas, yet DEQ has delayed in setting TMDLs for them. Neither has DEQ offered any tailored consideration for what TMDLs are best suited to the waters receiving pollutants from Michigan's CAFOs, and waters running through CAFO areas. For example, that veterinary pharmaceuticals are used at CAFOs is a compelling reason for them to be added to Michigan's TMDL list.

TMDLs are so important to this issue because special manure application rules exist for fields and production areas that drain to 303(d) waters; but these rules are only triggered once DEQ sets TMDLs. Areas with sensitive waters, such as the River Raisin which has been on the list since 2005 and runs through an area heavily populated with CAFOs, must have TMDLs for CAFO-related pollutants. The Maumee River Watershed, like River Raisin Watershed, includes an area of concern near the outlet to Lake Erie. Upstream in Michigan, headwater tributaries of the Maumee River include CAFO country-based Bean Creek (which flows through the towns of Hudson, Medina, and Morenci where more than half of the CAFOs in Hillsdale and Lenawee Counties are located) and the St. Joe Branch of the Maumee (which travels through an area with major hog CAFOs). Of notable urgency is a TMDL for phosphorus in the south central region; this is a principal action to improve Great Lakes health and reduce nonpoint source pollution.[90] Where the River Raisin empties into Lake Erie is an Area of Concern for the U.S. EPA.[91] The AOC is a 2.6-mile portion of the river, and one-mile areas north and south of this juncture. A major source of the pollution however occurs upstream in south central Michigan, where ECCSCM focuses its observational activities of CAFOs. DEQ's current strategy for south central Michigan's Raisin Watershed, which is an area dramatically affected by CAFOs is incomplete and unjustifiably delayed.

NON-SENSICAL CHANGES IN DRAFT PERMIT

Other proposed changes in the draft permit simply do not make sense and DEQ has not yet explained how these changes can be justified. Namely:

a. **Elimination of overflows causing washout, collapse of storage structure dikes, sides walls as prohibited discharges.** A discharge is a discharge, and the examples eliminated from the 2014 Draft Permit exempt large categories of what could be enormous environmental disasters. These examples also would eliminate discharges indicative of poor storage structure integrity, thus failing to encourage CAFOs to comply with maintenance of waste storage structures.

b. **Date to attain six months' storage "may" be specified instead of <u>will</u> be specified.** Six months' storage is imperative to make it through a Michigan winter.

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[89] DEQ, "Water Quality & Pollution Control in Michigan, 2014 Sections 303(d), 305(b) and 314 Integrated Report" at 105 Table 9.8 (March 2014)

[90] White House, Great Lakes Restoration Initiative Action Plan (2010) at 30.

[91] *See* U.S. EPA Great Lakes Areas of Concern, River Raisin. http://www.epa.gov/greatlakes/aoc/river-raisin/index.html

Consistent with the Commenters' request to ban winter applications, six months' storage *must* be available.

c. **Documentation for changes "may" include soil reports, liner information, groundwater reports, pictures, surveys, etc. instead of <u>shall</u> include these items**. The 2014 Draft Permit proposed to eliminate the requirement that documentation for changes be provided. First, this information is essential for DEQ to determine whether the proposed change is allowable by law. Second, consistent with the Commenters' request that "significant changes" be public noticed, this information is necessary for the public to participate in evaluating the effect of the changes on their ecosystems, health, community, and lifestyles. Failing to require this information, and minimizing this requirement not only abdicates DEQ's responsibilities, but robs the public of its right-to-know.

d. Certified operator requirement eliminated. Elimination of the requirement that permittees' waste treatment facilities and storm water treatment and/or control measures be under the direct supervision of a certified operator does not make sense.[92] These provisions must be re-instated. Michigan's certified operator program contains two prongs: drinking water and wastewater. CAFO waste treatment facilities and storm water treatment and/or control measures fall in both of the drinking water and wastewater program areas and elimination of the requirement is contrary to Michigan's environmental and public health protections. Failure to operate a CAFO without the security, training, and education of a certified or qualified operator is wholly irresponsible. Michigan requires certified operators for other industries and indeed for smaller facilities; there is no justification why Michigan's CAFOs should be exempt. Certification training manuals already exist.[93] Certified, or qualified operators, are amongst the first line of defense in a multiple barrier system approach to protecting water. Elimination of this requirement erases the importance and responsibility individuals employed by CAFOs have to ensuring compliance with applicable laws, all the while remaining (generally) immune from liability. Additionally, waste treatment and storm water treatment / control systems at CAFOs are increasingly complicated. First, they must be engineer-certified. Second, they require regular monitoring. Third, certified operators in other water systems must undergo continuing education. It is non-sensical that millions of gallons of waste each one of the hundreds of CAFOs across the state could be overseen by just anyone without any training or background or continuing obligation to keep abreast of technical changes. This is wholly inconsistent with the Clean Water Act as the act is a technology-forcing statute. 33 U.S.C. §§ 1316(a)(1), 1317(a)(2) (CWA's best available demonstrated control technology and best available technology economically achievable). It is clear that technical familiarity and responsibility are essential components of such a system and thus certified or qualified operator requirement must be retained.[94] Certified operators must be

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[92] 2014 Draft Permit at 1, 33; MCL § 324.3110(1).

[93] *See, e.g.,* DNRE, Training Manual for Operators of Water Stabilization Lagoons (2010).

