

PCS

84069

AltEn Field Observations

March 3, 2021

Dave Bubb

NDEE

Observations started at approximately 1300 and ended at 1700.

Gage staff installed on March 2, 2021, at water's edge on the surface. Water level had dropped over night and was receding.





Site 3, west side of Highway 66, facing west. Cement culvert is under water between the larger tree and under the orange flag. AltEn employee collected sample at this location. Water temperature: 3.7 degrees C, Dissolved oxygen: 1.4 mg/l, pH: 7.6 St.Units, Conductivity: 472 Umhos/cm, Turbidity: 30.4 NTU's, Dissolved oxygen (percent saturation) 9 percent. Air temperature: 64 degrees F, clear, calm.



Site 3, east side of Highway 66 facing east. Note the plunge pool and stream are still frozen.





This site is just above Site 3 on the north side of Highway 66. Green device from the back of the tractor is an agitator designed to stir up the water so the pump doesn't become plugged with debris. Agitator is attached to the PTO from the blue tractor. The yellow backhoe is used to maintain a small berm. The berm is used to back up the stream which makes it possible for the pump to have enough water to pump out of. Note collapsed flexible tubing going north and south on left side of photo. This was installed in the event that site 3 had to be pumped. An AltEn employee collected a sample in a pool above the agitator. Water temperature: 0.6 degrees C, Dissolved oxygen: 7.0 mg/l, pH: 7.7 St.Units, Conductivity: 358 Umhos/cm, Turbidity: 37.2 NTU's, Dissolved oxygen (percent saturation) 48 percent.





This site is 0.3 miles east of Roads 8 and H facing north. An AltEn employee collected a water sample at this location. Water temperature: 2.0 degrees C, Dissolved oxygen: 1.9 mg/l, pH: 7.9 St.Units, Conductivity: 668 Umhos/cm, Turbidity: 40.6 NTU's, Dissolved oxygen (percent saturation) 14 percent. Red hose, bottom left-hand corner of photo, is from the area where the previous photo was from. Water is being pumped to the AltEn facility.



Site 5 facing west. An AltEn employee collected a water sample at this location. Water temperature: 5.6 degrees C, Dissolved oxygen: 1.6 mg/l, pH: 7.7 St.Units, Conductivity: 1,026 Umhos/cm, Turbidity: 102 NTU's, Dissolved oxygen (percent saturation) 12 percent.





Treated water containment structure on the AltEn property. Structure is just to the south of the large lagoon which is located just on the east side of the digester which was compromised. Note: Tube towards the right side of the photo transfers treated water from Clean Harbors treatment facility into the containment structure.



Clean Harbors water treatment equipment at the AltEn facility. Water sample is being collected by an AltEn employee towards the center of the photo. Employee is wearing blue hard hat. Water sample, near middle of photo, is somewhat cloudy.





Large bags of Bio Char being stored at the AltEn facility. These are located across a dirt road, which runs through the facility, and are to the south and southwest of the digester that was compromised.

