Report of Investigation

Department of Natural Resources
Environmental Services Division

Investigation Date **Current:** 05/02/2018 **Last:** NA	**From:** Field Office #2 2300 15th St. SW Mason City, Iowa 50401
To: Brandon Gibson Daybreak Foods 2109 Quail Iowa Fort Dodge, IA 50501	**Person(s) Contacted:** Brandon Gibson – Regional Operations Manager Richard Kulow – Plant Manager Julia Rolston – Senior Compliance Manager Sandy McGrath – Wright County Sanitarian
Re: Runoff Complaint Investigation	

On the morning of May 2, 2018, this office received an anonymous report of green and bubbly water in the creek (Drainage Ditch 49) at the intersection of 310th Street and Buchanan Avenue in Wright County. The complainant stated the creek was clear upstream of that intersection but noticeably greener downstream. It was noted that the area had received about 0.75 inches of rain the previous evening.

I recognized this complaint as similar to one received the previous fall regarding tile drainage from Daybreak Foods – Vincent. I contacted Sandy McGrath, Wright County Sanitarian, to request she visit the site and verify what the complainant had reported. Ms. McGrath was out of town and therefore unable to visit the location for several hours. I therefore decided to perform the investigation that same day.

I arrived at the 310th and Buchanan intersection at approximately 12:30 PM. The creek was somewhat turbid, but the bottom of the creek bed was still visible in shallow areas. I did observe pockets of bubbles on the water surface indicative of organic matter in flowing water. I then proceeded about 1/8 of a mile west on 310th to view the creek slightly upstream of the Buchanan intersection. I observed the stream was very clear at this location with the bottom of the channel being clearly visible. I then traveled back east on 310th for approximately one mile to view the creek where it crossed 310th and Davis. The creek was slightly discolored at this location. There was another creek (Drainage Ditch 46) that feeds into Drainage Ditch 49 (DD 49) just upstream of the Davis location. This creek was also running very clear, similar to the location upstream of the 310th and Buchanan intersection.

I determined the source of contamination appeared to be located immediately upstream of the 310th and Buchanan intersection. I observed there was a tile outlet and a grassed waterway from the Daybreak Foods facility to the south that fed this portion of the creek. I could not determine from the road if these sources were actively discharging. I then began collecting field data and water samples of Drainage Ditch 49 near the apparent source of contamination (310th and Buchanan) and also upstream (310th Upstream) and downstream (310th and Davis). This field data indicated an increase of ammonia concentration and a slight increase in temperature downstream of the area where the tile and waterway discharge to the creek. I also collected lab samples at each of these locations. See Table 1 for field and lab sample results.

Daybreak Foods – Vincent was then contacted to explain the complaint and request permission to access the property to complete the investigation. I was advised to meet Richard Kulow (Plant Manager) at the biosecurity building. I explained to Richard the results of the field data. Richard contested my selection of sample locations and believed the results did not make sense, but agreed to view the creek and the Daybreak property with me. After viewing upstream and downstream locations, Richard alleged the perceived change in clarity was primarily due to the change in depth of water and stream substrate (dirt or sand). I alleged that although the change in clarity was not severe, it was visually observable regardless of depth or substrate.

We then proceeded to the grass waterway and tile outfall location on Daybreak Foods property. The previous investigation had determined that a tile system serves a permitted wastewater irrigation field and outletted in this location. The tile drainage system also follows a grass waterway that provides overland flow drainage from the same irrigation field and surrounding areas. I observed that substantial flow was occurring at the tile outlet. The water was clear and did not appear to be adding any discoloration to Drainage Ditch 49. I field tested the tile outflow for ammonia which indicated the concentration was 0.8 mg/L. I did not believe this to be abnormal for field tile flow this time of year. I then observed that there was a small amount of flow, about the amount of a garden hose, entering DD 49 overland from the grass waterway. This water was discolored a brownish color. The ammonia field test showed a concentration of > 3 ppm.

