

PCS 84069

Buell, Thomas

From: Buell, Thomas
Sent: Thursday, February 25, 2021 4:18 PM
To: Ron Yoder; Douglas Zalesky
Subject: FW: Digester Discharge -- Sampling Results
Attachments: 20210217-004.pdf; Preliminary Results Memo.pdf

Ron and Doug:
Please see the attached sample results and memo.

Please let me know if you have any questions.

Tom Buell
DIVISION ADMINISTRATOR, MONITORING AND REMEDIATION DIVISION

Nebraska Department of Environment and Energy
P.O. Box 98922
Lincoln, Nebraska 68509-8922
DIRECT: (402) 471-4270 / MAIN OFFICE (402) 471-2186

From: Buell, Thomas
Sent: Thursday, February 25, 2021 4:17 PM
To: Scott Tingelhoff <stingelhoff@mrgkc.com>
Cc: 'Engstrom, Timothy P' <TJ.Engstrom@cleanharbors.com>; Pracheil, Brad <brad.pracheil@nebraska.gov>
Subject: Digester Discharge -- Sampling Results

Scott:
Please see the memo and sample results. The Department expect to have additional results tomorrow or Monday.

Please let me know if you have any questions.

Tom Buell
DIVISION ADMINISTRATOR, MONITORING AND REMEDIATION DIVISION

Nebraska Department of Environment and Energy
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MEMORANDUM

Date: February 24, 2021
To:  Tom Buell, Administrator - Monitoring and Remediation Division
From:  David Schumacher - Monitoring Section Supervisor
Subject: AltEN Discharge Sample Collection and Analyses

This memo summarizes the Monitoring Section investigation and sampling effort related to a discharge resulting from a release of contents from the south digester tank on AltEN property located 2 miles south of Mead, NE. Figure 1 provides an image of where Greg Michl and I collected samples of the AltEN discharge from an intermittent unnamed tributary to Clear Creek (hereafter referred to as a tributary) on Friday, February 12, 2021.

We arrived at Site 1 near the intersection of Roads 9 and J at 1800 hrs. and observed flowing discharge and decided to travel downstream to determine how far the discharge in the tributary had gotten. We arrived at Site 3 (located 2 miles downstream of Site 1) shortly thereafter and did not observe any discharge in the tributary at this location. We then traveled to the Site 2 location (located 1 mile downstream of Site 1) and observed flowing discharge in the tributary at this location. We collected samples at Site 2 (1815 hrs.) as we determined that this was the most downstream location the discharge had traveled that was accessible to sample. Field measurements were taken of the discharge with a multiparameter field meter and water samples were collected. We then traveled back to Site 1 as that was the most upstream location of the discharge that we had access to and collected field measurements and water samples at this location as well (1900hrs.). After sampling at Site 1 we then traveled to check out the Site 3 location one last time before driving back to Lincoln and there wasn't any evidence that the discharge had arrived at this location at that time.

Table 1 below lists the results of the field measurements taken at Sites 1 and 2. Results are what would be expected of a discharge containing a high Biological Oxygen Demand often seen in water containing livestock waste with very low dissolved oxygen levels and extremely high conductivity. Turbidity was also quite high which is not surprising as the discharge was very dark in color and rather thick or slurry-like.

Sample analyses include Total Suspended Solids (TSS), Ammonia, Nitrate/Nitrite, Total Kjeldahl Nitrogen, Total Phosphorus, and pesticides. The pesticides parameter list was

determined after consulting with NDEE teammates familiar with the pesticides found in previous sampling efforts at the facility.

We received analytical results from the South Dakota Agricultural Laboratories for 7 neonic pesticides (see Table 1 below). Five of these pesticides were non-detectable (ND) whereas 2 pesticides, clothianidin and thiamethoxam had concentrations of 159µg/L and 25.7µg/L at Site 1 and 144µg/L and 25.8µg/L at Site 2, respectively. In speaking to NDEE Permitting and Engineering Division teammates familiar with the wastewater data collected previously at AltEN, these numbers are significantly lower. During wastewater sampling on 11/12/2019, clothianidin and thiamethoxam were present in the northeast lagoon (second lagoon in series) at 7,070 ug/L and 2,400 ug/L, respectively. Clothianidin and thiamethoxam were present in the northwest lagoon (first lagoon in series) at 31,000 ug/L and 24,000 ug/L, respectively.

