

EXHIBIT A

9/20/19

Zimba Main Farmstead Production Area Map

North Storage Pond

New Hoop Building

Sand/Concrete Storage Pond

South Storage Pond

Silage Storage

Barn 2

Barn 1

Silage Storage

Cow Barns

Milking Parlor

Calf Barn

New Barn

Calf Hutches

Calf Hutches

Equipment

Calf Shed

Calf Hutches

Calf Shed

Barn Push Out Storage

North Small Storage

South Small Storage

Shop

Zimba Dairy

N Lenton Rd

N Lenton Rd

Mushroom Rd

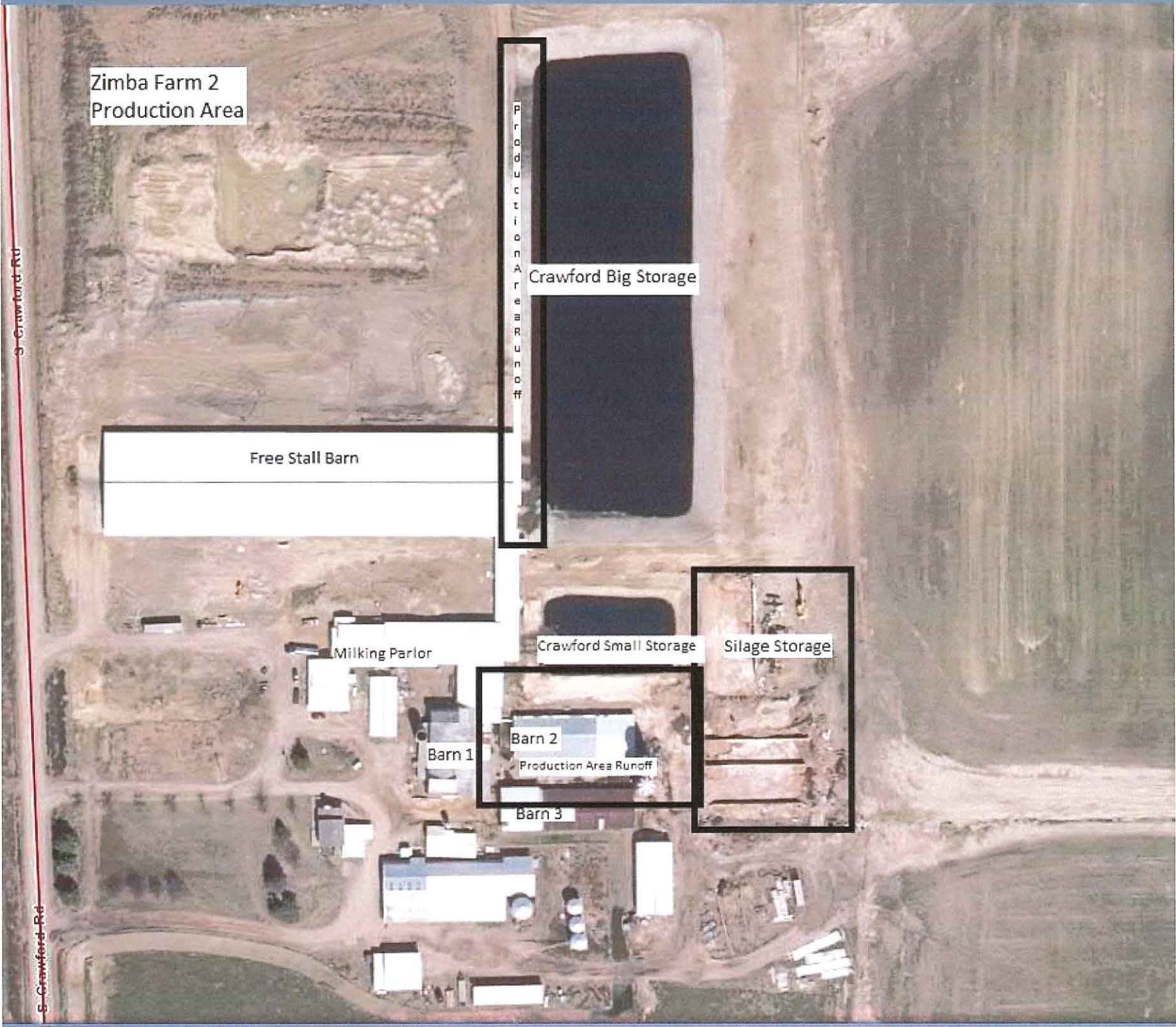
Mushroom Rd

Mushroom

Imagery Date: 9/17/2019 43°29'17.25" N 83°06'38.13" W

Image © 2023 CNES / Airbus

EXHIBIT B



Zimba Farm 2
Production Area

Crawford Big Storage

Free Stall Barn

P
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A
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a
R
u
n
o

Milking Parlor

Crawford Small Storage

Silage Storage

Barn 1

Barn 2

Production Area Runoff

Barn 3

S Crawford Rd

S Crawford Rd

EXHIBIT C

5/2016

Zimba Heifers (Coop)
Production Area Map

North Manure Stack

Shed 1

Shed 2

Storage Barn

Shed 3

Shed 4

Coop Pit

South Manure Stack



EXHIBIT D

1985 4/2020 2020

Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the distance or area of a geometric shape on the ground

Perimeter: 1,770.19 Feet

Area: 2.94 Acres

Mouse Navigation Save Clear

Image © 2023 CNES / Airbus

Google E

EXHIBIT E

Partial Map of Impacted Resources at Zimba Dairy Identified by EGLE

McCallum Drain Branch No. 2

McCallum Drain

Legend



- Identified_Stream_Section
- Identified_Wetland_Section
- Identified_Wetland_Section_2
- Impacted Resources

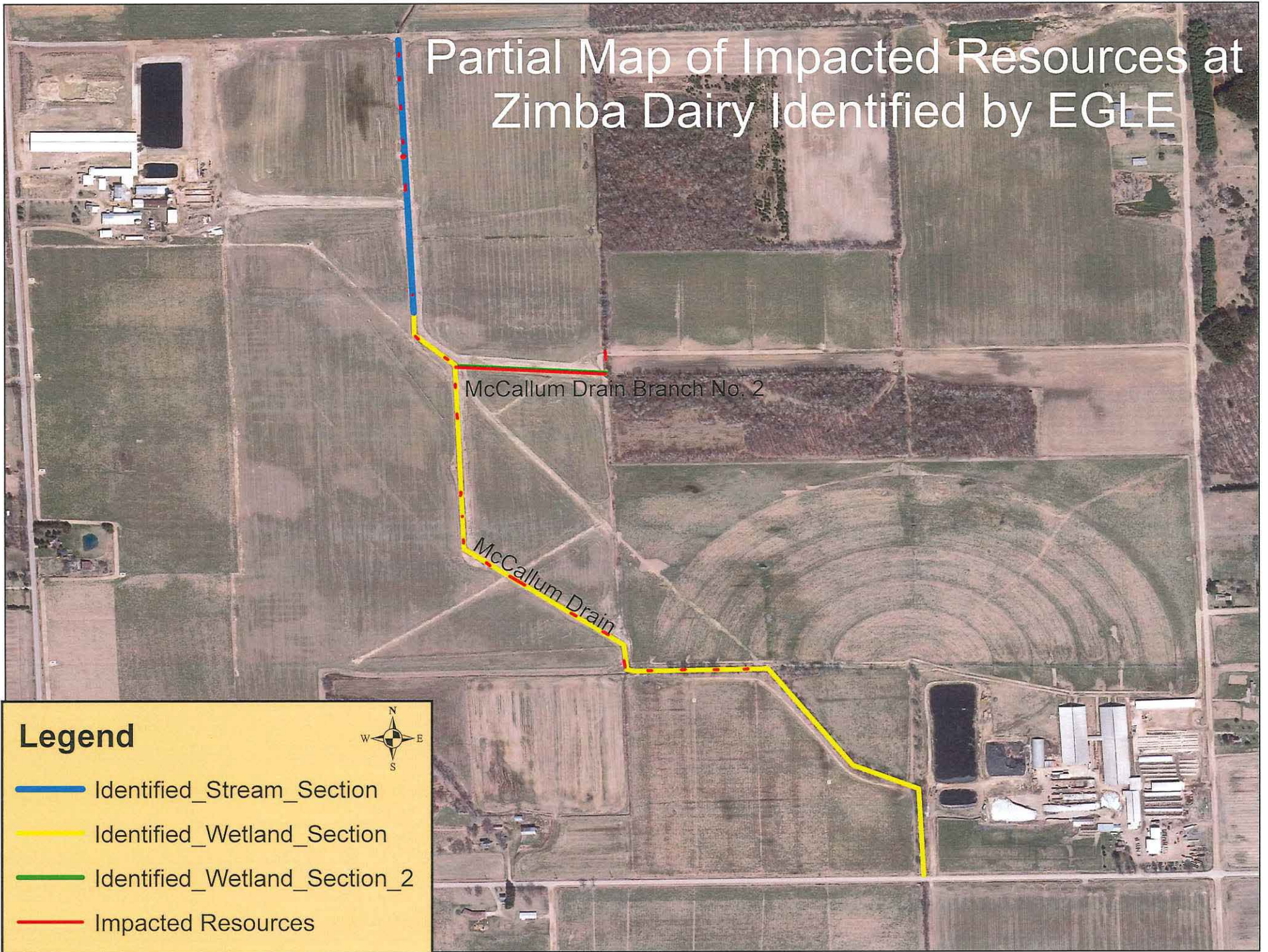


EXHIBIT F



JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
SAGINAW BAY DISTRICT OFFICE



STEVEN E. CHESTER
DIRECTOR

April 22, 2005

Mr. Ed Zimba
Zimba Farms
7995 Mushroom Road
Deford, Michigan 48729

SUBJECT: Zimba Farms, March 17, 2005, Complaint Follow-up

Dear Mr. Zimba

This letter details the results of a site inspection conducted by the Department of Environmental Quality (DEQ), Water Bureau (WB), on March 17, 2005. The inspection was in response to a complaint reported to the WB, Saginaw Bay District Office on August 22, 2004. The complaint described an alleged discharge of manure to Mud Creek which resulted in a fish kill. Immediate follow-up on this complaint did not find a source of pollution, but concern regarding your farm was raised. In an effort to clear up this concern, we notified the Michigan Department of Agriculture (MDA), Right to Farm Program and requested that a joint inspection be conducted. Mr. Gene Suoppi, WB, DEQ, and Ms. Kristin Linderman, MDA, were present during the inspection.

At the time of the inspection, several small conveyance channels were noted that were intended to drain stormwater from your farmstead to the roadside ditch. Many of the areas drained by these conveyances have manure or silage on them. This may result in the discharge of polluted stormwater to the roadside ditch. Two areas are of particular concern: 1) Runoff from the feedlot area down a grassed swale to the roadside ditch, and 2) Runoff from the manure hauling area near the manure lagoon through several small channels to the roadside ditch.

We discussed the need to put some type of berm on the down slope of the feedlot area to direct the storm water from this area back toward a crock that will collect the runoff and pump it through a tile line back to your manure pit. Collecting this additional storm water will increase the volume of wastewater to your manure lagoon. Please evaluate the need to increase your lagoon capacity, and re-evaluate your spreading plan to ensure you have enough acreage to adequately manage these wastes.

We also discussed the need to eliminate the small channels that convey storm water from your manure hauling area. Clean water should be diverted from this area, where possible, to eliminate the potential for contact with the manure. Further, it was noted during the inspection that you have waste materials piled near the roadside ditch on the Northeast side of your property. There is a great potential for runoff from these residuals to the ditch. Please find a better location for these materials where the potential for runoff will be minimized.

While reviewing your manure lagoon we noted that you did not have a way to measure the volume of manure in the lagoon. We strongly recommend that you install a gauge to ensure that you have adequate freeboard.

Mr. Ed Zimba
Page 2
April 22, 2005

This becomes particularly important when you add the additional storm water contribution from the feedlot runoff to this lagoon. It was also pointed out that you have a direct connection from a nearby bathroom to the manure lagoon.

I have contacted the Huron County Health Department related to this issue, and they should be following up on this with you in the near future.

While we did not review your land application practices, it appears that you have adequate acreage to spread on (2,700 acres), and that your spreading rate (3,000-6,000 gallons/acre) and set back distances from nearby ditches (50 feet) is reasonable to prevent overland runoff.

Based on our inspection, we have no information to lead us to believe that your practices resulted in the problems identified in the August 22, 2004 complaint related to the Mud Creek fish kill. Our inspection did, however, point out a number of areas for improvement of farm practices. It was stated during the inspection that you planned on developing a Comprehensive Nutrient Management Plan (CNMP) for your facility. We strongly recommend that you move forward with the development of this plan. Further, we believe that addressing the areas noted in this letter should prevent discharge of polluted storm water from your facility.

Thank you for your time and cooperation during our investigation. If you have any questions regarding our letter please contact me at 989 686-8025, Ext 8261.

Sincerely,

Charles Bauer
Environmental Quality Analyst
Field Operations Division
Water Bureau
989-686-8025 ext. 8261

cc: Ms. Kristin Linderman, MDA
Tuscola County Health Department
Ms. Janna Sebald, Field Ops-Enforcement, WB, DEQ-Lansing Office
Ms. Ronda Wuycheck, Field Operations, WB, DEQ-Lansing Office

EXHIBIT G



JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
SAGINAW BAY DISTRICT OFFICE



STEVEN E. CHESTER
DIRECTOR

March 24, 2006

CERTIFIED MAIL 7005 1160 0000 1669 6510

Mr. Edward A. Zimba
Zimba Dairy Farm
7995 Mushroom Road
Deford, Michigan 48729

Dear Mr. Zimba:

SUBJECT: **NOTICE LETTER: NL-001878**
Unpermitted Discharge of Manure/Leachate and Silage Leachate
to Mc Callum Drain.

This letter details the results of a March 13, 2006, site inspection of the Edward Zimba Dairy (SE1/4 of Section 1, Kingston Township, Tuscola County) conducted by the Department of Environmental Quality (DEQ), Water Bureau (WB) staff. The inspection was a follow up inspection to determine if improvements have been made at the dairy in response to a letter written by the DEQ, WB to Mr. Zimba April 22, 2005.

The April 22, 2005, letter was written documenting the findings of a site inspection conducted on March 17, 2005. The April 22, 2005, letter details deficiencies at the dairy, itemizes improvements the water bureau required, and describes potential manure pile and barnyard runoff discharging to a Mushroom Road ditch.

During the site inspection performed on March 13, 2006, a discharge to a nearby roadside ditch was confirmed. The manure piles to the east of the freestall barn contributed polluted runoff that conveyed through several gullies directly to the roadside ditch along Crawford Road. The roadside ditch drains to Mc Callum Drain. Furthermore, the silage storage area, and cow pens had significant polluted runoff running west across the pasture into Mc Callum Drain. The pasture to the south of the young heifer barn has erosion gullies directly to the roadside ditch. The milkhouse waste is currently being pumped onto the ground to the east of the milk parlor. The milkhouse waste needs to be pumped to the Waste Storage Structure. You currently have an illegal sewer connection routed to your Waste Storage Structure. This sewer needs to go to a health department approved septic system, or you must get approval from the Tuscola County Health Department for this type of connection.

During the inspection it was noted that deceased cows were improperly disposed of. Dead animals need to be buried or picked up by a rendering facility within 24 hours of death. The discharges described above are a violation of Part 31, Water Resources

Mr. Edward A. Zimba
Page 2
March 24, 2006

Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Specifically, Section 3109 (1) of Part 31 states:

“It shall be unlawful for any person directly or indirectly to discharge into the waters of the state a substance that is or may become injurious to domestic, commercial, industrial, agricultural, recreational, or other uses which are being or may be made of such waters; or which is or may become injurious to the value or utility of riparian lands; or which is or may become injurious to livestock, wild animals, birds, fish, aquatic life, or plants or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired.”

Further, the Edward Zimba Dairy may be subject to the remedies provided in Section 3115 of Part 31. The Edward Zimba Dairy has the responsibility to prevent the discharge of manure, silage, and polluted runoff to the waters of the state and for subsequent control and clean up of any discharges. Therefore, the Edward Zimba Dairy is directed to submit a long term plan to this office by **May 1, 2006**, that will ensure the manure area, silage storage area, and the barnyard at this facility will not result in future discharges.

