Fields of Opportunities

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

December 23, 2013

Dairy Venture LLC
ATTN: Ralph Staal
1350 Waubeek RD
Central City IA 52214

RE: **Notice of Violation** – 567 IAC—61.3(2) General water quality criteria
Code of Iowa 455B.186.1 Prohibited Actions
567 IAC—65.2(3) Minimum Manure Control

Fish kill investigation – Unnamed tributary of Wapsipinicon River

We have enclosed the inspection report prepared by our Field Office Staff regarding a fish kill investigation on December 3rd and 4th, 2013. Analytical results from water samples and a report from our Fisheries staff are included.

The discharge of manure from the dairy to a water of the state is a violation of Iowa Administrative Code 567—61.3(2) General Water Quality Criteria, Code of Iowa 455B.186.1 Prohibited Actions, and IAC 567-65.2(3) Minimum Manure Control.

You will find the inspection report self-explanatory. The requirements identified in the conclusion of this report must be completed within the time frames listed.

This notice does not preclude the DNR from pursuing additional enforcement actions regarding these or any other violations

Should you have any questions, do not hesitate to write or call this office.

Sincerely,

ENVIRONMENTAL SERVICES DIVISION

Tom McCarthy

Tom McCarthy
Environmental Specialist Senior

Encs.

cc: DNR - Legal Services Bureau - Des Moines
Efile G: 57 FK Dairy Venture LLC Fish Kill nroi 120313 bdj
File – Fishkill/Linn
File – Dairy Venture LLC, 63902

IOWA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL SERVICES DIVISION
Field Office 1
909 West Main - Suite 4, Manchester, Iowa 52057
Phone: (563) 927-2640 FAX: (563) 927-2075

REPORT OF INVESTIGATION

INVESTIGATION DATES **CURRENT:** December 3 & 4, 2013 **LAST:** N/A

TO: Dairy Venture LLC
Attn: Ralph Staal, Owner/Operator
1350 Waubeek Road
Central City, IA 52214

SUBJECT: Unnamed tributary to Wapsipinicon River fish kill investigation

PERSONS CONTACTED:
Ralph Staal, Dairy Venture LLC, Owner/Operator
Jordan Staal, Dairy Venture LLC, Operator
Kris Taube, Taube Excavation, Contractor for Emergency Activities
Paul Sleeper, Natural Resources Biologist
Chris Mack, Natural Resources Technician II

AUTHENTICATION

INSPECTOR: Brian Jergenson **DATE:** 12/20/13
Brian Jergenson, Environmental Specialist

REVIEWER: Tom McCarthy **DATE:** 12/20/13
Tom McCarthy, Environmental Specialist Senior

File Name: 57 FK Dairy Venture LLC Fish Kill nroi 120313 bdj
DNR Spill #: 120313-BDJ-1445

OBSERVATIONS/RECOMMENDATIONS:

December 03, 2013
2:45 PM
Ralph Staal, Dairy Venture LLC (Facility ID #63902), phoned DNR Field Office #1 to report that manure from his dairy had entered an unnamed tributary to the Wapsipinicon River due to a release from the manure handling system at Dairy Venture LLC. Mr. Staal estimated the release had occurred for up to an hour at 1500 gallons per minute before it was discovered and the pump was shut down. I recommended that Mr. Staal take action to immediately stop the flow of manure from entering the unnamed tributary.

4:15 PM (approximate)
Brett Meyers (DNR FO #1) and I arrived at the Dairy Venture facility located at 1350 Waubeek Road, Central City, Iowa, and met with Ralph Staal. Ralph explained that manure had overtopped an earthen berm adjacent to the dairy's sand lane. The manure had traveled northeast to the south ditch of Waubeek Road. From the south ditch the manure crossed under the road via a culvert to the north road ditch where it continued east and entered the unnamed tributary approximately ½ mile east of the dairy. Brett and I proceeded from the dairy to the unnamed tributary. We observed that an earthen dike had been constructed in the ditch just west of the unnamed tributary to prevent additional manure from entering the tributary. Field sampling directly below the earthen dike in the tributary indicated ammonia nitrogen greater than (>) 3 parts per million (ppm) using a Hach field test kit. Manure solids, water, and sand were visibly present in the ditch above the dike and evidence that manure had entered the tributary prior to the dike being constructed was present. Water in the tributary 20 feet downstream of the earthen dike tested less than (<) 3 ppm using field sampling methods.