The Chronic Human Health Benchmark for Pesticides (cHHBP) for drinking water for clothianidin and thiamethoxam are 630 ug/L and 77 ug/L, respectively. The results of the samples collected from the tributary at both Sites 1 and 2 are below these benchmarks.

In addition, these results are well below the fish acute and chronic benchmarks as well. However, the aquatic invertebrate acute benchmarks for clothianidin and thiamethoxam are 11 ug/L and 17.5 ug/L, respectively. The results exceed these values. Results also exceed the aquatic invertebrate chronic benchmarks for clothianidin and thiamethoxam of 0.05 ug/L and 0.74 ug/L.

South Dakota Agricultural Labs informed NDEE they will provided the remainder of the pesticide results taken at Sites 1 and 2 of the tributary by Friday, February 26, 2021.

Figure 1. Identification points of sampling investigation conducted on 2/12/2021 by NDEE on unnamed tributary to Clear Creek.

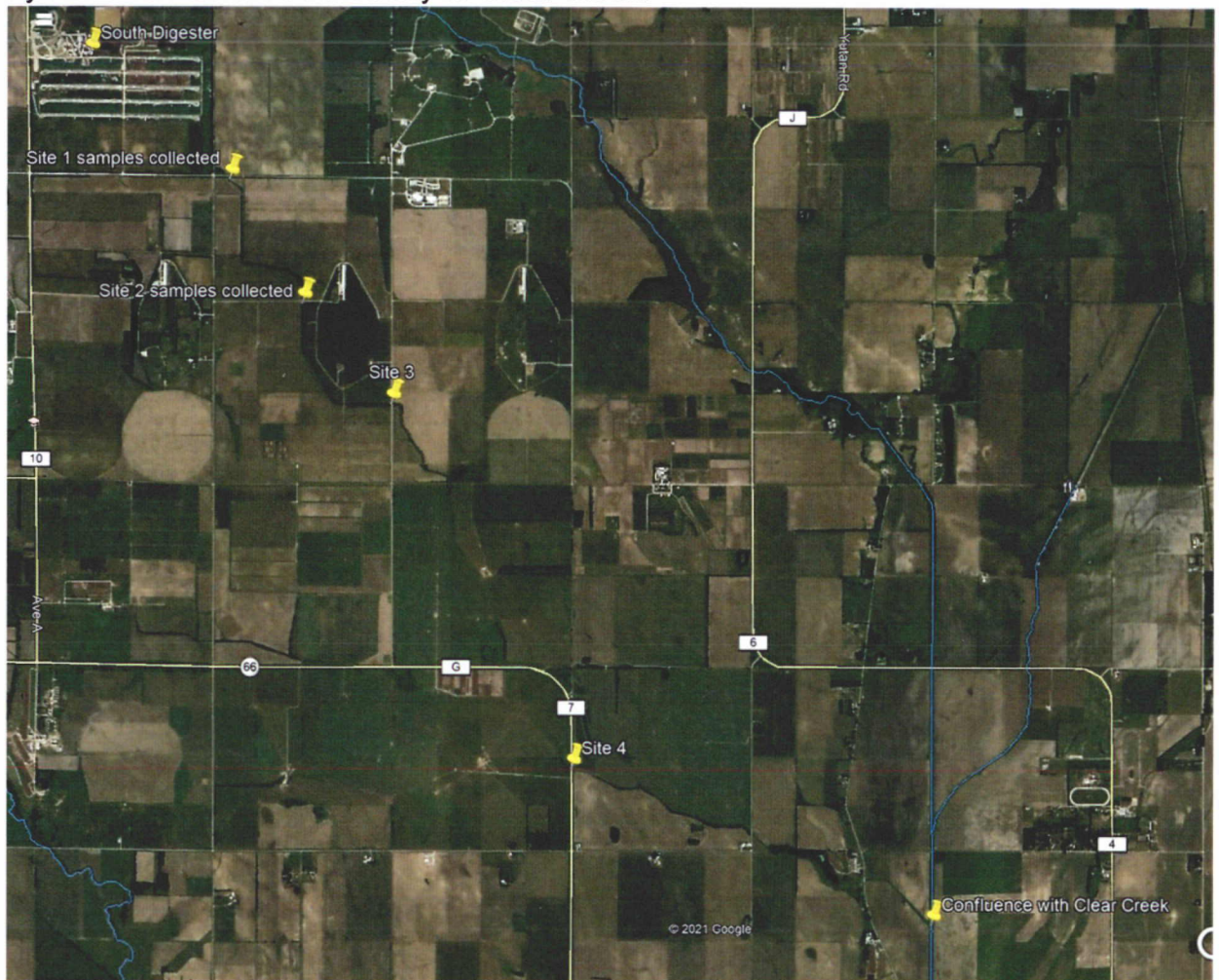


Table 1. Results of field measurements and neonic pesticides from samples collected from unnamed tributary to Clear Creek.

AltEN Discharge Sample Collection- 02/12/2021

Field Measurements	Site 1	Site 2			
Water Temperature (degrees C)	0.0	0.0			
Dissolved Oxygen (mg/l)	0.47	2.20			
pH (st. Units)	10,364	8,824			
Specific Conductance (umhos/cm)	8.45	8.35			
Turbidity (NTU)	241	250			
Pesticide Concentrations (µg/L)			cHHBP	Acute	Chronic
Acetamprid	ND	ND			
Clothianidin	159.0	144.0	630.0	11.0	0.05
Dinotefuron	ND	ND			
Imidacloprid	ND	ND			
Nitenpyram	ND	ND			
Thiacloprid	ND	ND			
Thiamethoxam	25.7	25.8	77.0	17.5	0.74
Sample Collection Time	1815	1900			

