



JANUARY 31, 2019

THE LAURIDSEN GROUP
ATTN BRIAN HAINES
2425 SE OAK TREE COURT
ANKENY IA 50021

NOTICE OF VIOLATION: Conditions of General Permit No. 8300100

SUBJECT: Land Application of Wastewater Complaint Investigation
Essentia Harlan Plant, State Operation Permit No: 8300100, Shelby County
Complaint No. 26398, Staff Action No. 132632

Dear Mr. Haines:

In response to a complaint that the Iowa Department of Natural Resources (DNR) Field Office 4 (FO4) received, I conducted an investigation on January 14, 2019 at one of the Essentia land application fields to document compliance with the conditions of Operation permit No. 8300100. The complainant stated that 'Essentia is surface applying wastewater because the ground is too frozen to incorporate or inject the product. The wastewater is pooling up and running downhill towards a creek'. A copy of the investigation report is attached.

As a result of the investigation, I documented violations to the below Operation Permit standard conditions, found on pages 14 and 15 of the Operation Permit.

- 1) Wastewater shall not be applied within 300 feet of a continuous flowing stream.
- 2) Wastewater shall not be applied to flooded areas until the ground has sufficient time to dry.
- 3) Land application of wastewater is not allowed during periods of ground frost.
- 4) Land application of wastewater shall be stopped if runoff occurs.

The total amount (inches) of an application should depend upon the water holding capacity of the soil at the time of application. So, if the ground is frozen (or frost covered), the holding capacity is less, ultimately resulting in runoff. As we discussed, if field conditions prevent compliance with the operation permit, land application should not occur.

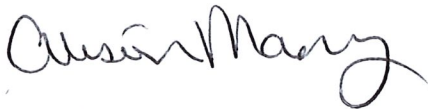
Additionally, the Essentia Operation Permit also states that wastewater that is surface applied shall not be applied at a rate greater than 0.5 inches per hour (OR 13,577 gallons per hour on one acre). While the land application records appear to be in good order, I was unable to document compliance with this condition of the permit because the actual application acres

should be used to document compliance with the permit, not the entire field. (For example: Site 10 has 269 acres available for application but only approximately 100 acres have had wastewater applied. The records should document the 100 acres not the 269 acres on any given day of application.)

As I discussed during the meeting, it would be in the best interest of Essentia to ensure the entire area around the tributary is ripped or incorporated to help prevent runoff into the tributary.

If you have any questions, please contact me via e-mail at alison.manz@dnr.iowa.gov or by phone at (712) 250-0219.

Sincerely,

A handwritten signature in black ink that reads "Alison Manz". The signature is written in a cursive, flowing style.

Alison Manz
Environmental Specialist
Field Services and Compliance Bureau

File: harlan011419.ww.essentia land application complaint NOV.manz.doc

CC: Essentia, Attn: Chance Goddard, 1347 Highway 44, Harlan, IA 51537
Essentia WW Facility File, Shelby County

IOWA DEPARTMENT OF NATURAL RESOURCES

Report of Investigation

INVESTIGATION DATE: Current: 1/14/19 and 1/15/19

Last: 5/3/18

TO: The Lauridsen Group, Inc.
Attn: Brian Haines,
2425 SE Oak Tree Ct
Ankeny, IA 50021

SUBJECT: Land Application of Wastewater Complaint Investigation,
Complaint No. 26398, Staff Action No. 132632
Iowa Operation Permit No. 8300100, Shelby County

PERSONS CONTACTED: Chance Goddard, Essentia Wastewater Operator
John Abel, Essentia Harlan Plant Manager
Al Leinen, Essentia Supervisor
Brian Haines, Essentia Projects Manager

In response to a complaint that the Iowa Department of Natural Resources (DNR) Field Office 4 (FO4) received, I conducted an investigation on January 14, 2019 at one of the Essentia land application fields to document compliance with the conditions of Operation permit No. 8300100. The complainant stated that 'Essentia is surface applying wastewater because the ground is too frozen to incorporate or inject the product. The wastewater is pooling up and running downhill towards a creek'.

During my investigation I observed that wastewater was being surface applied to a field located in Section 32, Center Township (T79NR38W), Shelby County. This field is listed in the Essentia Operation Permit as Site 10. I observed that the wastewater was being surface applied because of frozen ground conditions and that wastewater was pooled up on the surface of the ground. I also observed migration of the product towards an unnamed tributary of the East Branch of the West Nishnabotna River.