You shall immediately remove stockpiled manure adjacent to production areas and properly land apply it. Additionally manure stock piling cannot be practiced adjacent to Crawford Road. Furthermore, you shall berm the south side of the pasture and barnyard to stop all runoff to all roadside ditches. You shall immediately adhere to the Bodies of Dead Animals Act, a brochure is enclosed with this letter. It is imperative that there are no additional discharges to waters of the state from the Edward Zimba Dairy or its operations. This will be verified by routine inspections by the DEQ.

BE ADVISED that failure to comply with the terms of this Notice Letter may result in further enforcement actions.

Sincerely,

Colby Cottick
Senior Environmental Quality Analyst
Water Bureau
989-686-8025, Extension 8273

Enclosure

cc: Ms. Ronda Wuycheck, Program Coordinator, DEQ, WB, Lansing
Mr. Barry Selden, DEQ, WB, Enforcement Unit, Lansing
Mr. Jon Bloemker, Supervisor, DEQ, WB, Saginaw Bay District Office

EXHIBIT H

**STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU**

IN THE MATTER OF:

NNC No. NC-000155

Zimba Dairy Farm
7995 Mushroom Road
Deford, Michigan 48729

NOTICE OF NONCOMPLIANCE

CERTIFIED MAIL 7005 0390 000 9710 3954

TO: Mr. Edward A. Zimba
Zimba Dairy Farm
7995 Mushroom Road
Deford, Michigan 48729

Dear Mr. Zimba:

SUBJECT: **NOTICE LETTER: NC-000155**
Unpermitted Discharge of Manure/Leachate

On March 13, 2006, the Department of Environmental Quality (DEQ), Water Bureau (WB) staff conducted a site inspection of the Edward Zimba Dairy (Dairy), SE1/4 of Section 1, Kingston Township, Tuscola County. The inspection was to determine if improvements had been made at the Dairy in response to a letter written by the WB to Mr. Edward Zimba on April 22, 2005.

The April 22, 2005, letter documented the findings of a site inspection conducted on March 17, 2005. The letter described potential manure pile and barnyard runoff discharging to a Mushroom Road ditch, and requested certain improvements at the dairy.

During a subsequent site inspection, performed on March 13, 2006, several deficiencies including several discharges to the waters of the state were discovered. As a result, Notice Letter NL-001878 was written requiring a compliance plan.

The WB received a written compliance plan dated June 7, 2006, submitted for the Dairy by Wilcox Associates. The letter addressed all of the deficiencies in Notice Letter NL-001878. The compliance plan also outlined the actions to be taken, and facilities to be installed to prevent further discharges to the waters of the state.

On August 3, 2006, the WB performed another facility inspection, Mr. Clifford Maust with Dennings and Associates, Mr. Eric Rupprecht with Wilcox Associates, and you were present. At the time of this inspection, the manure Waste Storage Structure (WSS) had zero freeboard, and was weeping over its berms. Furthermore, during this inspection, the silage storage area leachate was flowing west across the pasture towards McCallum Drain. At the time of this inspection, you were warned that a failure to make certain improvements may result in escalated enforcement.

On September 28, 2006, WB staff performed an inspection at your facility to determine if previously identified or similar problems were reoccurring. At the time of this inspection, the WSS had approximately 24" of freeboard. To accommodate emergencies or wet weather conditions, 18" of freeboard is required. The WSS located at the Dairy's south location had no freeboard and was full of ethanol waste product and manure. There was also manure/ethanol waste spilled on the ground on the east end of the WSS. The WB expressed concerns that you were unable to manage manure generated from your own farm operations, let alone receive outside waste. You stated that you knew it was full and had plans to apply in the next week.

On January 8, 2007, WB staff performed another inspection of your facility. At the time of this inspection, the WSS located at your south facility was full of manure/ethanol waste; there was approximately 6" of freeboard. Spilled waste was on the ground at the east end of the WSS. At the north Dairy facility, the WSS had approximately 6" of freeboard. It was also noted that a small drainage ditch had been dug around the perimeter of the northern WSS. This ditch conveyed polluted runoff to the Lampton roadside ditch that connects to the Mushroom Road ditch, and terminates into McCallum Drain. Water samples were collected to verify nutrient loading to the Lampton Road Ditch. At the time of this inspection, the temporary Silage/Barnyard WSS was full and backing up into the barnyard, and was overflowing into the pasture adjacent to McCallum Drain.

The above discharges are a violation of Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). Specifically, Section 3109 (1) of Part 31 of the NREPA states:

"It shall be unlawful for any person directly or indirectly to discharge into the waters of the state a substance that is or may become injurious to domestic, commercial, industrial, agricultural, recreational, or other uses which are being or may be made of such waters; or which is or may become injurious to the value or utility of riparian lands; or which is or may become injurious to livestock, wild animals, birds, fish, aquatic life, or

plants or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired.”

Further, the Dairy may be subject to the remedies provided in Section 3115 of Part 31 of the NREPA. The Dairy has the responsibility to prevent the discharge of manure, silage, and polluted runoff to the waters of the state and for subsequent control and clean up of any discharges. Therefore, the Dairy is directed to submit a long-term plan to this office by **March 15, 2007**, that will ensure the manure area, silage storage area, and the barnyard at this facility will not result in future discharges.

You shall immediately comply with Part 31 of the NREPA, specifically Section 3109 (1).

BE ADVISED that failure to comply with the terms of this Notice may result in further enforcement actions.

FURTHER BE ADVISED that compliance with the terms of this Notice does not constitute a release for waiver of liability for past or continuing violations of Part 31 of the NREPA.

**STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY**

Date Issued: February 13, 2007

Jon W. Bloemker, P.E.
District Supervisor
Saginaw Bay District
Water Bureau
989-686-8025, Extension 8380

ADDRESS FOR FURTHER CORRESPONDENCE:

Colby J. Cottick
Saginaw Bay District
Water Bureau
503 North Euclid Avenue, Suite 1
Bay City, Michigan 48706-2965

EXHIBIT I



STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT

SAGINAW BAY DISTRICT OFFICE

JENNIFER M. GRANHOLM
GOVERNOR

REBECCA A. HUMPHRIES
DIRECTOR

March 16, 2010

CERTIFIED MAIL 7006 0100 0000 3758 4490

Mr. Edward Zimba
Zimba Farms
7995 Mushroom Road
Deford, Michigan 48729

SVN No. VN-004421

Dear Mr. Zimba:

SUBJECT: Second Violation Notice - SVN-004421

The Department of Natural Resources and Environment (DNRE), Water Bureau (WB), issued a Violation Notice, (VN-004421) on February 5, 2010, in response to violations of Part 31, Water Resources Protection, and the Rules promulgated thereunder, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Zimba Farms submitted a response to the Violation Notice indicating certain corrective acts would be implemented to prevent a reoccurrence of the discharges. However, a reinspection on March 20, 2010, of the land application site where the violation occurred, once again was discharging manure to White Creek.

In accordance with the terms of Part 31 of the NREPA, Section 324.3109(1), which states in part: "*A person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to any of the following:*

- (a) *To the public health, safety, or welfare.*
- (b) *To domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters.*
- (c) *To the value or utility of riparian lands.*
- (d) *To livestock, wild animals, birds, fish, aquatic life, or plants or to their growth or propagation.*
- (e) *To the value of fish and game."*

Please submit a written compliance plan to this office by April 16, 2010. At a minimum, the response shall include:

What Zimba Farms is going to do to ensure there are no more discharges of agricultural waste to waters of the state.

Mr. Edward Zimba

Page 2

March 16, 2010

If you have any factual information you would like to share with us regarding the violations identified in this Notice, please provide them with your written response.

The DNRE reserves its right to take all necessary and appropriate enforcement actions for all violations observed to date and any violations that occur in the future. This may include civil action seeking fines, enforcement costs and injunctive relief, and potential criminal prosecution.

Due to the severity and repetitive nature of the noncompliance, the matter is being evaluated for escalated enforcement.

If you have any questions regarding this Notice or if you would like to arrange a meeting to discuss it, please contact Mr. Colby Cottick at 989-894-6271.

Sincerely,

Jon W. Bloemker, P.E.
District Supervisor
Saginaw Bay District Office
Water Bureau
989-894-6265

cc: Ms. Carrie Monosmith, DNRE, WB, Lansing
Mr. Barry Selden, DNRE, WB, Enforcement Unit, Lansing

EXHIBIT J



STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT
SAGINAW BAY DISTRICT OFFICE

JENNIFER M. GRANHOLM
GOVERNOR

REBECCA A. HUMPHRIES
DIRECTOR

May 19, 2010

Notice No. EN-000096

CERTIFIED MAIL 7006 0100 0000 3758 4513

Mr. Edward Zimba
Zimba Farms
7995 Mushroom Road
Deford, Michigan 48729

Dear Mr. Zimba

Subject: **Enforcement Notice - EN-000096**
Zimba Farms
7995 Mushroom Road
Deford, Michigan 48729

The Department of Natural Resources and Environment (DNRE) (formerly the Department of Environmental Quality), Water Bureau (WB), Saginaw Bay District Office is pursuing an escalated enforcement action for violations of law by Zimba Farms as set forth herein.

This enforcement action is to resolve the discharge of manure to White Creek on February 2, 2010, and March 20, 2010. The discharge occurred after the land application of manure on frozen and snow-covered ground without observing proper setbacks to down gradient surface waters, nor incorporation of the waste into the soils.

Zimba Farms is hereby notified that the violations identified in this Enforcement Notice are violations of Section 3115 of Part 31, Water Resources Protection, and the Rules promulgated thereunder, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

The violations identified herein, as well as any additional violations discovered hereafter must be formally resolved through entry of an Administrative Consent Order (ACO). The ACO will include an agreed-upon compliance program to resolve the WB's allegations, any additional requirements, and a civil fine. Negotiations to resolve this matter through an ACO shall not exceed 90 days.

Mr. Edward Zimba

Page 2

May 19, 2010

The DNRE reserves its right to take all necessary and appropriate enforcement actions for all violations of Part 31 of the NREPA that have occurred to date and any violations of Part 31 that may occur in the future. These actions may include, but are not limited to, seeking civil fines, injunctive relief, natural resources damages, all costs associated with this enforcement action, including attorney costs and any other relief available to the DNRE.

You may request a preliminary meeting with the DNRE, WB enforcement staff to discuss the issues detailed in this Enforcement Notice. If you would like to participate in such a meeting, please contact Mr. Colby J. Cottick at 989-894-6271 not later than ten (10) days from your receipt of this Enforcement Notice. Otherwise, a draft ACO will be sent to you shortly.

**State of Michigan
Department of Natural Resources and Environment
Water Bureau**

Date Issued: _____

Jon W. Bloemker
Supervisor
Saginaw Bay District Office
Water Bureau

Address for further correspondence:

Mr. Colby J. Cottick
Saginaw Bay District Office
Water Bureau
401 Ketchum Street
Bay City, Michigan 48708

cc: Ms. Carrie Monosmith, DNRE, WB, Lansing
Mr. Colby J. Cottick, DNRE, WB, Saginaw Bay District Office (electronic copy)

EXHIBIT K



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



DAN WYANT
DIRECTOR

November 4, 2013

Mr. Ed Zimba
Zimba Dairy, Inc.
7995 Mushroom Road
Deford, Michigan 48729

Dear Mr. Zimba:

SUBJECT: Notice of Termination of Administrative Consent Order No. ACO-000096

The Department of Environmental Quality (DEQ), Water Resources Division (WRD), has reviewed your October 11, 2013, request for termination of the Administrative Consent Order No. ACO-000096 (ACO) entered into by the DEQ and Zimba Dairy. The DEQ accepts Zimba Dairy's October 11, 2013, request for termination which certified that all of its obligations under the ACO have been met, and thus hereby terminates the ACO in recognition of the resolution of the matters therein.

Be advised that this Notice of Termination does not in any way release Zimba Dairy from any of its obligations under the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; MCL 324.301 et seq., for past or future conduct not specifically addressed by the terminated ACO.

The DEQ appreciates the effort Zimba Dairy expended in meeting the terms of the ACO and doing its part to protect public health and the environment. Should you have any questions regarding this Notice of Termination, please feel free to contact Mr. Gene Suuppi, Saginaw Bay District Office, WRD, at 989-894-6276, or you may contact me.

Sincerely,

William Creal, Chief
Water Resources Division
517-284-5470

cc: Mr. Barry H. Selden, DEQ
Mr. Brian Rudolph, DEQ
Mr. Gene Suuppi, DEQ

EXHIBIT L



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
Saginaw Bay District Office



C. HEIDI GREYER
DIRECTOR

June 29, 2018

CERTIFIED MAIL: 7011 1570 0001 9652 3778

Mr. Edward Zimba
Zimba Farms
7995 Mushroom Road
Deford, Michigan 48729

Dear Mr. Zimba:

SUBJECT: Concentrated Animal Feeding Operation (CAFO) Permit

It has come to the attention of the Department of Environmental Quality (DEQ), Water Resources Division (WRD), that your farm located at 7995 Mushroom Road, Deford, Michigan, and any associated satellite facilities, may be a farm of the size that would require you to obtain a CAFO National Pollutant Discharge Elimination System (NPDES) permit as administered by the DEQ, WRD. The DEQ has sufficient evidence to believe this to be the case and therefore the reason for this communication. There are a few options to move forward as outlined below:

- 1) Submit a complete NPDES application for a CAFO permit by September 28, 2018.
- 2) Submit a No Potential To Discharge request by July 31, 2018.
- 3) Submit proof the farm does not meet the minimum size requirements required for a CAFO permit.

Please provide a response to this letter accompanied by the completed "Statement of Animal Feeding Operation Status" form attached, by July 15, 2018, indicating how you would like to proceed. If you do not believe you need a permit, please provide us with a few dates and times within the next 60 days when we could conduct an inspection at your facility to verify this information. Please be advised that state law allows representatives of the DEQ to enter property at all reasonable times for the purpose of inspecting and investigating conditions relating to the pollution of any waters of the state.

Thank you for your cooperation with this matter. Should you have any questions or would like to schedule a meeting to discuss this letter, please contact me at 517-242-1193 or schwinga1@mi.gov.

Sincerely,

Audrey Schwing
Environmental Quality Analyst

cc: Mr. Charlie Bauer, DEQ (electronic)
Ms. Renee Davis, DEQ (electronic)

EXHIBIT M

North Branch White Creek Fish Community and Fishery Damage Assessment

The purpose of this document is to provide an estimate of the fish mortality and monetary damages needed to recover the fish community following contaminated runoff entering North Branch White Creek. This report provides estimated replacement costs for fish only and does not include replacement costs for any other aquatic organisms. Additionally, no reliable methodology exists to estimate the ecological value of these species existing in this stream and promoting natural ecosystem function, therefore this calculation was not completed.

The Michigan Department of Natural Resources (MDNR) Fisheries Division conducted a fisheries damage assessment of North Branch White Creek on 13 September 2021 after being notified by MDNR's Law Enforcement Division of a mortality event. Using a combination of fisheries data and standardized methods, our estimate for the fisheries damage using replacement costs is \$49,497.73.

Site description

North Branch White Creek is one of two branches which form the mainstem of White Creek, a tributary to the Cass River (Figure 1). The North Branch White Creek watershed encompasses 79 square miles across Tuscola and Sanilac counties. Within the watershed, 147 miles of tributaries drain into the mainstem of White Creek. North Branch White Creek originates about five miles north of the City of Marlette. The creek flows north, then west, before converging with South Branch White Creek, east of the City of Caro, to produce White Creek (Figure 1).

Fish Population Description

North Branch White Creek has a diverse fish community typical to the area and supports coolwater and warmwater species assemblages, dominated by cyprinidae and etheostomidae, including Blacknose Dace, Bluntnose Minnow, Blackside Darter, Creek Chub, Common Shiner, Central Stoneroller, Barred Fantail Darter, Greenside Darter, Hornyhead Chub, Johnny Darter, Central Mudminnow, and Rainbow Darter. In addition, various catostomid species are also present in North Branch White Creek, including White Sucker, Golden Redhorse, and Northern Hog Sucker. Green Sunfish, Northern Pike, Rock Bass, Smallmouth Bass, Stonecat, and Yellow

Perch have also been documented in North Branch White Creek in limited numbers. A list of fish species found in North Branch White Creek as reported through recent surveys (Leonardi 2009, 2018), and their respective scientific names, is detailed in Table 1.