Richard and I followed the flow upstream into the waterway and found an area where the surface runoff had ponded behind a small ridge caused by vehicle tracks. This ponded water was discolored with bubbles present on the surface. A small amount of water was continuing to flow out of this area down the waterway to DD 49. This is the same water I had sampled as it entered DD 49 and contained the elevated ammonia concentration.

Richard explained the waterway serves a large number of surrounding acres including the land where wastewater is irrigated onto. We then proceeded to view the irrigation field. Richard explained wastewater was irrigated onto the field for a total of four days from April 27 to April 30, 2018. Richard stated no irrigated wastewater had ponded on the field surface and that it appeared to be soaking into the soil. We discussed that it was unlikely it was infiltrating the soil very deeply due to the saturated soil conditions. I inquired about any other applications of manure or fertilizer to the surrounding farm fields and Richard stated none had occurred to his knowledge. It is noted that recent snow fall events and persistent wet weather had precluded field work from occurring yet that spring in this area of the state.

I therefore asserted the source of the contaminated surface runoff observed in the waterway was from application of the wastewater over the four day period just prior to the rain event. The saturated soil conditions likely did not allow the wastewater to infiltrate the soil to a depth necessary to prevent rainfall from mixing with it and running off. It appears this runoff was the source of the elevated ammonia levels and slight discoloration seen in DD 49.

I explained to Richard that the facility must keep a close eye on the pooled wastewater in the waterway and if it does not infiltrate very soon, it should be pumped from the waterway to prevent it from being flushed into DD 49 with the next rain event. I also followed up with a phone call the following morning to Julia Rolston and Brandon Gibson with Daybreak Foods to reiterate the importance of preventing further discharge of wastewater runoff.

The discharge of a pollutant to a water of the state (Drainage Ditch 49) is a violation of the current Administrative Consent Order (2018-WW-03) between Daybreak Foods and Iowa DNR entered into on January 19th, 2018. Additionally, Daybreak Foods NPDES Permit #9900124 requires no discharge to a surface water from waste disposal operations. It is a violation of Subrule 567 IAC 64.3(1) to operate contrary to the conditions of the permit.

The Field Office will conduct a wastewater follow-up inspection to review application records and other permit requirements. A decision will then be made regarding referring the matter to the Department's Legal Services Bureau for further enforcement action.

Table 1: Field and Lab Sampling Results From 5/02/2018.

Site ID	Location	Field Ammonia (ppm)	Lab Ammonia (ppm)	Nitrite+ Nitrate (ppm)	TKN (ppm)	Temp (Celsius)	pH	BOD (ppm)	TSS (ppm)
1	310th (Upstream)	< 0.2	<0.05	16	0.6	10.5	6.7	<2	3
2	310th and Buchanan	1.4	1.4	15	2.7	11.1	6.8	5	10
3	310th and Davis	0.6	0.54	15	1.5	11.0	6.7	2	24
4	Daybreak Tile Outlet	0.8	NA	NA	NA	NA	NA	NA	NA
5	Daybreak Waterway	> 3.0	4.6	23	9.4	NA	NA	22	26

Inspector Signature:	David Knoll, Environmental Specialist	**Date:** 5/24/18
Reviewer Signature:	David Miller, Environmental Specialist Senior	**Date:** 24MAY18

Hach Field Test Kit ammonia results at 310th and Buchanan sample location. Ammonia concentration of 1.4 mg/L observed. (5/02/2018)