I did note that, in compliance with the permit, the field was staked for the applicator to ensure required separation distances were met. However, because the ground was frozen, product began to flow downhill before the product froze again. Additionally, one portion of the field had product surface applied approximately 60 feet from the tributary, the required separation distance to a water source is 300 feet. Allegedly, the application too close to the tributary was the result of the equipment freezing up. Additionally, because of the frozen ground, there was no effort to incorporate, rather direct surface applying was occurring.

It should be noted that a portion of the complaint also alleged that the applicator was parked behind a terrace and allowing the product to be dumped onto the surface of the ground. I did not document that allegation; however, I did document that product was pooled up behind the terrace.

The aerial photo on the next page documents the location of the field in relation to the tributary.

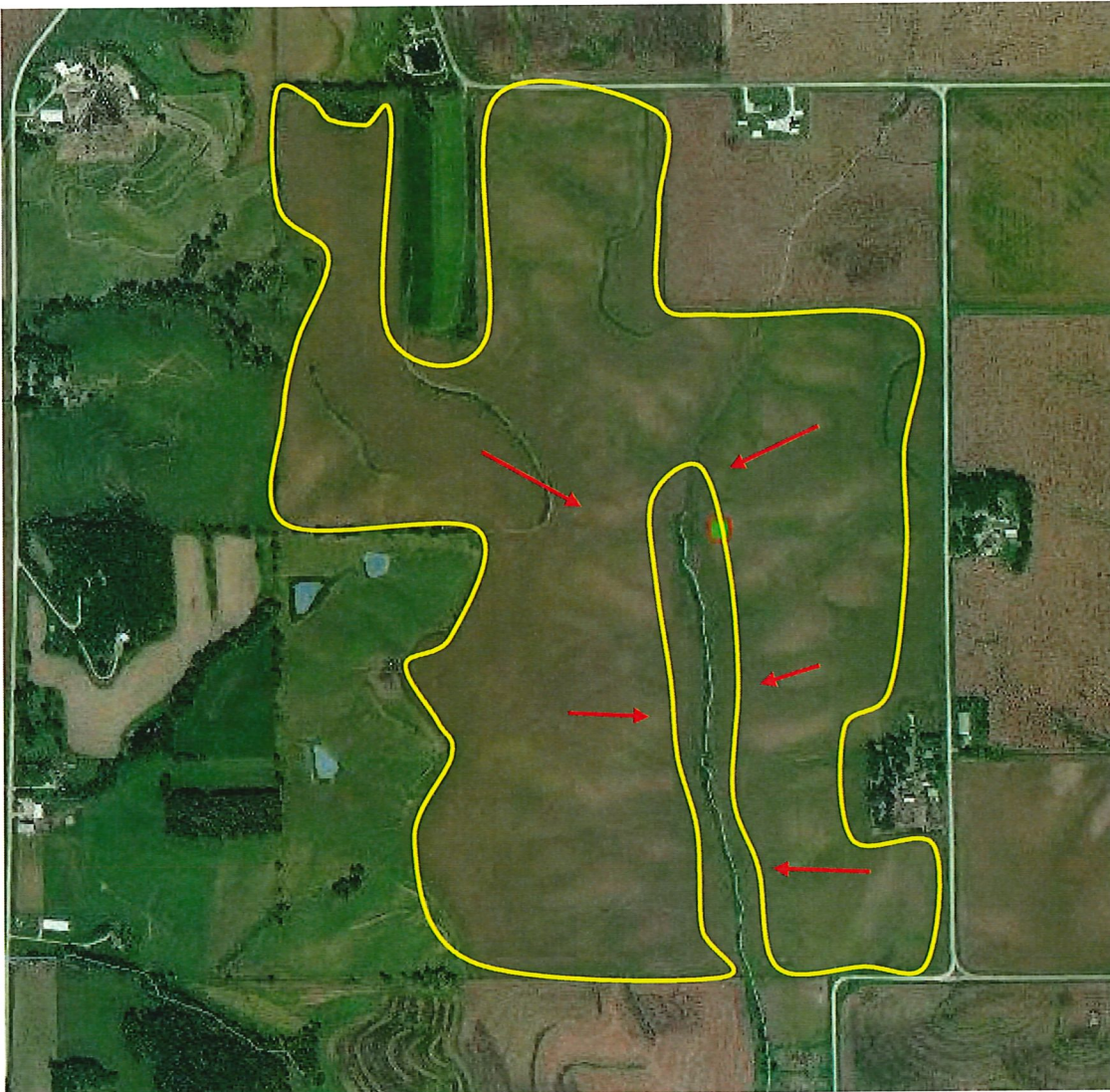


Figure 1: Aerial photo of Site 10. Yellow boundary represents boundary of the field. The red arrows represent the direction of storm water flow. Blue line is the unnamed tributary of the East Branch of the West Nishnabotna River.