Several of the fish species present in North Branch White Creek serve as glochidia (mussel larvae) hosts for freshwater mussels. The mussel life cycle depends on the presence and health of host fish species to ensure glochidia survive and grow to adults (Watters and O'Dee 2011; Rock et al. 2022). Observations from 2004 in the Conservation Area Review Application document mussel species of concern (SC) and threatened mussels (T) along reaches of White Creek, downstream of the incident detailed in this report. Johnny Darter is a host species for Slippershell (T; Freshwater Mussel Host Database 2017). Blackside Darter, Greenside Darter, and Rainbow Darter are host species for Ellipse (SC) and Rainbow (SC; Freshwater Mussel Host Database 2017). Barred Fantail Darter, Blackside Darter, Bluntnose Minnow, Central Stoneroller, Common Shiner, Creek Chub, Hornyhead Chub, Northern Hog Sucker, Northern Pike, Smallmouth Bass, Stonecat, White Sucker, and Yellow Perch are host species for Fluted-shell (SC; Freshwater Mussel Host Database 2017).

Incident Description

This report is in response to an incident that was first reported on 12 September 2021. Josh Wright, MDNR Tuscola County Conservation Officer, received a complaint on 12 September 2021 from Tuscola County Dispatch reporting there were thousands of dead fish near the address of 5410 Shabbona Road, Novesta Township, Tuscola County. Officer Wright arrived at North Branch White Creek at the Phillips Road stream crossing that afternoon, where he observed dead fish floating in and on the bottom of the stream. He proceeded upstream to each road stream crossing to look for additional dead fish; he observed dead fish at McArthur Road, North Cemetery Road, North Englehart Road, Crawford Road, Shabbona Road, and Deckerville Road (Figure 1). Based on photographs Officer Wright submitted to Fisheries Division, it appears there were between 1 and 100 dead fish at each site, with lower numbers occurring further upstream in his investigation (Figure 2; Figure 3; Figure 4). It began raining during Officer Wright's investigation, which can be observed in his photographs; this likely transported some dead fish further downstream between the time of his observations and my follow up investigation the next day (Figure 3; Figure 4).

Fisheries Division Observations

Law Enforcement Division passed along Officer Wright's notes to Fisheries Division on 13 September 2021. Upon receiving notification, I contacted Audrey Schwing with the Michigan Department of Environment, Great Lakes, and Energy's Water Resources Division to arrange an on-site meeting for that afternoon. Ms. Schwing and I met at the intersection of North Crawford Road and East Gilford Road at approximately 16:30. From there, we traveled to the road stream crossing at East Deckerville Road. Ms. Schwing deployed a handheld dissolved oxygen (DO) meter to determine the DO level at that site. The DO reading at East Deckerville Road (N 43.5154, W -83.1164) was below 3 mg/L, indicating DO was severely limited in the stream and the cause was upstream. Dissolved oxygen concentrations below 2-3 mg/L are considered hypoxic and can be lethal to fish (Magaud et al. 1997; Arend et al. 2010; Roberts et al. 2011).

We then traveled to the next upstream crossing site at North Lamton Road (N 43.5052, W -83.1097). The DO level at this location was above 6 mg/L. This data indicated the upstream boundary of the affected area. From this stream crossing we observed mounds of unidentifiable material adjacent to the stream which we thought might be contributing to the low DO levels we observed. We traveled along an access road toward the mounds to determine their composition. As we approached the site, we observed leachate from the mounds entering North Branch White Creek (Figure 5); the site of this leachate was 6.9 mi upstream from the initial observations by Officer Wright at 5410 Shabbona Road, Novesta Township, Tuscola County. Moreover, we visually identified the mounded material as agricultural waste; there was also evidence of animal remains present. Leachate from agricultural waste can lead to a lethal environment for fish if it meets surface water. Agricultural waste leachate has a high biological oxygen demand and quickly uses up the available oxygen in surface water, creating a hypoxic system with low DO, or even an anoxic environment devoid of DO (Loehr 1974; Loehr 1977). Using map applications and aerial imagery we estimated the agricultural waste storage area spanned approximately 3 acres. The material was being stored at a higher elevation than the surrounding field with no structures in place to prevent leachate from entering North Branch White Creek.

After gathering information and photographs at this site, at 19:15 I traveled downstream to the road crossings where Officer Wright previously observed dead fish. In total, I documented dead fish at four road crossings (Table 2, Figures 6, 7, 8, and 9). Species were visually identified

and counted from the road. During this portion of my investigation, I spoke with one property owner who lived adjacent to the Englehart Road crossing (N 43.5339, W -83.1512). The citizen explained seeing “thousands” of dead fish along the streambank over the weekend but described how they had all washed away with the heavy rains over the past 48 hours. At the Englehart Road crossing, I observed primarily minnows of various species, a few panfish and suckers, and one Northern Pike. Based on the citizen’s account of the previous few days, it seemed that most of the dead fish had already been pushed downstream by the previous days’ high discharge rain event. The United States Geological Survey has a stream monitoring station along the Cass River in Wahjamega, Michigan, downstream of the confluence between White Creek and the Cass River. The estimated height of the Cass River before this rain event was approximately 3.1 ft on 12 September 2021, and it increased to approximately 3.5 ft on 13 September 2021, an increase of over 4.5 in (Figure 10). Additionally, the Tuscola Area Airport Weather Station recorded 1.4 in of rainfall on 12 September 2021, and this rain event likely transported dead fish downstream before I investigated these sites the following day. Fading light and an approaching thunderstorm also prevented me from traveling to all seven sites where Officer Wright had previously observed dead fish.

Fisheries Damage Estimate

A combination of survey data and replacement costs from Southwick and Loftus (2017) were used to estimate damage to the fisheries resource in North Branch White Creek. The total fish community was likely lost along 11.5 mi of North Branch White Creek from the site of contaminated runoff entering North Branch White Creek, to the confluence with South Branch White Creek, where the leachate would have become diluted enough to no longer result in a lethal environment. Relative abundance (number/mi or lb/mi) for this reach was estimated by extrapolating catch data from a 2018 survey by the Fisheries Division which sampled along an 800-ft reach of North Branch White Creek, approximately 1.3 mi downstream of the original complainant’s address (Leonardi 2018). Pooled species density estimates were used for suckers and redhorse, minnows, darters, and sunfishes. Replacement costs (by species, by inch group) were estimated using values reported by Southwick and Loftus (2017) with adjustments to represent the current market price for fish species raised in Michigan (Table 3). The average

market price increase from Southwick and Loftus (2017) to the current market price was 263%. The estimated total replacement cost is \$49,497.73 (Table 4).

Ecological and existence values and ecosystem services provided by species have not been estimated. Cost for Fisheries Division staff to complete this field assessment were estimated to be \$195.50. Furthermore, data was not collected for any invertebrate or freshwater mussel mortality from this incident.

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Table 1. List of fishes present in North Branch White Creek. Data from Fisheries Division records.

Common Name	Scientific Name
Black Bullhead	<i>Ameiurus melas</i>
Blacknose Dace	<i>Rhinichthys obtusus</i>
Blackside Darter	<i>Percina maculata</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluntnose Minnow	<i>Pimephales notatus</i>
Central Mudminnow	<i>Umbra limi</i>
Central Stoneroller	<i>Campostoma anomalum</i>
Common Shiner	<i>Luxilus cornutus</i>
Creek Chub	<i>Semotilus atromaculatus</i>
Barred Fantail Darter	<i>Etheostoma flabellare flabellare</i>
Golden Redhorse	<i>Moxostoma erythrurum</i>
Green Sunfish	<i>Lepomis cyanellus</i>
Greenside Darter	<i>Etheostoma blennioides</i>
Hornyhead Chub	<i>Nocomis biguttatus</i>
Hybrid Sunfish	<i>Lepomis sp. x Lepomis sp.</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Northern Hog Sucker	<i>Hypentelium nigricans</i>
Northern Pike	<i>Esox lucius</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Rainbow Darter	<i>Etheostoma caeruleum</i>
Rock Bass	<i>Ambloplites rupestris</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Stonecat	<i>Noturus flavus</i>
White Sucker	<i>Catostomus commersonii</i>
Yellow Perch	<i>Perca flavescens</i>

Table 2. List of dead fishes, identified to species when possible, and estimated counts from visual observations at road crossings on 13 September 2021.

Road crossing	Species	Count
Shabbona	Sucker spp.	2
Shabbona	Cyprinid spp.	15
Crawford	Stonecat	1
Crawford	Unidentified	4
Englehart	Sucker spp.	6
Englehart	Northern Pike	1
Englehart	Centrarchid spp.	5
Englehart	Cyprinid spp.	40
Cemetery	Sucker spp.	2
Cemetery	Centrarchid spp.	10
Cemetery	Cyprinid spp.	20

Table 3. Price for Bluegill as reported by Southwick and Loftus (2017) compared to current prices from a Michigan fish farm.

Length (in)	Southwick and Loftus (2017) cost	Michigan fish farm cost	% Increase
2	\$0.35	\$1.30	371
3	\$0.44	\$1.30	295
4	\$0.62	\$1.70	274
5	\$0.78	\$1.70	218
6	\$1.09	\$1.70	156
Average increase			263

Table 3. Predicted fish densities (by species, by inch bin) and replacement costs in North Branch White Creek. Replacement costs are from Southwick and Loftus (2017) and adjusted to current fair market value.

Species	Inch bin	2018 density (# or lb/800 ft)	Number observed dead 2021	Predicted number or biomass dead	Replacement cost/fish or lb	Total replacement cost
Suckers and Redhorse ^a			10			
	1	5		380	\$1.08	\$409.86
	2	3		228	\$1.08	\$245.92
	3	4		304	\$1.87	\$567.73
	6	3		228	\$3.13	\$712.70
	7	2		152	\$6.23	\$945.71
	8	9		683	\$6.23	\$4,255.71
	9	10		759	\$6.23	\$4,728.57
	12	1		76	\$6.23	\$472.86
	14	2.4 lb		182 lb	\$9.78/lb	\$1,781.52
	17	2.1 lb		182 lb	\$9.78/lb	\$1,781.52
Stonecat			1			
	7	1		76	\$1.08	\$81.97
Northern Pike			1			
	12	1		76	\$21.38	\$1,622.74
	14	1		76	\$21.38	\$1,622.74
Sunfishes ^a			15			
	2	5		380	\$1.30	\$493.35
	3	10		759	\$1.30	\$986.70
	4	13		987	\$1.70	\$1,677.39
	5	3		228	\$1.70	\$387.09
	6	1		76	\$1.70	\$129.03

Table 3 continued.

Species	Inch bin	2018 CPE (# or lb/800-ft)	Number observed dead 2021	Predicted number or biomass dead	Replacement cost/fish or lb	Total replacement cost
Minnows ^a			75			
	1	155		11,765	\$0.24	\$2,823.48
	2	237		17,988	\$0.24	\$4,317.19
	3	98		7,438	\$0.24	\$1,785.17
	4	56		4,250	\$0.24	\$1,020.10
	5	6		455	\$0.24	\$109.30
Darters ^a			0			
	1	145		11,006	\$0.47	\$5,172.59
	2	106		8,045	\$0.87	\$6,999.50
	3	42		3,188	\$1.29	\$4,112.26
	4	2		152	\$1.68	\$255.02
Total monetary value for fisheries losses						\$49,497.73

^a Pooled species density estimates were used for suckers and redhorse, sunfishes, minnows, and darters.

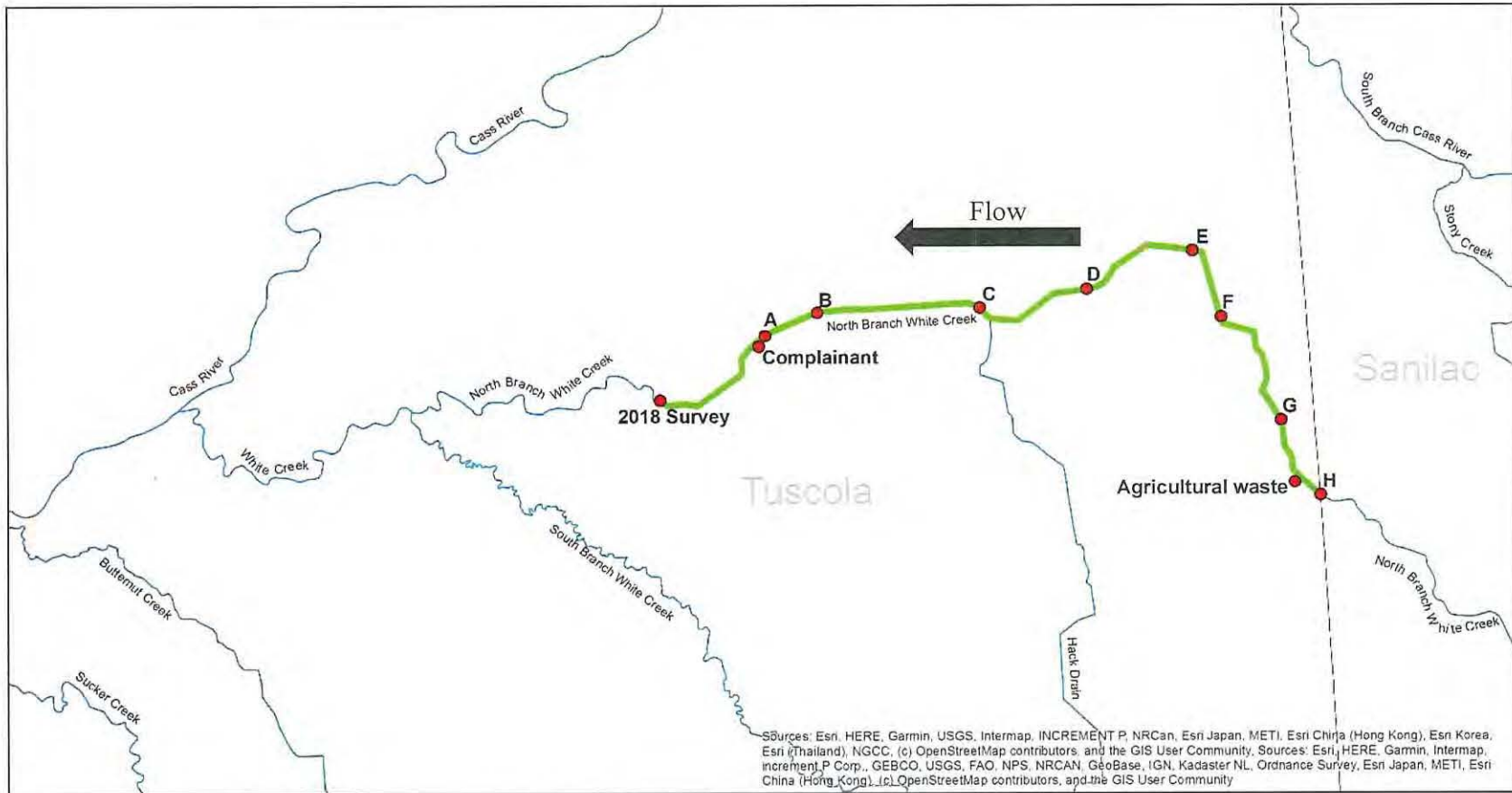


Figure 1. North Branch White Creek, Tuscola County, Michigan and road crossing observation sites (A: North Phillips Road, B: McArthur Road, C: North Cemetery Road, D: North Englehart Road, E: Crawford Road, F: Shabbona Road, G: East Deckerville Road, H: North Lamton Road).



Figure 2. Officer Wright's daytime photographs.



Figure 3. Officer Wright's nighttime photographs.

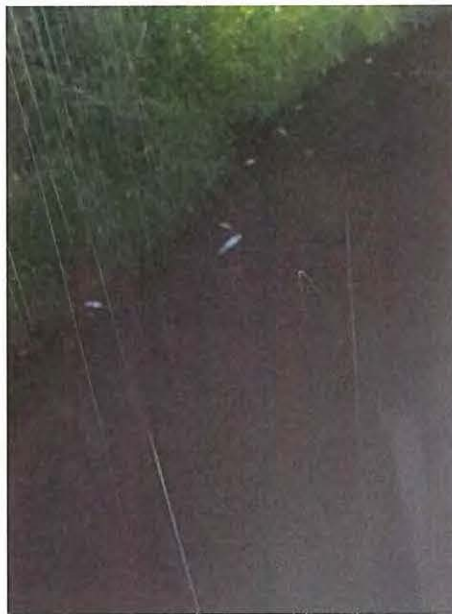


Figure 4. Additional nighttime photographs from Officer Wright.