4:30 PM (approximate)
Brett and I traveled ½ mile north to a location where the tributary crosses Leona Lane through a large culvert. On the upstream side of the Leona Lane culvert an earthen dam had been created to prevent impacted water from traveling further down the tributary. Ralph Staal said he planned to pump and land-apply impacted water from above the dam throughout the night to

catch the slug of manure laden water that was likely present in the ½ mile of stream between Waubeek Road and Leona Lane. Field sampling both upstream and downstream of the dam at this time indicated ammonia nitrogen less than (<) 3 ppm.

Brett and I were able to observe the following conditions before leaving the spill around 5:00 PM under dense fog and darkness:

- Ammonia nitrogen less than (<) 3.0 parts per million (ppm) was observed in the unnamed tributary 20 feet downstream of the Waubeek Road ditch dike and directly above and below the Leona Lane dam using a Hach field test kit.
- Ammonia nitrogen greater than (>) 3.0 ppm was observed in the unnamed tributary directly downstream of the Waubeek Road ditch dike (directly behind the dike in the tributary).

During our conversation with Ralph Staal, Brett and I discussed the results of field sampling for ammonia nitrogen. I explained that although field samples collected 20 feet downstream of the road ditch dike and just above the Leona Lane dam showed impact less than (<) 3.0 ppm ammonia nitrogen, it was likely that a slug of impacted water was traveling between the two points. I agreed with Ralph's plan to pump the tributary throughout the night to remove the slug of impacted water and recommended that he contact the Linn County Road Department as soon as possible due to the diking activities and manure in the right-of-way. I also notified Ralph we would expect the manure in the ditch to be cleaned up to the best of his ability to ensure future impact to the tributary would be prevented. I told Ralph that I would visit the following day.

December 4, 2013
10:00 AM
Chris Gelner and I arrived at the spill location to follow up on the recent night's activities. The dairy was still pumping manure-laden water above the dam on Leona Lane and had been throughout the night. Upon reaching the unnamed tributary just downstream (north) of the earthen dike in the Waubeek Road ditch we observed approximately 20 dead fish floating on the water.

10:05 AM
Chris and I observed a 4 inch clay tile discharging manure-laden water to the unnamed tributary. The inlet to the surface tile was found to be located in the Waubeek Road ditch upstream of the earthen dike. It appeared that as manure-laden water was building up behind the dike in the ditch the unmarked tile line had become the main transport mechanism to the tributary. Dead fish were observed both above and below this tile line discharge point, but not above the original location where manure entered the tributary (Waubeek Rd Ditch).

10:15 AM
Chris and I showed Ralph Staal the dead fish we observed as well as the tile line discharging manure to the tributary; we also showed him the tile line inlet. We recommended that Ralph take action to stop the discharge immediately.

10:20 AM
I notified Paul Sleeper (Fisheries Biologist) of the observed fish kill. Paul said he and Chris Mack would be on the road to our location shortly.

10:25 AM
Chris Gelner sampled water from the tile outlet at its discharge point to the unnamed tributary for laboratory analysis (ammonia nitrogen). The sample sent to the lab was labeled **Tile Outlet/2-153**. Field tests on the water indicated ammonia nitrogen greater than (>) 3 ppm, a pH of 8.8 Standard Units, and a temperature of 44 degrees Fahrenheit. Dead fish were observed at this location; no live fish were noted.

Lab Testing for **Tile Outlet/2-153** indicated ammonia nitrogen as N = **730 mg/L**.

10:28 AM
Chris Gelner sampled water approximately 20 feet from downstream of the tile outlet for lab analysis (ammonia nitrogen). The sample sent to the lab was labeled **Downstream Tile Outlet/2-139**. Field tests on the water indicated ammonia nitrogen as greater than (>) 3 ppm, a pH of 8.8 Standard Units, and a temperature of 38 degrees Fahrenheit. Dead fish were observed at this location; no live fish were noted.

Lab Testing for **Downstream Tile Outlet/2-139** indicated ammonia nitrogen as N = **7.8 mg/L**

10:30 AM
Ralph Staal attempted to plug the tile intake with a shovel and dirt; his efforts caused the tile discharge to decrease significantly to a trickle.