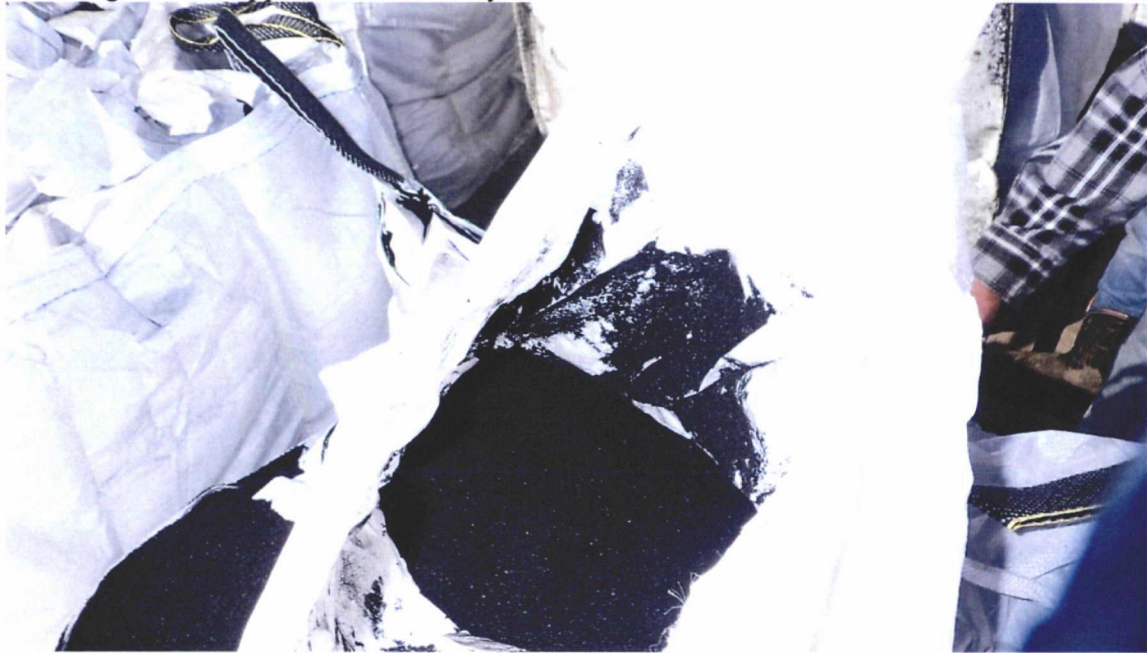


Furnace and tumbler where Bio Char is made and put into the large white bags. On the right side of the photo is the hopper where wet cake is dumped into with a front-end loader. The wet cake goes through the tumbler and furnace where it is heated and dried and then put into the large white bags.





Close-up of Bio Char in a large white bag. Finished product looks similar to coffee grounds. A composite sample was collected in a Ziploc type bag from 5 different Bio Char bags to be shipped to a laboratory.



An AltEn employee collecting a sample of Bio Char in an NDEE supplied sample container. This was a second sample in addition to the sample collected from the large white bags. This sample was collected below an auger where product is being put into the large white bags. Sample was then transferred to a Ziploc type bag for shipping to a laboratory.





Emergency lagoon at the AltEn facility. Located directly east of the compromised digester. Note the pink/orange tube coming from the lagoon. Water from lagoon bottom is being pumped to the on-site Clean Harbors water treatment facility.



Storage tank for treated water from the Clean Harbors water treatment facility.