ND- Non-Detectable

cHHBP - Chronic Human Health Benchmark for drinking water

Acute - Aquatic macroinvertebrate acute benchmark

Chronic - Aquatic macroinvertebrate chronic benchmark

Analyzed By:

South Dakota Agricultural Laboratories
1335 Western Avenue
Brookings, South Dakota 57006
Phone: 605-692-7325
E-Mail: regina.wixon@sdaglabs.com

Collected By:

Nebraska Dept. of Environment & Energy-David
Schum
245 Fallbrook Blvd
Lincoln, NE 68521
Phone: 402-471-4709
E-Mail: david.schumacher@nebraska.gov

Report Date: 2021-02-22**Preliminary Report**

Report Of Analysis

Date Received : 2021-02-17**Package Id : 20210217-004**

21PE001084**Description: Water****Date Collected: 2021-02-12**

Site 1

Analyte	Result
Acetamprid	ND ppb
Azoxystrobin	Pending
Bifenthrin	Pending
Brassinazole	Pending
Clothianidin	159 ppb
Cyhalothrin 1-2	Pending
Cyhalothrin 1-4	Pending
Cypermethrin 1-4	Pending
Cyproconazole	Pending
Deltamethrin 1-2	Pending
Desthio-Prothioconazole	Pending
Difenoconazole	Pending
Dimoxystrobin	Pending
Dinotefuron	ND ppb
Epoxiconazole	Pending
Fluconazole	Pending
Fluoxastrobin	Pending
Glufosinate	Pending
Glyphosate	Pending
Imidacloprid	ND ppb
Ipconazole	Pending
Isavuconazole	Pending
Itraconazole	Pending
Metconazole	Pending
Nitenpyram	ND ppb
Orysastrobin	Pending
Permethrin 1-2	Pending
Picoxystrobin	Pending
Posaconazole	Pending
Propiconazole	Pending
Prothioconazole	Pending
Pyraclostrobin	Pending
Ravuconazole	Pending
Sulfonic Acid Prothioconazole	Pending
Tebuconazole	Pending
Tetraconazole	Pending
Thiabendazole	Pending
Thiacloprid	ND ppb
Thiamethoxam	25.7 ppb
Trifloxystrobin	Pending
Uniconazole	Pending
Voriconazole	Pending