10:40 AM
Chris Gelner sampled water from just upstream of the Waubeek Road ditch for lab analysis. This location represents water from above (upstream) any known entry points of the manure spill. The sample sent to the lab was labeled **Upstream**

Discharge/2-572. Field tests indicated ammonia nitrogen less than (<) 3 ppm, a pH of 9.3 Standard Units, and a temperature of 38 degrees Fahrenheit. Live fish were observed at this location; no dead fish were noted.

Lab Testing for **Upstream Discharge/2-572** indicated ammonia nitrogen as N = **.21 mg/L**

11:20 AM
Paul Sleeper and Chris Mack arrived onsite to do a fish count (see attached). Chris Gelner and I accompanied them to assist them in determining the downstream extent of the fish kill. The four of us observed the creek bed as being dry approximately 100 yards upstream of the confluence of the tributary and the Wapsipinicon River, indicating the tributary was not currently flowing to the river. This was later confirmed by Chris Mack and Paul Sleeper during their fish count. We accessed the tributary where it crosses land owned by Doug Thompson at 4378 Bridgeout Road and we observed heavy ice cover. However, I was able to field test the water and found the results to be greater than (>) 3 ppm ammonia nitrogen. This location was downstream of the Leona Lane dam and pumping activities. Access to flowing water was not available downstream of this location due to ice followed by dry creek bed conditions.

Doug Thompson inquired as to whether he should allow his open lot cattle access to the tributary to drink water. Doug said they did have alternate water available near the farmstead and he was uncertain if they were using the tributary as a source of water. We recommended Doug call his vet if he had concerns regarding the high-ammonia water in the tributary.

We traveled back to the Leona Lane culvert, field tested water, and found that Ammonia nitrogen was present in concentrations greater than (>) 3 ppm above and below the dam. We notified contractor Kris Taube that the dam appeared to be allowing ammonia-laden water downstream; Kris said he planned to reinforce the dam. We also told Kris about the tile line that had been temporarily plugged in the Waubeek Road ditch by Ralph Staal and recommended that he and Ralph both monitor the tile to ensure it did not begin flowing again.

12:40 PM
Chris Gelner and I observed that the tile line leading from the Waubeek Road ditch to the tributary was again transporting manure-laden water at approximately 1 gallon per minute. Chris and I notified Ralph and his contractor (Kris Taube) of the importance of stopping the discharge immediately.

1:25 PM
Doug Thompson called me and said he had a sick cow that needed to be put down and inquired whether it could be from drinking ammonia-laden water. I told Doug I was unsure, but again recommended he call his vet. I also gave Doug my office number and asked him to request to speak to Tom McCarthy, Environmental Specialist Senior, if he wished to further discuss with DNR staff.

1:30 PM
Chris Gelner and I met with Jordan Staal at the Dairy Venture facility. We observed the area of overflow and took pictures of the residue leading offsite to the road ditch.

CONCLUSIONS:

On December 3rd and 4th, 2013, DNR FO #1 responded to a report of a manure release to an unnamed tributary of the Wapsipinicon River. The release originated from Dairy Venture LLC's sand lane and resulted in manure reaching the unnamed tributary via the Waubeek Road ditch and an unmarked surface tile line. Evidence that the manure entered the tributary was obtained by visual observations, field testing, and the results of water samples collected and sent to the State Hygienic Laboratory for analysis. Impact to the tributary was documented downstream (north) of the Waubeek Road ditch and extended to ice-covered water just beyond 4378 Bridgeout Road. Failure to control manure from the confinement resulted in manure control violations, water quality violations, and a fish kill.

Violations of 567 IAC 61.3(2), Code of Iowa 455B.186.1, and 567 IAC 65.2(3) were noted during this investigation (copies enclosed).

RECOMMENDATIONS:

Review and revise manure handling and storage practices; revise as necessary to prevent manure releases.

REQUIREMENTS:

Dairy Venture LLC is directed to submit a written report of remedial actions to this office **within 30 days** from receipt of this report. In the report, Dairy Venture LLC must also estimate the amount of manure that overflowed from the manure handling structure and describe what actions will be taken to prevent similar occurrences in the future.

Dairy Venture LLC is directed to report hazardous conditions to the department at 515/281-8694 within 6 hours of occurrence or discovery as per IAC 567-131.2.

