Cohen, Amy

From: Duchovnay, Andrew
Sent: Wednesday, March 28, 2018 12:56 PM
To: Cohen, Amy; Riccio, Roberta; Bennett, James
Subject: FW: Mountaire Case Filed
Attachments: 2018_03_27_Mountaire_CASE_Filed.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Here it is!

From: Rodrigues, Cecil
Sent: Wednesday, March 28, 2018 11:47 AM
To: Field, Stephen <Field.Stephen@epa.gov>; Duchovnay, Andrew <Duchovnay.Andrew@epa.gov>; Coe, Mary <Coe.Mary@epa.gov>
Subject: FW: Mountaire Case Filed

Thanks. Cecil
Cecil Rodrigues
Deputy Regional Administrator
EPA Region III (3RA00)
1650 Arch Street
Philadelphia, PA 19103
215.814.2683
IPhone:215.266.2960

From: Price-Fay, Michelle
Sent: Wednesday, March 28, 2018 11:05 AM
To: rogers, rick <rogers.rick@epa.gov>; Lueckenhoff, Dominique <Lueckenhoff.Dominique@epa.gov>; McGuigan, David <McGuigan.David@epa.gov>; Rodrigues, Cecil <rodrigues.cecil@epa.gov>
Cc: Dinsmore, Andrew <Dinsmore.Andrew@epa.gov>; McManus, Catharine <mcmanus.catharine@epa.gov>
Subject: FW: Mountaire Case Filed

I haven't read this yet, but I wanted to share quickly as I know Kate and Cosmo are out of the Office.

Michelle Price-Fay, Associate Director
Office of State and Watershed Partnerships
Water Protection Division (3WP10)
U.S. EPA Region III
1650 Arch Street
Philadelphia, Pa 19103
215-814-3397

From: (b) (6)(b) (6)(b) (6)(b) (6) [redacted]
Sent: Wednesday, March 28, 2018 9:39 AM

To: Servidio, Cosmo <Servidio.Cosmo@epa.gov>; McManus, Catharine <mcmanus.catharine@epa.gov>
Cc: Hamilton, Brian <Hamilton.Brian@epa.gov>; Price-Fay, Michelle <Price-Fay.Michelle@epa.gov>; Diaz Bonville <diaz.bonville@mail.house.gov>
Subject: Mountaire Case Filed

Lawyers threaten federal lawsuit to hold Delaware chicken plant accountable for pollution

Lawyers threaten federal lawsuit to hold Delaware chicken plant accounta...

Local and national lawyers say that Mountaire Farms violated federal law by improperly disposing of waste and co...

PUBLIC JUSTICE

March 27, 2018

Ronald M. Cameron
Chairman
Mountaire Corporation
1901 Napa Valley Dr.
Little Rock, AR 72212

Paul Downes
President and CEO
Mountaire Farms Inc.
PO Box 1320
Millsboro, DE 19966

Mike W. Tirrell
Executive Vice President of Processing Operations
Mountaire Farms Inc./Mountaire Farms of Delaware, Inc.
PO Box 1320
Millsboro, DE 19966

NOTICE OF INTENT TO SUE PURSUANT TO RESOURCE CONSERVATION AND RECOVERY ACT, 42 U.S.C. § 6972(b)(2)(A)

Dear Mr. Cameron, Mr. Downes, and Mr. Tirrell:

Pursuant to the 1976 Amendments to the Solid Waste Disposal Act (hereinafter referred to as the "Resource Conservation and Recovery Act" or "RCRA"), 42 U.S.C. § 6972(b)(2)(A), [redacted] (collectively, "Community Plaintiffs") and Food & Water Watch hereby notifies you that on or after the 90th day from the date of your receipt of this notice, the Community Plaintiffs and Food & Water Watch intend to initiate a citizen suit in Delaware Federal District Court against Mountaire Farms Inc., Mountaire Farms of Delaware Inc, and Mountaire Corporation for violations at their Millsboro poultry processing plant as described below ("collectively Mountaire").

Exemption 6

Mountaire owns and operates a poultry processing plant located on Route #24, approximately 2.0 miles east of Millsboro, Sussex County, at or near 29005 John J. Williams

Highway, Millsboro, DE. The Millsboro processing plant slaughters and processes about 2 million chickens per week, operating 16 hours per day, five days a week, and produces 2.4 million gallons of waste per day. The waste created by the processing plant includes feathers, dirt, fecal matter, blood, slaughtering wastewater, carcass parts, grit, sand, gravel, flesh, fat, grease, chiller wastewater, processing wastewater, cleanup wastewater, and sanitary waste from the employees at the plant. Under a State of Delaware Spray Irrigation Permit Number 359191-04, Mountaire disposes of its wastewater on 928 acres of farmland permitted for spray irrigation. This plant, wastewater treatment and storage, and spray irrigation activity are what is at issue in this lawsuit as is described in the map below:

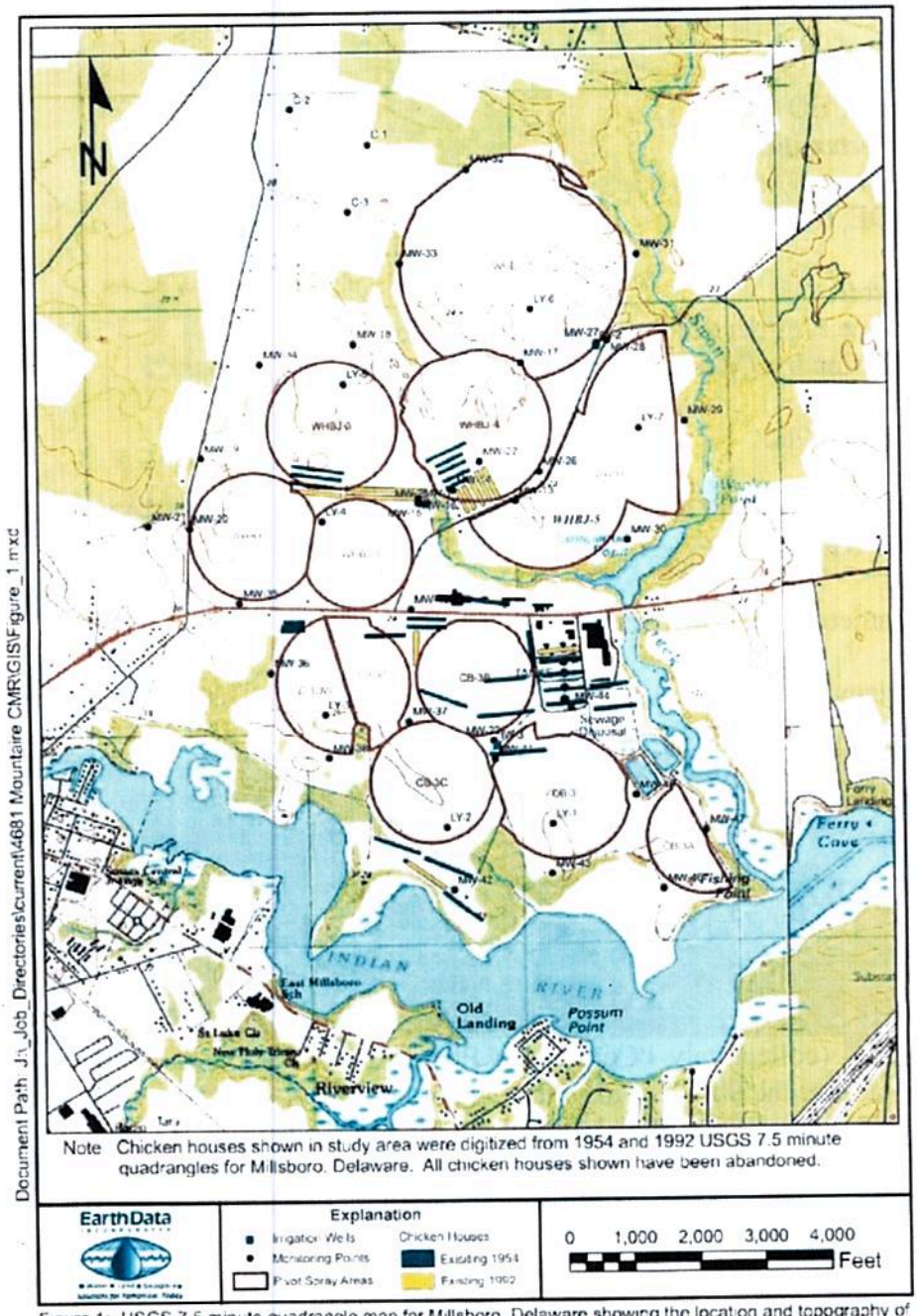


Figure 1: USGS 7.5 minute quadrangle map for Millsboro, Delaware showing the location and topography of the site and surrounding area (created 1954, Photorevised 1992)

The Community Plaintiffs live approximately 125 feet to ½ mile downgradient from the spray fields and wastewater storage at issue. The lawsuit will allege that Mountaire has contributed and is contributing to the past and present handling, storage, treatment, transportation, and/or disposal of solid waste in such a manner that may present an imminent and substantial endangerment to health and the environment in violation of Section 7002(a)(1)(B) of RCRA, 42 U.S.C. § 6972(a)(1)(B). The lawsuit will also allege that Mountaire is operating an "open dump" in violation of Section 4005(a) of RCRA, 42 U.S.C. § 6945(a).

By failing to comply with RCRA, Mountaire has injured or threatened to injure, and will continue to injure or threaten to injure, the health, environmental, and economic interests of the Community Plaintiffs and Food & Water Watch's members. These injuries or risks are traceable to Mountaire's violations on their property, and redressing those ongoing violations will redress the Community Plaintiffs' and Food & Water Watch's injuries or risks. The Community Plaintiffs and Food & Water Watch will seek mandatory injunctive relief requiring Mountaire to immediately cease its open dumping and abate and/or remediate the source(s) of the endangerment to health and the environment and an order from the Court requiring Mountaire to pay the attorneys and expert witness fees and costs incurred in bringing this enforcement action. This letter serves to notify you that Community Plaintiffs and Food & Water Watch intend to file suit in federal district court against Mountaire any time beginning ninety (90) days after the certified receipt of this letter if Mountaire does not remedy the RCRA violations during this period. The suit may also include common law claims for money damages and other relief.

VIOLATIONS OF THE RESOURCE CONSERVATION AND RECOVERY ACT: IMMINENT AND SUBSTANTIAL ENDANGERMENT

Under 42 U.S.C. § 6972(a)(1)(B), citizens are authorized to bring suit against any person who is the "past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment." In this case, Mountaire is the generator, transporter, and owner and/or operator of a treatment, storage, and disposal facility that is contributing to the past and present storage, treatment, transportation and/or disposal of solid wastes, namely poultry processing wastewater and sanitary waste sprayed onto disposal fields as part of their Spray Irrigation Permit Number 359191-04. Mountaire's liquid wastes constitute "solid wastes" under RCRA because they are "any...discarded material, including solid, liquid, semisolid… material resulting from industrial, commercial… and agricultural operations..." 42 U.S.C. § 6903(27). Mountaire's practices in storing, treating, transporting, applying, and disposing of poultry processing wastewater and sanitary waste may, and do, present an imminent and substantial endangerment to the health of nearby residents and to the environment.