21PE001085**Description: Water****Date Collected: 2021-02-12**

Site 2

Analyte	Result
Acetamprid	ND ppb
Azoxystrobin	Pending
Bifenthrin	Pending
Brassinazole	Pending
Clothianidin	144 ppb
Cyhalothrin 1-2	Pending
Cyhalothrin 1-4	Pending
Cypermethrin 1-4	Pending
Cyproconazole	Pending
Deltamethrin 1-2	Pending
Desthio-Prothioconazole	Pending
Difenoconazole	Pending
Dimoxystrobin	Pending
Dinotefuron	ND ppb
Epoxiconazole	Pending
Fluconazole	Pending
Fluoxastrobin	Pending
Glufosinate	Pending
Glyphosate	Pending
Imidacloprid	ND ppb
Ipconazole	Pending
Isavuconazole	Pending
Itraconazole	Pending
Metconazole	Pending
Nitenpyram	ND ppb
Orysastrobin	Pending
Permethrin 1-2	Pending
Picoxystrobin	Pending
Posaconazole	Pending
Propiconazole	Pending
Prothioconazole	Pending
Pyraclostrobin	Pending
Ravuconazole	Pending
Sulfonic Acid Prothioconazole	Pending
Tebuconazole	Pending
Tetraconazole	Pending
Thiabendazole	Pending
Thiacloprid	ND ppb
Thiamethoxam	25.8 ppb
Trifloxystrobin	Pending
Uniconazole	Pending
Voriconazole	Pending

21PE001086**Description: Water****Date Collected: 2021-02-12**

QC Field Replicate

Analyte**Result**

Acetamprid	ND ppb
Azoxystrobin	Pending
Bifenthrin	Pending
Brassinazole	Pending
Clothianidin	163 ppb
Cyhalothrin 1-2	Pending
Cyhalothrin 1-4	Pending
Cypermethrin 1-4	Pending
Cyproconazole	Pending
Deltamethrin 1-2	Pending
Desthio-Prothioconazole	Pending
Difenoconazole	Pending
Dimoxystrobin	Pending
Dinotefuron	ND ppb
Epoxiconazole	Pending
Fluconazole	Pending
Fluoxastrobin	Pending
Glufosinate	Pending
Glyphosate	Pending
Imidacloprid	ND ppb
Ipconazole	Pending
Isavuconazole	Pending
Itraconazole	Pending
Metconazole	Pending
Nitenpyram	ND ppb
Orysastrobin	Pending
Permethrin 1-2	Pending
Picoxystrobin	Pending
Posaconazole	Pending
Propiconazole	Pending
Prothioconazole	Pending
Pyraclostrobin	Pending
Ravuconazole	Pending
Sulfonic Acid Prothioconazole	Pending
Tebuconazole	Pending
Tetraconazole	Pending
Thiabendazole	Pending
Thiacloprid	ND ppb
Thiamethoxam	29.7 ppb
Trifloxystrobin	Pending
Uniconazole	Pending
Voriconazole	Pending

21PE001087**Description: Water****Date Collected: 2021-02-12**

QC Trip Blank

Analyte	Result
Acetamprid	ND ppb
Azoxystrobin	Pending
Bifenthrin	Pending
Brassinazole	Pending
Clothianidin	ND ppb
Cyhalothrin 1-2	Pending
Cyhalothrin 1-4	Pending
Cypermethrin 1-4	Pending
Cyproconazole	Pending
Deltamethrin 1-2	Pending
Desthio-Prothioconazole	Pending
Difenoconazole	Pending
Dimoxystrobin	Pending
Dinotefuron	ND ppb
Epoxiconazole	Pending
Fluconazole	Pending
Fluoxastrobin	Pending
Glufosinate	Pending
Glyphosate	Pending
Imidacloprid	ND ppb
Ipconazole	Pending
Isavuconazole	Pending
Itraconazole	Pending
Metconazole	Pending
Nitenpyram	ND ppb
Orysastrobin	Pending
Permethrin 1-2	Pending
Picoxystrobin	Pending
Posaconazole	Pending
Propiconazole	Pending
Prothioconazole	Pending
Pyraclostrobin	Pending
Ravuconazole	Pending
Sulfonic Acid Prothioconazole	Pending
Tebuconazole	Pending
Tetraconazole	Pending
Thiabendazole	Pending
Thiacloprid	ND ppb
Thiamethoxam	ND ppb
Trifloxystrobin	Pending
Uniconazole	Pending
Voriconazole	Pending

ND Not Detected

The analytical results on this report reflect what was found in the laboratory sample as it was received at the laboratory.