Dairy Venture Sand Lane (Looking East)

Location of Overflow From Sand Lane Berm (Looking West)

Manure Solids, Sand and Water; Entering North Side Waubeek Road Ditch via Culvert

Unnamed Trib., Earthen Berm and Liquid in Waubeek RD Ditch (Looking West)

Leona Lane Dam and Pump (Looking South/Upstream)

Dead Fish

567 IAC 65.2(3) The minimum level of manure control for a confinement feeding operation shall be the retention of all manure produced in the confinement enclosures between periods of manure application and as specified in this rule. In no case shall manure from a confinement feeding operation be discharged directly into a water of the state or into a tile line that discharges to waters of the state.

a. Control of manure from confinement feeding operations may be accomplished through use of manure storage structures or other manure control methods. Sufficient capacity shall be provided in the manure storage structure to store all manure between periods of manure application. A confinement feeding operation, other than a small animal feeding operation, that is constructed or expanded on or after July 1, 2009, shall not surface-apply liquid manure on frozen or snow-covered ground when there is an emergency, as described in subrule 65.3(4), unless the operation has a minimum of 180 days of manure storage capacity. Additional capacity shall be provided if precipitation, manure or wastes from other sources can enter the manure storage structure.

b. Manure shall be removed from the control facilities as necessary to prevent overflow or discharge of manure from the facilities. Manure stored in unformed manure storage structures or unformed egg washwater storage structures shall be removed from the structures as necessary to maintain a minimum of two feet of freeboard in the structure, unless a greater level of freeboard is required to maintain the structural integrity of the structure or prevent manure overflow. Manure stored in unroofed formed manure storage structures or formed egg washwater storage structures shall be removed from the structures as necessary to maintain a minimum of one foot of freeboard in the structure unless a greater level of freeboard is required to maintain the structural integrity of the structure or prevent manure overflow.

c. To ensure that adequate capacity exists in the manure storage structure to retain all manure produced during periods when manure application cannot be conducted (due to inclement weather conditions, lack of available land disposal areas, or other factors), the manure shall be removed from the manure storage structure as needed prior to these periods.

d. Dry manure or dry bedded manure originating at a confinement feeding operation may be retained as a stockpile so long as the stockpiled dry manure or dry bedded manure meets the following:

(1) Dry manure stockpiling requirements provided in subrule 65.2(10) or dry bedded manure stockpiling requirements provided in subrule 65.2(11).

(2) Applicable NPDES requirements pursuant to the federal Water Pollution Control Act, 33 U.S.C. Ch. 26, and 40 CFR Pts. 122 and 412.

(3) The dry manure or dry bedded manure is removed from the stockpile and applied in accordance with 567—65.3(459,459B) within six months after the dry manure or dry bedded manure is first stockpiled.

(4) Dry manure stockpiles are not required to meet the requirements in subparagraphs (1) to (3) above if the dry manure originates from a confinement feeding operation that was constructed prior to January 1, 2006, unless any of the following apply:

1. The confinement feeding operation is expanded after January 1, 2006.
2. Dry manure is stockpiled in violation of subrule 65.2(3).
3. Precipitation-induced runoff from the stockpile has drained off the property.

455B.186.1 A pollutant shall not be disposed of by dumping, depositing, or discharging such pollutant into any water of the state, except that this section shall not be construed to prohibit the discharge of adequately treated sewage, industrial waste, or other waste pursuant to a permit issued by the director. A pollutant whether treated or untreated shall not be discharged into any state-owned natural or artificial lake.

567 IAC 61.3(2) General water quality criteria. The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times for the uses described in 61.3(1)"a."

a. Such waters shall be free from substances attributable to point source wastewater discharges that will settle to form sludge deposits.

b. Such waters shall be free from floating debris, oil, grease, scum and other floating materials attributable to wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.

c. Such waters shall be free from materials attributable to wastewater discharges or agricultural practices producing objectionable color, odor or other aesthetically objectionable conditions.

d. Such waters shall be free from substances attributable to wastewater discharges or agricultural

practices in concentrations or combinations which are acutely toxic to human, animal, or plant life. e. Such waters shall be free from substances, attributable to wastewater discharges or agricultural practices, in quantities which would produce undesirable or nuisance aquatic life.
f. The turbidity of the receiving water shall not be increased by more than 25 Nephelometric turbidity units by any point source discharge.
g. Cations and anions guideline values to protect livestock watering may be found in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on November 11, 2009.
h. The Escherichia coli (E. coli) content of water which enters a sinkhole or losing stream segment, regardless of the water body's designated use, shall not exceed a Geometric Mean value of 126 organisms/100 ml or a sample maximum value of 235 organisms/100 ml. No new wastewater discharges will be allowed on watercourses which directly or indirectly enter sinkholes or losing stream segments.