Figure 5. Agricultural waste (top panels) and leachate (bottom panel) at the contamination site (N 43.5070, W -83.1097).



Figure 6. Dead fish observed at Shabbona Road (N 43.5296, W -83.1267).



Figure 7. Dead fish observed at Crawford Road (N 43.5386, W -83.1315).



Figure 8. Dead fish observed at North Englehart Road (N 43.5339, W – 83.1512).



Figure 9. Dead fish observed at North Cemetery Road (N 43.5319, W -83.1719).

USGS 04150800 CASS RIVER AT WAHJAMEGA, MI

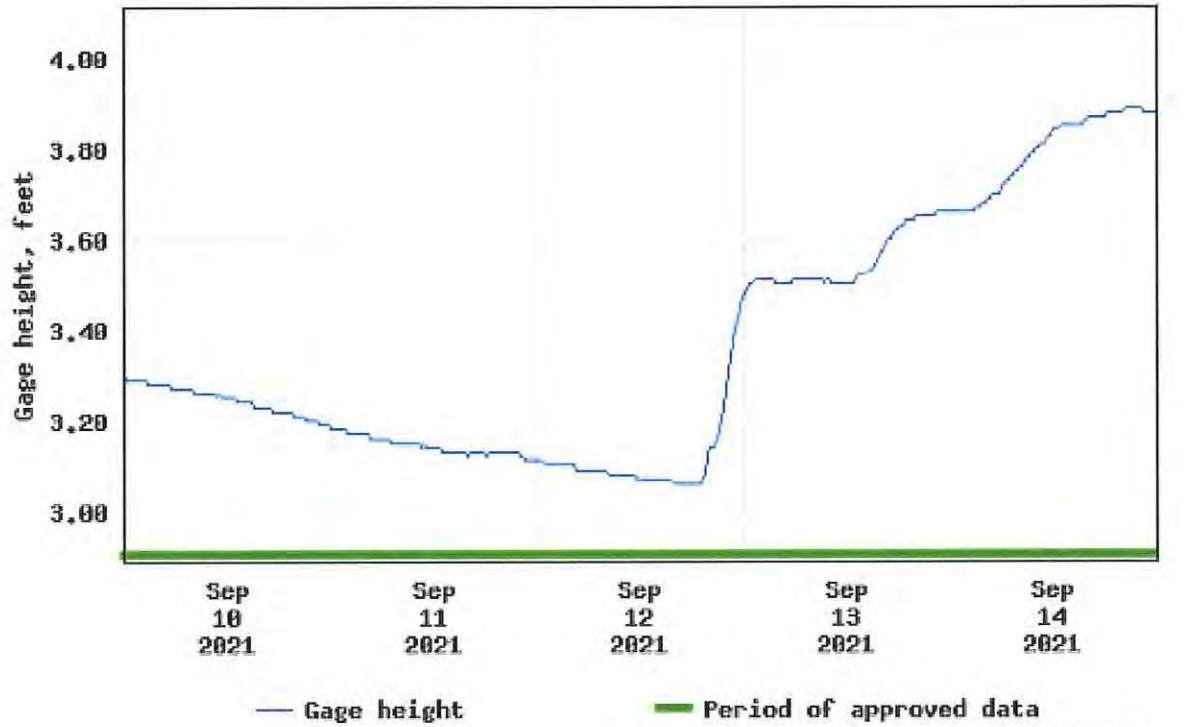


Figure 10. Gage height for United States Geological Survey stream monitoring station in the Cass River at Wahjamega, Michigan from 10 September 2021 to 14 September 2021.

Approved by:

X 

Randall Claramunt
Chief-Fisheries Division

EXHIBIT N







EXHIBIT O





EXHIBIT P



EXHIBIT Q



EXHIBIT R



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

EGLE

LIESL EICHLER CLARK
DIRECTOR

ENFORCEMENT NOTICE

CERTIFIED MAIL 7021 2720 0001 5752 0409

Edward Zimba, Property Owner
7995 Mushroom Road
Deford, Michigan 48729

Dear Edward Zimba:

THE DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE), WATER RESOURCES DIVISION (WRD), Bay City District Office, has referred the matter of Edward Zimba to the Enforcement Unit requesting escalated enforcement actions for violations of law as set forth herein.

PLEASE BE ADVISED that Edward Zimba has failed to comply with Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL 324.3101 *et seq.* (Part 31); Part 301, Inland Lakes and Streams, of the NREPA, MCL 324.30101 *et seq.* (Part 301); Part 303, Wetlands Protection, of the NREPA, MCL 324.30301 *et seq.* (Part 303); and the administrative rules promulgated thereunder.

YOU ARE FURTHER ADVISED THAT on September 12, 2021, a Tuscola County conservation officer received a complaint about thousands of dead fish near the address of 5410 Shabonna Road, in Novesta Township, Tuscola County, Michigan. The conservation officer observed dead fish in the North Branch White Creek at the Phillips Road crossing, ranging in size from minnow up to sixteen inches in length. The conservation officer followed the North Branch White Creek upstream and identified the last upstream location where dead fish were observed at Deckerville Road, approximately six miles upstream from the complaint location. The conservation officer located a dairy farm by the name of Zimba Dairy, directly upstream of the fish kill.

On September 13, 2021, EGLE was notified by the Department of Natural Resources (DNR), about the fish kill identified by the Tuscola County conservation officer. The same day, EGLE staff met with staff from the DNR, Fisheries Division at the Deckerville Road, North Branch White Creek crossing to investigate the source of the fish kill. While traveling to the next upstream road crossing from Deckerville Road, EGLE staff observed a large pile of compost and other agricultural waste on the west side of Lamton Road, between Deckerville Road and East Gifford Road. The agricultural waste observed was piled on a hill directly above the North Branch White Creek and runoff flows to the North Branch White Creek were clearly visible to EGLE staff from Lamton Road.

EGLE staff identified an area of approximately three acres where the agricultural waste was piled. EGLE staff observed black septic runoff flowing from the agricultural waste pile into the North Branch White Creek creating a visible black plume in the receiving waters. As a result of this discharge, the receiving water contained unnatural turbidity, color, floating solids, settleable solids, suspended solids, and deposits. Such a discharge is a violation of Rule 323.1050 of the

Part 4, Water Quality Standards, administrative rules promulgated pursuant to Part 31, Mich Admin Code, R 323.1041 *et seq.*, as amended, (Part 4 Rules), that states:

“The surface waters of the state shall not have any of the following physical properties in unnatural quantities which are or may become injurious to any designated use:

- (a) Turbidity*
- (b) Color*
- (c) Oil films*
- (d) Floating solids*
- (e) Foams*
- (f) Settleable solids*
- (g) Suspended solids*
- (h) Deposits”*

EGLE and DNR staff walked the perimeter of the agricultural waste piles and the adjacent fields and did not identify any other potential discharge sources.

EGLE staff took Dissolved Oxygen (DO) readings of the North Branch White Creek on September 13, 2022, at the upstream, Lamton Road crossing, the point of discharge, and the downstream, Deckerville Road crossing. Results of the reading taken at the Lamton Road crossing concluded 7.52 milligrams per liter (mg/L) of DO. Results of the reading taken at the point of discharge concluded 2.84 mg/L of DO, and results of the reading taken at the Deckerville Road crossing concluded 2.81 mg/L of DO. Such low DO levels can be injurious to fish and other aquatic life. In accordance with Rule 323.1064 of the Part 4 Rules, a minimum of 5 mg/L of DO shall be maintained at all times.

EGLE staff returned to the same sites of the North Branch White Creek on September 14, 2021, to collect water samples from the upstream, Lamton Road crossing, the point of discharge, and the downstream, Deckerville Road crossing. Additionally, EGLE staff collected water samples of wastewater discharges observed from the dairy farm located at Mushroom Road (Facility) to the roadside ditch on Lamton Road. These samples were analyzed for copper, zinc, hardness (calcium, magnesium), ortho phosphate (OP), total suspended solids (TSS), turbidity, biochemical oxygen demand (BOD), total organic carbon (TOC), ammonia (NH₃), nitrate-nitrite, Kjeldahl nitrogen (Kjendahl N), total phosphorus (TP), chloride, and conductivity.

	Upstream	Point of Discharge	Downstream	Facility Discharge
Copper (ug/l)	2.0	380	6.5	57
Zinc (ug/l)	ND	600	8.3	210
Calcium (mg/L)	78	100	81	96
Hardness (mg/L)	310	620	310	360
Mg (mg/L)	29	87	27	30
OP (mg/L)	0.051	20	0.43	4.8
TSS (mg/L)	23	850	25	360
Turbidity (NTU)	19.3	753	21.8	280
BOD (mg/L)	ND	1990	17.7	564

TOC (mg/L)	10	2400	30	360
NH3	0.09	180	0.06	6.2
Nitrate-Nitrite (mg/L)	0.75	5.6	1.6	0.14
Kjeldahl N (mg/L)	1.0	480	4.6	46
TP (mg/L)	0.10	29	0.86	8.7
Chloride (mg/L)	31	460	37	150
Conductivity (umhos/cm)	662	6900	760	1340

On September 14, 2021, additional water samples were collected by EGLE staff of the North Branch White Creek at the Crawford Road crossing, Deckerville Road crossing, and Englehardt Road crossing and analyzed for the presence of *Escherichia coli* (*E. coli*). Three water samples were collected at the Crawford Road crossing and *E. coli* sample results concluded a geometric mean of 83,840 Colony-Forming Units (CFU) per 100 milliliters (mL). Three samples were also collected at the Deckerville Road crossing and *E. coli* sample results concluded a geometric mean of 90,467 CFU/mL. A single sample was collected at the Englehardt Road crossing and the *E. coli* sample result concluded 140,000 CFU/mL. Rule 323.1062, Microorganisms, of the Part 4 Rules, states in part that surface waters of the state at no time shall exceed a maximum of 300 CFU per 100mL for total body contact protection.

The unlawful discharge of agricultural wastewater to the North Branch White Creek contained substances that are or may become injurious to waters of the state, as prohibited by Section 3109(1) of Part 31, that states:

- “A person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to any of the following:*
- (a) To the public health, safety, or welfare.*
 - (b) To domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters.*
 - (c) To the value or utility of riparian lands.*
 - (d) To livestock, wild animals, birds, fish, aquatic life, or plants or to their growth or propagation.*
 - (e) To the value of fish and game.*

EGLE staff further observed runoff and leachate discharging to the south into a roadside ditch running west to the McCallan Drain.

Edward Zimba indicated to EGLE staff that the ditch where samples were collected running along Lamton Road had been created by the Facility to convey wastewater discharging from the Facility north where it passes east through a culvert under Lamton Road and discharges to the pasture adjacent to the White Creek Intercounty Drain.

EGLE staff identified the property where the discharge was originating from as Parcel Identification No. 018-036-000-1200-01, and owned by James M. Walters et al., according to the Tuscola County Register of Deeds under Liber 1108; Page 487. EGLE staff contacted James Walters and he informed EGLE staff that the parcel was owned by his wife, her two siblings, and

their spouses. James Walters stated that his brother-in-law, Edward Zimba, was using the property and should be the contact to address the identified discharge, as the waste material had been generated by the Facility and placed there by him.

EGLE staff contacted Edward Zimba to inform him of the discharge to the North Branch White Creek and associated fish kill. EGGLE staff asked Edward Zimba to take and document action to halt the discharge immediately. Edward Zimba requested EGGLE staff meet with him to show him the discharge. On September 16, 2021, Environmental Quality Analysts Audrey Schwing and Julia Miller from the Bay City District Office-Water Quality Unit, WRD, met Edward Zimba and his sister, Lisa Johnson, at the site of the discharge. At that time, the Facility had piled a small amount of sand along the stream banks to attempt to halt the discharge to the North Branch White Creek. EGGLE was informed that prior to the piling of agricultural waste at that location, material had been piled along the stream bank to raise the elevation and prevent runoff flows of the agricultural waste from entering the stream and that the Facility was surprised this bank modification had not been sufficient to prevent a discharge to the North Branch White Creek. Edward Zimba further indicated he was aware this area was not appropriate for agricultural waste storage and that the Facility had secured funding to construct a building to contain the waste under roof.

EGLE staff instructed Edward Zimba and Lisa Johnson to take immediate action to halt the unauthorized discharge of agricultural waste to the North Branch White Creek and put in place practices to prevent additional discharges from occurring during future rain events. On September 18, 2021, Edward Zimba sent images to EGGLE staff via text message and stated that berms had been constructed around the waste to prevent discharge from reaching surface waters.

During a review of aerial imagery following the unlawful discharge, EGGLE staff identified an enclosure of a portion of the McCallan Drain in a pasture of the Facility between the 7995 Mushroom Road farmstead and the farmstead on the southeast corner of Gilford Road and Crawford Road. On September 16, 2021, EGGLE staff contacted Edward Zimba to inquire about the identified drain enclosure. Edward Zimba informed EGGLE staff that the subject property had recently been acquired by the Facility and that he was not aware of any modifications to this portion of the McCallan Drain. Edward Zimba further stated he was unable to recall when he had attained the property. At that time, Lisa Johnson informed EGGLE staff that the Facility had been working with the local county drain commissioner for the installation of culverts in the McCallan Drain.

On September 30, 2021, EGGLE staff conducted a site visit to investigate the unauthorized enclosure of the McCallan Drain. At the time of the inspection, EGGLE observed that fill and culverts had been placed on bottomlands and in wetlands in the McCallum Drain, completely enclosing the entire 640-foot McCallum Drain Branch #2. Section 30102 of Part 301 prohibits the construction, enlargement, extension, removal, or placement of a structure on bottomland of a lake or stream without first obtaining a permit from EGGLE. Section 30304 of Part 303 prohibits the placement of fill material in a wetland and the construction, operation, or maintenance of any use or development in a wetland without first obtaining a permit from EGGLE. A review of EGGLE files indicates that no permits have been issued for this activity at the property. Therefore, it appears that this activity was conducted in violation of Section 30102 of Part 301 and Section 30304 of Part 303. In consideration of the requirements of Part 301 and Part 303, EGGLE has determined that a permit would not have been approved for this project. After the inspection on September 30, 2021, by way of receiving a copy of an agreement with the Tuscola County Drain Commissioner's office, EGGLE became aware of the apparent installation of 28 additional culverts on stream bottomlands and wetlands in the main branch of the McCallan Drain. As stated

below, EGLE is requesting Edward Zimba's permission to access his properties to evaluate these additional activities and compliance with Part 301 and Part 303.

A review of historic records indicates that on June 29, 2018, EGLE staff issued a letter to Edward Zimba identifying that the Facility appeared to meet the required animal numbers qualifying the Facility as a large Concentrated Animal Feeding Operation (CAFO) and therefore, required the Facility to attain a CAFO wastewater discharge permit as administered by the WRD. The letter requested that the Facility submit to EGLE a complete application for a CAFO wastewater discharge permit by September 28, 2018, a No Potential to Discharge request by July 31, 2018, or proof that the Facility does not meet the minimum size requirements for a CAFO wastewater discharge permit. EGLE did not receive the requested submittal.

Upon further investigation, EGLE staff identified that the Facility operates at least three adjacent farmsteads located at 7995 Mushroom Road, 7658 Mushroom Road, and on the southeast corner of Gilford Road and Crawford Road in Deford, Michigan. Based on review of aerial imagery it appears the Facility houses approximately 1,600 mature dairy cows and approximately 1,200 other cattle. The Facility has expanded since review of previous aerial imagery prior to the letter sent to Edward Zimba on June 29, 2018. EGLE staff have further identified additional animal housing and waste storage structures since issuance of the letter dated June 29, 2018.

EGLE has identified that each of the three farmsteads, as described above, has large waste storage structures for collection of agricultural waste from the animals confined at the production area. Rule 323.2196 of the Part 21, Wastewater Discharge Permits, administrative rules promulgated pursuant to Part 31, Mich Admin Code, R 323.2101 *et seq.*, (Part 21 Rules), requires all animal feeding operations that become CAFOs after September 1, 2005, to apply for a wastewater discharge permit at least 180 days before becoming a CAFO. Failure to apply for and be issued a wastewater discharge permit, prior to discharging CAFO wastewater to waters of the state, directly or indirectly, is a violation of Section 3112 of Part 31 and Rule 232.2196 of the Part 21 Rules.

