

NEBRASKA

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DEPT. OF ENVIRONMENT AND ENERGY

March 31, 2021

Evelyn and Stan Kiser
887 County Road 5
Ashland, NE 685003

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

Dear Mr. and Mrs. Kiser:

The Nebraska Department of Environment and Energy (NDEE) is conducting surface water sampling near Mead, Nebraska related to an environmental investigation at the AltEn, LLC facility. On February 22 and March 2, 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 for the surface water sample "21PE001504" and "723847" collected from the pond on your property. The samples were tested for various pesticides associated with the seed treatment of field corn; as well as, other toxic chemicals commonly used in fertilizer. The first column of the laboratory report identifies each chemical that was tested for. The third column provides the numeric results of the chemical in units of Parts Per Billion (ppb) which is also equivalent to micrograms per liter, or $\mu\text{g/L}$. A result followed by a result of "ND" indicates that the chemical was not detected.

Below is a table showing the sample results from your pond in comparison to levels that the Environmental Protection Agency (EPA) indicates may be of concern for fish or invertebrates. The pesticides tested for were either not detected or below these levels.

Surface water Sample	Chemical	Results (ppb or $\mu\text{g/L}$)	Fish Acute ($\mu\text{g/L}$)	Fish Chronic ($\mu\text{g/L}$)	Invertebrate Acute ($\mu\text{g/L}$)	Invertebrate Chronic ($\mu\text{g/L}$)
21PE001504	Desthio-Prothioconazole	<5	--	--	--	--
	Tebuconazole	<5	1,135	11	1,440	120
	Thiabendazole	16.9	280	110	155	42

<5 = chemical detected but cannot be accurately quantified below the reporting limit of 5 ppb

"--" indicates that a benchmark is not available for this chemical



Pete Ricketts, Governor



Surface Water sample	Chemical	Results (mg/L)	Duplicate Results (mg/L)	Surface Water Quality Standard (mg/L)
723847	<i>Dissolved Oxygen</i>	38.2#	NA	Not less than 3.0*
	<i>pH</i>	8.3	NA	Between 6.5-9.0
	<i>Conductivity (umhos/cm)</i>	1,011	NA	Not more than 2000
	Nitrate + Nitrite	1.06	1.08	--
	Total Dissolved Solids	26	23.5	--
	Total Nitrogen	4.52	4.98	--
	Total Phosphate	0.735	0.782	--
	Ammonia	0.126	0.373	5.010/1.135**
	Chloride	68.8	68.4	860/230***

"--" indicates that a benchmark is not available for this chemical

* - One-day minimum criterion that applies October 1 through March 31

** - Allowable one-hour average/allowable 30-day average

*** - Not to exceed 860 mg/L at any time or a 4-day average concentration of 230 mg/L

- pond was exhibiting super-saturated conditions of 283% likely due to heavy algal growth/photosynthesis occurring under ice.

Dissolved Oxygen, pH and Conductivity - field measurements taken during sampling

Enclosed are copies of all the laboratory data and a trip report for the February 22, 2021 sampling event.

Additional sampling took place on March 29, 2021. The Department will send you those results when they are available.

If you have any questions, please contact me or Zoe DeGrande at (402) 471-2186 or mike.felix@nebraska.gov or zoe.degrande@nebraska.gov.

Thank you again for your assistance.

Sincerely,

Mike Felix
Section Supervisor
Superfund/VCP Section
Monitoring and Remediation Division

Enclosures

Performed 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 and Energy
PO Box 98922
Lincoln, NE 68509
Phone: 402-471-3377
E-Mail: wade.gregson@nebraska.gov

Report Date: 2021-04-01**Amended Report****South Dakota Agricultural Laboratories has examined the sample of**

Limfinite Package Id : 20210305-002
Lab Sample Id : 21PE001504
Customer Sample Id : Off-site Surface Water
Sample Description : Water
Date Collected : 2021-03-03
Date Received : 2021-03-05
Cooler Temp :