In particular, Mountaire and/or its agents have applied, currently do apply, and are reasonably likely to continue to apply poultry processing wastewater and sanitary wastes to thirteen nearby agricultural fields in amounts that exceed agronomic rates. Delaware

Department of Natural Resources and Environmental Control ("DNREC") inspection reports show that Mountaire routinely applied nutrients in excess of its annual application rate of 320 lbs/acre of nitrogen, a strong indication that Mountaire has applied its wastewater in excess of agronomic rates. For example, in 2017, Mountaire exceeded its annual rate on all but two of its fields. In fact, in 2017, six of the spray fields exceeded the total application rate for the entire year in the month of August alone:

Field	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
CB3	20.2	13.37	9.82	16.58	16.24	13.78	Failed to Report	413.95	2.44	**506.38**
CB3A	28.89	37.81	13.99	0	27.99	27.23	Failed to Report	0	0	**135.91**
CB3B	47.47	19.61	7.33	39.01	26.26	21.76	Failed to Report	104.75	355.36	**621.55**
CB3C	19.36	23.92	13.69	94.83	0	0	Failed to Report	484.21	402.03	**1038.04**
CB3DE	23.71	19.47	8.71	107.68	16.05	8.65	Failed to Report	344.21	195.11	**723.59**
CB3DW	44.24	22.7	6.15	0	41.37	45.26	Failed to Report	179.21	0	**338.93**
WHBJ1	15.28	24.48	9.09	51.24	6.31	1.13	Failed to Report	24.95	71.80	**204.28**
WHBJ2	40.9	32.79	12.72	56.07	17.8	25.61	Failed to Report	388	253.10	**826.99**
WHBJ3	29.56	13.08	15.13	51.88	16.95	19.3	Failed to Report	344.29	312.46	**802.65**
WHBJ4	21.42	0	7.36	18.07	14.86	14.67	Failed to Report	338.24	196.07	**610.69**
WHBJ5	31.99	24.66	13.07	50.67	4.37	5.29	Failed to Report	268.04	211.51	**609.60**
WHBJ6	47.58	29.88	0.04	63.18	11.16	13.14	Failed to Report	481.19	183.21	**829.38**
WHBJ7	35.64	20.43	12.99	24.92	19.1	19.04	Failed to Report	212.35	186.96	**531.43**

Upon information and belief, this over application beyond the 320 lbs/acre limit has occurred for at least the past five years.

Additionally, DNREC inspection reports from 2015 to the present have indicated that effluent waste sprayed onto the disposal fields was above the 15.6 mg/l Total Nitrogen limit allowed in Mountaire's spray irrigation permit. For example, in 2017, the following nitrogen concentrations were:

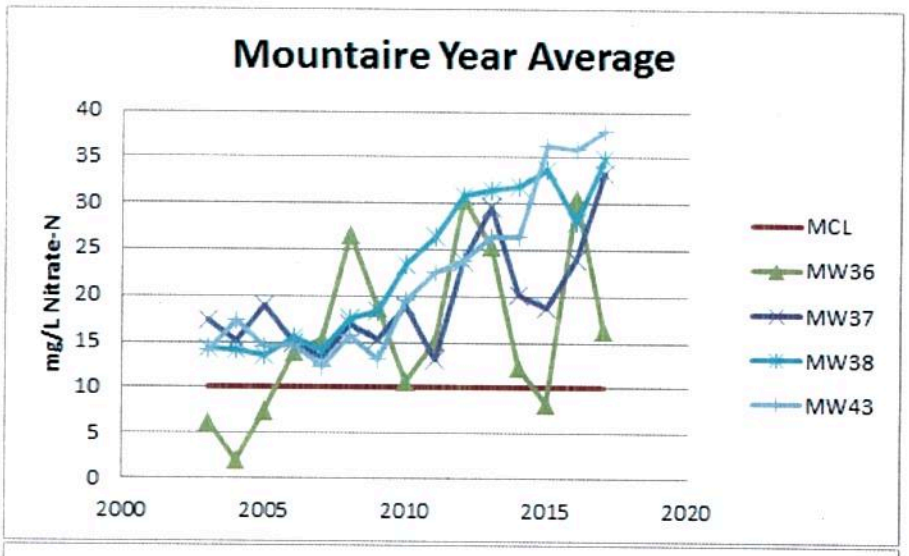
Characteristic	Date	Result	Unit
Total Nitrogen	1/4/2017	56.2	mg/L
Total Nitrogen	2/8/2017	41.86	mg/L
Total Nitrogen	3/1/2017	18.76	mg/L
Total Nitrogen	4/24/2017	76.75	mg/L
Total Nitrogen	5/25/2017	30.8	mg/L
Total Nitrogen	6/21/2017	31.47	mg/L
Total Nitrogen	7/28/2017	26	mg/L
Total Nitrogen	8/30/2017	406	mg/L
Total Nitrogen	9/14/2014	368	mg/L
Total Nitrogen	9/21/2017	356	mg/L
Total Nitrogen	9/26/2017	641	mg/L
Total Nitrogen	9/28/2017	210	mg/L
Total Nitrogen	9/29/2017	320	mg/L
Total Nitrogen	10/2/2017	172	mg/L
Total Nitrogen	10/3/2017	163	mg/L
Total Nitrogen	10/4/2017	142	mg/L
Total Nitrogen	10/5/2017	164	mg/L
Total Nitrogen	10/6/2017	184	mg/L
Total Nitrogen	10/9/2017	151	mg/L
Total Nitrogen	10/10/2017	182	mg/L
Total Nitrogen	10/9/2017	151	mg/L
Total Nitrogen	10/10/2017	182	mg/L
Total Nitrogen	10/11/2017	105	mg/L
Total Nitrogen	10/12/2017	98	mg/L
Total Nitrogen	10/13/2017	102	mg/L
Total Nitrogen	10/16/2017	98.2	mg/L
Total Nitrogen	10/17/2017	122	mg/L
Total Nitrogen	10/18/2017	136	mg/L
Total Nitrogen	10/19/2017	111	mg/L
Total Nitrogen	10/20/2017	118	mg/L