State Hygienic Laboratory

The University of Iowa

Accession Number	139537
Date Sample Finalized	2013-12-17 14:18
Date Received	2013-12-06 11:16
Sample Source	Surface Water
Project	05WQFK
Date Collected	2013-12-04 10:40
Collection Site	upstream discharge/2-572
Collection Town	WAUBEEK
Sample Description	surface water
Client Reference	
Collector	gelner chris
Phone	563/927-2640

BRIAN JERGENSON
IDNR-FO 1
909 W MAIN STE 4
MANCHESTER, IA 52057

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

Results of Analyses

Ammonia as N, LAC 10-107-06-1J

Units	mg/L	Analyzed In	Ankeny
Date Analyzed	2013-12-17 10:48	Date Verified	2013-12-17 14:18
Analyst	MP	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	0.21	0.05

Description of Units used within this report

mg/L = Milligrams per Liter

The result(s) of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.
Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City/Coralville #027, Lakeside #393.
If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.

Michael D. Wichman, Ph.D.
Associate Director
http://www.shl.uiowa.edu

University of Iowa Research Park
2490 Crosspark Road
Coralville, IA 52241
319/335-4500 Fax: 319/335-4555

Lakeside Laboratory
1838 Highway 86
Milford, IA 51351
712/337-3669 ext. 6 Fax: 712/337-0227

Iowa Laboratories Complex
2220 S. Ankeny Blvd
Ankeny, IA 50023
515/725-1600 Fax: 515/725-1642

State Hygienic Laboratory

The University of Iowa

Accession Number	139535
Date Sample Finalized	2013-12-17 14:17
Date Received	2013-12-06 11:16
Sample Source	Surface Water
Project	05WQFK
Date Collected	2013-12-04 10:28
Collection Site	downstream tile outlet/2-139
Collection Town	WAUBEEK
Sample Description	surface water
Client Reference	
Collector	gelner chris
Phone	563/927-2640

BRIAN JERGENSON
IDNR-FO 1
909 W MAIN STE 4
MANCHESTER, IA 52057

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

Results of Analyses

Ammonia as N, LAC 10-107-06-1J

Units	mg/L	Analyzed In	Ankeny
Date Analyzed	2013-12-17 10:48	Date Verified	2013-12-17 14:17
Analyst	MP	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	7.8	0.05

Description of Units used within this report

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2220 S. Ankeny Blvd
Ankeny, IA 50023
515/725-1600 Fax: 515/725-1642

State Hygienic Laboratory

The University of Iowa

Accession Number	139536
Date Sample Finalized	2013-12-17 14:18
Date Received	2013-12-06 11:16
Sample Source	Surface Water
Project	05WQFK
Date Collected	2013-12-04 10:25
Collection Site	tile outlet/2-153
Collection Town	WAUBEEK
Sample Description	surface water
Client Reference	
Collector	gelner chris
Phone	563/927-2640

BRIAN JERGENSON
IDNR-FO 1
909 W MAIN STE 4
MANCHESTER, IA 52057

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Results of Analyses

Ammonia as N, LAC 10-107-06-1J

Units	mg/L	Analyzed In	Ankeny
Date Analyzed	2013-12-17 10:48	Date Verified	2013-12-17 14:18
Analyst	MP	Verifier	DLS
Analysis Prep	Ammonia distillation, SM 4500		

Analyte	Result	Quant Limit
Ammonia nitrogen as N	730	0.05

Description of Units used within this report

mg/L = Milligrams per Liter

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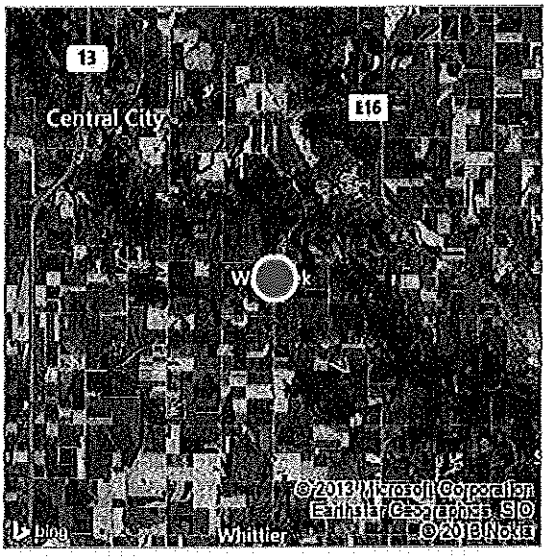
bing Maps