RESULTS

ANALYTE	UNIT	AS RECEIVED	LOD	DETECTION LIMIT	METHOD	DATE OF EXTRACTION	DATE OF ANALYSIS
Abamectin	ppb	ND	3	10	LC-MS/MS	2021-03-12	2021-03-12
Acetamprid	ppb	ND	1	3	LC-MS/MS	2021-03-08	2021-03-09
Azoxystrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Brassinazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Clothianidin	ppb	ND	2.5	8	LC-MS/MS	2021-03-08	2021-03-09
Cyproconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Desthio-Prothioconazole	ppb	J1.38	1	5	LC-MS/MS	2021-03-08	2021-03-08
Difenoconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Dimoxystrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Dinotefuron	ppb	ND	1.2	4	LC-MS/MS	2021-03-08	2021-03-09
Epoxiconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Fluconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Fluoxastrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Glufosinate	ppb	ND	3	10	LC-MS/MS	2021-03-09	2021-03-11
Glyphosate	ppb	ND	3	10	LC-MS/MS	2021-03-09	2021-03-11
Imidacloprid	ppb	ND	1.2	4	LC-MS/MS	2021-03-08	2021-03-09
Ipconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Isavuconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Metconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Nitenpyram	ppb	ND	2.5	8	LC-MS/MS	2021-03-08	2021-03-09
Orysastrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Picoxystrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Propiconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Prothioconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Pyraclastrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Ravunconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Sulfonic Acid Prothioconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-20
Tebuconazole	ppb	J4.43	1	5	LC-MS/MS	2021-03-08	2021-03-08
Tetraconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Thiabendazole	ppb	16.9	1	5	LC-MS/MS	2021-03-08	2021-03-08
Thiacloprid	ppb	ND	2	6	LC-MS/MS	2021-03-08	2021-03-09

Thiamethoxam	ppb	ND	1	3	LC-MS/MS	2021-03-08	2021-03-09
Trifloxystrobin	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-10
Uniconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08
Voriconazole	ppb	ND	1	5	LC-MS/MS	2021-03-08	2021-03-08

QUALITY ASSURANCE

ANALYTE	UNIT	DUPLICATE	SPIKE RECOVERY	MATRIX BLANK	PROCESS BLANK	INSTRUMENT BLANK
Abamectin	ppb	21PE001509	81.1	ND	ND	ND
Acetamprid	ppb	ND	106	ND	ND	ND
Azoxystrobin	ppb	21PE001509	102	ND	ND	ND
Brassinazole	ppb	21PE001509	106	ND	ND	ND
Clothianidin	ppb	ND	86.7	ND	ND	ND
Cyproconazole	ppb	21PE001509	90.2	ND	ND	ND
Desthio-Prothioconazole	ppb	21PE001509	96.9	ND	ND	ND
Difenoconazole	ppb	21PE001509	92.3	ND	ND	ND
Dimoxystrobin	ppb	21PE001509	110	ND	ND	ND
Dinotefuron	ppb	ND	109	ND	ND	ND
Epoxiconazole	ppb	21PE001509	115	ND	ND	ND
Fluconazole	ppb	21PE001509	98.3	ND	ND	ND
Fluoxastrobin	ppb	21PE001509	108	ND	ND	ND
Glufosinate	ppb	21PE001509	98.9	ND	ND	ND
Glyphosate	ppb	21PE001509	102	ND	ND	ND
Imidacloprid	ppb	ND	109	ND	ND	ND
Ipconazole	ppb	21PE001509	94.9	ND	ND	ND
Isavuconazole	ppb	21PE001509	87.5	ND	ND	ND
Metconazole	ppb	21PE001509	99.3	ND	ND	ND
Nitenpyram	ppb	ND	108	ND	ND	ND
Oryastrobin	ppb	21PE001509	95.4	ND	ND	ND
Picoxystrobin	ppb	21PE001509	98.2	ND	ND	ND
Propiconazole	ppb	21PE001509	108	ND	ND	ND
Prothioconazole	ppb	21PE001509	120	ND	ND	ND
Pyraclostrobin	ppb	21PE001509	86.9	ND	ND	ND
Ravuconazole	ppb	21PE001509	85.4	ND	ND	ND
Sulfonic Acid Prothioconazole	ppb	21PE001509	85.7	ND	ND	ND
Tebuconazole	ppb	21PE001509	90.0	ND	ND	ND
Tetraconazole	ppb	21PE001509	86.4	ND	ND	ND
Thiabendazole	ppb	21PE001509	101	ND	ND	ND
Thiacloprid	ppb	ND	102	ND	ND	ND
Thiamethoxam	ppb	ND	105	ND	ND	ND
Trifloxystrobin	ppb	21PE001509	79.1	ND	ND	ND
Uniconazole	ppb	21PE001509	90.2	ND	ND	ND
Voriconazole	ppb	21PE001509	100	ND	ND	ND