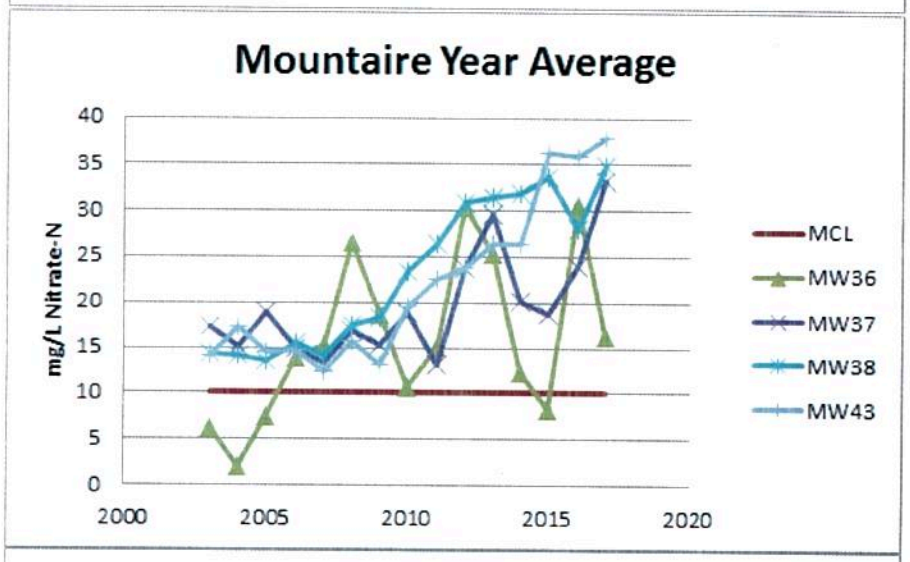
Applying wastewater with more nutrients than allowed by the permit is evidence that Mountaire has applied its wastewater in excess of agronomic rates. Applications in excess of what the current crop can effectively utilize causes nitrates to leach through soil and into groundwater. DNREC inspection reports from 2010 to the present have documented elevated and rising nitrate levels in monitoring wells surrounding spray irrigation fields, a strong indication that Mountaire has applied its wastewater in excess of agronomic rates. Once these nitrates enter the local water table, they migrate away from the poultry processing plant and into the wells of nearby residents. The over-application of poultry processing wastewater and sanitary wastes has also resulted and will continue to result in discharges into groundwater.

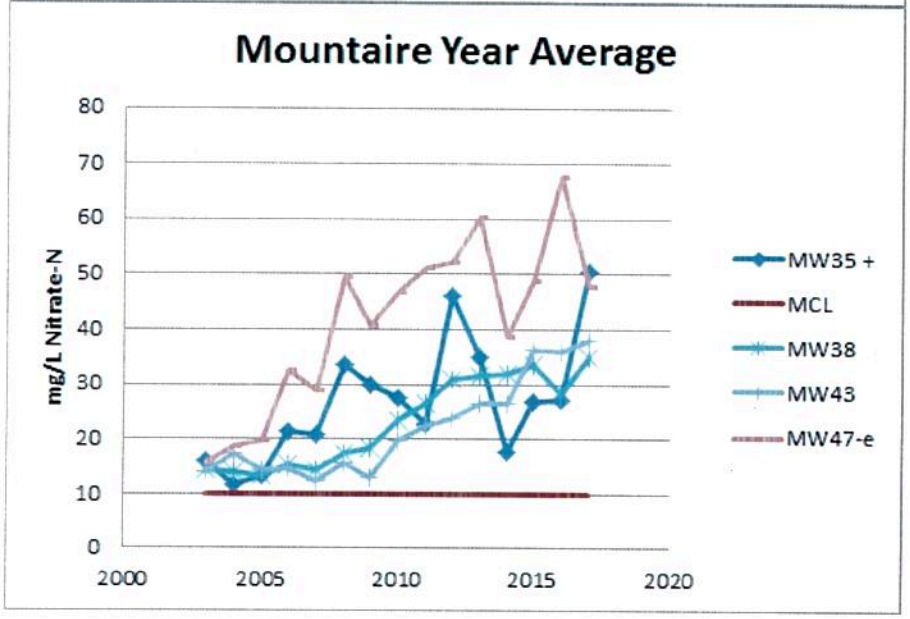
Furthermore, Mountaire's storage of solid and/or liquid waste in anaerobic lagoons, barrier ditches, and spray irrigation storage lagoons has caused and is continuing to cause the discharge of untreated poultry processing wastewater and sanitary wastes directly into

