

NEBRASKA

Good Life. Great Resources.

DEPT. OF ENVIRONMENT AND ENERGY



Pete Ricketts, Governor

Evelyn and Stan Keiser
887 County Road 5
Ashland, NE 68003

JUL 01 2021

RE: Pond Sampling
Facility ID: 84069
Program ID: NE0137634
Subject: Surface Water Sampling Results

Dear Mr. and Mrs. Keiser:

The Nebraska Department of Environment and Energy (NDEE) conducted surface water sampling near Mead, Nebraska related to an environmental investigation at the AltEn, LLC facility. On May 20, 2021 NDEE sampled the surface water from the pond on your property. The NDEE appreciates your participation in this investigation.

Enclosed are the laboratory results.

The conditions during this visit included: 72°F, 100 % cloud cover, south wind at 15-20 mph, some previous heavy and light rain with current light rain. Pond color was clear with, what appeared to be, a tannic stain.

Parameter	Approximately 10 yards out from the middle of the dam.	Reporting Limit
Temperature °(C)	20.8	N/A
Dissolved Oxygen (mg/l)	11.2	N/A
Dissolved Oxygen, Percent Saturation (%)	130	N/A
Conductivity (umhos/cm)	369	N/A
pH (St. Units)	9.6	N/A
Turbidity (NTU's)	7.9	N/A
Nitrate/Nitrite as N (mg/l)	0.719	0.05
Sodium, Dissolved (mg/l)	15.9	0.15
Total Suspended Solids (mg/l)	25.0	5
Total Kjeldahl Nitrogen (mg/l)	5.89	0.5
Total Phosphate as P (mg/l)	1.83	0.04
Ammonia as N (mg/l)	0.418	0.05
Allowable Ammonia, Title 117-Surface Water Standards, One-hour average	0.58	N/A



Allowable Ammonia, Title 117-Surface Water Standards, Thirty Day average	0.08	N/A
Chloride (mg/l)	18	1

Title 117-Surface Water Standards range for pH is 6.6 to 9.0 SU. Pond pH was measured at 9.6 SU.

Maximum allowable ammonia concentration based upon water temperature and pH is 0.58 mg/l (one-hour average) and 0.08 mg/l (thirty-day average). The ammonia in the pond was determined to be 0.418 mg/L.

Total phosphate was 1.83 mg/l (ppm) during this sampling event. Title 117-Surface Water Standards Chapter 4, Section 003.05 allow for 0.05 mg/l (ppm) in Eastern Lakes and Impounded Waters. These criteria are based on seasonal averages from April 1 through September 30.

Since only a single set of water samples were taken, one-hour average, thirty-day average, or seasonal averages were not calculated. These results are only for comparison to Surface Water Standards benchmark criteria to determine if water quality problems exist in the pond.

A profile of the pond's water column was also determined at two locations and are as follows.

Site 1. At approximate center of dam and out 10 yards (Sample was collected at this location).

Depth (Meters)	Temperature (°C)	Dissolved Oxygen (mg/l)	Conductivity (umhos/cm)	pH (St. Units)
Surface	20.8	11.2	369	9.6
0.5	20.7	10.6	370	9.7
1.0	17.0	0	401	9.0
1.5	14.4	0	454	8.6
2.0	13.2	0	546	7.9
2.5	13.2	0	556	7.7
2.6 (bottom)	13.2	0	560	7.6

Site 2. At approximate center of pond. A profile was determined at this location and no samples were collected).

Depth (Meters)	Temperature (°C)	Dissolved Oxygen (mg/l)	Conductivity (umhos/cm)	pH (St. Units)
Surface	20.9	12.9	368	9.8
0.5	20.9	12.8	368	9.8
1.0	17.8	0.4	369	9.8
1.5	16.8	0	401	9.1
2.0	14.0	0	474	8.4
2.4 (bottom)	13.0	0	571	7.8

The pond showed extreme stratification as is evidenced by the above tables. There was ample dissolved oxygen at the surface of the water (11.2 and 12.9 mg/L) but became depleted between a half and one meter down in the water column.

Results of the field measurements, water samples analyses, and profile of the pond's water column indicate a very nutrient rich environment which would limit fish and aquatic macroinvertebrate communities.

If you have any questions, please contact me at (402) 471-2186 or thomas.buell@nebraska.gov.

Thank you again for your assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tom Buell', with a stylized, cursive script.

Tom Buell
Division Administrator
Monitoring and Remediation Division

Enclosures

RECEIVED

JUN 14 2021

Dave Schumacher
NDEE-SURFACE WATER UNIT
245 FALLBROOK BLVD
PO Box 98922
Lincoln, NE 68509-8922NE Dept Of Environment and Energy
By: _____ DEE#195 _____

ANALYTICAL RESULT QUALIFIERS

Workorder:

Profile: 03 FISH KILL, RTN:03 Fish Kill/Complaints

Lab ID:	739396	Date Received:	5/21/2021	Matrix:	Water
Sample ID:	739396	Date Collected:	5/20/2021 14:45		
Sample By:	BUBB, D	Date Reported:	6/11/2021 13:07		
Location:	KEISER POND				

Parameters	Your Results	Units	Qual	Report Limit	MCL or AL	Analyzed	By
Analytical Method: Lachat 10-107-04-1-A NO3+NO2							
Nitrate + Nitrite (As N)	0.719	mg/L		0.05	10	5/25/2021	SEP
Analytical Method: SM 3111B - Minerals by AA							
Sodium, Dissolved	15.9	mg/L		0.15		6/4/2021	TMG
Analytical Method: EPA 160.2 - TSS							
TSS (Non-Filterable Residue)	25.0	mg/L		5		5/25/2021	AAP
Analytical Method: TKN_TPO4							
Prep Date	5/25/2021						JDL
Total Kjeldahl Nitrogen	5.89	mg/L		0.5		5/26/2021	JDL
Total Phosphate as P	1.83	mg/L		0.04		5/26/2021	JDL
Analytical Method: EPA 350.1 - Ammonia							
Ammonia as N, Diffused	0.418	mg/L		0.05		5/25/2021	AMJ
Analytical Method: Lachat 10-117-07-1-A Chloride							
Chloride	18.0	mg/L		1		6/3/2021	JDL

SAMPLE COMMENTS:

[2] Rec'd on ice, 2.6C.