Comments:

Definitions:

ppb - parts per billion

Detection Limit - Lowest concentration that can be quantitatively reported with confidence

ND - Not Detected above the limit of quantification

Duplicate - Concentration found in repeat sample analysis

Spike Recovery - Recovery based on a known amount of active ingredient spiked into a similar-matrix, blank sample

Matrix Blank - A similar-matrix, blank sample is evaluated

Process Blank - A sample without any matrix (soil, vegetation etc) is processed through the sample analysis procedure

Instrument Blank - Injection solvent is run to demonstrate no carryover between injections on the instrument

BRIEF METHOD DESCRIPTION

Strobins in Water - Purpose and Scope

Strobins are fairly polar and are usually determined by LC-MS/MS. The limits of detection for the strobins are 1 ppb for limit of detection and 5 ppb for limit of quantitation.

Strobins in Water - References

J. Klein and L. Alder, JAOACI 86(5): 101501037 (2003)

Strobins in Water - Basic Principles

Strobin water samples are extracted into aqueous methanol followed by filtration and preparation for LC-MS/MS.

This SOP is for the determination of Strobins in soil, water and vegetation. The limits of detection for soil, water and vegetation range from 1 ppb to 2 ppb. The limit of quantitation is 5 ppb for soil, water and vegetation.

The Strobins include: Fluoxastrobin, Trifloxystrobin, Oryastrobin, Pyraclostrobin, Azoxystrobin, Picoxystrobin and Dimoxystrobin.

Azoles in soil, vegetation and water - Purpose and Scope

Azoles are not ionic and are soluble in many organic solvents. Several of them are volatile enough for gas chromatography, but in this laboratory, LC-MS/MS has been used for azole analysis. The limits of detection for the azoles are 1 ppb for limit of detection and 5 ppb for limit of quantitation.

Azoles in soil, vegetation and water - References

Analytical Methods for Pesticides and Plant Growth Regulators. (G. Zweig, ed.) Vol.X, pp. 347 19.1.2.2 Klein and Alder. JAOAC. 86(5): 1015-37 (2003). 19.1.2.3 Ramsteiner et al. JAOAC. 57(1): 192-201 (1974).

Azoles in soil, vegetation and water - Basic Principles

Azole soil, vegetation, and water samples can be extracted in aqueous methanol, filtered and prepared for LC-MS/MS analysis.

Neonicotinoids in soil, water and vegetation - Purpose and Scope

Neonicotinoids are a class of neuro-active insecticides chemically similar to nicotine. The limits of detection for the neonicotinoids are 1 ppb for limit of detection and 5 ppb for limit of quantitation.

Neonicotinoids in soil, water and vegetation - References

J. Klein and L. Alder, JAOACI 86(5): 101501037 (2003)

Neonicotinoids in soil, water and vegetation - Basic Principles

Neonicotinoids are fairly polar and are extracted with aqueous acetonitrile, filtered and prepared for LC-MS/MS analysis.

Reviewed and approved by Regina Wixon, Ph.D.