[94] This is not an argument without direct application. Several CAFOs in Michigan have announced plans to design, construct, and operate newer water systems on-site. *See, e.g.,* "Milk Source Dairies Owner Removing Manure Lagoons,"

maintained by Michigan's CAFOs to keep apace with the new technologies. Without certified operators, and continuing education requirements, DEQ's 2014 Draft Permit undermines the Clean Water Act.

DRAFT GENERAL PERMIT AND PUBLIC HEALTH

While the NPDES General Permit focuses foremost and primarily on water quality, the Clean Water Act is simultaneously a barrier against the negative impacts of polluted waters on ecosystems and on public health. The Act's prohibition to discharge pollutants is designed to protect water quality, but also human health as many pollutants are harmful or toxic to humans. The Act's first accomplishments in the 1970s and 1980s included reducing raw sewage and industrial pollution. Today, the industry polluting our waters is CAFOs. Contrary to the CWA's "no discharge" prohibition, manure from CAFOs enters surface waters harming water quality, and injuring fish and creatures dependent on these waters for life. Discharges can also enter stream and river sediments.[95] Pollutants from CAFOs including bacteria, pathogens, microorganisms, constituents from the breakdown of manure such as ammonia, nitrite, nitrate, phosphorus enter surface waters and affect the surface water environments, and degrade the quality of the water along the way. Overloading of phosphorus has been connected to toxic algae blooms in Lake Erie,[96] which appeared most recently in 2011, 2012, 2013, and 2014. This pollution also notably caused the shutdown of the water supply for thousands of people in Toledo, Ohio in 2014. The U.S. animal agriculture industry uses 80% of the antibiotics sold in the U.S.; these drugs and other veterinary pharmaceuticals, hormones, and steroids are excreted by livestock. Through the manure management systems used at CAFOs, these pollutants also escape, harming the environment and endangering public health. The negative effects of manure on ecosystems and on human health are well-documented.[97]

The Commenters make the requests above to encourage DEQ to effectuate greater water health and public health protections. During a recent Michigan FOIA request at the Department of Community Health, the Commenters were told that the MDCH's policy is to only address air issues related to CAFOs, and that DEQ addresses public health and water issues related to CAFOs. MDCH's lack of protocol for fielding inquiries from the public about CAFOs, and MDCH's outdated CAFO files are indicators that it has passed the buck for protecting public health to DEQ.

The Daily Telegram (Oct. 18, 2014) (Milk Source removing lagoons for a new recycling and sand-separation facility, and converting old lagoons to storm water storage).

[95] *See, e.g.,* U.S. EPA, "Literature Review of Contaminants in Livestock and Poultry Manure and Implications for Water Quality" (July 2013).

[96] International Joint Commission Lake Erie Ecosystem Priority, "A Balanced Diet for Lake Erie: Reducing Phosphorus Loadings and Harmful Algal Blooms." (February 2014); Ohio EPA, "Ohio Lake Erie Phosphorus Task Force Final Report" (April 2010).

[97] *See, e.g.*, U.S. EPA "Ag 101- Pathogens" (2012) available at http://www.epa.gov/agriculture/ag101/impactpathogens.html; Pew Commission on Industrial Farm Animal Production, "Putting Meat on the Table: Industrial Farm Animal Production in America" (2008) (available at http://www.ncifap.org/_images/PCIFAPFin.pdf); Center for a Livable Future, "Industrial Food Animal Production in America" (2013); Natural Resources Defense Council, "Cesspools of Shame" (2001).

The Commenters simply ask that DEQ fulfill the public health protections afforded to the public by the Clean Water Act.

CONCLUSIONS

Simply put, the Commenters seek solution-focused changes to the 2014 Draft Permit.

1. Ban manure application on frozen ground and snow-covered ground to eliminate risk of discharges in these conditions.
2. Equally treat CAFOs, requiring (a) universal permit coverage for large *and* medium CAFOs, and (b) the same reporting requirements for manifested waste as for CAFO waste to track environmental and public health impacts of waste.
3. Favor precipitation event reporting over rainfall reporting to reduce risks of discharge.
4. Strengthen manure and soil testing requirements to obtain meaningful results for agronomic rate determinations, crop yields, and escapement of CAFO pollution to waters.
5. Add public participation to all "significant" facility changes so affected communities can be heard on issues influencing their health and environment.
6. Strengthen surface water monitoring to obtain meaningful results.
7. Strengthen groundwater monitoring to track efficacy of manure management systems and identify groundwater pollution before it reaches drinking water sources.
8. Begin tracking CAFOs' groundwater resource use to protect our state's most valuable resource.
9. Clarify "no-till" definition to *mean* no-till.
10. Trigger 33 U.S.C. §1313(d) (aka 303(d)) protections for waters.

We appreciate your consideration in this matter and hopes that the DEQ will take the above items into account before a draft NPDES general permit for CAFOs is issued for public notice and comment. We expect that DEQ will continue to consider water quality concerns to further protect Michigan's precious water resources.

Sincerely Yours,

On behalf of Environmentally Concerned Citizens of South Central Michigan, the Socially Responsible Agriculture Project, and the Sierra Club Michigan Chapter.

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(CD contains the most relevant documents; it does not include DEQ's own records or other states' laws or regulations which are referenced in the Comments submitted by ECCSCM, SRAP, and the Sierra Club (Michigan Chapter))

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