REMARKS: See reverse side of report for description of acronyms and data qualifiers. For inquiries on result interpretation call: (402) 471-6435.

ACRONYMS

- MCL = Maximum Contaminant Level – The concentration of the analyte which has been determined by the EPA to put the public health at risk. Concentrations below this level are considered acceptable.
- AL = Action Levels (AL) apply only to lead and copper and are not based on known or expected health effects. An Action Level is the concentration of a contaminant in a sample which, if exceeded and grouped with other samples, triggers treatment techniques or other requirements which a water system must follow.
- <RL = Less than Reporting Limit. The lowest amount of the analyte that can be accurately reported by the method used.
- NG = Not Given. The information was not supplied by the collector on the request form or the information was not readable.
- ND or NT = Not determined or not tested.

DATA QUALIFIERS

- A = The value given is an average value; determined by analyzing aliquots of the same sample two or more times
- B = The results are based upon colony counts outside the acceptable range. Fecal coliform results require that the plate count be in the range of 20-60. Fecal strep results require that the plate count be in the range of 20-100 colonies.
- C = The result given is a calculated value; it was not determined by direct analysis.
- E = Indication of possible interference.
- F = The sample was received in improper condition (container, temperature, preservative, sample container broken, paperwork discrepancies, air bubbles, insufficient volume, excess turbidity, chlorine smell, etc.)
- H = The sample was beyond the maximum holding time when received by the laboratory. It was therefore, not analyzed.
- J = The associated numerical value is an estimated quantity.
- K = The actual value is less than the value given.
- L = The actual value is greater than the value given.
- M = The analysis was inconclusive due to matrix interferences. The sample needs to be recollected.
- Q = The sample was beyond the maximum holding time prior to analysis.
- R = The sample was delivered to the lab, but due to laboratory accident, it was unable to be analyzed.
- S = Not all of the associated quality control criteria were met for this analyte.

TOTAL COLIFORM TERMINOLOGY (DRINKING WATER)

Total coliform / E.coli Routine Compliance Monitoring – Required monitoring samples which are sent to each PWS System monthly or quarterly.

Repeat Samples – The method used for repeat samples, EPA 9223B-QT, provides the number of organisms in colony forming units (CFU) instead of presence or absence.

OR – ORIGINAL – One repeat sample must be taken from the same tap as the original positive.

DN – DOWNSTREAM – One repeat sample must be collected within 5 service connections downstream of the original positive sample site.

UP – UPSTREAM – One repeat sample must be collected within 5 service connections upstream of the original positive sample site.

TG – TRIGGERED – This water sample is to be collected from a source well (or a common or representative sample point for multiple wells) for systems required to conduct triggered sampling under the Ground Water Rule. If more than one well is being used by the system, additional samples should be collected using sample kits and submission forms designated as "TG". The system must request additional TG sample kits if needed.

Additional Routines – Systems collecting samples on a quarterly schedule must collect additional routine monitoring samples the month following one or more total coliform positive samples. Systems must collect at least three (3) routine samples during the next month.

Special – These samples are non-compliance samples and may be used to determine the presence of total coliform after a pressure loss, repairs, or routine maintenance.

Units – cfu/100ml – Colony Forming Units per milliliters – A unit of bacteria that will form one colony in 100 milliliters of sample.

Excessive Age – The sample was received at least 30 hours after it was collected. This test was not performed.

Insufficient Amount – The amount of samples the lab received was less than the 100 ml required to perform the test.

Improper Container – The container used to collect the sample was inappropriate for the test required.

Damage – Something damaged the sample before it could be tested. The bottle may have been broken or sample contaminated.

Insufficient Sample Information – The sample collector failed to include the laboratory request form with the sample, date of samples on the request form or the collector may have put the same lab number on multiple samples.

Excess Chlorine Interference – The results can not be determined due to excess chlorine in the sample.

Total Coliform Present – The test detected the presence of total coliform. The sample **does not** meet bacteriological standards.

Total Coliform Absent – The test did not detect the presence of any total coliform. The sample **meets** bacteriological standards.

E. Coli Present – The test detected the presence of E. Coli in the sample. The sample **does not** meet bacteriological standards.

E. Coli Absent – The test did not detect the presence of any E. Coli in the sample. The sample **meets** bacteriological standards.

0 – The test did not detect the presence of any Total Coliform or E. Coli in the sample. The sample **meets** bacteriological standards.

Any Number over 0 – The test detected Total Coliform or E. Coli present in the sample. The number indicated the total number of colony forming units present in 100 ml of the sample. The sample **does not** meet bacteriological standards.

MPN-Most Probable Number. An index of the number of bacteria that, more probably than any other number, would give the results shown by the lab examination; it is not an actual enumeration.