On October 8, 2021, EGLE staff requested to conduct an inspection of the Facility. Edward Zimba declined to consent to the inspection stating he would like his team to be present on-site at the time of any inspection. An inspection was scheduled with Edward Zimba to be conducted on December 1, 2021.

On November 29, 2021, Aaron Phelps from Varnum LLP sent an e-mail to EGLE that stated, in part:

"I have just been retained by Zimba Dairy in connection with EGLE's apparently ongoing investigation of the Zimba dairy farm. I understand that EGLE may be intending to do an inspection of the property this Wednesday, December 1, 2021. Please be advised that Zimba does not consent to any search or inspection of any of its properties. Any unauthorized entry onto Zimba Dairy property will be regarded as a trespass. Please direct all future communications relating to Zimba to my attention."

According to Rule 323.2196(3)(a) of the Part 21 Rules, EGLE may designate any animal feeding operation as a CAFO upon determining that it is a significant contributor of pollutants to waters of the state.

Edward Zimba IS HEREBY NOTIFIED that the violations identified in this Enforcement Notice (EN) are violations of Part 31, Part 301, Part 303, and their associated administrative rules. EGLE is aware a separate legal entity, Zimba Dairy, Inc., is operating on land parcels owned by Edward Zimba.

Edward Zimba is requested to immediately undertake all actions necessary to resolve all violations identified in this EN. Please submit a written response to this EN and aforementioned violations **NOT LATER THAN 14 days from your receipt of this EN**. Actions Edward Zimba shall undertake, and items required to be addressed in the written response shall include, at a minimum, the following:

- Edward Zimba shall cease all unlawful discharges of wastewater from the Facility to waters of the state.
- Edward Zimba shall submit copies of all lease agreements or other operational contracts for the land parcels which Zimba Dairy, Inc. operates on and are subject of this escalated enforcement action.
- Edward Zimba shall provide a written response indicating whether EGLE staff have permission to access his properties, encompassed within Mushroom Road, Crawford Road, Lamton Road, and Gilford Road, this spring to evaluate impacts to streams and wetlands regulated under Part 301 and Part 303 respectively.

THE VIOLATIONS identified herein, as well as any additional violations discovered hereafter, must be formally resolved through entry of a legally enforceable document, such as an Administrative Consent Order (ACO). An ACO would include an agreed-upon compliance program to resolve the aforementioned violations and payment of a civil fine, among other requirements. Negotiations to resolve this matter through administrative actions shall not, in general, exceed 90 days.

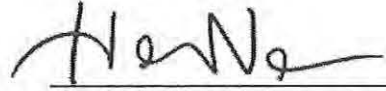
The WRD reserves its right to take all necessary and appropriate enforcement actions for all violations of Part 31, Part 301, Part 303, and their associated administrative rules that have occurred to date and any violations of Part 31, Part 301, Part 303, and their associated administrative rules that may occur in the future. These actions may include, but are not limited to, seeking civil fines, injunctive relief, natural resources damages, and all costs associated with this enforcement action, including attorney costs and any other relief available to the WRD.

Edward Zimba's continuing failure to comply with the terms of Part 31, Part 301, Part 303, their associated administrative rules, or other requirements set forth in this EN may result in additional fines, penalties, or other actions.

Pursuant to Section 324.1511 of the NREPA, Edward Zimba MAY request a preliminary meeting to discuss the issues detailed in this EN. If you would like to request such a meeting, please contact Natasha Gauna, Enforcement Analyst, Enforcement Unit, WRD, at 517-899-6957 or GaunaN@Michigan.gov; not later than ten days from your receipt of this EN

**STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION**

Date Issued: April 19, 2022

 for
David R. Pingel, Supervisor
Enforcement Unit
Water Resources Division

ADDRESS FOR FURTHER CORRESPONDENCE:

Natasha Gauna, Enforcement Analyst
Enforcement Unit
Water Resources Division
P.O. Box 30458
Lansing, Michigan 48909-7958

cc: Lisa Johnson
Aaron Phelps, Varnum LLP
Steve Schaub, Tuscola County Conservation District
Jason Gostiaux, DNR
Charles Bauer, EGLE
Dawn Roush, EGLE
Brian Rudolph, EGLE
Helana Nelson, EGLE
Molly Rippke, EGLE
Jeff Bridgland, EGLE
Julia Miller, EGLE
Audrey Schwing, EGLE
Natasha Gauna, EGLE
Randy Evilsizer, EGLE
Anthony Klein, EGLE

EXHIBIT S

Official Laboratory Report

Report To: MOLLY RIPPKE

Sample ID: LJ78205

Work Order: 10901721_10

System Name/Owner:		WSSN/Pool ID:	
Collection Address:		Source:	Surface Water
Collected By:	MOLLY RIPPKE	Site Code:	790211-L
Township/Well#/Section:	NOVESTA//24	Collector:	Other
County:	Tuscola	Date Collected:	09/14/2021 09:40
Sample Point:	NORTH BRANCH WHITE CR- N CRAWFOR	Date Received:	09/14/2021 14:31
Water System:	Public System Surface Water	Purpose:	Routine Monitoring

TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	77000	CFU		09/14/2021		EPA 1103.1	EC-00-B

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

Official Laboratory Report

Report To: MOLLY RIPPKKE

Sample ID: LJ78206

Work Order: 10901721_11

System Name/Owner:		WSSN/Pool ID:	
Collection Address:		Source:	Surface Water
Collected By:	MOLLY RIPPKKE	Site Code:	790211-C
Township/Well#/Section:	NOVESTA/24	Collector:	Other
County:	Tuscola	Date Collected:	09/14/2021 09:40
Sample Point:	NORTH BRANCH WHITE CR- N CRAWFOR	Date Received:	09/14/2021 14:31
Water System:	Public System Surface Water	Purpose:	Routine Monitoring

TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	89000	CFU		09/14/2021		EPA 1103.1	EC-00-B

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

RL: Reporting Limit	mg/L: milligrams / Liter (ppm)	CFU: Colony Forming Unit
MCL: Maximum Contaminant Level	ng/L: nanograms / Liter (ppt)	CAS: Chemical Abstract Service
AL: Action Level	MPN: Most Probable Number	Laboratory Contact: Marlene Kane
Not Detected: Not detected at or above the reporting limit (RL)		

Official Laboratory Report

Report To: MOLLY RIPPKE

Sample ID: LJ78207

Work Order: 10901721_12

System Name/Owner:		WSSN/Pool ID:	
Collection Address:		Source:	Surface Water
Collected By:	MOLLY RIPPKE	Site Code:	790211-R
Township/Well#/Section:	NOVESTA/24	Collector:	Other
County:	Tuscola	Date Collected:	09/14/2021 09:40
Sample Point:	NORTH BRANCH WHITE CR- N CRAWFOR	Date Received:	09/14/2021 14:31
Water System:	Public System Surface Water	Purpose:	Routine Monitoring

TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	86000	CFU		09/14/2021		EPA 1103.1	EC-00-B

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

RL: Reporting Limit	mg/L: milligrams / Liter (ppm)	CFU: Colony Forming Unit
MCL: Maximum Contaminant Level	ng/L: nanograms / Liter (ppt)	CAS: Chemical Abstract Service
AL: Action Level	MPN: Most Probable Number	Laboratory Contact: Marlene Kane
Not Detected: Not detected at or above the reporting limit (RL)		

Official Laboratory Report

Report To: MOLLY RIPPKE

Sample ID: LJ78224

Work Order: 10901721_29

System Name/Owner:
Collection Address:
Collected By: MOLLY RIPPKE
Township/Well#/Section: //
County: Unknown
Sample Point: NB WHITE DECKERVILLE
Water System: Public System Surface Water

WSSN/Pool ID:
Source: Surface Water
Site Code: NBL
Collector: Other
Date Collected: 09/14/2021 10:30
Date Received: 09/14/2021 14:31
Purpose: Routine Monitoring

TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	53000	CFU		09/14/2021		EPA 1103.1	EC-00-B

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

RL: Reporting Limit
MCL: Maximum Contaminant Level
AL: Action Level
Not Detected: Not detected at or above the reporting limit (RL)

mg/L: milligrams / Liter (ppm)
ng/L: nanograms / Liter (ppt)
MPN: Most Probable Number

CFU: Colony Forming Unit
CAS: Chemical Abstract Service
Laboratory Contact: Marlene Kane

Official Laboratory Report

Report To: MOLLY RIPPKE

Sample ID: LJ78225

Work Order: 10901721_30

System Name/Owner:
Collection Address:
Collected By: MOLLY RIPPKE
Township/Well#/Section: //
County: Unknown
Sample Point: NB WHITE DECKERVILLE
Water System: Public System Surface Water

WSSN/Pool ID:
Source: Surface Water
Site Code: NBC
Collector: Other
Date Collected: 09/14/2021 10:30
Date Received: 09/14/2021 14:31
Purpose: Routine Monitoring

TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	110000	CFU		09/14/2021		EPA 1103.1	EC-00-B

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

RL: Reporting Limit
MCL: Maximum Contaminant Level
AL: Action Level
Not Detected: Not detected at or above the reporting limit (RL)

mg/L: milligrams / Liter (ppm)
ng/L: nanograms / Liter (ppt)
MPN: Most Probable Number

CFU: Colony Forming Unit
CAS: Chemical Abstract Service
Laboratory Contact: Marlene Kane

Official Laboratory Report

Report To: MOLLY RIPPKE

Sample ID: LJ78226

Work Order: 10901721_31

System Name/Owner:
Collection Address:
Collected By: MOLLY RIPPKE
Township/Well#/Section: //
County: Unknown
Sample Point: N B WHITE DECKERVILLE
Water System: Public System Surface Water

WSSN/Pool ID:
Source: Surface Water
Site Code: NBR
Collector: Other
Date Collected: 09/14/2021 10:30
Date Received: 09/14/2021 14:31
Purpose: Routine Monitoring

TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	127000	CFU		09/14/2021		EPA 1103.1	EC-00-B

Sample at the 1:10000 dilution did not reflect the colony count seen at the 1:1000 dilution. Sample result was reported above the Laboratory Upper Counting Limit at the 1:1000 dilution and the result should be considered an estimate.

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

RL: Reporting Limit	mg/L: milligrams / Liter (ppm)	CFU: Colony Forming Unit
MCL: Maximum Contaminant Level	ng/L: nanograms / Liter (ppt)	CAS: Chemical Abstract Service
AL: Action Level	MPN: Most Probable Number	Laboratory Contact: Marlene Kane
Not Detected: Not detected at or above the reporting limit (RL)		

Official Laboratory Report

Report To: MOLLY RIPPKE

Sample ID: LJ78227

Work Order: 10901721_32

System Name/Owner:		WSSN/Pool ID:	
Collection Address:		Source:	Surface Water
Collected By:	MOLLY RIPPKE	Site Code:	NBC2
Township/Well#/Section:	//	Collector:	Other
County:	Unknown	Date Collected:	09/14/2021 10:55
Sample Point:	N BR WHITE DOWNSTREAM	Date Received:	09/14/2021 14:31
Water System:	Public System Surface Water	Purpose:	Routine Monitoring

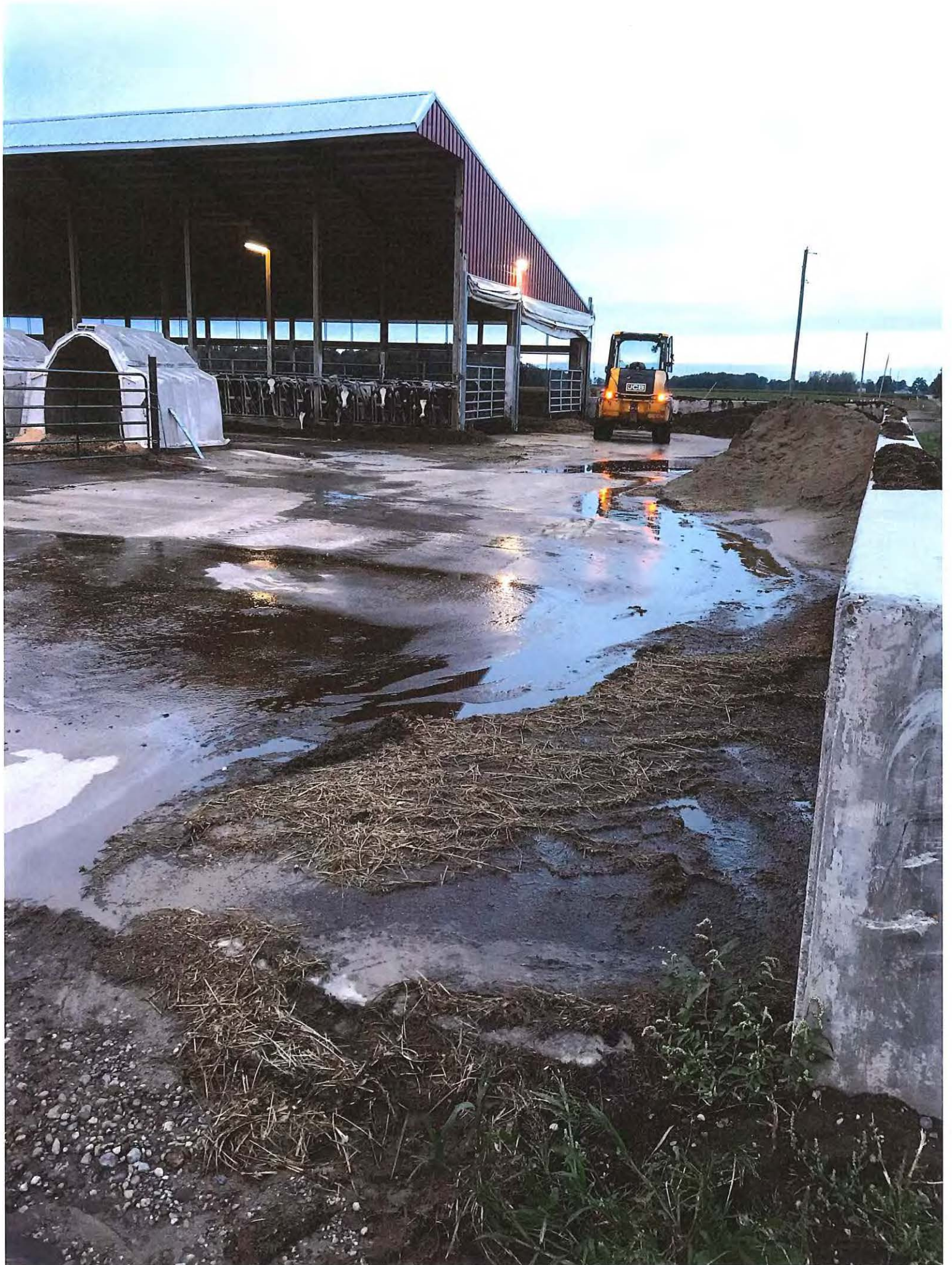
TESTING INFORMATION					REGULATORY INFORMATION		
Analyte Name	Result	Units	RL	Date Tested	MCL/AL	Method	CAS #
E. coli 10 - 1,000,000 CFU/100 mL	140000	CFU		09/14/2021		EPA 1103.1	EC-00-B

The analyses performed by the EGLE Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below.