Waubeek, IA

Dairy Venture LLC Fish Kill
Sample Locations

On the go? Use **m.bing.com** to find maps, directions, businesses, and more

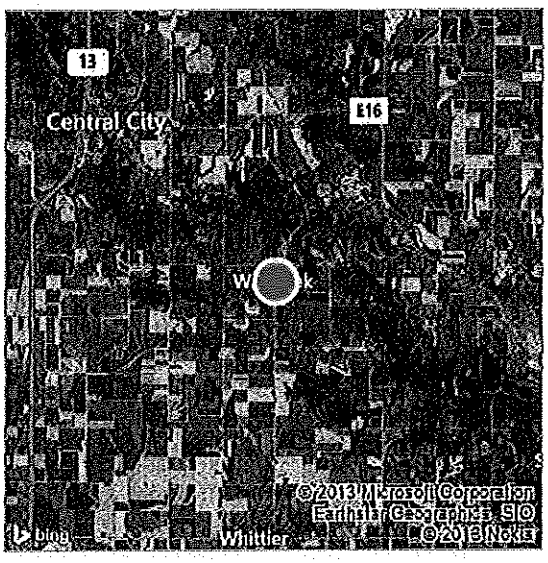


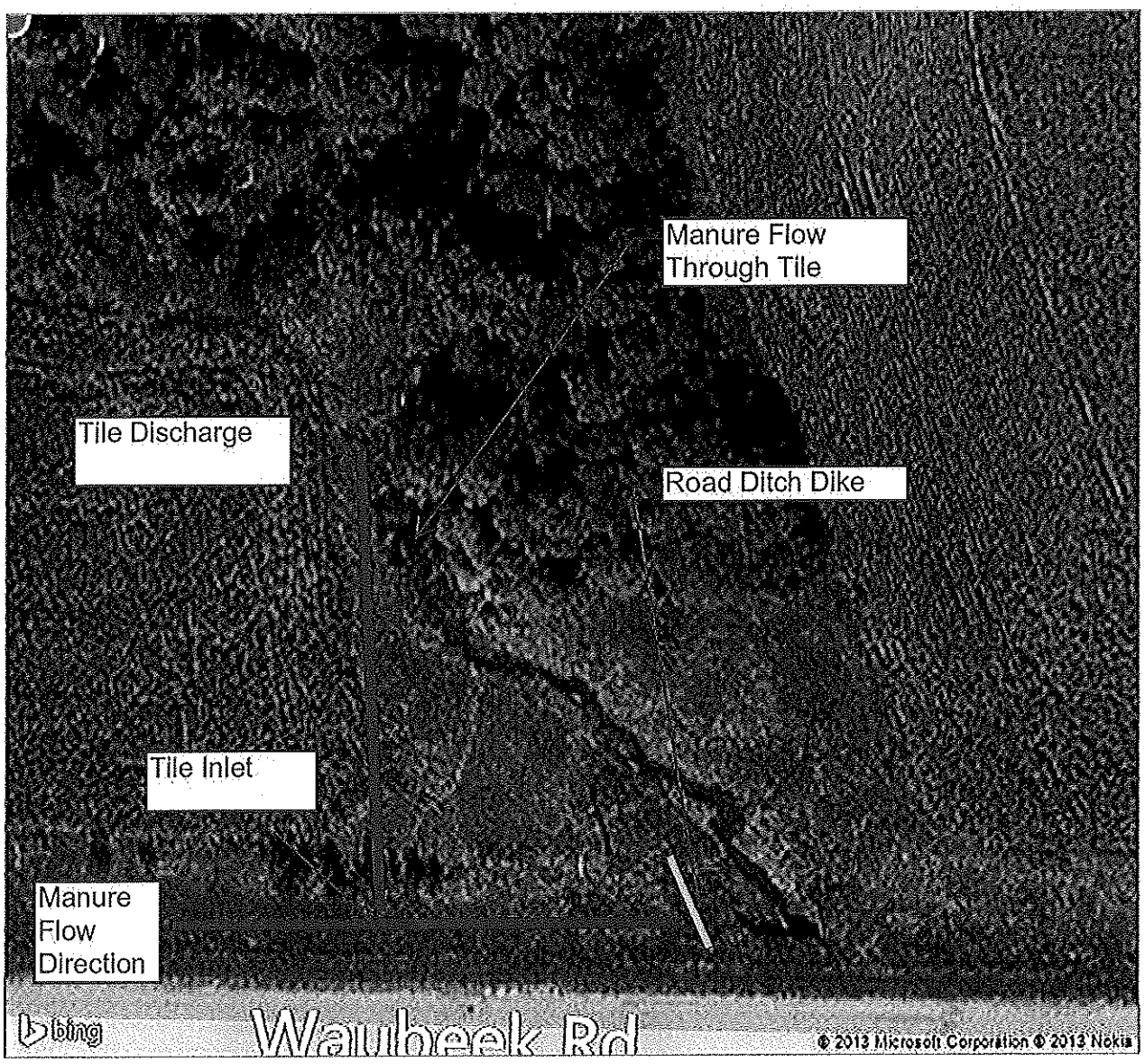
bing Maps

Waubeek, IA

Dairy Venture LLC
1350 Waubeek RD
Central City, IA

On the go? Use **m.bing.com** to find maps, directions, businesses, and more





bing Maps

Waubeek, IA

Dairy Venture LLC
1350 Waubeek RD
Central City, IA

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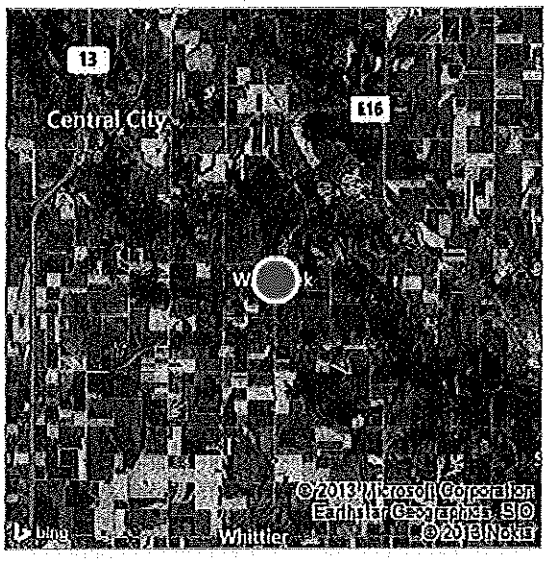

Memo

To: Joe Larshied, Chief of Fisheries, Iowa DNR

From: Paul Sleeper, Fisheries Biologist 2, Iowa DNR

Date: 12-6-13

RE: Fish Kill on an unnamed tributary to the Wapsipinican River in Linn County

---

Date Investigated: December 4th, 2013

Affected Stream: Unnamed tributary (Linn County)

Investigators: Paul Sleeper & Chris Mack

Location: Linn County, Maine Township, Sec 13 T85N, R6W. The source originated from manure runoff from a dairy cattle facility that flowed down the highway ditch and entered the unnamed creek in section 13 (UTM X = 625168.22, Y = 4669309.85). The kill traveled was approximately 1.5 stream miles until the creek dried up before it entered the Wapsipinican River. The end of the kill was still in Sec 13 at (UTM X = 625107.43, Y = 4670713.71).

Source of kill: Manure runoff from a dairy cattle operation.

Address of responsible party: Dairy Venture LLC, Ralph Staal
1350 Waubeek RD
Central City, Iowa 52214

Methods: Enumeration and values of fish were derived from procedures outlined in American Fisheries Society, Special Publication 30 and Iowa Administrative Code Chapter 113. When we got approximately half way through the kill the entire creek was completely frozen over. If you would break through the ice you could see the manure still flowing under the ice and dead fish were seen. We were able to count 613 dead fish in the upper open water section and took that number times two to account for the number of dead fish that we were unable to see under the ice in the lower section. The water was extremely turbid and this number is probably a small percentage of the fish that were actually killed.

Cost of Investigation: (Biologist 6 hrs x $24.57/hr.) x (Technician 4 hrs x $19.87/hr) x (12.8% overhead) + (74 miles x $.34) = $281.10

Fish Killed:

Species	Estimated # Killed	Monetary Value
Minnows, shiners, chubs, etc.	1224	$110.16
Black Bullhead	2	$30.00
Totals	1226	$140.16

Total costs $281.10 + $140.16 = $421.26