While I did not document a water quality violation, it should be noted that most portions of the field slope to an unnamed tributary of the East Branch of the West Nishnabotna River. Additionally, based on my observations, violations to the below Operation Permit standard conditions occurred. These conditions can be found on pages 14 and 15 of the Operation Permit.

- 1) Wastewater that is surface applied shall not be applied at a rate greater than 0.5 inches per hour (OR 13,577 gallons per hour on one acre).
- 2) Wastewater shall not be applied within 300 feet of a continuous flowing stream.
- 3) Wastewater shall not be applied to flooded areas until the ground has sufficient time to dry.
- 4) Land application of wastewater is not allowed during periods of ground frost.
- 5) Land application of wastewater shall be stopped if runoff occurs.

Photos of my observations follow.



Photos 1 and 2: Looking at portions of the Site 10 application field, surface application had been occurring



Photos 3 and 4: Pooled up wastewater was observed in several ares of the Site 10 application field



Photos 4 and 5: Pooled up wastewater was observed in several ares of the Site 10 application field



Photos 5 and 6: Pooled up wastewater was observed in several ares of the Site 10 application field and behind terraces



Photo 7: Looking west at surface application that resulted in significant wastewater flowing downhill from the application



Photo 8: Looking at migration of wastewater from the application runoff noted in photo 7, above



Photo 9: Looking at migration of wastewater from the application runoff noted in photo 7 and 8, above

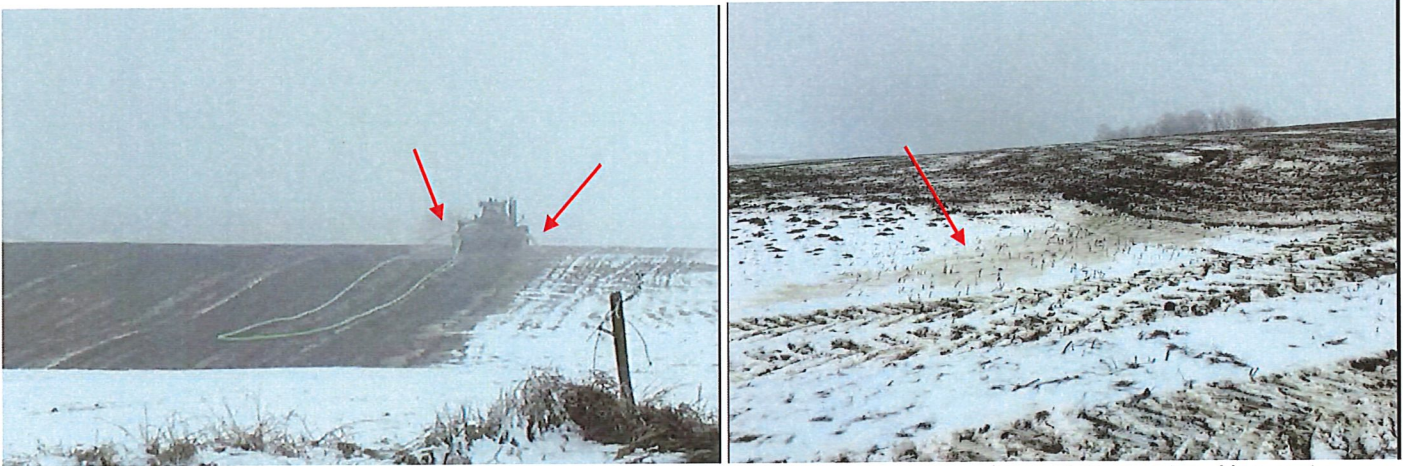


Photo 10: Looking at migration of wastewater from the application runoff noted in photos 7-9, near the unnamed tributary



Photo 11: Looking at the surface application of wastewater near the unnamed tributary, approximately 60 feet down hill

On, January 15, 2019, I stopped at the land application site again. The applicator was surface applying the wastewater during my visit. Photos of my observations are on the next page.