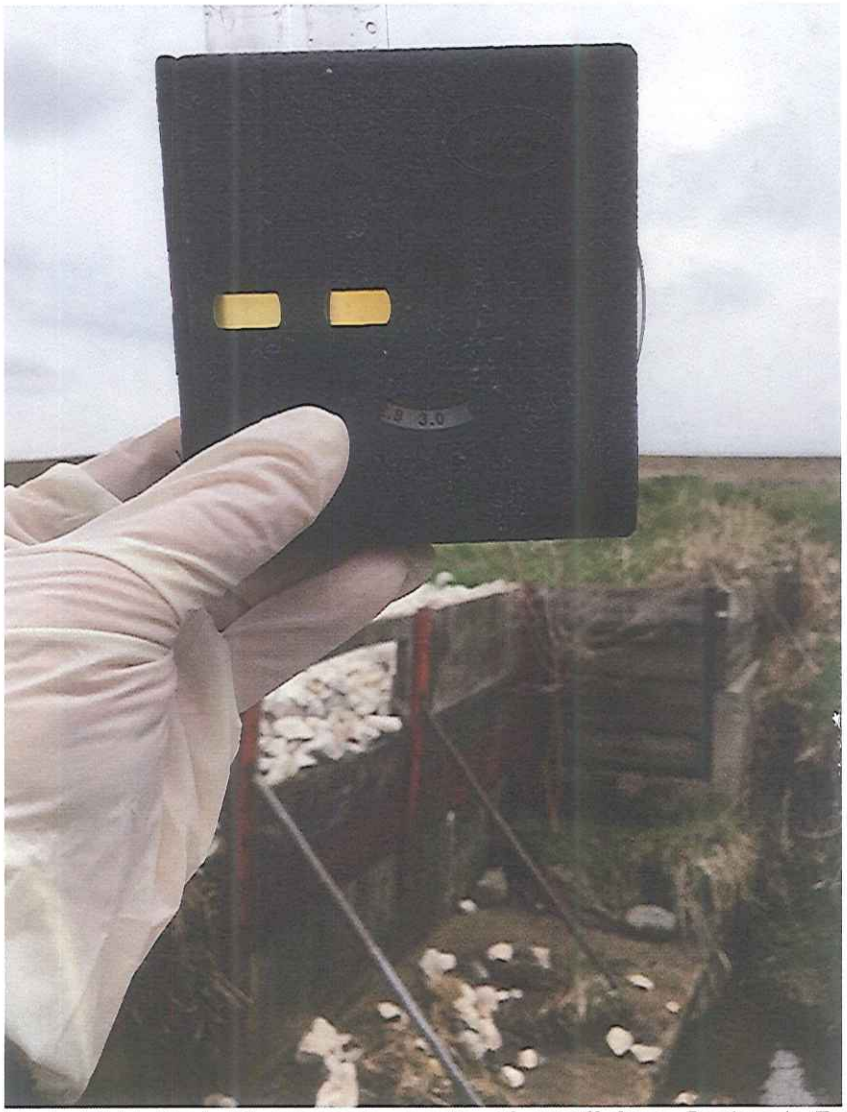
Drainage Ditch 49 SW side of intersection of 310th and Buchanan sample site location, looking south. Water shows some discoloration. (05/02/2018)

Hach Field Test Kit ammonia results at 310th Upstream sample location. Ammonia concentration of <0.2 observed. (5/02/2018)

Drainage Ditch 49 at 310th Upstream sample location (about 1/8 mile upstream of 310th and Buchanan). Water is clear. (05/02/2018)

Hach Field Test Kit ammonia results at 310th and David sample location. Ammonia concentration of 0.6 observed. (5/02/2018)

Drainage Ditch 49 at 310th and Davis sample location (about 1 mile downstream of 310th and Buchanan). Water is mostly clear. (05/02/2018).