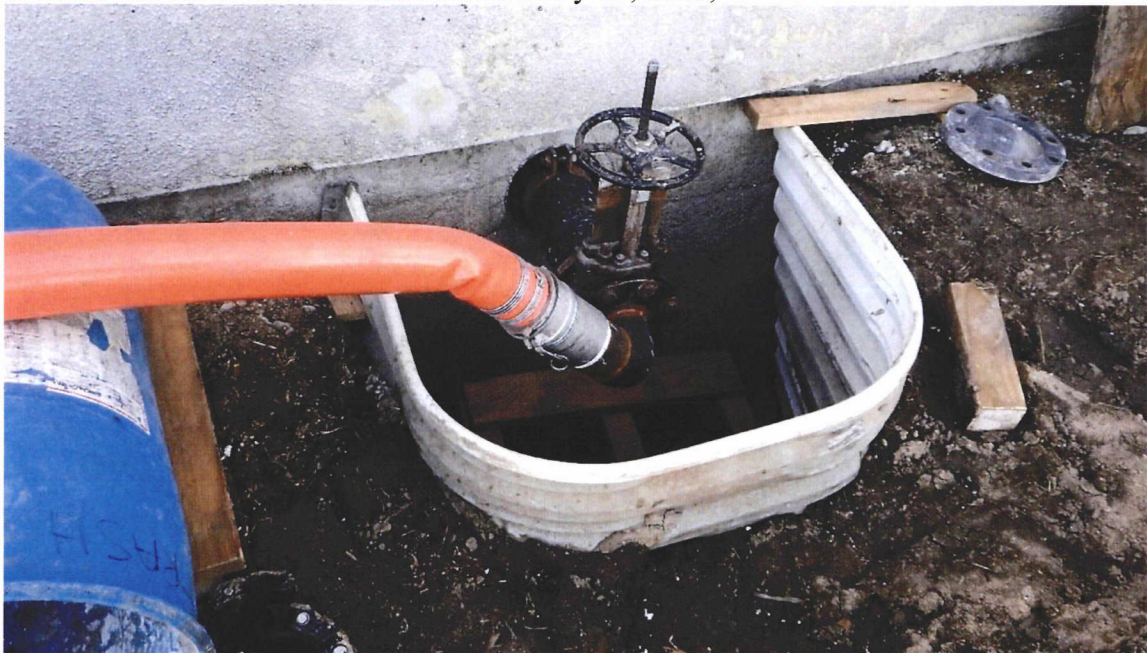




Clean Harbors water treatment facility next to treated water holding structure.



Tube from pump putting water from the lagoon back into the compromised digester. This is where the valve was that failed on February 12, 2021,





Tube transferring water from the lagoon into a building which houses a pre-clarifier.

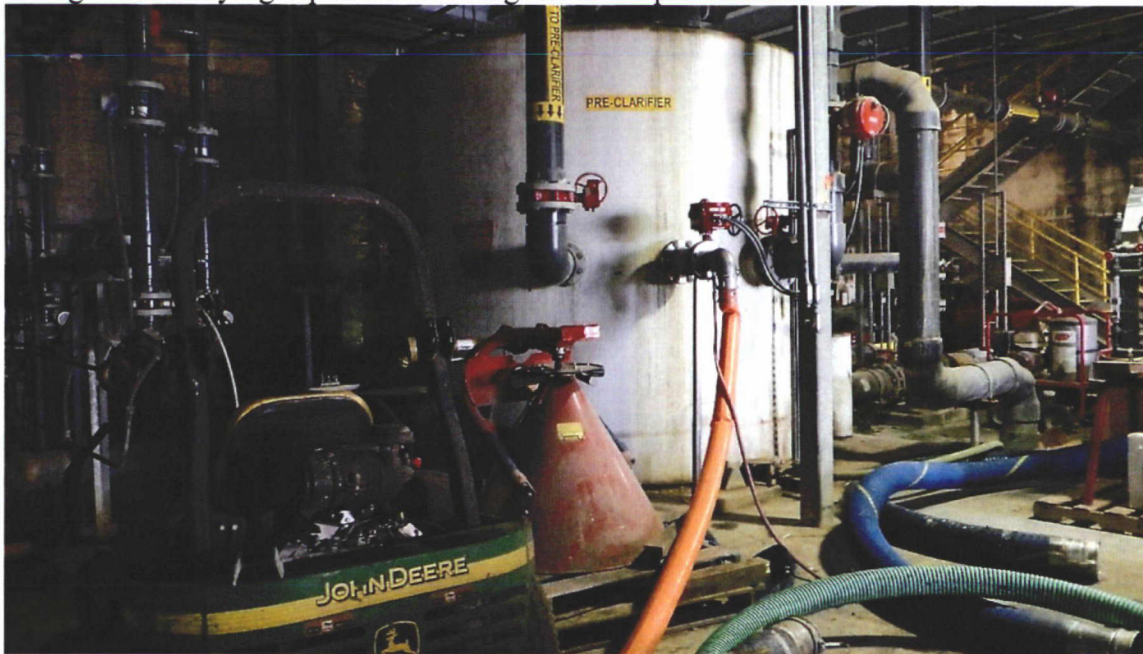


Same orange tube from the lagoon to the pre-clarifier.





Orange tube carrying liquid from the lagoon to the pre-clarifier.