groundwater. According to DNREC reports, Mountaire's anaerobic storage lagoons have a maximum capacity of 35.83 million gallons. With a 30-ml plastic liner in the lagoons, Mountaire has admitted that there is a leakage rate of 1x10-7 cm/s, meaning that millions of gallons of sanitary waste and poultry processing byproduct have seeped from the lagoons into the soil where no plants can use the nutrients, where the wastewater migrates into the groundwater below. Once this wastewater enters the water table, it migrates away from the poultry processing plant and into the wells of nearby resident. Upon information and belief, these discharges have been ongoing since the date these lagoons were brought into operation and have been continuous for at least the past five years. Mountaire has knowledge of the permeability rate for these lagoons, therefore knowing that waste would seep from the storage containers into the ground, where it would be discharged into groundwater. These ongoing discharges were confirmed by Mountaire's monitoring as well as United States Environmental Protection Agency ("EPA") and DNREC sampling of downgradient wells continuously since 2000. The seeping of untreated solid waste from the lagoons has contributed and is contributing to the excessive contamination of the groundwater, posing an imminent and substantial endangerment to health and the environment.

Upon information and belief, these practices and possibly others are responsible for groundwater contamination at levels beyond the Maximum Contaminant Level ("MCL") for specific chemicals. The MCLs are health-based standards that specify contaminants known to have an adverse effect on human health at levels beyond the parameters set forth by regulations. Here, samples indicate elevated levels of nitrate in nearby residential wells downgradient from Mountaire, as confirmed by private well sampling by the Department of Health and Social Services from 2002-2003, undated Mountaire sampling, and well sampling by DNREC in 2017. Attached hereto are maps showing the specific locations of the wells and other areas that were sampled. Observed levels for nitrate in monitoring wells located downgradient of Mountaire have been as high as 92.5 mg/l in 2016 and as high as 65.8 mg/L in 2017. A 2017 Notice of Violation from DNREC stated that the monitoring wells "have shown no improvement since Mountaire acquired" ownership of the facility in May of 2000. These results exceed the MCL for nitrate, in one instance by more than 9 times higher than the 10 mg/l limit. *See* 40 C.F.R. Part 141 and Appendix I. The results were also significantly higher than the nitrate results obtained from MW18 and MW34, the sampled monitoring wells located upgradient of Mountaire, which had a five-year average of 5.75 mg/l and 6.42 mg/l nitrate respectively, with no sampling events over the five-year period showing levels above 10 mg/l as is evidenced in the charts below:


Mountaire Year Average
mg/L Nitrate-N
40
35
30
25
20
15
10
5
0
2000
2005
2010
2015
2020
MCL
MW36
MW37
MW38
MW43


Mountaire Year Average
mg/L Nitrate-N
40
35
30
25
20
15
10
5
0
2000
2005
2010
2015
2020
MCL
MW36
MW37
MW38
MW43


Mountaire Year Average
mg/L Nitrate-N
80
70
60
50
40
30
20
10
0
2000
2005
2010
2015
2020
MW35 +
MCL
MW38
MW43
MW47-e

Upon information and belief, these samples were taken between 2003-2017. These practices have been ongoing since Mountaire began its operations and have been continuous for at least the past five years.

The Community Plaintiffs use and consume well water that is downgradient from Mountaire. Upon information and belief, and based on the EPA and DNREC findings, and Mountaire's own sampling and monitoring results, these wells are contaminated predominantly because of Mountaire's discharges into the groundwater. Note that Mountaire has been sampling a number of the Community Plaintiffs' residential water, but has failed to provide the residents with the dates of sampling, including not dating the letters sent to them, and that sampling events occurred without notification to the residents. Human consumption of water containing more than 10 mg/l of nitrate causes a variety of severe health problems, including but not limited to methemoglobinemia ("blue baby syndrome," a potentially fatal condition that affects infants), some forms of cancer, and autoimmune system dysfunction. The excessive nitrates and other contaminants contained in these nearby wells are directly attributable to Mountaire's improper practices of storing, treating, transporting, and disposing (through application or otherwise) of solid wastes. There is evidence that chronic exposures to lower levels can contribute to a variety of severe health problems. As such, these practices may, and indeed do, present an imminent and substantial endangerment to health and the environment. Below are some of the sampling results that show an endangerment to public health:

Household Residents	Domestic Water Nitrate Result in mg/l	Date
[redacted]	12.8	12/10/2017
	15.25	Mountaire undated
	20.2	12/6/2017
	10.3	11/17/2017
	10.8	12/6/2017
	8.4	12/6/2017
	25.6	
	19.4	12/6/2017
	31.4	undated
	26.92	Mountaire undated
	24.8	
	7.65	12/1/2017
	14.0	1/30/2018

Exemption 6

[redacted]		
	8.8	undated
	26.5	12/6/2017
	18.2	1/19/2018
	10.8	undated
	22.8	11/14/2017
	12.7	4/29/2002
	30	Mountaire undated (2002)
	22	Mountaire undated (2002)
	25.6	Mountaire undated (2002)

42 U.S.C. § 6972(a) states that the District Courts of the United States shall have jurisdiction to order any person who "has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste" that presents an imminent and substantial endangerment to health or the environment to take such action as may be necessary to abate the endangerment. The Community Plaintiffs and Food & Water Watch intend to seek declaratory and injunctive relief in this lawsuit, and attorneys and expert witness fees and costs associated with the suit.