RL: Reporting Limit	mg/L: milligrams / Liter (ppm)	CFU: Colony Forming Unit
MCL: Maximum Contaminant Level	ng/L: nanograms / Liter (ppt)	CAS: Chemical Abstract Service
AL: Action Level	MPN: Most Probable Number	Laboratory Contact: Marlene Kane
Not Detected: Not detected at or above the reporting limit (RL)		

EXHIBIT T



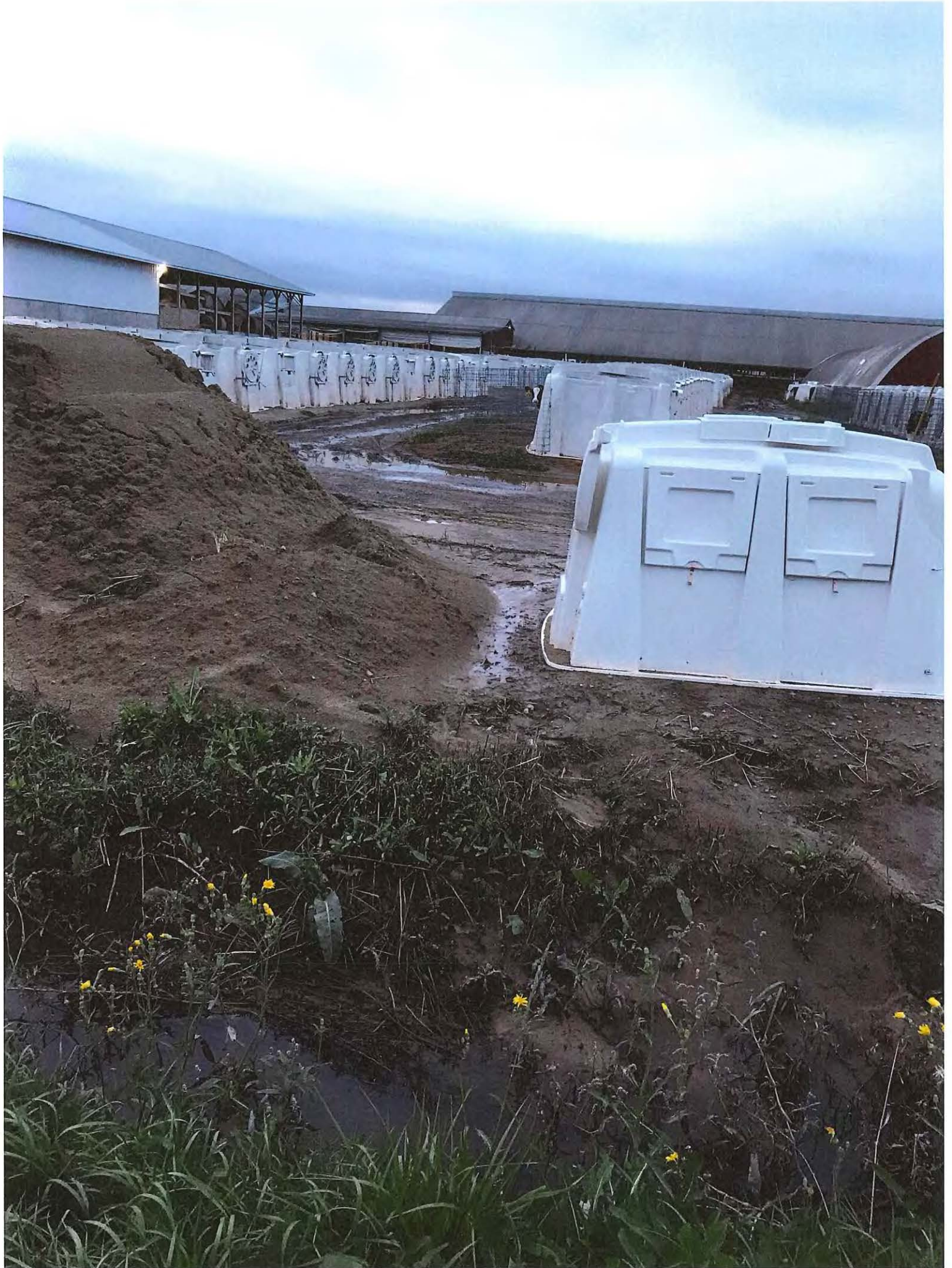






EXHIBIT U

5/20/16

Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the distance between multiple points on the ground

Length: 629.96 Feet

Show Elevation Profile

Mouse Navigation Save Clear

Stamford Rd

E Gilford Rd

D. Gilford Rd

Dorwin Rd

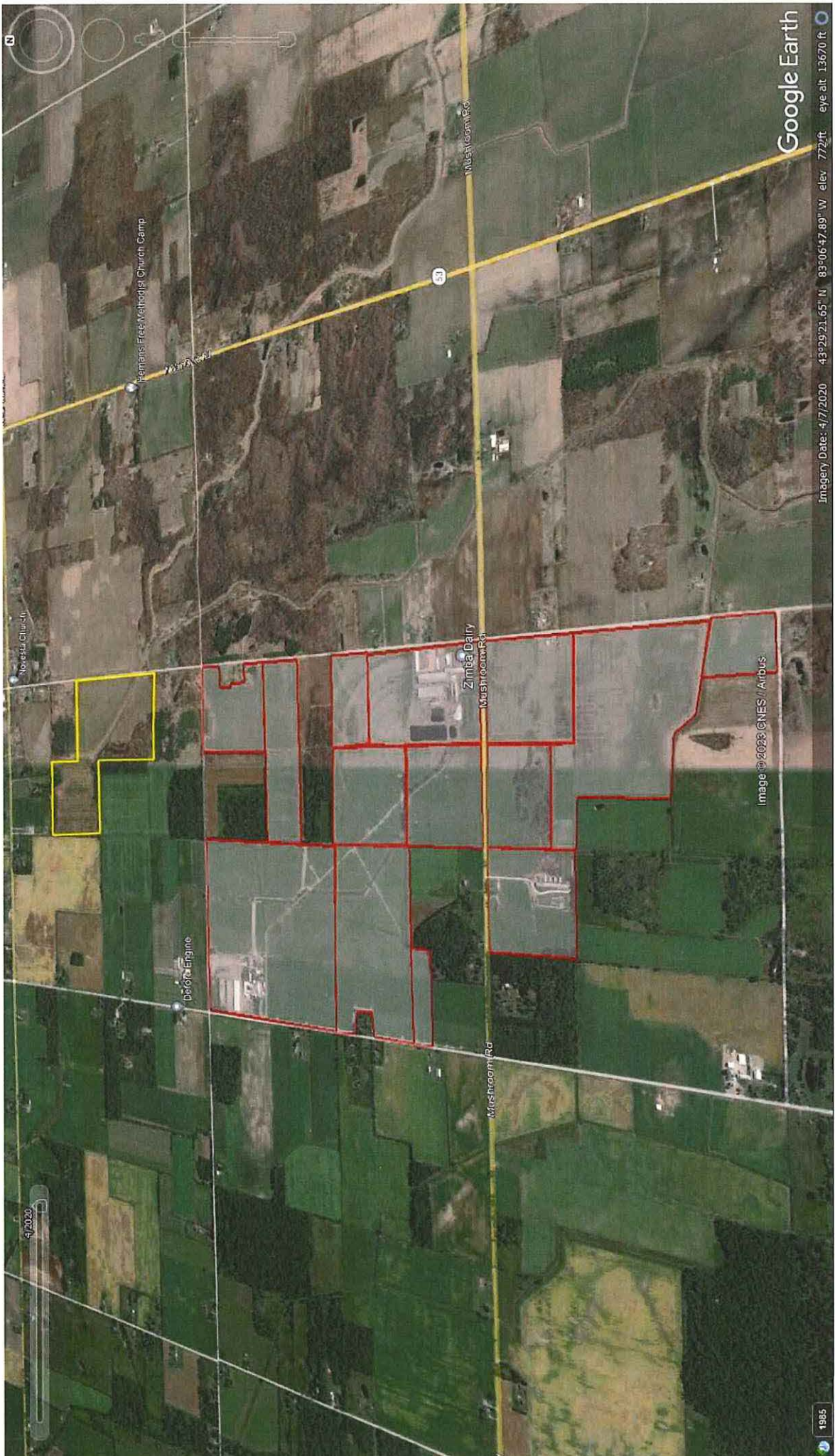
N Main Rd

N Lantion Rd

Zimba Main Farm

Google Earth

EXHIBIT V



4/20/20

N

Nova St Church

Pepparis Free Methodist Church Camp

Deora Engine

53

Zimba Dairy

Mushroom Rd

Mushroom Rd

Mushroom Rd

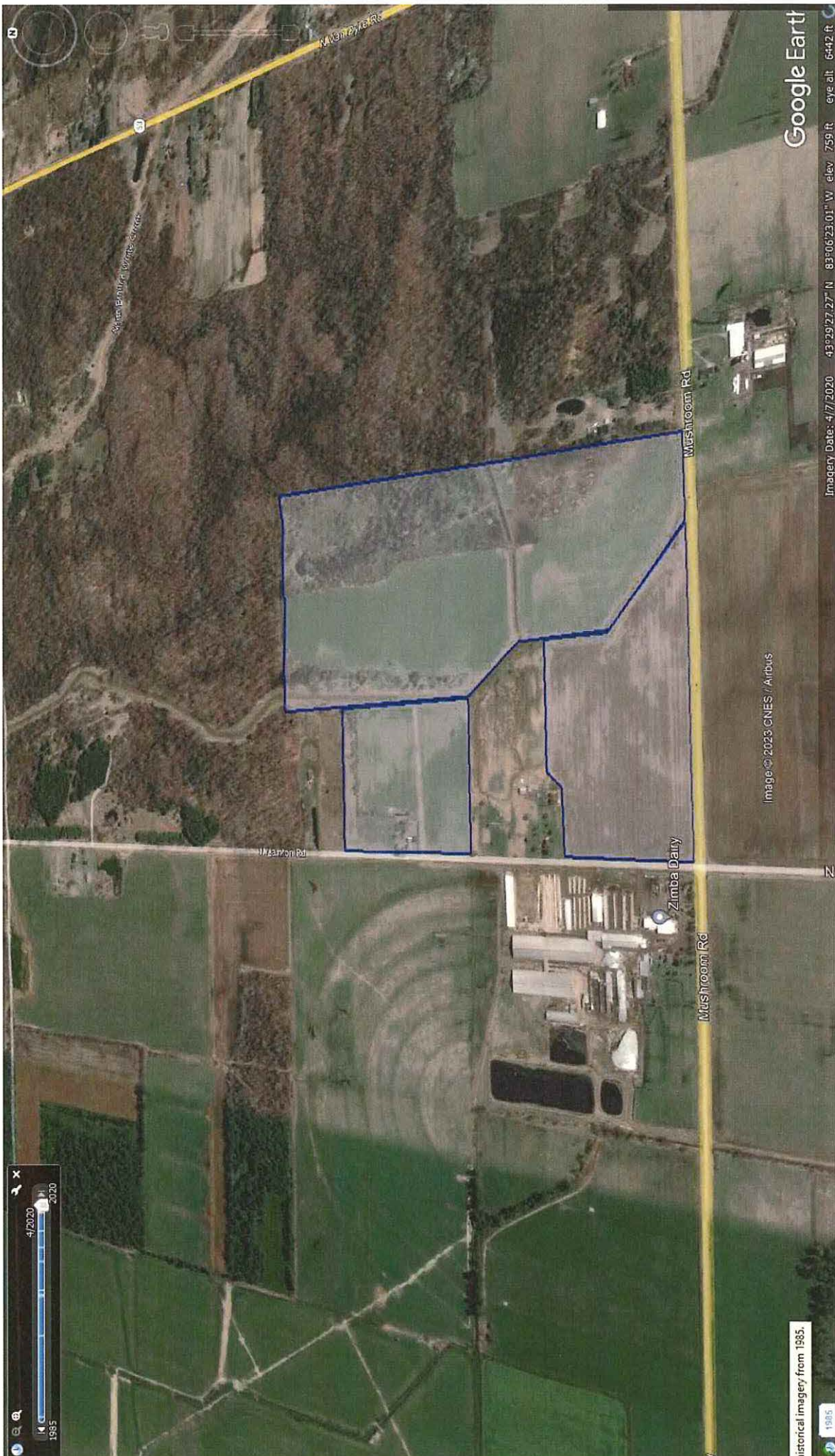
Image © 2023 CNES / Airbus

1985

Google Earth

Imagery Date: 4/7/2020 43°29'21.65" N 83°06'47.89" W elev 772ft eye alt 13670 ft

EXHIBIT W



Google Earth

Imagery Date: 4/7/2020 43°29'27.27" N 83°06'23.01" W elev. 759 ft. eye alt. 6442 ft

Image © 2023 CNES / Airbus

Historical Imagery Timeline:

- 1985
- 4/20/20
- 2020

historical imagery from 1985.

1985

Warzon Rd

Zimba Dairy

Mushroom Rd

Mushroom Rd

Mushroom Rd

Black Earth Waste Storage

EXHIBIT X



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
BAY CITY DISTRICT OFFICE
BAY CITY



DANIEL EICHINGER
ACTING DIRECTOR

March 3, 2023

VIA EMAIL: zimbadairy@gmail.com
CERTIFIED MAIL: 7017 2620 0000 9142 0900

Edward Zimba
Zimba Dairy, Incorporated
7995 Mushroom Road
Deford, Michigan 48729

Dear Edward Zimba:

SUBJECT: Violation Notice VN-013884
Designated Name: Zimba Farms

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD), inspected Zimba Farms on October 12 and November 1, 2022. The inspections were conducted to determine compliance with Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL 324.3101 *et seq.*; the Part 22, Groundwater Quality, administrative rules promulgated pursuant to Part 31, R 323.2201 *et seq.*, (Part 22 Rules); Part 303, Wetlands Protection, of the NREPA, MCL 324.30301 *et seq.*; and Part 301, Inland Lakes and Streams, of the NREPA MCL 324.30101 *et seq.* They were conducted pursuant to administrative warrants issued by the Sanilac County and Tuscola County District Courts.

Zimba Farms consists of multiple animal housing locations, a production area waste storage location, and multiple agricultural fields and pastures in Tuscola and Sanilac Counties. The main farmstead of Zimba Farms is located at 7995 Mushroom Road, Deford, Michigan 48729 (Mushroom Road Facility). The additional animal housing locations are located northwest of the Mushroom Road Facility at the southeast intersection of Crawford and E. Gilford (Crawford Facility), and southwest of the Mushroom Road Facility (Heifer Facility). A production waste storage area (Lamton Road) is located north of the Mushroom Road Facility west of Lamton Road, directly south of the North Branch White Creek.

EGLE staff observed unlawful discharges of wastewater from the production area waste stored at Lamton Road to the North Branch White Creek and from the Mushroom Road Facility in September 2021. An Enforcement Notice was issued to Zimba Farms on April 19, 2022, outlining the violations identified at the time of these discharges.

Following the September 2021 discharges, EGLE referred this matter to the Department of Attorney General (DAG) for escalated enforcement. On behalf of EGLE, DAG sought, and was denied access to conduct an inspection at Zimba Farms. EGLE subsequently obtained administrative inspection warrants from the 73A and 71B District Courts in Tuscola County and Sanilac County. On October 12 and November 1, 2022, EGLE staff conducted inspections of Zimba Farms in accordance with those warrants.

On October 12 and November 1, 2022, EGLE staff observed several violations of the NREPA, which are discussed in the following sections.

Part 301, Inland Lakes and Streams, and Part 303, Wetlands Protection

EGLE staff observed placement of seven 3-foot diameter culverts on bottomlands without a permit, enclosing 171 linear feet of stream, which is prohibited by section 30102(1)(b) of Part 301, Inland Lakes and Streams, of the NREPA, MCL 324.30102(1)(b), which states:

*“Except as provided in this part, a person without a permit from the department shall not do any of the following:
(b) construct, enlarge, extend, remove, or place a structure on bottomland.”*

EGLE staff also observed installation of culverts and associated fill material within approximately .25 acre of wetland, including 8-inch and 12-inch diameter culverts covered with fill material through a wetland area measuring approximately 676 feet long by 10 feet wide and additional 3-foot diameter or larger culverts and associated fill through 17 additional 10-foot wide linear wetland areas totaling 432 linear feet, all of which is prohibited by section 30304(a) and (c) of Part 303, Wetlands Protection, of the NREPA, MCL 324.30304(a) and (c) which states:

*“Except as provided in this part or by a permit issued by the department under this part and pursuant to part 13, a person shall not do any of the following:
a. Deposit or permit the placing of fill material in a wetland.
b. Construct, operate, or maintain any use or development in a wetland.”*

Part 31, Water Resources Protection

Failure to Obtain a National Pollutant Discharge Elimination System (NPDES) Permit

On October 12, 2022, EGLE staff observed that Zimba Farms is operating a large, concentrated animal feeding operation (CAFO) without NPDES Permit coverage in violation of Part 31 of the NREPA. EGLE staff counted the animals housed at Zimba Farms and determined it to be operating with more than 1000 animal units in structured feedlots, where they were confined and fed silage. Further, the size and permanence of the structured feedlots demonstrate that Zimba houses similar amounts of animal units for a portion of the day for at least 45 days. This animal feeding operation (AFO) fits within the definition of a large CAFO. Mich. Admin. Code, R. 323.2102(b), (i); 323.2103(g)(iii). Michigan’s Part 31 Rules require all animal feeding operations (AFOs) that become CAFOs after September 1, 2005, to apply for a wastewater discharge permit at least 180 days before becoming a CAFO. Mich. Admin. Code, R. 2196. Failure to apply for and to be issued a wastewater discharge permit, prior to discharging CAFO wastewater to waters of the state, directly or indirectly, is a violation of Section 3112 of Part 31, MCL 324.3112, and Rule 232.2196, Mich. Admin. Code R. 232.2196.