Submitted by the customer:



Pesticide Residue Sample Submission Form

South Dakota Agricultural Laboratories
1335 Western Avenue
Brookings, SD. 57006
(605) 692-7325

20210217-004
21PE001084-1087

20210217-004
21PE001084-001087

Name: David Schumacher - Nebraska Dept. of Environment and Energy
Address: 245 Fallbrook Blvd. City: Lincoln State: NE *Sample ID: Site 1, Site 2, QC Field Replicate, QC Trip Bank
Zip: 68501 Phone: (402) 471-4709 Email: daidschumacher@nebraska.gov

*Sample ID must be marked clearly on the sample you submit. **Results will be emailed to the provided email address.

Billing Information: ☐ Check box if billing is the same as the customer information

Name: NDEE Address: P.O. Box 98922
City: Lincoln State: NE Zip: 68501
Phone: (402) 471-4709 Email: NDEE.accounting@nebraska.gov

Individual tests are \$162 each, unless otherwise marked. Scans are \$212 and include all of the compounds in a particular category. Acceptable samples include Vegetation, Water or Soil. Call to confirm other substrates.

Thank you for choosing South Dakota Agricultural Labs! We do add analytes to our testing regiment throughout the year. If a chemical of interest is not listed, please call us:
(605) 692-7325.

How much sample should you send?

Please send 30g of vegetation or 100g of soil to run an individual test. What does this look like? For vegetation, it would be about a quart sized bag packed full. If more than one test is required, please fill a gallon sized bag. For soil samples, please send 2 cups, if more than one test is required send 4 cups.

Analyses offered

Please turn page over to view the current pesticide analyses.

If you are interested in a screen of active ingredients, please check the box next to the **bold-faced** heading. This will include all active ingredients within the PGR screen for \$212.

Example: PGR Screen ☒

If you are interested in single analyses, please circle the active ingredients. The cost of each individual analyte is \$162 unless otherwise marked.

Example: Mesotrione

Sample(s) Received at SD Ag Labs
Date 2021-02-17
Received by
Alyssa Kennedy

Dave Schumacher
NDEE-SURFACE WATER UNIT
245 FALLBROOK BLVD
PO Box 98922
Lincoln, NE 68509-8922

ANALYTICAL RESULT QUALIFIERS

Workorder: 8385 DEQ021221AltEn

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

Lab ID:	722221	Date Received:	2/16/2021	Matrix:	Water
Sample ID:	SITE 1	Date Collected:	2/12/2021 19:00		
Sample By:	MICHL, GREG	Date Reported:	2/24/2021		
Location:	UPSTREAM				

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)	0.647	mg/L		0.05	10	2/18/2021	JDL
Analytical Method: EPA 160.2 - TSS							
TSS (Non-Filterable Residue)	88.0	mg/L		5		2/18/2021	SEP
Analytical Method: TKN_TPO4							
Prep Date	02/19/2021						AAP
Total Kjeldahl Nitrogen	1000	mg/L		0.5		2/22/2021	AAP
Total Phosphate as P	187	mg/L		0.04		2/22/2021	AAP
Analytical Method: EPA 350.1 - Ammonia							
Prep Date	2/19/2021						JDL
Ammonia as N, Distilled	838	mg/L		0.05		2/22/2021	JDL
Analytical Method: Lachat 10-117-07-1-A Chloride							
Chloride	287	mg/L		1		2/19/2021	AMJ

SAMPLE COMMENTS:

[1] Rec'd on ice, 3.0°C

[2] Preserved container left out of cooler overnight on 2/18/21.

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.