VIOLATION OF RESOURCE CONSERVATION AND RECOVERY ACT: OPEN DUMPING

In addition to presenting an imminent and substantial endangerment to health and the environment, Mountaire's improper waste management practices constitute "open dumping" in violation of RCRA. 42 U.S.C. § 6945(a) prohibits the operation of "any solid waste management practice or disposal of solid waste which constitutes the open dumping of solid waste." "Disposal" means "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste . . . into or on any land or water[.]" 42 U.S.C. § 6903(3). Enforcement of this prohibition is available through RCRA's citizen suit provision. *Id.* at § 6945(a). As required by statute, EPA has promulgated criteria under RCRA § 6907(a)(3) defining solid waste management practices that constitute open dumping. *See* 42 U.S.C. § 6944(a); 40 C.F.R. Parts 257 and 258. These regulations prohibit the contamination of any underground drinking water source beyond the solid waste boundary of a disposal site. 40 C.F.R. § 257.3-4(a).

The definition of "underground drinking water source" includes an aquifer supplying drinking water for human consumption. 40 C.F.R. § 257.3-4(c)(4). "Contaminate" means to introduce a substance that would cause: (i) the concentration of that substance in the groundwater to exceed the maximum contaminant level specified in Appendix I, or (ii) an increase in the

concentration of that substance in the groundwater where the existing concentration of that substance exceeds the MCLs specified in Appendix I. 40 C.F.R. § 257.3-4(c)(2).

Appendix I to 40 C.F.R. Part 257 lists the MCL for nitrate as 10 mg/l. Groundwater samples taken by the EPA and DNREC of wells downgradient from Mountaire revealed levels of nitrate in excess of the 10 mg/l MCL.[1] The lawsuit will allege that Mountaire's past and present waste disposal practices have caused nitrate contamination to travel beyond the facility boundaries, in violation of RCRA's open dumping prohibitions. DNREC inspection reports from 2010 to the present have documented elevated and rising nitrate levels in monitoring wells surrounding spray irrigation fields, a strong indication that Mountaire has applied its wastewater in excess of agronomic rates. Additionally, DNREC inspection reports from 2015 to the present have indicated that effluent waste sprayed onto the disposal fields was above the 15.6 mg/L of Total Nitrogen limits allowed in Mountaire's spray irrigation permit. Applying wastewater with more nutrients than allowed by the permit is a strong indication that Mountaire has applied its wastewater in excess of agronomic rates. Applications beyond that which the current crop can effectively utilize causes nitrates to leach through soil and into groundwater, which in turn causes nitrate levels in the groundwater to exceed the MCLs.

The lawsuit will further allege that Mountaire's storage of solid waste in permeable lagoons has caused manure to seep into the groundwater and leave the boundaries of the site, also causing nitrate contamination of groundwater in excess of the MCL. These practices have been ongoing since Mountaire began its operations and have been continuous for at least the past five years, as confirmed by an established monitoring program since at least 2003, private well sampling by the Department of Health and Social Services from 2002-2003, and well sampling by DNREC in 2017.

Pursuant to 42 U.S.C. § 6972(a), the Community Plaintiffs and Food & Water Watch intend to seek legal and equitable relief to remedy Mountaire's practice of open dumping. The relief sought includes, but is not limited to, an assessment of past, present, and future response, remediation, removal, and/or clean-up costs, a requirement that the extent of the contamination be fully investigated and remediated, other necessary temporary and/or permanent injunctive relief, and an award of the attorney and expert witness fees and costs incurred in bringing the enforcement action.

[1] In particular, EPA reported nitrate levels of 23, 46.7, 44, 43.4, 30.2, 23.4, and 22.7 mg/l in seven of the eight downgradient wells, all above the MCL.

PARTIES GIVING NOTICE

The names, telephone numbers, and addresses of the people giving this Notice of Intent to Sue are as follows:

[redacted]

Exemption 6

[redacted]

[redacted]

[redacted]

The names, addresses, and phone numbers of Counsel for the parties giving this Notice of Intent to Sue are:

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(202) 683-2457
theinzen@fwwatch.org

Attorneys for Food & Water Watch.

CONCLUSION

We will be available to discuss effective remedies and actions that will assure Mountaire's future compliance with the Resource Conservation and Recovery Act and all other applicable state and federal environmental laws. If you wish to avail yourself of this opportunity, or if you have any questions regarding this letter, please contact the undersigned.

Sincerely,

Jn L Culpepper

Jessica Culpepper
Public Justice, PC

Chris Nidel
Nidel & Nace, PLLC

Via Certified Mail to the following:

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U.S. Environmental Protection Agency
Ariel Rios Bldg.
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