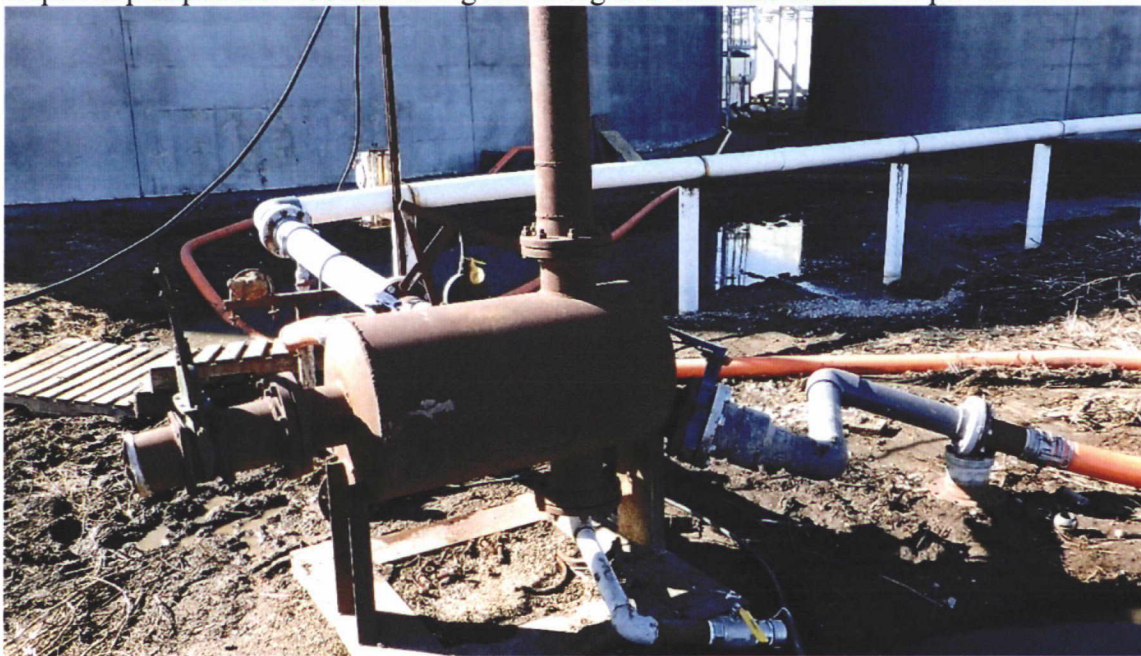


Pink/orange tube pulling liquid from the bottom of lagoon through pump, on the right side of photo, back through a black tube to the Clean Harbors water treatment facility, red tanks in center of photo. Treated water then goes to the holding structure to the left side of photo.





Liquid is pumped from bottom of lagoon to digester tank and also to the pre-clarifier.



Clean Harbors Supervisor holding a sample of water that has been treated with a polymer (1 to 2 mg/l) after going through their on-site water treatment facility. He also indicated that the water can be run through carbon for additional cleaning if necessary. Note the clarity compared to the earlier photo showing the AltEn employee's sample.





Site 2. This is the last stop on the stream before the private pond. Water is still mostly frozen with a small stream of open water to right of photo. Water temperature: 0.6 degrees C, Dissolved oxygen: 12.5 mg/l, pH: 7.6 St.Units, Conductivity: 428 Umhos/cm, Turbidity: 45 NTU's, Dissolved oxygen (percent saturation) 86 percent.



Additional notes:

People in company during this visit:

Ken Peterson and Chad Yang. AltEn employees. Mr. Yang was the person collecting water samples for AltEn, Mr. Peterson collected the Bio Char sample from the auger before going into the large white bags.

James Koehler, Environmental Technician, Terracon.

Doug Zeliski, UNL. Met at pump site above Site 3.

Kevin O'Brien, Clean Harbors. Met at the AltEn facility by Clean Harbors water treatment facility.