Illegal Discharge of Injurious Substances to Surface Waters

On October 12 and November 1, 2022, samples of wastewater with the potential to contaminate ground and surface water, based upon the lack of proper containment and proximity to waters, and samples from the receiving surface water, McCallum Drain, were collected at locations described below and identified in the enclosures Table 1 and Table 2.

November 1st samples were analyzed for the following parameters: dissolved oxygen (DO), conductivity, total dissolved solids (TDS), chloride, Kjeldahl nitrogen, pH, turbidity, copper, total and ortho-phosphorus, ammonia, biochemical oxygen demand (BOD), and *E. coli* bacteria. Surface water samples collected on October 12th were analyzed for the following parameters: DO, conductivity, TDS, chloride, Kjeldahl nitrogen, pH, turbidity, total and ortho-phosphorus, ammonia, BOD, and *E. coli* bacteria. Sample results are identified in the enclosures Table 1 and Table 2.

Discharges of leachate and wastewater were observed at the Mushroom Road Facility, the Crawford Facility, the Heifer Facility, and Lamton Road on both October 12 and November 1, 2022. The Mushroom Road discharges were observed at the southeast, southwest, and central portions of the silage storage; the waste piled on the ground at various locations throughout the production area, including between the free stall barns, east of the hoop barn storage, the calf barns and calf hutches; and the waste stored east of the free stall barns. Samples were collected and analyzed from the stormwater ditch near the southwest corner of the silage pad, which had a visually confirmed direct hydrologic connection to McCallum Drain (location D5 - "Leachate - SW Corner Mushroom Facility"), and from the collection sump in the field located south of the silage pad (location D3 - "Sump at Mushroom Facility"). Concentrated areas of burned vegetation, consistent with nutrient/chemical burn, were observed in the field immediately south of the silage pad, indicating a high nutrient runoff and/or leachate discharge from the south edge of the silage pad.

A discharge of wastewater was previously documented at the Mushroom Road Facility in September 2021. Wastewater from the area surrounding the calf barns and hutches was documented entering the ditch east of the production area and flowing north along Lamton Road. The inspections on October 12 and November 1, 2022, identified concrete, gutters, and collection sumps have been constructed in some of the areas around the calf barns and hutches where the discharge was observed in 2021. However, these efforts are not sufficient to prevent the discharge of runoff and leachate from this part of the production area. Additionally, waste is piled in several areas that do not have waste storage which is documented to comply with either National Resources Conservation Service (NRCS) Conservation Practice Standard No. 313 for Waste Storage Facilities (NRCS 313 Standards) or the Groundwater Rules contained in Mich. Admin. Code, R. 323.2201 *et seq.* These areas were exposed to direct precipitation, and there was inadequate collection of the resulting runoff and leachate.

On October 12, 2022, waste from Zimba Farms was also observed in the McCallum Drain, west of the Mushroom Road Facility. You stated a manure tanker had spilled in this location the previous day. Makeshift berms had been installed to inhibit movement of the waste downstream and efforts to remove some of the waste had been undertaken; however, waste was still present in the McCallum Drain, apparent based on both visual and olfactory indications.

On October 12, 2022, surface water samples were collected upstream of the discharge, at the discharge location, and downstream of the discharge (Table 1 & 2). Based on these results, the manure spill caused violations of the Water Quality Standards in McCallum Drain for DO, ammonia, chloride, TDS, and *E. coli* under Mich. Comp. Laws, R 323.1041 *et seq.*

On both October 12 and November 1, 2022, wastewater discharges were observed at the Heifer Facility from the waste piles stored on the ground to the north and the south of the main building and from the area adjacent to the waste storage structure and feedlots. Samples of the waste discharging from the waste piled south of the building were collected and analyzed (location D4 - "Leachate - S End of Heifer Barn"). An additional sample was collected from waste pooled in the pasture east of the barns (location D6 - "Heifer Pasture Gully Pool") and analyzed for *E. coli*. The pool was located on bare ground in close proximity to McCallum Drain and was observed on both October 12 and November 1, 2022.

At the Crawford Facility, wastewater, including leachate from the silage storage, was observed ponded in trenches behind makeshift berms east of the silage storage, in the area between the barns and silos, in the area west of the silage storage, and from waste piled on the ground west of the newly constructed free stall barn. The berms east of the silage storage appear to be constructed from the fine sand and silt soils identified in the area, and wastewater can pass through these soils. Samples of the leachate and wastewater ponded around and discharging from the silage at this location were collected and analyzed (location D1 - "Leachate - Crawford Facility"). Directly east of the Crawford Road facility, on the west bank of McCallum Drain, EGLE staff observed a field tile with unnatural quantities of biological slimes present inside in the surface water immediately below. This is indicative of a violation of R 323.1060 (Plant nutrients).

EGLE staff observed a makeshift berm constructed from the existing permeable soils surrounding the waste piled at Lamton Road and adjacent to the North Branch White Creek. Following the September 2021 discharge from this waste pile, you identified a plan to remove the waste from this area and construct an alternative storage building for the compost waste generated by Zimba Farms. You told EGLE staff that the waste removed from this site would be land applied to agricultural fields. During the October 12 and November 1, 2022, inspections, it appeared some of the waste first observed in 2021 has been removed; however, the majority of waste still appeared to be present at the site. Records for the land application of the material that was removed from this site were requested; however, no land application records for this waste were provided. On November 1, 2022, samples of the wastewater and leachate pooled behind these berms were collected and analyzed (location D2 - "Leachate - Compost Pile at Lamton").

A building has been constructed at the Mushroom Road Facility as you identified; however, review of construction documents for this building are insufficient to demonstrate it was constructed to the NRCS 313 Standard or in accordance with Mich. Admin. Code, R. 323.2237. In particular, the documents are preliminary and do not contain the necessary as built information; moreover, they are not signed or stamped by a physical engineer. The building is used to store hay/straw, equipment, and compost waste; however, waste remains piled on bare ground at all of Zimba Farms' facility. These waste piles are exposed to direct precipitation and lack a collection system for runoff and leachate.

The results of the analyses conducted on the wastewater samples discussed above can be found in Table 1 and Table 2. Pursuant to Rule 57, the wastewater contained copper, ammonia, and chloride at levels that would be chronically or acutely toxic to aquatic life if discharged to McCallum Drain, and the concentrations in the wastewater correspond to the toxic levels of these substances found in McCallum Drain. Levels of *E. coli* in the wastewater would pose an elevated risk to human health during bodily contact if discharged to surface water and were similar to the extremely high levels of *E. coli* found in McCallum Drain. The wastewater also had high BOD and nutrient levels (total phosphorus, orthophosphorus and Kjeldahl nitrogen), corresponding with elevated levels of these parameters found in McCallum Drain. High levels of nutrients and oxygen demanding substances are the cause of dissolved oxygen depletion in surface water, leading to low DO such as the WQS violations found in McCallum Drain at various points at and upstream of Gilford Road. The wastewater and surface water results when considered together support EGLE's conclusion that the discharges contained injurious substances.

The discharges described above constitute violations of Section 324.3109(1) of Part 31 of the NREPA, which states in part:

- A person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to any of the following:*
- (a) To the public health, safety, or welfare.*
 - (b) To domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters.*
 - (c) To the value or utility of riparian lands.*
 - (d) To livestock, wild animals, birds, fish, aquatic life, or plants or to their growth or propagation.*
 - (e) To the value of fish and game.*

Illegal Discharge of Injurious Substances to Groundwater

A shallow boring advanced with a hand auger on November 1, 2022, identified surficial deposits comprised of fine sands and silts. These earth materials represent a moderate degree of permeability that allows for the transmission of liquids from the surface to the underlying groundwater aquifer.

AFOs may discharge to groundwater without a groundwater discharge permit if they comply with Part 31 Rules pertaining to groundwater quality, including Mich. Admin. Code, R 323.2204. See Mich. Admin. Code, R 323.2210(f).

Rule 2204(2)(a) states that any discharge to groundwater “shall not be, or not be likely to become, injurious.” Based on the analytical results from the surficial wastewater and the permeable nature of the surficial earth materials, the injurious surface water discharges at Zimba Farms, described above, are likely to permeate the soil and create injurious groundwater conditions in violation of Rule 2204. Under Rule 2210(f), AFOs in violation of Rule 2204 may not discharge to the groundwater without a permit. Therefore, either a groundwater discharge permit must be obtained, or a demonstration must be made by Zimba Farms that their discharges to groundwater are not injurious. Such a demonstration would require installing shallow monitoring wells in areas of concern.

Failure to Comply with Waste Structure Engineering Standards

Documentation verifying construction of the waste storage structures at Zimba Farms complied with the NRCS 313 Standard or the construction standards in Mich. Admin. Code, R 323.2237 was not provided. An engineering evaluation for the waste storage structure at the Heifer Facility documented the structure did not meet the NRCS 313 Standard or an Environmental Performance Equivalent. Zimba Farms must either demonstrate that its waste storage structures currently comply with either NRCS 313 Standard and Rule 323.2237 or bring its waste storage structures into compliance with these standards.

Violation of Water Quality Standards

As discussed above, samples of surface waters surrounding Zimba Farms were collected on October 12 and November 1, 2022. The sample locations included various portions of the McCallum Drain, including the headwaters located directly east of the Heifer Facility; between the Mushroom Road and Crawford Road facilities; in and around the October 12, 2022, manure truck spill, and at Gilford Road.

Edward Zimba
Page 6
March 3, 2023

The results of these analyses confirm violations of the Part 4 Water Quality Standards in surface waters for DO (Rule 64), chloride (Rule 57), TDS (Rule 51), copper (Rule 57), ammonia (Rule 57), and E. coli (Rule 62) resulting from discharges of wastewater from Zimba Farms. See Mich. Admin. Code, R 323.1041 *et seq.* Results of the analyses conducted on surface waters surrounding Zimba Farms are provided in the enclosures Table 1 and Table 2.

Additionally, the documented conditions found in McCallum Drain on October 12, 2022, in the vicinity of the manure truck spill and November 1, 2022, near the Heifer Facility and extending to the site of the aforementioned manure spill, indicate violations of R 323.1050 (specifically a] turbidity and b] color).

The violations identified in this Violation Notice are continuing.

Zimba Farms should take immediate action to achieve and maintain compliance with the terms and conditions of Part 301, Part 303, and Part 31.

Permit applications for the culverts and fill in the wetland and stream areas should be submitted no later than thirty days from your receipt of this Violation Notice. Alternatively, and within that same time frame, the culverts and fill must be removed, these areas must be restored to their previous condition including reestablishment of the prior grades and stabilizing the banks with appropriate native vegetation. Additionally, the fill placed in the ditch to berm the manure spill shall also be removed.

The ongoing discharges of wastewater to waters of the state should be halted immediately.

Applications for NPDES CAFO and Groundwater permits shall be submitted no later than thirty days from your receipt of this Violation Notice.

If you have any factual information you would like the WRD to consider regarding the violations identified in this Violation Notice, please provide them with your written response.

Compliance with the terms of this Violation Notice does not relieve Zimba Farms of any liability, past or present, from failure to comply with Part 301, Part 303, Part 31, or any other applicable state or federal law.

The WRD reserves its right to take all necessary and appropriate enforcement actions for all violations observed to date and any violations that occur in the future. This may include civil action seeking fines, enforcement costs, injunctive relief, and potential criminal prosecution.

We anticipate and appreciate your cooperation in resolving this matter. Should you require further information regarding this Violation Notice or if you would like to arrange a meeting to discuss it, please contact Audrey Schwing at SchwingA@Michigan.gov; 989-590-0662 or EGLE, WRD, 401 Ketchum Street, Bay City, Michigan 48708.

Sincerely,



Charles Bauer, District Supervisor
Bay City District Office
Water Resources Division

Edward Zimba
Page 7
March 3, 2023

Enclosures:

Table 1. Site locations and results from surface waters (McCallum Drain) and wastewaters (D1-D6) collected October 12 and November 1, 2022.

Table 2. Water chemistry results from surface waters (McCallum Drain) and wastewaters (D1-D6) collected October 12 and November 1, 2022.

cc w/enc: Aaron Phelps, Varnum Law
Elizabeth Morrisseau, Department of the Attorney General
Rebecca Smith, Department of the Attorney General
Susan Doty, EGLE
Charles Bauer, EGLE
Audrey Schwing, EGLE
Helana Nelson, EGLE
Molly Rippke, EGLE
Eric Chatterson, EGLE

Table 1. Site locations and results from surface waters (McCallum Drain) and wastewaters (D1-D6) collected October 12 and November 1, 2022.

Site	Description	Date	Latitude	Longitude	DO mg/L	Conductivity us/cm	TDS (calc) mg/L	pH	Turbidity NTU
790253- S of Spill	McCallum Drn -S (upstream) of Manure Truck Spill	10/12/2022	43.48655	-83.11392	3.16	1074	926	7.56	244
790254- N of Spill	McCallum Drn -N (downstream) of Manure Truck Spill	10/12/2022	43.48732	-83.11391	5.76	651	540	7.52	31
790258- Spill	McCallum Drn - Spill	10/12/2022	43.48693	-83.11381	0.74	7889	6667	7.59	135
790255	McCallum Drn - E Gilford Rd	10/12/2022	43.50081	-83.12277	7.34	689	574	7.85	23
790252	McCallum Drn - S of Mushroom Rd	11/1/2022	43.48273	-83.11373	3.31	7176	6144	8.11	153
790257	McCallum Drn - Between Farm 1 and 2 - S of Gilford Rd	11/1/2022	43.49716	-83.12257	6.76	1652	1356	7.79	62
790255	McCallum Drn - E Gilford Rd	11/1/2022	43.50081	-83.12277	3.17	1754	1511	7.79	112
D1	Leachate - Crawford Facility	11/1/2022	43.497791	-83.125863	3.18	11253	8358	4.38	220
D2	Leachate - Compost Pile at Lamton	11/1/2022	43.507379	-83.114216	6.77	7046	6123	8.66	27
D3	Sump at Mushroom Facility	11/1/2022	43.487001	-83.111450	3.67	4455	3775	7.56	199
D4	Leachate - S End of Heifer Barn	11/1/2022	43.482771	-83.120268	3.17	5686	4710	8.27	155
D5	Leachate - SW Corner Mushroom Facility	11/1/2022	43.487336	-83.112943	3.32	1031	790	6.67	53
D6	Heifer Pasture Gully Pool	11/1/2022	43.484127	-83.113943					

Table 2. Water chemistry results from surface waters (McCallum Drain) and wastewaters (D1-D6) collected October 12 and November 1, 2022.