Registered Agent for Mountaire Corporation
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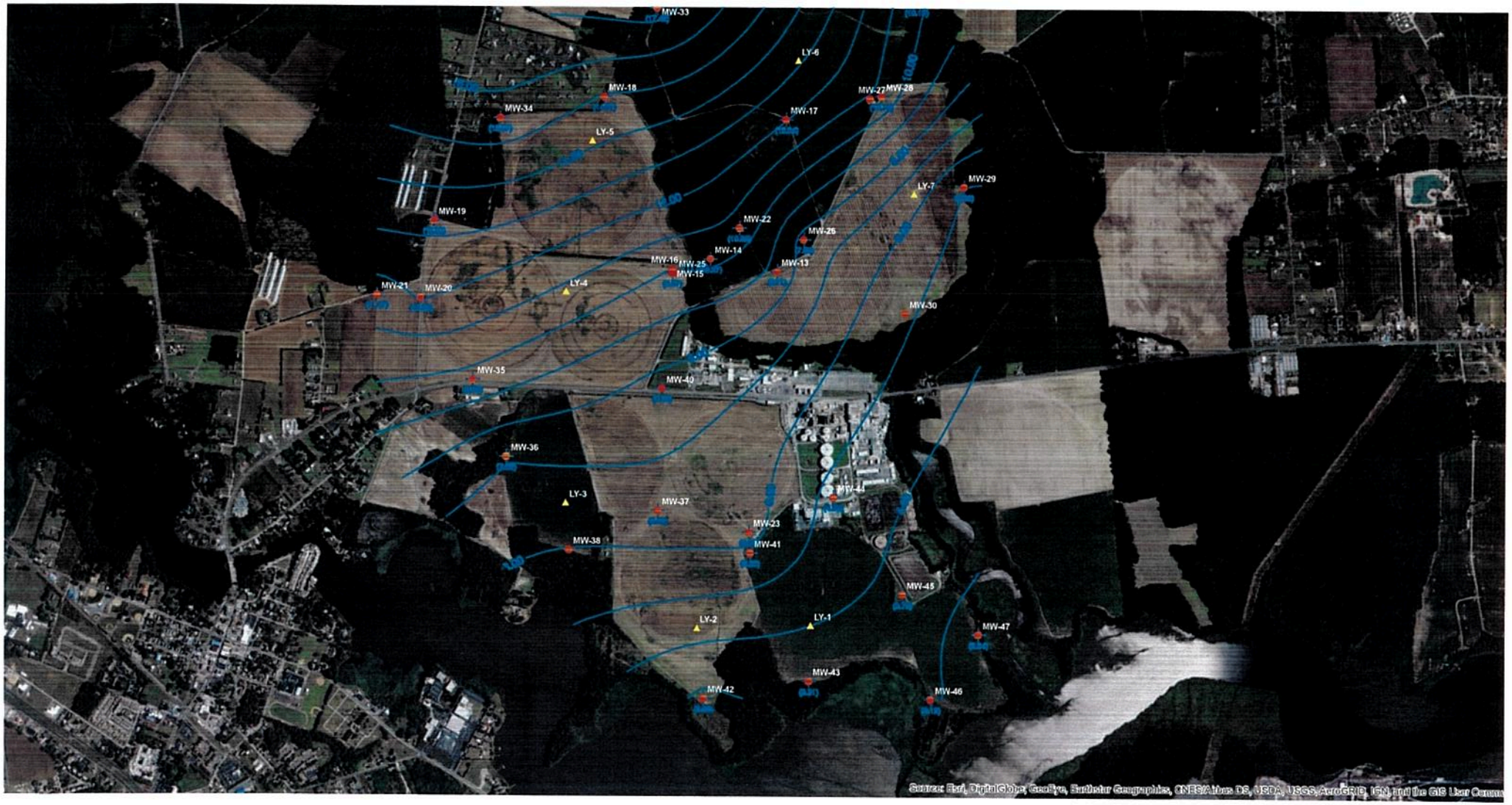
1901 Napa Valley Dr.
Little Rock, AR 72212

Registered Agent for Mountaire Farms Inc. and Mountaire Farms of Delaware, Inc.
The Corporation Trust Center
1209 Orange Street
Wilmington, DE 19801

Cosmo Servidio, Regional Administrator
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Shawn M. Garvin, Secretary
Delaware Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, DE 19901