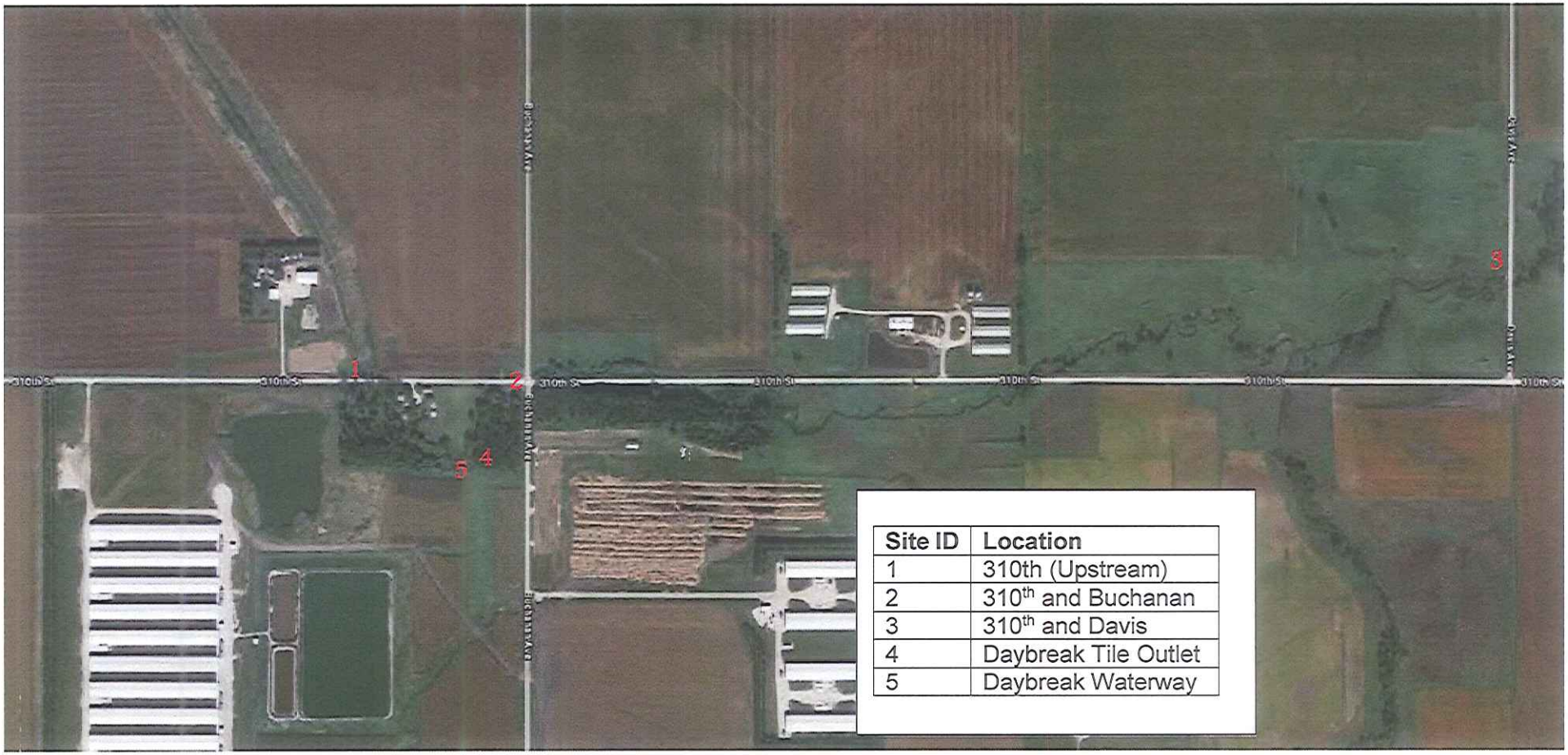


Hach Field Test Kit ammonia results of runoff from Daybreak Foods waterway. Ammonia concentration of >3.0 observed. (5/02/2018)

Outfall of waterway at Daybreak Foods showing both tile flow and overland flow. Overland flow over the concrete weir is difficult to observe in this picture due to the limited flow. The tile water is clear. The discolored overland flow is seen on the right side of picture. (05/02/2018)

Wastewater ponded in Daybreak Foods waterway visible in center of picture.
Wastewater also visible on far right of picture moving through the rocks.
Picture taken looking south. (05/02/2018)

Site overview map showing irrigation field on SW portion of the facility.



Site ID	Location
1	310th (Upstream)
2	310th and Buchanan
3	310th and Davis
4	Daybreak Tile Outlet
5	Daybreak Waterway