Description	Date	E. coli MPN/100mL	Ammonia-N mg/L	Chloride mg/L	Total Copper ug/L	Kjeldahl Nitrogen-N mg/L	Ortho Phosphate-P mg/L	Total Phosphorus-P mg/L	BOD mg/L
McCallum Drn -S (upstream) of Manure Truck Spill	10/12/2022	68,685	19	110	NA	32	0.71	4.5	58
McCallum Drn -N (downstream) of Manure Truck Spill	10/12/2022	19,755	7.5	34	NA	8.1	0.19	0.38	8.5
McCallum Drn - Spill	10/12/2022	180,901	380	560	NA	450	18	64	966
McCallum Drn - E Gilford Rd	10/12/2022	42,662	0.1	58	NA	1.8	0.19	0.34	4.20
McCallum Drn - S of Mushroom Rd	11/1/2022	241,960	300	620	6100	320	12	30	924
McCallum Drn - Between Farm 1 and 2 - S of Gilford Rd	11/1/2022	4,600	13	110	250	20	0.74	1.6	17.9
McCallum Drn - E Gilford Rd	11/1/2022	34,441	21	120	450	28	0.93	2.9	38.7
Leachate - Crawford Facility	11/1/2022	3,930	260	520	48	470	440	530	28,400
Leachate - Compost Pile at Lamton	11/1/2022	2,851	43	510	100	87	8.9	15	34.7
Sump at Mushroom Facility	11/1/2022	111,990	97	500	280	110	20	24	98.4
Leachate - S End of Heifer Barn	11/1/2022	3,550	5.3	650	260	110	7.2	11	30.4
Leachate - SW Corner Mushroom Facility	11/1/2022	4,106	11	45	5.6	12	0.83	1.5	128
Heifer Pasture Gully Pool	11/1/2022	241,960	NA	NA	NA	NA	NA	NA	NA

NA-Not Analyzed

ND-Not Detected

Exceeds the AMV and FCV (Rule 57)

Exceeds the FCV (Rule 57)

Violates DO warmwater fishery WQS

Exceeds the daily Pathogen TBC WQS

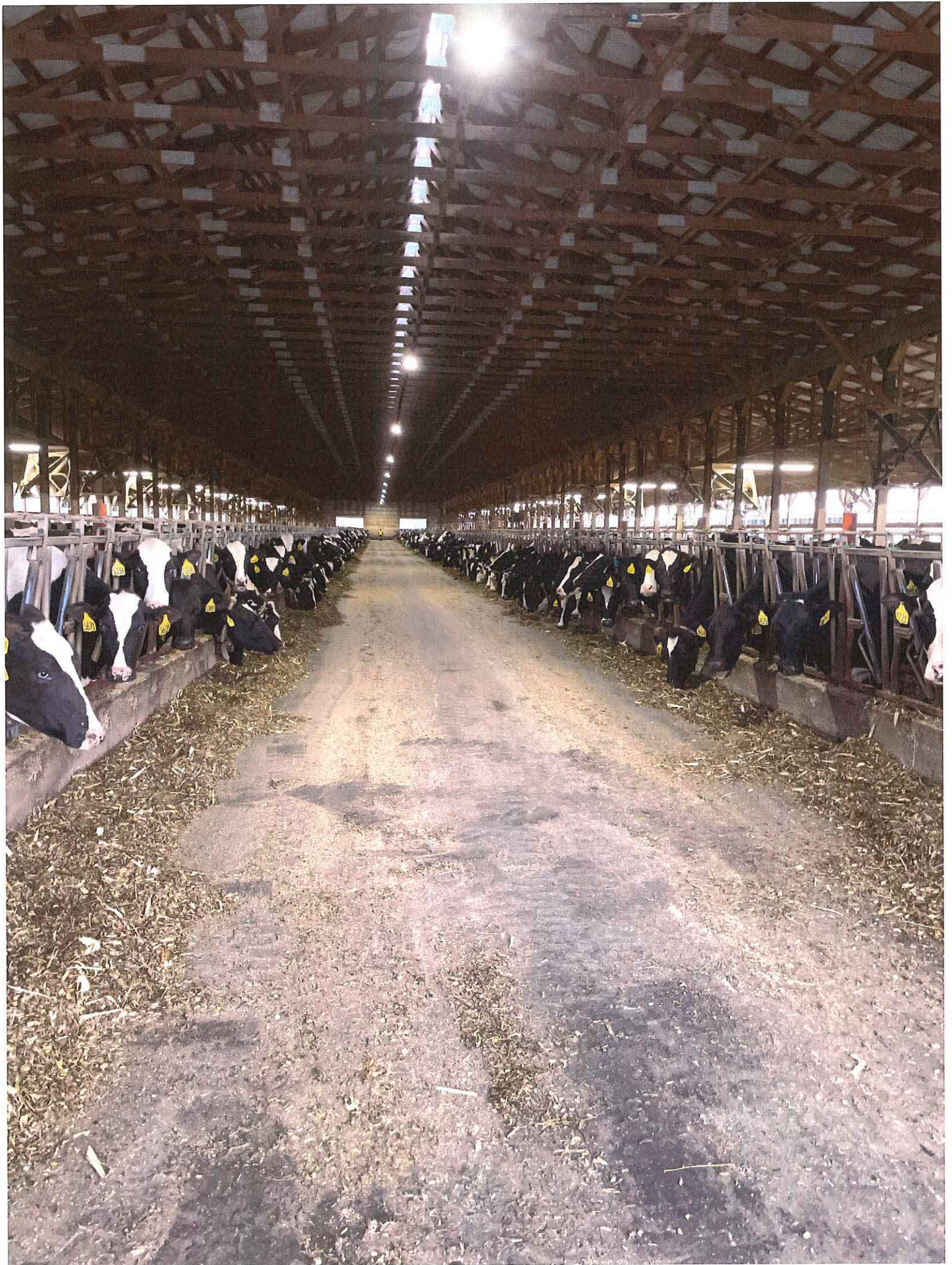
Exceeds the daily Pathogen PBC WQS

Exceedances of the TDS Rule 323.1051 (750 mg/L at any time) as a result of
controllable point sources or spills

EXHIBIT Y



EXHIBIT Z



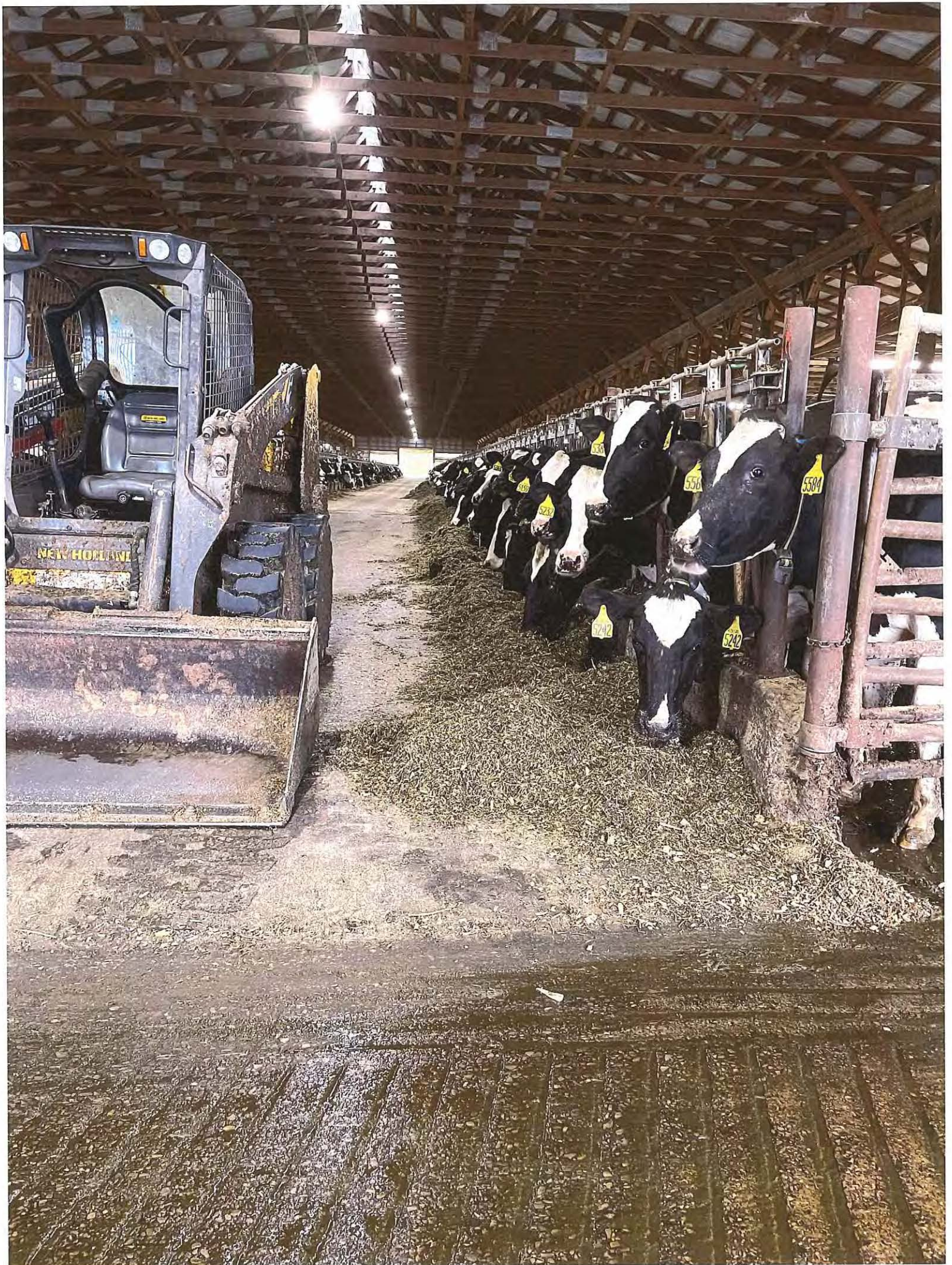




EXHIBIT AA





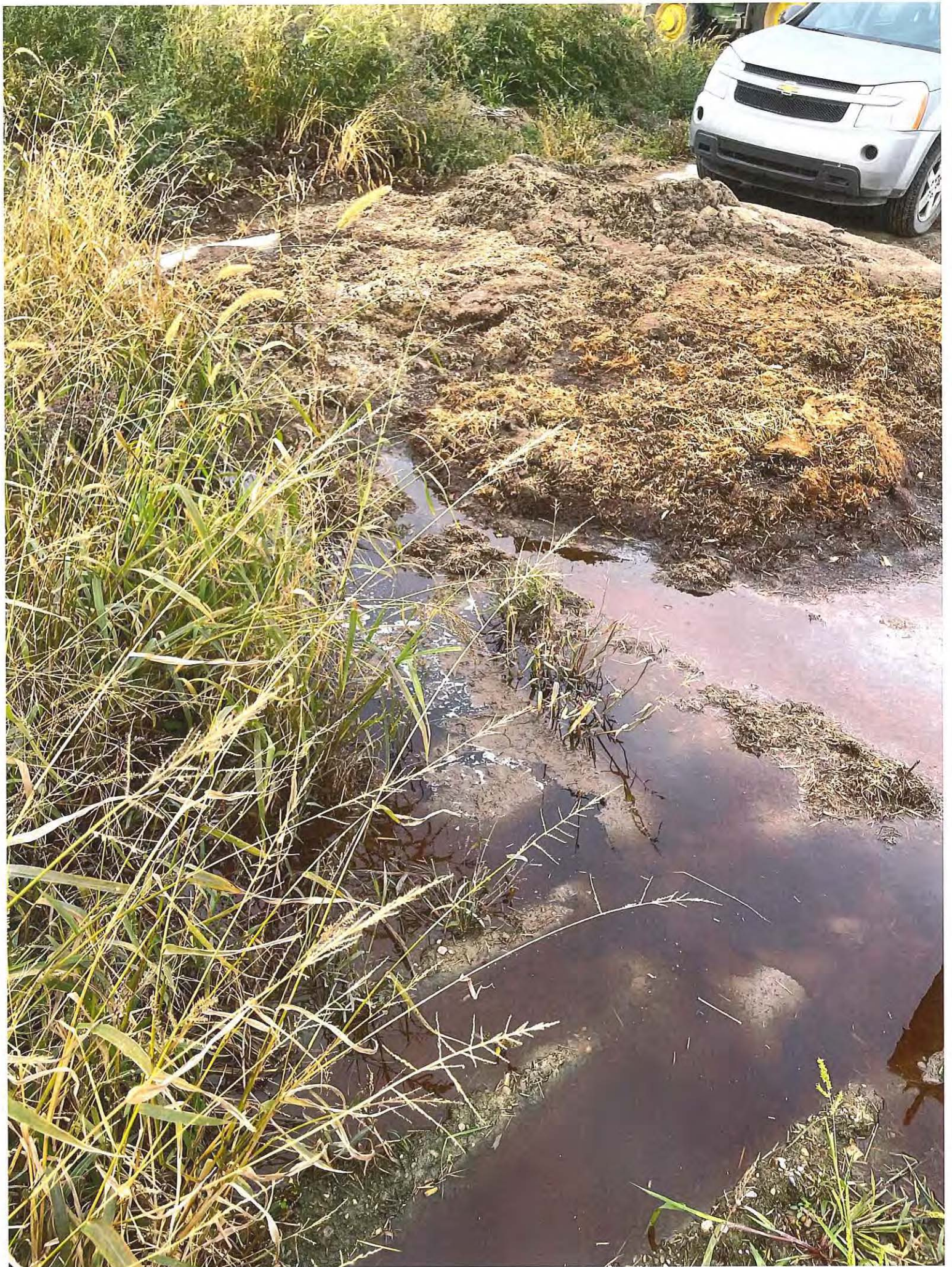


EXHIBIT BB



EXHIBIT CC





EXHIBIT DD









EXHIBIT EE



EXHIBIT FF



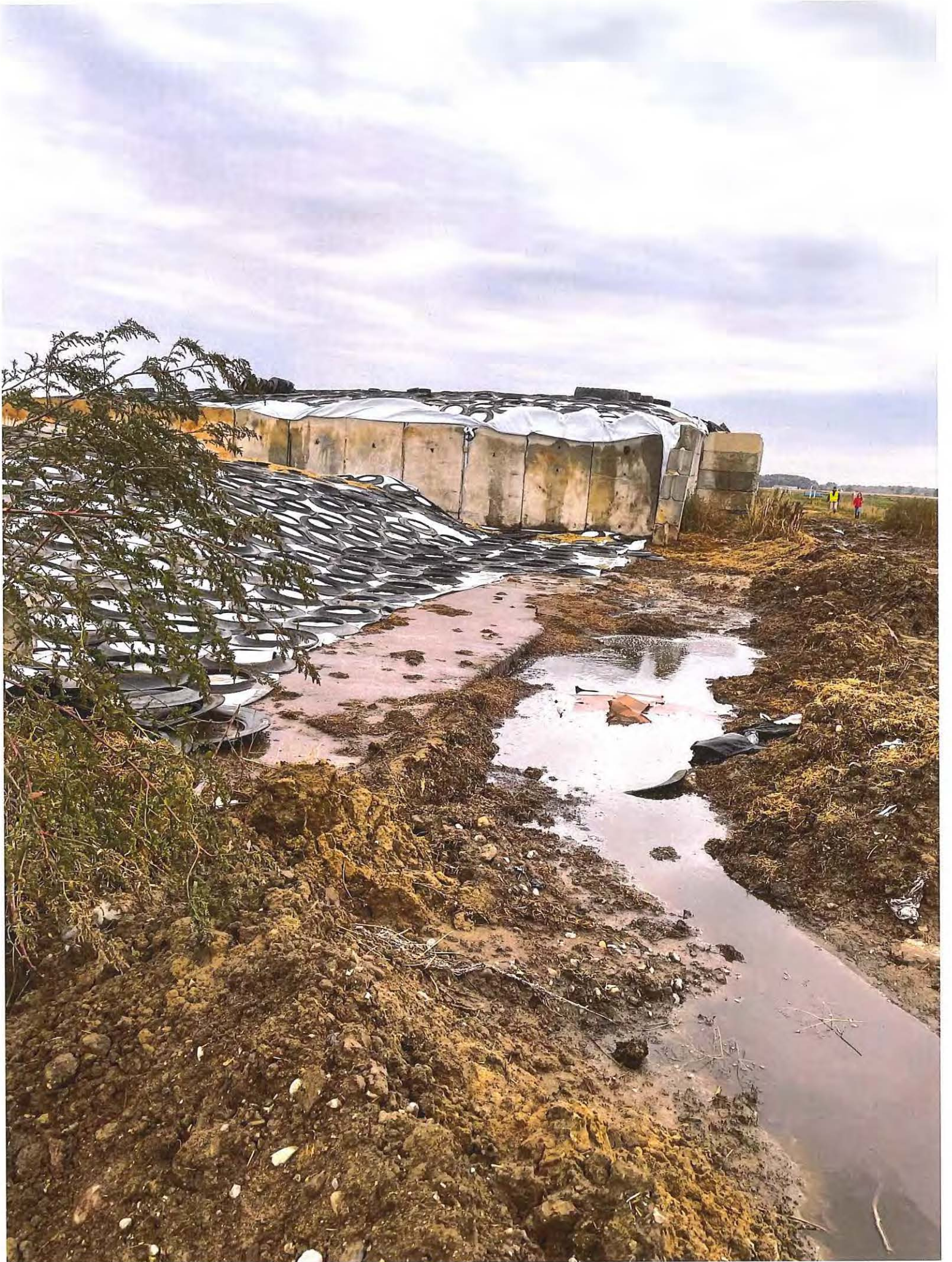


EXHIBIT GG