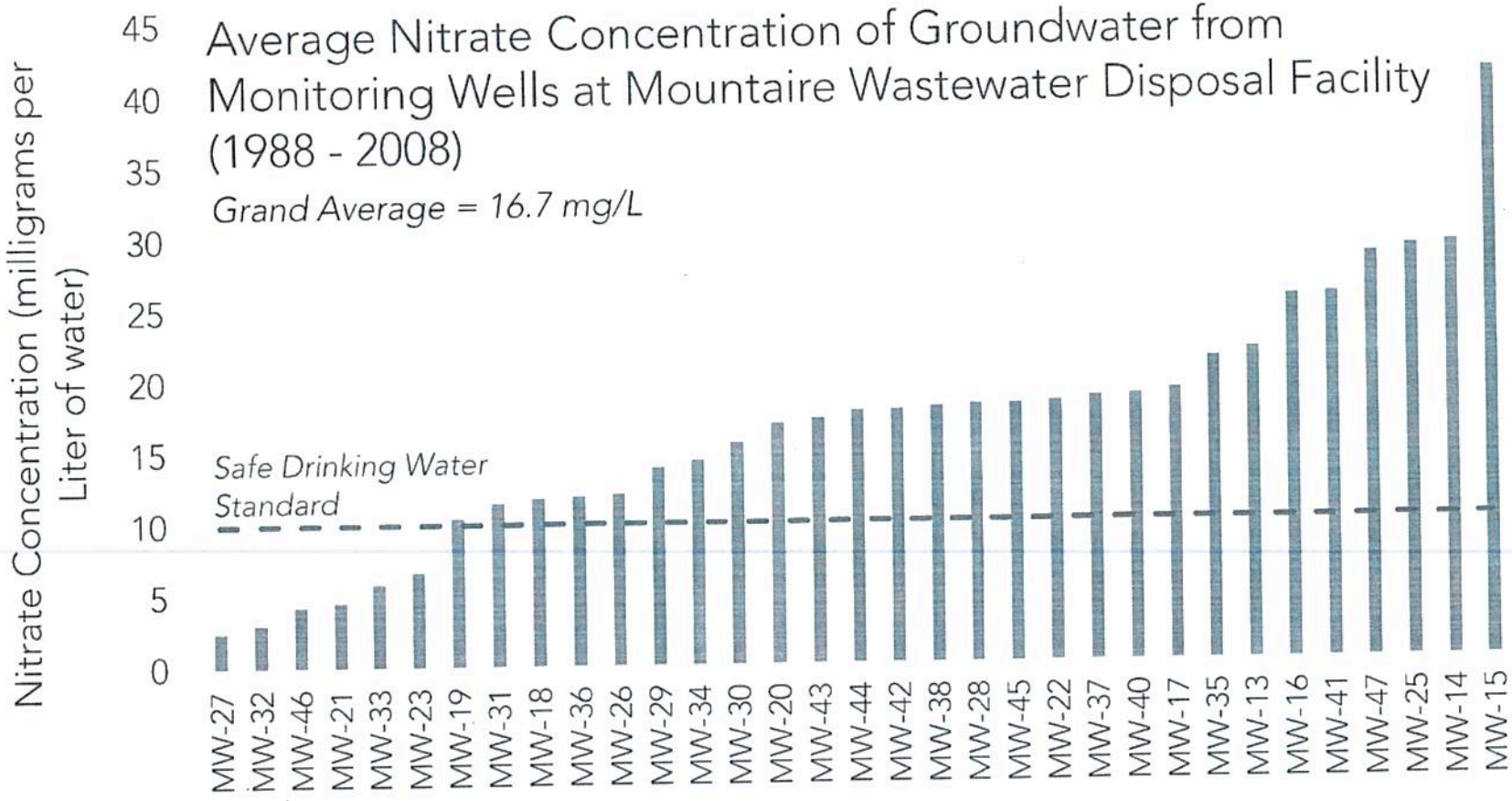

MW-33
LY-6
MW-18
MW-34
MW-17
MW-27
MW-28
LY-5
LY-7
MW-29
MW-19
MW-22
MW-26
MW-14
MW-16
MW-25
MW-15
MW-13
MW-21
MW-20
LY-4
MW-30
MW-35
MW-40
MW-36
LY-3
MW-37
MW-44
MW-23
MW-38
MW-41
MW-45
LY-2
LY-1
MW-47
MW-43
MW-42
MW-46
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Location of Plaintiffs Homes.

MOUNTAIRE
GROUNDWATER
MONITOR WELL SUMMARY
NITRATE-N

WELL NO.	UP/DOWN GROUNDWATER GRADIENT	COMPLIANCE PERIOD (2009 - 2013)				PREVIOUS PERIOD (1987/88 - 2008)	
		TREND DIRECTION (U/D/N)*	TOTAL SAMPLE COUNT	EXCEEDS 10 mg/L# COUNT	AVE.- 5YR 2009-2013 (mg/l)	TREND DIRECTION (U/D/N)*	AVERAGE 1987/88-2008 (mg/l)
MW13	Downgradient	U	17	17	27.0	D	24.1
MW14	Downgradient	U	18	18	35.2	D	37.4
MW15	Downgradient	N	18	18	22.2	D	58.3
MW16	Downgradient	U	18	18	22.1	D	42.2
MW17	Lateral	D	18	18	28.3	U	18.4
MW18	Upgradient	N	17	0	5.75	D	13.4
MW19	Upgradient	N	17	13	13.9	U	10.7
MW20	Lateral	U	18	18	35.0	N	17.3
MW21	Lateral	U	18	1	9.25	N	5.13
MW22	Downgradient	N	18	18	24.3	N	19.8
MW23	Downgradient	N	18	0	0.56	D	8.11
MW25	Downgradient	N	17	3	6.97	D	43.9
MW26	Downgradient	U	18	18	17.8	U	11.5
MW27	Downgradient	U	18	3	8.20	D	5.29
MW28	Downgradient	N	18	16	16.2	U	17.3
MW29	Downgradient	U	18	18	25.7	U	13.6
MW30	Downgradient	N	18	18	17.9	N	15.5
MW31	Lateral	U	18	18	21.2	U	10.2
MW32	Upgradient	N	18	3	7.98	N	2.88
MW33	Lateral	N	17	11	12.6	N	6.87
MW34	Upgradient	D	16	0	6.42	D	17.8
MW35	Downgradient	N	17	17	35.7	N	21.4
MW36	Lateral	N	17	13	18.5	N	11.8
MW37	Downgradient	U	17	17	22.2	D	21.4
MW38	Downgradient	U	17	17	43.9	N	21.4
MW39	Downgradient						32.0
MW40	Downgradient	U	18	18	24.1	D	21.3
MW41	Downgradient	U	18	18	24.2	D	31.1
MW42	Downgradient	N	18	18	18.1	D	19.6
MW43	Downgradient	U	18	18	21.1	D	18.4
MW44	Downgradient	D	18	18	15.0	D	19.8
MW45	Downgradient	U	18	18	28.2	D	19.3
MW46	Downgradient	N	18	1	12.8	D	5.62
MW47	Downgradient	U	18	18	55.6	N	29.8
Percent Upward Trend		48%				18%	
Percent Downward Trend		9%				52%	
Percent No Trend		42%				30%	

* Mann-Kendal Trend Analysis by Chemstat v.6.2
U=upward trend; D=downward trend; N=no trend detected
# EPA Drinking Water Maximum Contaminant Level (MCL)


Average Nitrate Concentration of Groundwater from Monitoring Wells at Mountaire Wastewater Disposal Facility (1988 - 2008)
Grand Average = 16.7 mg/L
Safe Drinking Water Standard
Nitrate Concentration (milligrams per Liter of water)
45
40
35
30
25
20
15
10
5
0
MW-27
MW-32
MW-46
MW-21
MW-33
MW-23
MW-19
MW-31
MW-18
MW-36
MW-26
MW-29
MW-34
MW-30
MW-20
MW-43
MW-44
MW-42
MW-38
MW-28
MW-45
MW-22
MW-37
MW-40
MW-17
MW-35
MW-13
MW-16
MW-41
MW-47
MW-25
MW-14
MW-15