Photos 12 and 13: Surface application occurring, note wastewater spraying out the sides of the tractor. Also, note wastewater flowing downhill from application before freezing.



Photos 14 and 15: Same location of photo 11, looks like the applicator attempted to incorporate the product

Following my visit to the application field, I met with Essentia representatives to discuss the complaint and to review land application records. Those in attendance included Brian Haines, Al Leinen, Chance Goddard, and John Abel. During our meeting, I advised the Essentia representatives that, in accordance with the facility's Operation Permit, wastewater application to frost covered ground is not allowed. Mr. Goddard showed me an application he had been using to monitor the frost levels in the fields. The tool Mr. Goddard is using is the Iowa State University Iowa Environmental Mesonet which provides maps for the state, showing the predicted four inch soil temperatures of the soil statewide. As I advised Mr. Goddard, while this may be a useful tool when planning ahead, it should not be used to determine compliance with the Operation Permit. Actual field conditions and observations should be made to determine whether field conditions are adequate to maintain compliance with the permit.

It should be noted that, on December 5, 2018, Mr. Goddard called and requested a variance to the Essentia permit to surface apply the product to the remainder of the ground that could not be opened with a knife (i.e. injected). Mr. Goddard stated that some portions of the application field had already been opened and that it would take a little longer for the ground to freeze than those portions of the fields that had not been opened yet. I agreed; however, I did not agree that it would take six weeks to freeze. The bottom line is that the Operation Permit specifically states, no application on frost covered ground.

I responded to Mr. Goddard's email on December 12, 2018, and also sent a letter dated January 4, 2019. Both pieces of correspondence said that the DNR was unable to provide Essentia an emergency waiver

for surface application as it did not meet our emergency definition. The definition of an emergency is as follows:

An emergency is defined as a sudden or unexpected condition which is beyond the reasonable control of the facility in response to which land application of wastewater is necessary within 30 days to prevent damage to property, risk to human health, or the uncontrolled release of wastewater from a storage structure.

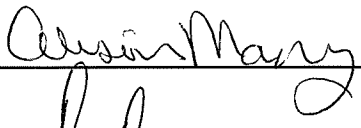
Additionally, I advised that page 14 of the Essentia permit states that land application of wastewater is not allowed during periods of ground frost. As such, I recommended Essentia begin exploring options for proper disposal of the wastewater until spring application could occur and before an emergency arises.

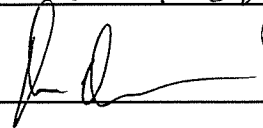
During this meeting I also reviewed the on-site land application records. A total of 18,730,390 gallons has been applied to Site 10. However, as we discussed, while there are 269 acres available for application, the total gallons applied have not actually been applied to the entire 269 acres. Additionally, Mr. Goddard stated that the application rate was approximately 20,000 gallons per acre and that there were three passes over the same portions of the field. According to the nutrient content of the product and the crop nutrient uptake, three passes over the field are okay. However, if field conditions prevent compliance with the operation permit, land application should not occur.

As a reminder, the Essentia Operation Permit also states that wastewater that is surface applied shall not be applied at a rate greater than 0.5 inches per hour (OR 13,577 gallons per hour on one acre). Either way, a good rule of thumb is that the total amount (inches) of an application depends upon the water holding capacity of the soil at the time of application. So, if the ground is frozen (or frost covered), the holding capacity is less, ultimately resulting in runoff.

On January 17, 2019, I received a phone call from Bob Staiert, the Essentia wastewater applicator. According to Mr. Staiert, several areas in the Site 10 application field had been ripped to ensure migration of the product did not occur. On this same day, I also received an email from Mr. Goddard documenting what actions were taken. According to Mr. Goddard, the areas where required separation distances were not met had been incorporated. Additionally, pooled wastewater and areas where the product had traveled down the hill had also been incorporated.

As I discussed during the meeting, it would be in the best interest of Essentia to ensure the entire area around the tributary is ripped or incorporated to help prevent runoff into the tributary. Also, while the land application records appear to be in good order, the actual application acres should be used to document compliance with the permit, not the entire field. (For example: Site 10 has 269 acres available for application but only approximately 100 acres have had wastewater applied. The records should document the 100 acres not the 269 acres on any given day of application.)

Inspector: Alison Manz  1/31/19

Reviewer: Dan Olson  1/31/2019

Distribution: Field Office: Central Office: Inspected Facility

Date Sent: 1-31-19