DATE: 2/22/21 **INVESTIGATOR: Greg Michl and Dave Bubb**

WEATHER: Cool and Clear Skies

STOP 1 – HIGHWAY 66 WEST of ASHLAND GUN CLUB No report	
STOP 2 – North of the Intersection of COUNTY ROADS 6 & F Time: 11:00 Re-checked the upstream side (west) channel for discoloration of the surface ice/snow and the hole previously chopped in the ice. No evidence of AltEn's thin stillage making it to this location.	

STOP 3 – Road 7/Highway 66 – Upstream

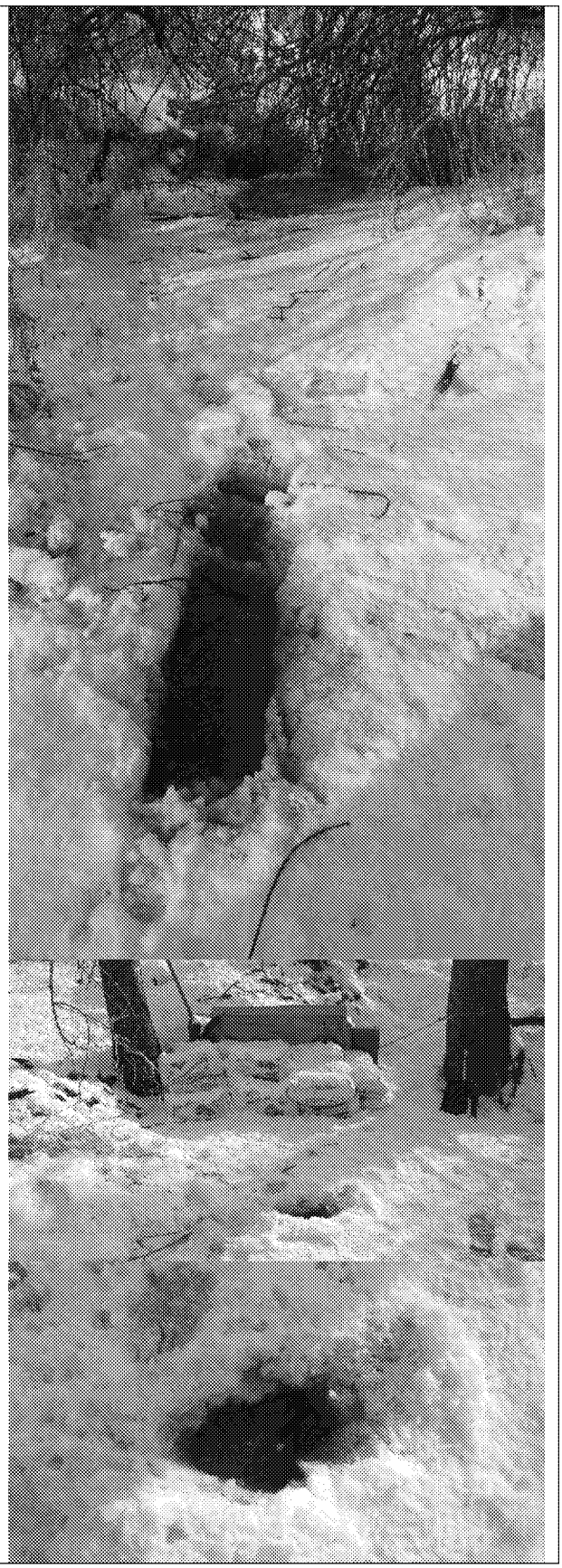
Time: 09:50 (upstream side of Hwy 66)

The AltEn thin stillage discharge water has now reached this location. The discolored surface ice/snow can be viewed in the top portion of photo and the lower part of the photo is where we shoveled the snow from the surface of the ice. The odorous, darker colored waste water rapidly filled the void on top of the ice surface.

In the second and third photo's you can view the hole I had chopped to the channel's mud substrate on 2/19/21. This hole was void of any water on 2/19/21, but is now full of the odorous, dark colored water.

Field parameter measurements were collected here and are as follows:

Temperature: 0.6 ° Celsius
Dissolved Oxygen: 3.05 mg/l
pH: 8.07 su
Conductivity: 11,955.0 *umhos/cm*
Turbidity: 211.6 NTUs



STOP 3 – Road 7/Highway 66 – Downstream

Time: 10:05 (downstream side of Hwy 66)

The AltEn thin stillage discharge water has also moved through the Hwy 66 culvert and is now present in the plunge pool on the downstream side (east). There was no discolored surface ice/snow, but when we drilled a holed through the ice is was immediately evident in the water below. The odorous, darker colored waste water rapidly filled the drilled hole. The plunge pool was estimated to be 2.5-3 ft deep at this location.

Field parameter measurements were collected here and are as follows:

Temperature: 0.9 ^{0} Celsius
Dissolved Oxygen: 0.54 mg/l
pH: 7.68 su
Conductivity: 9,593.0 umhos/cm
Turbidity: 189.0 NTUs

STOP 4 – County Road 8, North of Road H No report	
STOP 5 – UN-L Eastern Extension – North of County Roads 9 & J No report	
STOP 6 – ALTEN LLC FACILITY DIGESTERS No report	

ADDITIONAL INFORMATION / COMMENTS:

At 11:20 we collected a downstream "background" water sample from the Stan Kizer pond located approximately 1.5 miles southeast of the "Stop 3" location. This small reservoir is located on the same stream channel, but we do not believe the AltEn thin stillage has reached this location. The purpose of this sampling was to document the current water quality conditions

via collection of field parameters, and water samples to be analyzed for nutrients (nitrogen and phosphorus), ammonia, total suspended solids and chloride. The winter water quality conditions were consistent of that expected for a eutrophic, eastern Nebraska small reservoir.

Field parameter measurements were as follows:

Temperature: 1.3 ^{0} Celsius

Dissolved Oxygen: 38.2 mg/l *(reservoir was exhibiting super-saturated conditions at 283%; likely due to heavy algal growth/photosynthesis occurring under the ice)*

pH: 8.3 su

Conductivity: 1,011.0 *umhos/cm*

Turbidity: 5.6 NTUs