EA Engineering, Science,
and Technology, Inc., PBC

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Technical Memorandum

DATE: March 26, 2021

TO: Wade Gregson, Nebraska Department of Environment and Energy (NDEE)

FROM: Dan Bigbee

SUBJECT: Task Assignment TA-21-08A/B/C
Alt-En Ethanol Plant – Environmental Sampling Support
IIS Number: 84069, Program ID: Fast Track
Pond Composite Sampling

Project Description

EA Engineering, Science, and Technology, Inc., PBC (EA) provided Fast Track/On-Call Environmental Sampling Support associated with the Alt-En Ethanol Plant. EA collected a composite sample from a pond southwest of the intersection of County Road 5 and County Road F (Figure 1) located in Saunders County, NE.

Data Collection

EA arrived at the site at 1500 hours to collect a composite sample on Tuesday, March 2, 2021. The following activities were completed.

- Met with property owner to discuss project objectives and process to collect sample.
- Surveyed the pond to determine distribution of 4 sample points to collect aliquots for a composite sample. Lake was ice covered, however the deteriorating ice limited lake access to areas of safe ice for sampling.
- At each sample point, a hole was chiseled through the ice and ice chips and slush were removed using a stainless-steel scoop prior to aliquot collection.
- At each sample point, a 250-milliliter aliquot of surface water was collected approximately 1 foot below the ice surface (Figure 1) and composited in a laboratory provided 1-liter HDPE container.
- The sample container was labeled, placed in a zipper bag, and stored on ice.
- Sample locations were surveyed using a handheld submeter global positioning system (GPS) unit.
- Returned to Lincoln and placed the sample in a refrigerator for preservation of the sample.
- On Thursday, March 4, 2021, the sample was placed in a shipping cooler with fresh ice, chain-of-custody, sealed, and shipped via overnight courier to South Dakota Agricultural Laboratories, Brookings, SD for analyses of agricultural chemicals.

Attachments

Attachments to this Technical Memorandum include:

- Photographic Log, and
- Collection Field Sheets



Figure 1





Photographs



Photo 1. Overview of pond.



Photo 2. Testing of ice for sample collection.



Photo 3. Sample collection.



Photo 4. Sample collection.

DAILY QUALITY CONTROL REPORT

Project Manager: Don Bigbee

Project: Air-Eu O&A Site

Date: 2 Mar 21

S	M	T	W	TH	F	S
		X				

Weather	Bright Sun	Clear	Overcast	Rain	Snow
Temp	To 32	32-50	50-70	70-85	>85
Wind	Still	Moderate	High	Gusty	
Humidity	Dry	Moderate	Humid		

NDEQ Personnel on Site: None

Contractors on Site: K Dixon and M. Wallman EA

Visitors on Site: None

Work Performed:

Collected composite surface water from
Pond Located West of County Rd S and Rd F
intersection Saunders County.

Cut holes through ice collected subsample ~ 1 ft
below ice GPS Locations. Composite sample
collected and stored in EA Sample Fridge

Sample Shipped To Lab on 4 Mar 2021

GPS Sample Location

Project: AIT-En Off-Site Date: 2 Mar 21

Quality Control Activities (including field calibration and duplicate samples collected): _____

None

Problems Encountered/Corrective Actions Taken: _____

None

Downtime/Standby: None

Health and Safety Activities: _____

Ice - Caution - Tested Ice with Bor
os Sampler walked on the Ice.

Special Notes: _____

None

By: Reddy Date: 2 Mar 21

COLLECTION FIELD SHEET

Project Name Alt. En Off-SiteSample Number Off-Site Surface WaterName and Address of Property Owner Private PropertySample Location Pond West of Saunders Co. Road 5 and E intersectionSample Media Surface Water Sample Depth ≈ 1-ft below IceWell I.D. NADate Collected 2 Mar 21 Time Collected 1730Sampling Personnel K. Dixon and M. WallmanSample QC Duplicate: Yes ☒ No Duplicate Sample No. NA

Field Measurements

Photo Ionization Detector Measurements: _____

pH _____ Conductivity _____ Temperature _____

Container	Sample Type	Preservative	Analysis Requested
<u>1-L HDPE</u>		<u>Refrigerate</u>	<u>Pesticide Screens</u>

Comments: _____

4- Locations Sampled for Composite Sample

Site Sketch Showing Sampling Location:

