

Public Comments on Proposed Modification of NPDES Permit # IDG010000

Compiled September 21, 2023

This document includes all comments received during the public comment period for EPA's proposed modification of the *NPDES General Permit for Concentrated Animal Feeding Operations (CAFOs) in Idaho Excluding Tribal lands* (Permit Number: IDG010000) from July 18 through September 1, 2023.

Comments were received from:

- Center for Food Safety
- Idaho Dairymen's Association
- U.S. Department of the Agriculture-Natural Resources Conservation Service
- South Dakota Department of Agriculture and Natural Resources
- Food & Water Watch, Snake River Waterkeeper, Center for Biological Diversity

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From: [Amy van Saun](#)
To: [EPAR10WD-NPDES](#)
Cc: [Tyler Lobdell](#)
Subject: Public Comments on IDG010000
Date: Friday, September 01, 2023 4:58:58 PM
Attachments: [image001.png](#)

Mr. Szerlog and Mr. Peak,

Center for Food Safety would like to formally join the comments submitted by Food & Water Watch as to the modified National Pollutant Discharge Elimination System General Permit for Concentrated Animal Feeding Operations in Idaho, Permit No. IDG010000. Center for Food Safety is national non-profit 501(c)(3) organization with a mission to empower people, support farmers, and protect the environment from industrial agriculture, including animal factories like those permitted under this proposed permit. CFS has over one million members across the country, including in Idaho, that are impacted by the beef and dairy CAFOs allowed to pollute Idaho's waters with impunity. CFS therefore supports and adopts the comments of Food & Water Watch.

Sincerely,

Amy van Saun

Senior Attorney

Center For Food Safety

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Pronouns: they/them

CFS Logo (small)



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Tuesday, August 29, 2023

Nicholas Peak
U.S. Environmental Protection Agency
via Email: epar10wd-npdes@epa.gov

RE: Public Comments on IDG010000

Dear Mr. Peak:

This office represents the Idaho Dairymen's Association ("IDA"). Please accept the following as the comments of IDA relative to the *Proposed Modification to NPDES General Permit for Concentrated Animal Feeding Operations in Idaho*, Permit No. IDG010000. IDA's comments relate to surface irrigation and to immediate response to a discharge event.

Surface Irrigation

Section II.B.9.a) of the Draft Permit modification provides as follows –

There shall be no application of manure, litter, or process wastewater on fields with surface irrigation (e.g., flood or furrow irrigation).

This outright prohibition goes too far and fails to recognize proper agronomic practices that include use of surface irrigation in harmony with land application of manure, litter or process wastewater. For example, a farm may have tailwater recovery and a pumpback system whereby returns flows from surface irrigation direct to a waste containment system. Other farms employ BMPs to guard against surface irrigation runoff reaching WOTUS. IDA proposes Section II.B.9.a) be modified to provides as follows (underlined text is added) –

There shall be no application of manure, litter, or process wastewater on fields with surface irrigation (e.g., flood or furrow irrigation) unless runoff from the field drains to a wastewater or manure storage structure, or unless runoff from the field does not have the possibility to reach water of the United States and BMPs are employed to prevent the same.

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Immediate Response to a Discharge Event

Section IV.E. describes the monitoring and notification requirements in the event of runoff or discharge from a CAFO to waters of the United States. This section describes several sampling requirements, event logging requirements, monitoring requirements, and reporting requirements. While these provisions are important, during a discharge event the most important task ought to be taking corrective action to stop or mitigate the discharge. IDA therefore suggests some leniency to these strict provisions for the limited purpose of discharge response. IDA suggests Section IV.E.1.f) be modified as follows (underlined text is added) –

If conditions are not safe for sampling or if the permittee is delayed in obtaining samples due to immediate response to stop or mitigate the discharge, the permittee must provide documentation of why samples could not be collected and analyzed. For example, the permittee may be unable to collect samples during dangerous weather conditions (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or while taking immediate action to stop or mitigate the discharge. However, once dangerous conditions have passed and once the permittee has completed immediate response to stop or mitigate the discharge, the permittee shall collect a sample of the discharge. If the discharge stops before dangerous conditions have passed or as a result of immediate response, and therefore cannot be sampled, the permittee shall record the estimated time, duration, and volume of the discharge, and the reason the sample could not be collected, and include this information in the Notification of Unauthorized Discharge submitted in accordance with Section IV.C of this permit.

Conclusion

Thank you for the opportunity to comment on behalf of IDA. Should you have any questions or concerns, or desire clarification on any item, please contact the undersigned or Rick Naerebout (CEO of IDA). We hope these comments are well received and can be incorporated in the modified permit.

Very truly yours,



David P. Claiborne
david@sawtoothlaw.com

From: [Pepper, Maureen - FPAC-NRCS, ID](#)
To: [Grafe, Cyndi](#)
Subject: FW: EPA Invites Public Comment: Idaho NPDES CAFO General Permit
Date: Thursday, September 21, 2023 10:36:45 AM
Attachments: [image001.png](#)
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[image006.png](#)
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Cyndi,

Please find my comments submitted on August 25th for the Idaho NPDES CAFO General Permit.

~Maureen

From: Pepper, Maureen - FPAC-NRCS, ID <Maureen.Pepper@usda.gov>
Sent: Friday, August 25, 2023 3:13 PM
To: Peak, Nicholas (he/him/his) <Peak.Nicholas@epa.gov>
Subject: RE: EPA Invites Public Comment: Idaho NPDES CAFO General Permit

Nick,

My comment(s) on the Idaho NPDES CAFO General Permit is as follows:

I do not see anything regarding siting criteria. Siting criteria should be part of the permit and not left for Idaho counties to implement their own rules. EPA has the expertise and knowledge of the potential risk to water quality and beyond that county officials do not. Not all soils are compatible for CAFOs/AFOs. Idaho already has 35 nitrate priority areas and 95% of our drinking water comes from the ground, for both public and private wells. CAFO would also not be appropriate in a floodplain or in a riparian area. Buffers/setbacks should be required to protect surface waters and well heads. If the intention is that local governments should implement zoning/ordinances, there is a lack of knowledge and will to do so.

NRCS Idaho is adding nitrate leaching potential to the [Web Soil Survey](#) soil maps by September 30th. This information will be valuable for siting of CAFOs, AFOs, septic systems, etc. where there is high/higher risk/likelihood of contaminants such as nitrates leaching through the soil into the ground water sources.

Feel free to contact me with any questions.

Regards,

Maureen

<mailto:maureen.pepper@usda.gov>

Maureen Pepper

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USDA-Natural Resources Conservation Service ([NRCS-Idaho](#))
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From: Elke, Curtis - FPAC-NRCS, ID <curtis.elke@usda.gov>
Sent: Wednesday, July 19, 2023 8:12 AM
To: Pepper, Maureen - FPAC-NRCS, ID <Maureen.Pepper@usda.gov>
Cc: Brocke, Amber - FPAC-NRCS, ID <amber.brocke@usda.gov>; Callister, Neal - FPAC-NRCS, ID <neal.callister@usda.gov>
Subject: FW: EPA Invites Public Comment: Idaho NPDES CAFO General Permit

Sharing

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From: Peak, Nicholas (he/him/his) <Peak.Nicholas@epa.gov>

Sent: Tuesday, July 18, 2023 8:32 AM

Subject: EPA Invites Public Comment: Idaho NPDES CAFO General Permit

Dear Interested Party,

The Environmental Protection Agency, Region 10, is initiating a public comment period for the modified National Pollutant Discharge Elimination System (NPDES) General Permit for Concentrated Animal Feeding Operations (CAFOs) located in the State of Idaho (Permit No. IDG010000). For this comment period, EPA is accepting comments exclusively on changes made to the General Permit since the previous comment period from October 23, 2019, to December 9, 2019.

Comments will be accepted through September 1, 2023.

The draft NPDES general permit (with new/changed conditions highlighted in yellow) and the supporting fact sheet addendum, which explains the basis for the new/changed conditions, are available for review at: <https://www.epa.gov/npdes-permits/proposed-modification-npdes-general-permit-concentrated-animal-feeding-operations>.

EPA will consider all comments received during the public comment period **from July 18, 2023, to September 1, 2023**, and during this comment period before reissuing the General Permit.

Please pass this announcement to others who may be interested.

Questions? Contact Nicholas Peak, EPA Region 10, at 208-378-5765 or at peak.nicholas@epa.gov.

Nick Peak
Agriculture Advisor
EPA, Region 10
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**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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August 22, 2023

Nicholas Peak
U.S. Environmental Protection Agency
Idaho Operations Office
950 W. Bannock Street, Suite 900
Boise, ID 83702
Transmitted by email to epar10wd-npdes@epa.gov

Dear Mr. Peak,

The South Dakota Department of Agriculture and Natural Resources recently became aware of EPA Region 10's Public Notice for the Proposed Modification to NPDES General Permit for Concentrated Animal Feeding Operations in Idaho. Although we had told EPA headquarters staff and Region 8 staff that we were in the process of working on writing a draft of South Dakota's General Water Pollution Control Permit for Concentrated Animal Feeding Operations for reissuance, we received no information from EPA staff on the proposed modifications to the Idaho general permit or the public notice period for the Idaho general permit.

South Dakota has significant concerns about some of the proposed permit modifications! Once the Idaho CAFO permit is modified, environmental groups will expect all delegated states to issue permits with the same or similar conditions. This may not make sense for states other than Idaho. Before EPA makes a final decision on the Idaho CAFO permit modification, I am asking that EPA hold a virtual meeting with all NPDES delegated states to explain the proposed Idaho general permit modifications and listen to concerns other delegated states may have on the practicality of implementing the proposed permit conditions in their states.

If you have any questions, please contact me by phone at (605) 773-4609 or by email at kent.woodmansey@state.sd.us.

Sincerely,

Kent R. Woodmansey, P.E.
Director
Division of Agriculture and Environmental Services

Cc: Troy Roth, P.E., Administrator, Livestock Services Program, SD DANR
Stephanie DeJong, Clean Water Branch Manager, EPA Region 8
Andrew Sawyers, Director, Office of Wastewater Management, EPA HQ
Sean Rolland, Deputy Director, Association of Clean Water Administrators
Michelle Bushman, Associate Director, Western States Water Council
Carolyn Hanson, Deputy Executive Director, Environmental Council of the States



September 1, 2023

Mr. Michael J. Szerlog
Acting Director of the Water Division
EPA Region 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

Mr. Nicholas Peak
Agriculture Advisor
EPA Region 10
950 West Bannock, Suite 900
Boise, ID 83702

Via email to epar10wd-mpdes@epa.gov

Re: Public Comments on IDG010000

Mr. Szerlog and Mr. Peak,

Food & Water Watch, Snake River Waterkeeper, and the Center for Biological Diversity (collectively, "Commenters") respectfully submit these comments on the modified National

Pollutant Discharge Elimination System (“NPDES”) General Permit for Concentrated Animal Feeding Operations (“CAFOs”) in Idaho, Permit No. IDG010000 (“Idaho Permit” or “the Permit”).

Nearly two years ago, the Ninth Circuit Court of Appeals decided *Food & Water Watch v. EPA*, a case that considered whether an earlier version of the Idaho Permit complied with the Clean Water Act’s monitoring and reporting requirements. In that litigation, Commenters Food & Water Watch and Snake River Waterkeeper argued the Idaho Permit impermissibly lacked representative monitoring sufficient to detect discharges that violated the Permit’s effluent limits. Plaintiffs further explained that, without publicly reported discharge monitoring data, the Clean Water Act’s enforcement scheme is toothless and deprives citizens of the important participatory right to bring citizen suits. The Ninth Circuit agreed, remanding the permit to EPA for revisions in line with the opinion. Now, after another bite at the apple, EPA has only gone partway toward including sufficient representative monitoring and reporting requirements in the revised Idaho Permit.

These comments first discuss how Idaho CAFOs and the enormous quantities of waste they generate are polluting jurisdictional waterways. Section II outlines the statutory and regulatory mandates the Permit must meet, while Section III provides a detailed description of the Permit’s outstanding flaws. In sum, the Permit is still inadequate because rather than simply requiring all CAFO permittees to conduct representative monitoring, EPA created monitoring “triggers” that ignore known discharge points and will leave jurisdictional discharges from CAFOs undetected. Section IV closes with a brief description of Permit’s reporting deficiencies and a description of the monitoring data permittees must regularly report to EPA if the Idaho Permit is to facilitate straightforward enforcement as the Clean Water Act requires.

I. CAFOs Are Impairing Water Quality and Threatening Public Health by Discharging Dangerous Pollutants into Idaho Waters.

“Improper management of CAFO waste has resulted in serious water quality problems in Idaho.”¹ CAFOs create huge amounts of waste and handle many other pollutants that support the industry’s mass production of animals in cramped, stressful environments. When CAFO activities discharge these pollutants to water—as some inevitably do—the contamination adversely impacts human health and the environment. This section details common CAFO pollutants, the pathways they flow through on their way to Waters of the United States (“WOTUS”), and the harms they cause to the environment and public health.

A. CAFOs generate and handle enormous amounts of harmful pollutants.

CAFOs are specifically designed to maximize production and reduce operator costs by departing from the traditional way of raising animals on the land. Unlike traditional animal husbandry, where available acreage constrains herd size and waste generation, CAFOs confine huge numbers of animals in small facilities that generate and manage enormous amounts of

¹ *Food & Water Watch v. EPA*, 20 F.4th 506, 512 (9th Cir. 2021).

waste laden with harmful pollutants.² Because the amounts of manure and other pollutants generated “frequently exceed the assimilative capacity of land,” CAFO-dense watersheds often suffer severe water quality impacts.³ In Idaho, CAFOs house the majority of the state’s approximately 2.5 million cattle and calves,⁴ and have confined those herds almost entirely within a single watershed, the Snake River basin. Decades of inadequate regulation have allowed CAFOs to construct, design, operate, and maintain their facilities such that they discharge significant amounts of waste into WOTUS, externalizing their pollution costs onto the environment and the public at large. Consequently, this industry is causing severe water quality deterioration that impacts the environment and threatens public health in Idaho and beyond.

CAFOs are essentially sewerless cities.⁵ Instead of managing their waste responsibly, CAFOs in Idaho have turned the Snake River into their own sewer system.⁶ In Idaho, beef and dairy CAFOs are most prevalent, dotting the landscape surrounding the iconic Snake River and its tributaries. EPA estimates that there are currently 365 large CAFOs in Idaho.⁷ With the average dairy cow producing approximately 6 pounds of waste for every pound of milk,⁸ Idaho’s dairy CAFOs alone create billions of pounds of waste every year.⁹ On top of that, each head of cattle or growing calf confined in a beef feedlot produces approximately 125 pounds of waste every day.¹⁰ That nearly all of Idaho’s CAFOs are clustered within a single region presents many

² See, e.g., American Public Health Association, *Precautionary Moratorium on New and Expanding Concentrated Feeding Operations* (Nov. 5, 2019), <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2020/01/13/precautionary-moratorium-on-new-and-expanding-concentrated-animal-feeding-operations> (“Over the last several decades, food animal production in the United States has shifted from an extensive system of small and medium-sized farms to one characterized primarily by large-scale industrial operations that concentrate large numbers of animals in small geographic areas.”); Carrie Hribar, Nat’l Ass’n of Local Bds. of Health, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities* (2010), https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf; Doug Gurian-Sherman, Union of Concerned Scientists, *CAFOs Uncovered: The Untold Cost of Confined Animal Feeding Operations at 10* (Apr. 2008), <https://www.ucsusa.org/sites/default/files/2019-10/cafos-uncovered-full-report.pdf>.

³ EPA, *Risk Assessment Evaluation for Concentrated Animal Feeding Operations*, EPA/600/R-04/042, at 1 (hereinafter, “EPA CAFO Risk Assessment”),

https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=NRMRL&dirEntryId=85107;

⁴ Press Release, National Agricultural Statistics Service (Jan. 31, 2023),

https://www.nass.usda.gov/Statistics_by_State/Idaho/Publications/Livestock_Press_Releases/2023/CAT01.pdf.

⁵ Gov’t Accountability Off., GAO-08-944, *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern at 18, 20* (2008) (“[T]he amount of manure produced by [CAFOs] can exceed the amount of waste produced by some large U.S. cities.”).

⁶ Richard Manning, *Idaho’s Sewer System Is the Snake River*, HIGH COUNTRY NEWS (Aug. 11, 2014),

https://www.hcn.org/issues/46.13/idahos-sewer-system-is-the-snake-river?b_start:int=2#body.

⁷ EPA, *NPDES CAFO Permitting Status Report 2022*, <https://www.epa.gov/system/files/documents/2023-05/CAFO-Status-Report-2022.pdf>.

⁸ Expert Opinion of David J. Erickson, at EX14 (hereinafter, “Erickson Report”) (attached as Exhibit A).

⁹ See Idaho State Dep’t of Agric., *Livestock Production – Idaho’s Largest Agricultural Sector*,

<https://agri.idaho.gov/main/idaho-livestock/> (estimating Idaho’s annual milk yield at 13 billion pounds); see also

Keith Ridler, *Idaho Cow Manure Pollution Bill Approved by Senate Panel*, ASSOCIATED PRESS (Mar. 4, 2021),

<https://apnews.com/3c0f5af0744b2367b33b43390b8d66e2> (estimating that Idaho’s cows produce 50 million pounds of manure daily).

¹⁰ USDA, Nat. Res. Conservation Serv., *Agricultural Waste Management Field Handbook Part 651 at 4-15* (March 2008), <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=31475.wba>.

challenges.¹¹ Cumulatively, the sheer volume of these wastes has overwhelmed Idaho CAFOs' ability to manage it safely.

Manure “is a primary source of nitrogen and phosphorus to surface and groundwater.”¹² Moreover, CAFO waste is not just manure; in addition to nutrients, it contains a hazardous cocktail of bacteria, pathogens, sediments, pesticides, pharmaceuticals, and metals.¹³ CAFOs also handle a variety of other potential pollutants like process wastewater, hair or feathers, bedding materials, sediments, mortalities, pharmaceuticals, chemicals, and endocrine-disrupting substances.¹⁴ EPA estimates that approximately 75 percent of all CAFOs discharge pollutants to waterways.¹⁵ CAFOs in Idaho are no exception.

Waste management in Idaho is especially problematic because, as shown in Figure 1 below, CAFOs often site their production areas and waste disposal fields near lakes, rivers, streams, and conduits to those surface waters, as well as atop vulnerable aquifers. This proximity to waterways has allowed widespread contamination of Idaho's surface waters and the groundwater that feeds them.

The problem is further exacerbated when manure and other pollutants are handled in liquid or slurry form, a common practice at dairy and beef CAFOs. According to a soil scientist with USDA's Natural Resources Conservation Service, liquid waste “behaves like water.”¹⁶ Because of this, CAFO pollutants easily move through the environment and discharge to WOTUS as surface flow or via hydrologically connected groundwater. Many CAFOs in Idaho have some degree of liquid or slurry manure management.¹⁷

¹¹ Gov't Accountability Off., *supra* note 5 at 5 (“According to agricultural experts and government officials we spoke to, such clustering of operations raises concerns that the amount of manure produced could result in the overapplication of manure to croplands in these areas and the release of excessive levels of some pollutants that could potentially damage water quality.”).

¹² EPA, *Estimated Animal Agriculture Nitrogen and Phosphorus from Manure*, <https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure>.

¹³ National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7,176, 7,181 (Feb. 12, 2003); JoAnn Burkholder et al., *Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality*, 115(2) ENV'T HEALTH PERSPS. 308 (Feb. 2007), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1817674/>.

¹⁴ EPA CAFO Risk Assessment, *supra* note 3 at 63, 72–73; EPA, *Managing Manure Nutrients at Concentrated Animal Feeding Operations at 2-1–2-4* (Dec. 2004) (hereinafter, “EPA, Managing CAFO Manure”), https://www.epa.gov/sites/default/files/2015-08/documents/cafo_manure_guidance.pdf.

¹⁵ Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the *Waterkeeper* Decision, 73 Fed. Reg. 70,418, 70,469 (Nov. 20, 2008) (explaining that only about 25 percent of CAFOs are not designed to discharge).

¹⁶ David Green, *Frank Gibbs: Liquid Manure Is Too Wet*, STATE LINE OBSERVER (2006), at EX25 (“The problem is simple. We're watering manure down to where it behaves like water. Let me repeat that. We're watering manure down to where it behaves like water. You don't need to be a rocket scientist to understand that.”) (attached as Exhibit B).

¹⁷ See Lide Chen, *A Look at Liquid Dairy Manure Solids and Nutrients Separation*, AG PROUD IDAHO (Aug. 3, 2023), <https://www.agproud.com/articles/58061-a-look-at-liquid-dairy-manure-solids-and-nutrients-separation> (noting that “[l]arge dairies prefer liquid manure-handling systems which result in large amounts of liquid dairy manure” and presenting data from Idaho CAFOs).

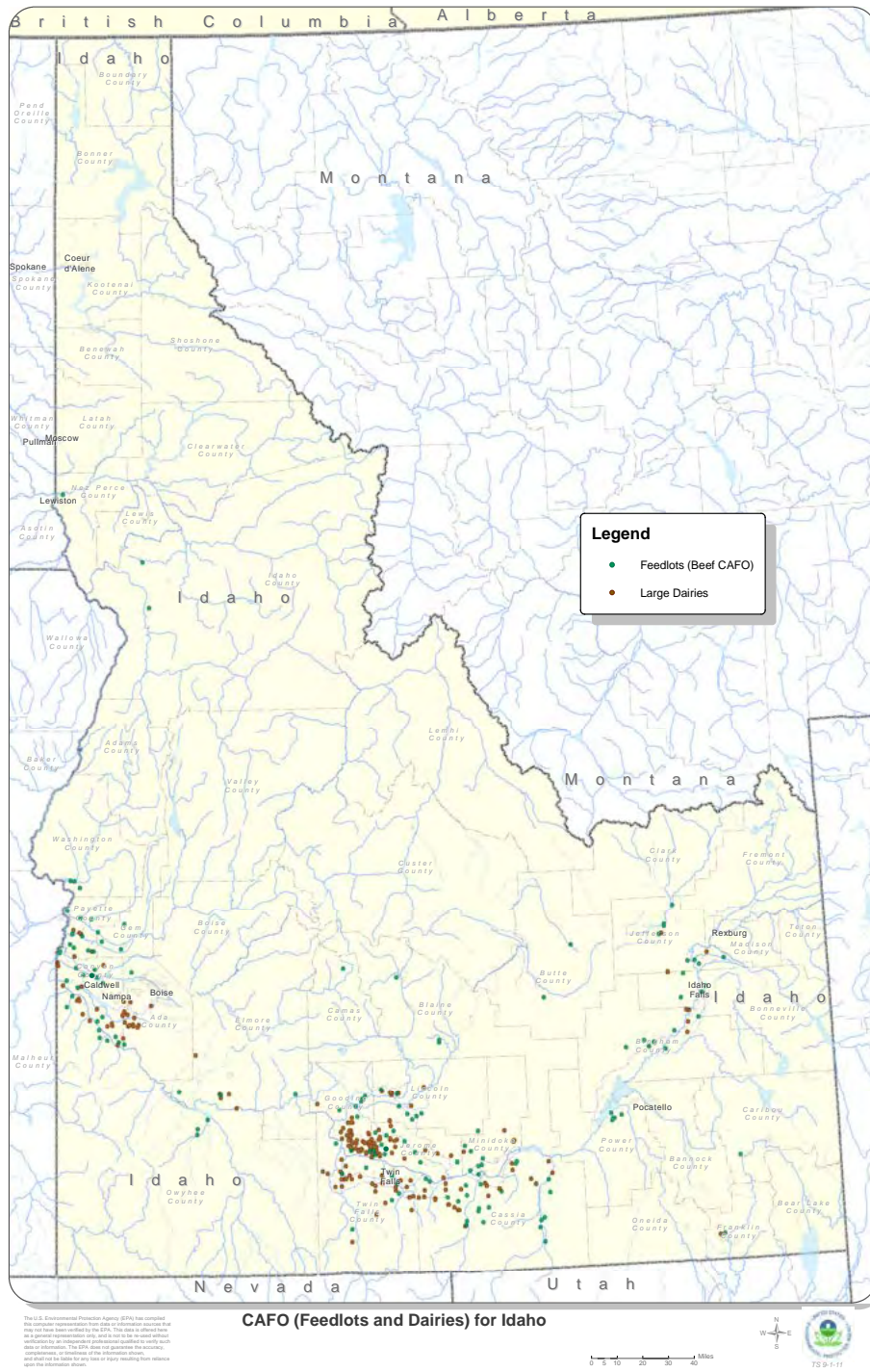


Fig. 1. Map showing high concentration of CAFOs clustered near Idaho’s waterways.¹⁸

¹⁸ Commenters provide Figure 1 for illustrative purposes since EPA does not have sufficient data to know for sure where Idaho CAFOs are operating, and therefore this data is approximate but accurately shows the areas of greatest CAFO concentrations.

In Idaho, approximately 40 percent of stream miles and 54 percent of lake acres are impaired. Among these polluted waters, the leading causes of contamination are the same pollutants produced in excess by CAFOs.¹⁹ For instance, phosphorus and nitrogen—nutrients that are abundant in CAFO waste—are leading causes of water impairments in Idaho.²⁰ Phosphorus concentrations are a growing worry for Idahoans. Data collected by the Idaho Department of Fish and Game in Idaho’s Magic Valley “demonstrate a consistent, notable increase in influent, or spring-fed, phosphorus concentrations since late 2017.”²¹ This trend indicates that the area’s soils have reached their phosphorus storage capacity, a tipping point that foretells ongoing negative water quality impacts that will likely take decades to abate²² and will only accelerate if CAFOs are allowed to continue polluting with impunity.

Nitrogen is of equal concern. The Idaho Department of Environmental Quality has identified 35 “nitrate priority areas,” many of which abut the Snake River and its tributaries.²³ Nitrate pollution within the Eastern Snake River Plain aquifer is a particular public health concern because it serves as “the sole source of drinking water for nearly 200,000 people in southeastern and south central Idaho.”²⁴ Nitrate contamination in drinking water is associated with dangerous human health conditions like colorectal cancer, thyroid disease, birth defects, premature births, and methemoglobinemia (a potentially fatal condition commonly known as

¹⁹ Karen Humes et al., Idaho Climate-Economy Impacts Assessment, Water Report (2021), <https://www.uidaho.edu/-/media/UIIdaho-Responsive/Files/president/direct-reports/mcclure-center/iceia/iceia-water-report-2021.pdf> (describing water quality degradation in Idaho due to sediment, nitrogen, phosphorus, pathogens, heavy metals and other pollutants from agriculture, dairies, and livestock); *see also* Idaho Dep’t of Env’t Quality, 2022 Integrated Report at xiv-xv, <https://www2.deq.idaho.gov/admin/LEIA/api/document/download/16619> (showing that leading causes of stream impairment include *E. coli* and sedimentation and leading causes of lake impairment include low dissolved oxygen and eutrophication).

²⁰ *See* 2022 Integrated Report, *supra* note 19 at 29–30 (identifying “Nutrient/eutrophication” as the third most common cause of lake impairment); Idaho Permit, Idaho Phosphorus Site Index (App’x I) at 4 (hereinafter, “P-Index”) (calling nitrogen and phosphorus Idaho’s “nutrients of greatest concern”).

²¹ Josh Johnson, Idaho Conservation League, The 2021 Groundwater Report at 12 (hereinafter, “2021 Groundwater Report”), https://www.idahoconservation.org/wp-content/uploads/2021/10/ICL_GroundwaterReport_2021_Final-min.pdf.

²² *Id.* at 10, 14, 16.

²³ Idaho Dep’t of Env’t Quality, 2020 Nitrate Priority Areas, <https://mapcase.deq.idaho.gov/npa/>.

²⁴ Idaho Dep’t of Env’t Quality, *Aquifers*, <https://www.deq.idaho.gov/water-quality/groundwater/aquifers/>. The Idaho Conservation League estimates that the Eastern Snake Plains Aquifer actually provides drinking water to over 300,000 Idahoans. 2021 Groundwater Report, *supra* note 21 at 5.

“blue baby syndrome”).²⁵ Studies show that, on the current trajectory, large portions of the aquifer will be undrinkable in the coming decades.²⁶

Nitrogen and phosphorus also feed algal blooms that lower dissolved oxygen, creating hypoxic dead zones where fish and other aquatic species cannot survive.²⁷ These nutrients also cause harmful algal blooms (“HABs”) that harm humans, pets, wildlife, and aquatic species that come into contact with contaminated water.²⁸ These HABs are now so prevalent that Idaho’s 2022 Integrated Report lists them as an issue of special concern for the State.²⁹

CAFO waste is also laden with fecal coliform bacteria and other pathogens.³⁰ Zoonotic pathogens commonly found in manure include *E. coli*, *Campylobacter*, *Salmonella*, *Listeria*, *Cryptosporidium parva*, and *Giardia*, all of which can cause acute gastrointestinal distress, fever, and other dangerous symptoms in humans who drink or have recreational contact with contaminated water.³¹ *E. coli*, in particular, is one of the leading reasons Idaho’s rivers and streams are not in compliance with state water quality standards.³²

CAFOs also use a slew of antibiotics, hormones, and other pharmaceuticals, often to keep animals alive in such concentrated and stressful environments and to maximize production. These products end up in CAFO wastes and ultimately make their way into nearby surface

²⁵ Idaho Dep’t of Env’t Quality, *Contaminants in Drinking Water*, <https://www.deq.idaho.gov/water-quality/drinking-water/contaminants-in-drinking-water/>; Mary Ward et al., *Drinking Water Nitrate and Human Health: An Updated Review*, 15(7) INT’L J. ENV’T RES. PUB. HEALTH 22 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6068531/>; Burkholder, *supra* note 13 at 310; Richard Damania et al., World Bank Group, *Quality Unknown: The Invisible Water Crisis* at 22–29 (2019), <https://openknowledge.worldbank.org/server/api/core/bitstreams/9f19c149-c22c-503c-b260-87c15e58e452/content>; Roberto Picetti et al., *Nitrate and Nitrite Contamination in Drinking Water and Cancer Risk: A Systematic Review with Meta-Analysis*, 210 ENV’T RES. 112988 (July 2022), <https://www.sciencedirect.com/science/article/pii/S0013935122003152>.

²⁶ Snake River Waterkeeper, *Threats*, <https://snakeriverwaterkeeper.org/the-river/threats/#:~:text=Major%20segments%20of%20the%20Snake,and%20low%20dissolved%20oxygen%20levels;Pollution%20increases%20in%20Idaho's%20Snake%20River%20Aquifer>, BOISE STATE PUB. RADIO (Jan. 29, 2015), <https://www.boisestatepublicradio.org/environment/2015-01-29/pollution-increasing-in-idahos-snake-river-aquifer>.

²⁷ Gov’t Accountability Off., *supra* note 5 at 24–25, 72; Damania, *supra* note 25 at 60–62; 68 Fed. Reg. 7,176, 7,235; Burkholder, *supra* note 13 at 309.

²⁸ Burkholder, *supra* note 13 at 309. See generally Idaho Dep’t of Health and Welfare, *Cyanobacterial Blooms: Frequently Asked Questions* (last updated April 29, 2023), <https://www2.deq.idaho.gov/admin/LEIA/api/document/download/18545>; Idaho Dep’t of Env’t Quality, *Contaminants in Drinking Water*, *supra* note 25; U.S. Nat’l Off. for Harmful Algal Blooms, *HAB Impacts on Wildlife*, <https://hab.who.edu/impacts/impacts-wildlife/>.

²⁹ 2022 Integrated Report, *supra* note 19 at 12–13.

³⁰ 68 Fed. Reg. 7,176, 7,186; Xunde Li et al., *Fecal Indicator and Pathogenic Bacteria and Their Antibiotic Resistance in Alluvial Groundwater of an Irrigated Agricultural Region with Dairies*, 44(5) J. ENV’T QUALITY (Aug. 2015).

³¹ Tucker R. Burch et al., *Fate of Manure-Borne Pathogens During Anaerobic Digestion and Solids Separation*, 47(2) J. ENV’T QUALITY 336 (2018), <https://access.onlinelibrary.wiley.com/doi/10.2134/jeq2017.07.0285>; 68 Fed. Reg. 7,176, 7,263.

³² 2022 Integrated Report, *supra* note 19 at xiv (denoting *E. coli* as the third most common cause for including stream miles on the state’s 303(d) list).

waters and domestic wells.³³ While the individual risks presented by each drug used on Idaho's CAFOs are too numerous to detail here,³⁴ pharmaceuticals used on feedlots are commonly associated with endocrine disruption and reproductive disorders in fish and other aquatic wildlife.³⁵ One study that specifically examined the impacts of CAFO effluent on fathead minnows found that “[w]ild fish collected below a feedlot exhibited altered reproductive biology.”³⁶ Of particular relevance to Idaho, NOAA Fisheries has also recognized that the synergistic impacts of pesticides—including one used in cattle ear tags—can prove deadly for salmonids.³⁷

Further, the widespread use of antibiotics for non-therapeutic purposes in livestock animals and the introduction of these antibiotics to waterways also drives selective pressure for antibiotic-resistant bacteria.³⁸ Dairy cows are known to harbor antibiotic-resistant bacteria that, when transmitted, reduce treatment options and increase health burdens for impacted humans and animals.³⁹ Researchers studying water pollution from a CAFO-dense area in California found “significant potential risk of groundwater contamination with antibiotic-resistant bacteria derived from CAFOs even if the subsurface environment is not suitable to transmit pathogenic bacteria.”⁴⁰ Tellingly, those researchers concluded the paper by highlighting the importance of “continuous and effective groundwater monitoring” to safeguard public health.⁴¹

CAFO waste also contains salts, heavy metals, and ions such as magnesium, sodium, potassium, and chloride.⁴² In fact, the Idaho Dairymen's Association has admitted to EPA that

³³ 68 Fed. Reg. 7,236; Laura M. Bexfield et al., *Hormones and Pharmaceuticals in Groundwater Used as a Source of Drinking Water Across the United States*, ENV'T. SCI. & TECH. 2950–51, 2958 (2019), <https://pubs.acs.org/doi/10.1021/acs.est.8b05592>.

³⁴ See Manvendra Patel et al., *Pharmaceuticals of Emerging Concern in Aquatic Systems: Chemistry, Occurrence, Effects, and Removal Methods*, 119(6) CHEM. REV. 3510 (2019), <https://pubs.acs.org/doi/10.1021/acs.chemrev.8b00299> (listing pharmaceuticals that have been researched and their impacts on aquatic species).

³⁵ Edward F. Orlando et al., *Endocrine-Disrupting Effects of Cattle Feedlot Effluent on an Aquatic Sentinel Species, the Fathead Minnow*, 112(3) ENV'T HEALTH PERSP. 356 (Mar. 2004), <https://ehp.niehs.nih.gov/doi/epdf/10.1289/ehp.6591>; Joan A Casey et al., *Industrial Food Animal Production and Community Health*, 2(3) CURR ENV'T HEALTH REP. 259, 266 (Sept. 2015), <https://pubmed.ncbi.nlm.nih.gov/26231503/>.

³⁶ Orlando, *supra* note 35 at 356.

³⁷ NOAA Fisheries, *Pesticide Mixtures: Deadly Synergy in Salmon* (March 4, 2009), <https://www.fisheries.noaa.gov/feature-story/pesticide-mixtures-deadly-synergy-salmon>; Press Release, EPA, EPA Reaches Agreement on Mitigation Measures Initiative for an Organophosphate Pesticide (April 27, 2023), <https://www.epa.gov/pesticides/epa-reaches-agreement-early-mitigation-measures-initiative-organophosphate-pesticide>.

³⁸ Ya He et al., *Antibiotic Resistance Genes from Livestock Waste: Occurrence, Dissemination, and Treatment*, 3 CLEAN WATER 1 (2020), <https://www.nature.com/articles/s41545-020-0051-0>.

³⁹ *Id.*; Li, *supra* note 30 at 1435–36; Fabienne Wichmann et al., *Diverse Antibiotic Resistance Genes in Dairy Cow Manure*, 5(2) MBIO (May 2014), <https://doi.org/10.1128/mbio.01017-13>.

⁴⁰ Li, *supra* note 30 at 1445.

⁴¹ *Id.*

⁴² Burkholder, *supra* note 13.

chemicals commonly used at its member CAFOs inevitably mix with manure and other process wastewater⁴³ that is then leached into groundwater or disposed of on land application fields.

Given this evidence, no one can reasonably dispute that CAFOs are producing a massive quantity of waste in Idaho, and that the constituent pollutants in CAFO waste pose serious environmental and public health threats. And as explained below, CAFOs are discharging that pollution into WOTUS in violation of the Clean Water Act.

B. CAFOs discharge pollutants directly to surface waters.

CAFOs directly discharge⁴⁴ pollutants to WOTUS via a variety of pathways. Production areas discharge when wastewater lagoons overflow or breach, often allowing their contents to run off into adjacent surface waters, such as canals that feed into the Snake River or its tributaries.⁴⁵ Production areas also discharge wastewater because some operations are so large that they cannot possibly manage all contaminated run-on water.⁴⁶ Additionally, CAFOs often stockpile silage in massive mounds and manure in uncovered windrows, both of which produce contaminated wastewater that can run off from production areas.⁴⁷ These pollutants discharge to surface waters through ditches and canals; manure and wastewater handling infrastructure such as pipes, pumps, and storage facilities; leaking equipment; and ventilation systems.⁴⁸

⁴³ See Idaho Dairywomen's Association's Comments on the Proposed Reissuance of NPDES General Permit for Concentrated Animal Feeding Operations Located in Idaho (IDG 010000) (Dec. 9, 2019). Petitioners Excerpts of Record, *Food & Water Watch v. EPA*, No. 20-71554, ECF No. 17-2 at 508.

⁴⁴ Commenters use the term "direct discharge" to refer to jurisdictional discharges to WOTUS that occur either via direct runoff from the CAFO production or land application area into a WOTUS or via a non-groundwater conduit such as tile drains, pipes, canals, culverts, and ditches. Commenters use the term "indirect discharge" to refer to jurisdictional discharges that reach WOTUS via groundwater as the functional equivalent of a direct discharge, discussed at greater length in Section I.D.

⁴⁵ See Press Release, U.S. Attorney's Office, Dist. of Idaho, Shoshone Dairy Farm and Its Owner Sentenced for Clean Water Act Violation (Mar. 15, 2021), <https://www.justice.gov/usao-id/pr/shoshone-dairy-farm-and-its-owner-sentenced-clean-water-act-violation> (describing the spill at an Idaho dairy that polluted the Milner-Gooding Canal which flows into the Malad River, a tributary of the Snake River). Canals crisscross vast swaths of the Snake River basin in southern Idaho.

⁴⁶ See The J.R. Simplot Company Comments on Proposed Reissuance of the National Pollutant Discharge Elimination System (NPDES) General Permit for Concentrated Animal Feeding Operations (CAFOs) in Idaho (Dec. 9, 2019). Petitioners Excerpts of Record, *Food & Water Watch v. EPA*, No. 20-71554, ECF No. 17-2 at 504 ("[i]t is not feasible to contain run on water at Simplot's Grand View property."). On May 9, 2023, Snake River Waterkeeper filed a complaint in federal court alleging that Simplot's Grand View feedlot has been in violation of the Clean Water Act for years based, in part, on discharge monitoring and up and downstream water quality data collected by Snake River Waterkeeper at its own expense. *Snake River Waterkeeper v. J.R. Simplot Company*, Case No. 1:23-cv-239, complaint available at: <https://snakeriverwaterkeeper.org/wp-content/uploads/2023/05/ecf-1-complaint-may-9-2023.pdf>.

⁴⁷ See Erickson Report at 2; Livestock and Poultry Environmental Learning Center, *Silage Runoff Characteristics* (Mar. 5, 2019), <https://lpec.org/silage-runoff-characterization/> ("Silage leachate is a high strength waste which contributes to surface and groundwater contamination of various pollutants from runoff, direct leaching through concrete storage structures, and infiltration of runoff."). Manure stockpiles and composting windrows are easily observed throughout southern Idaho wherever CAFOs are sited.

⁴⁸ 68 Fed. Reg. at 7,181; EPA, Managing CAFO Manure, *supra* note 14 at 2-25-2-26 (discussing voluntary controls to minimize spills and leaks from storage structures), 4-2 (noting that certain CAFOs must have "reception pits..., diversions, sediment basins, and underground outlets"), 4-15 (describing irrigation systems for applying CAFO

Land application areas can pose an even greater risk of discharges. Over-application of CAFO waste leads to runoff when a field is oversaturated.⁴⁹ Pressurized irrigation systems and other land application methods can cause discharges due to faulty equipment or imprecise application.⁵⁰ Many land application areas also contain subsurface drainage systems, such as tile drains, that act as conduits to surface waters.⁵¹ Idaho has approximately 29,900 acres of tile drained fields, many of which are in the Snake River basin where nearly all of the State’s CAFOs are located.⁵²

EPA has experience with the threats Idaho CAFOs pose to the Snake River and other waterways. EPA records obtained by Food & Water Watch through a Freedom of Information Act request are provided here as Exhibits C through K, documenting specific instances of CAFOs discharging pollutants to WOTUS or operating in ways that are likely to result in discharges to WOTUS.⁵³

waste), 7-2 (discussing “unplanned discharges” from pumps and pipes), O-10 (explaining that fields with subsurface (tile) drainage “creat[e] a surface water pollution hazard from direct tile discharge”); EPA CAFO Risk Assessment, *supra* note 3 at 52, 72–73; *Nat’l Pork Producers Council v. U.S. E.P.A.*, 635 F.3d 738, 748 (5th Cir. 2011) (agreeing with EPA’s position that “litter discharged through confinement house ventilation fans” would be a Clean Water Act violation); Inst. of Agric. and Nat. Res., *Contaminant Pathways*, <https://water.unl.edu/article/animal-manure-management/contaminant-pathways> (“Runoff from open lots, land application areas, and manure and feed storage units is a common pathway for contaminant transport.”).

⁴⁹ Erickson Report at EX8–EX9; Exhibit G at EX105.

⁵⁰ See Utah State University, *Manure Application Through Pressurized Irrigation Systems*, <https://extension.usu.edu/crops/research/manure-application-through-pressurized-irrigation-systems> (listing disadvantages of applying manure via pressurized irrigation systems); North Dakota State University, *Manure Spills: What You Need to Know and Environmental Consequences* (rev. Jan. 2020), <https://www.ag.ndsu.edu/publications/environment-natural-resources/manure-spills-what-you-need-to-know-and-environmental-consequences#section-3>.

⁵¹ Erickson Report at EX3; see also EPA, NPDES Permit Writers’ Manual for CAFOs at 4-16, https://www.epa.gov/sites/default/files/2015-08/documents/cafo_permitmanual_chapter4.pdf (requiring NPDES permit writers to assess the risk of pollutant discharges from land application activities and create effluent limits appropriate to minimize such discharges).

⁵² Prasanth Valayamkunnath et al., *Mapping of 30-Meter Resolution Tile-Drained Croplands Using Geospatial Modeling Approach*, 7:257 SCI. DATA at 5 (2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7406500/pdf/41597_2020_Article_596.pdf.

⁵³ Emily Montague, Owyhee Dairy Complaint Investigation Report (May 22, 2019) (showing discharges from CAFO production area into adjacent conduit that ultimately transported waste to the Snake River) (attached as Exhibit C); Rule 11 Plea Agreement, *U.S. v. 4 Bros Dairy, Inc.*, No. 1:20-cr-00216-CWD (Sept. 24, 2020) (large dairy admitting to negligent discharges in violation of the Clean Water Act) (attached as Exhibit D); Email from Brynn Lacabanne, IPDES Compliance and Enforcement Supervisor, Idaho Dep’t of Env’tl. Quality, to Brian Levo, NPDES Enforcement Coordinator, EPA (Feb. 3, 2021) (emails describing suspected illegal discharges to WOTUS from a dairy) (attached as Exhibit E); Consent Agreement and Final Order, *In the Matter of: W/T Land & Cattle Inc., Caldwell* Idaho, No. CWA-10-2013-0065 (June 17, 2013) (consent agreement and order describing at least 48 days of illegal discharges to the Boise River from a CAFO) (attached as Exhibit F); John Bilderback, Complaint Investigation Photos (showing discharges from land application area) (attached as Exhibit G); EPA, NPDES Compliance Evaluation Inspection at Nederend Dairy (June 6, 2019) (inspection report describing irrigation system that must be closely managed and precisely turned off to avoid discharging to adjacent surface water as well as ponding of silage leachate) (attached as Exhibit H); EPA, Clean Water Act Compliance Evaluation Inspection at Sunview Dairy (June 6, 2019) (inspection report describing two likely discharge points from CAFO production area) (attached as Exhibit I); EPA, NPDES Compliance Evaluation Inspection at Vandenberg & Sons Dairy (June 6, 2019) (inspection report describing a CAFO that was not sampling wastewater or maintaining land application

C. *CAFO pollutants contaminate groundwater that discharges to surface waters.*

CAFOs also discharge large quantities of pollutants to WOTUS via hydrologically connected groundwater. As the *FWW v. EPA* court found, “groundwater flow is the primary contributor of nitrate to surface water from agriculture.”⁵⁴ At production areas, animal manure and process wastewater are stored in impoundment structures, or “lagoons,” that “are designed to leak” pollutants,⁵⁵ which, as explained below, then discharge to WOTUS due to southern Idaho’s hydrogeology.⁵⁶ A 1-acre lagoon constructed to the Idaho Permit’s permeability rate limit of 1×10^{-6} cm/sec discharges approximately 8,313 gallons of waste per day to the subsurface.⁵⁷ This will result in over 3 million gallons of polluted wastewater seeping out from each acre of lagoon every year, year after year.⁵⁸ Many CAFOs have between 2 and 10 acres of these lagoons.⁵⁹ Additionally, many CAFOs stockpile composting manure, silage, and other materials in piles or silos with direct ground contact.⁶⁰ These areas also leach pollutants into groundwater at rates likely far in excess of the 1×10^{-6} lagoon liner standard.⁶¹

Idaho’s CAFO industry sits almost exclusively atop the Snake River Plain aquifer.⁶² Much of this aquifer is underlain by fractured basalt lava flows, unconsolidated sediment, and fractured rubble, all of which readily transmit water—and contaminants—underground to WOTUS.⁶³ Agricultural water use is the primary contributor to the Snake River Plain aquifer, with field irrigation responsible for between 60 and 95 percent of aquifer recharge depending on the location.⁶⁴ When CAFO waste is applied to fields in liquid form, it travels as water does through the environment; and when solid manure is applied to a field that is subsequently irrigated, the CAFO pollutants sorb to and travel with the irrigation water.

records) (attached as Exhibit J); EPA, Clean Water Act Compliance Evaluation Inspection at DeRuyter Dairy (June 6, 2019) (inspection report describing irrigation system that must be closely managed and precisely turned off to avoid discharging to adjacent surface water and inadequate runoff infrastructure to keep wastewater out of downgradient canal) (attached as Exhibit K).

⁵⁴ *Food & Water Watch*, 20 F.4th at 517 (quoting *Cow Palace, LLC*, 80 F. Supp. 3d at 1223).

⁵⁵ *Food & Water Watch*, 20 F.4th at 509; see also Noah Rudko et al., *Development of a Point-Source Model to Improve Simulations of Manure Lagoon Interactions with the Environment*, 325(A) J. ENV’T. MGMT. 116332 (Jan. 2023); Xunde Li, *supra* note 30 at 1435.

⁵⁶ See *infra* I.D.

⁵⁷ Erickson Report at EX5.

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ Erickson Report at EX3.

⁶¹ *Id.* at 7.

⁶² See *Snake River Plain aquifer*, Idaho State University, <https://www.isu.edu/digitalgeologyidaho/srp-aquifer/>.

⁶³ Idaho State University, *Snake River Plain Aquifer*, <https://www.isu.edu/digitalgeologyidaho/srp-aquifer/>; see also P-Index, *supra* note 20 at 8, 16 (“[L]eaching of P can contribute significant amounts of P to surface waters in some situations, such as in areas where there is relatively flat topography, high water tables, shallow soils over basalt and any artificial drainage system (e.g. ditches, subsurface drains).”); University of Idaho, Eastern Snake River Plain Surface and Ground Water Interaction at EX177, <https://idwr.idaho.gov/wp-content/uploads/sites/2/legal/american-falls/AF-20020118-ESPA-Surface-Water-and-Groundwater-Interaction.pdf> (attached as Exhibit L); Erickson Report at EX8; 2021 Groundwater Report, *supra* note 21 at 7.

⁶⁴ *Snake River Plain Aquifer*, *supra* note 63.

Studies show that this aquifer has high transmissivity (*i.e.*, rate of flow through the aquifer).⁶⁵ Another study found that “high transmissivity suggests that water may move rapidly from [areas near Idaho Falls] to mix with water in the Snake River Plain aquifer,” and revealed that groundwater moved approximately 1,070 feet per day.⁶⁶ At this rate, pollutants seeping from a CAFO 1 mile away from the Snake River or a tributary (such as the Big and Little Wood Rivers) could reach WOTUS in under 5 days, while pollutants from a CAFO 10 miles away would arrive in under 50 days. “The geologic makeup of the aquifer allows for extremely high ground-water transmissivity rates,”⁶⁷ with rates peaking near the center of the aquifer.⁶⁸ While more granular details are available and continue to be studied, existing data indisputably show that groundwater flows very quickly from agricultural operations to the Snake River and its tributaries.⁶⁹

Given these characteristics, groundwater in this part of Idaho is intimately connected to the Snake River.⁷⁰ Although variable conditions mean the precise flow from the aquifer to the river is never static, “the Eastern Snake River Plain Aquifer (ESPA) in southern Idaho is notable for . . . the high degree of interconnectivity with surface water resources in some areas.”⁷¹ Four reaches of the Snake are particularly noteworthy for their interconnectivity with the aquifer: Kimberly to King Hill (the Thousand Springs reach); Neeley to Minidoka; Blackfoot to Neeley;

⁶⁵ Joel M. Hubbell, Idaho National Engineering Laboratory, Aquifer Tests Near the Idaho Falls Foothills, Idaho (Apr. 27, 1992), <https://www.osti.gov/servlets/purl/10138506>; D.M. Cosgrove et al., Idaho Water Resources Research Institute, Enhanced Snake Plain Aquifer Model Final Report (July 2006), <https://idwr.idaho.gov/wp-content/uploads/sites/2/legal/CMR50/CMR50-200607-Final-Report-ESPAM-1-1.pdf>.

⁶⁶ Hubbell, *supra* note 65 at 5. For just two of many examples, Van Beek Dairy and its numerous lagoons are located approximately 1.5 miles from the Snake River near Twin Falls, Idaho; and Hurtado River Valley Dairy, upstream from Shoshone Falls is approximately 1000 feet from the Snake River. Similar examples of CAFOs near WOTUS and overlying these especially transmissive hydrogeologic areas abound throughout the Snake River basin.

⁶⁷ Jon E. Hortness, U.S. Geological Survey, Surface-Water/Ground-Water Interaction along Reaches of the Snake River and Henrys Fork, Idaho at 3 (2004), https://pubs.usgs.gov/sir/2004/5115/SIR2004_5115.pdf.

⁶⁸ Donna M. Cosgrove et al., Idaho Water Resources Research Institute, Description of the IDWR/UI Snake River Plain Aquifer Model (SRPAM) at 54 & Fig. 20, 81, (Apr. 1999), <https://idwr.idaho.gov/wp-content/uploads/sites/2/legal/american-falls/AF-199904-Mod-Desc-14.pdf>.

⁶⁹ L.C. Kjelstrom, U.S. Geological Survey, Assessment of Spring Discharge to the Snake River, Milner Dam to King Hill, Idaho (1992), <https://pubs.usgs.gov/of/1992/0147/report.pdf> (explaining the relationship between the aquifer and surface water and identifying 11 springs or groups of springs along the Snake River that were discharging over 1,000 cubic feet per second on average); L.C. Kjelstrom, U.S. Geological Survey, Methods to Estimate Annual Mean Spring Discharge to the Snake River Between Milner Dam and King Hill, Idaho (1995), <https://pubs.usgs.gov/wri/1995/4055/report.pdf>; L.C. Kjelstrom, U.S. Geological Survey, Streamflow Gains and Losses in the Snake River and Ground-Water Budgets for the Snake River Plain, Idaho and Eastern Oregon (1995), <https://pubs.usgs.gov/pp/1408c/report.pdf> (explaining that “[t]he Snake River is the regional drain for streams and aquifers in the Snake River basin upstream of Weiser, Idaho” and describing the hydraulic conductivity and transmissivity in different areas along the Snake River); Molly S. Wood et al., U.S. Geological Survey, Evaluation of Seepage and Discharge Uncertainty in the Middle Snake River, Southwestern Idaho (2014), <https://pubs.usgs.gov/sir/2014/5091/pdf/sir20145091.pdf> (providing detailed analysis and noting that “[g]roundwater in the study area generally moves toward the Snake River”); Idaho Water Science Center, *Estimating Spring Discharge to the Snake River, Milner Dam to King Hill, Southern Idaho*, U.S. GEOLOGICAL SURVEY (Feb. 2, 2023) <https://www.usgs.gov/centers/idaho-water-science-center/science/estimating-spring-discharge-snake-river-milner-dam-king> (describing a current study).

⁷⁰ Eastern Snake River Plain Surface and Ground Water Interaction, *supra* note 63 (Exhibit L).

⁷¹ See Humes, *supra* note 19 at 4.

and the Henrys Fork and Upper Snake River reaches.⁷² Whether CAFO wastewater seeps into the aquifer or flows into surface waters, it carries CAFO pollutants along for the ride. After years of intensive factory farming, the relentless overload of CAFO pollutants is taking a toll on surface waters and contributing to water quality impairments.

To illustrate this point, Figure 2 below shows the results of a real-world groundwater monitoring study at a Wisconsin dairy CAFO with a concrete bottom lagoon constructed to NRCS standards and a nutrient management plan governing land application.⁷³ The red line in the top image shows the path the water takes from the facility to the surface water. This pathway is further modeled in cross section in the bottom of the image, which clearly shows the contaminant (nitrate) plumes emitting from both the production area and land application areas. The contamination from the CAFO has reached and is discharging into surface waters. Similar hydrologic dynamics are at play in Idaho, though the situation in Idaho is potentially more dire given the hydrology of the Snake River Plain Aquifer and the well-documented groundwater discharge points explained above.⁷⁴

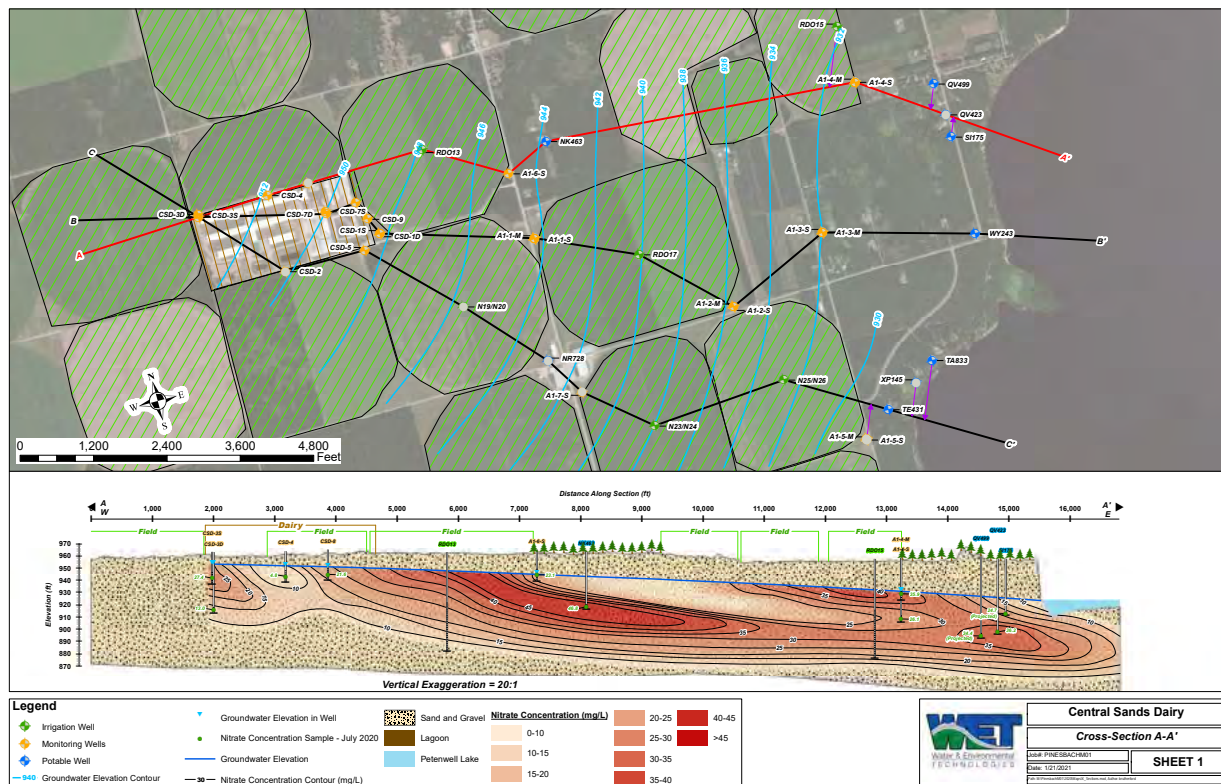


Fig. 2. Model depicting the results of a groundwater monitoring study of a Wisconsin dairy CAFO.

⁷² *Id.* at 5. See also 2021 Groundwater Report, *supra* note 21 (confirming that American Falls and Thousand Springs are significant points of discharge from the aquifer to the Snake River).

⁷³ Erickson Report at EX8 & Att. 2 at EX22.

⁷⁴ See *supra* I.D.

D. *Subsurface discharges from Idaho CAFOs are functionally equivalent to direct discharges to WOTUS.*

As described above, Idaho’s CAFOs discharge pollutants to surface waters via groundwater. CAFOs that meet the Idaho permit’s lagoon permeability standard are discharging pollutants to underlying aquifers, and those pollutants are carried by rapidly moving groundwater and discharged into WOTUS.⁷⁵ Mr. David Erickson, a hydrogeologist with years of experience working on CAFO matters and a leading expert in CAFO water pollution issues, states that “[l]agoons designed to the standards mandated by the draft modified Idaho CAFO Permit (seepage rate of 1×10^{-6} cm/sec) leak and seep substantial volumes of process wastewater” that contributes contamination to ground and surface water.⁷⁶

These facts appear to easily meet the test set forth by the Supreme Court to determine whether a subsurface discharge is subject to Clean Water Act jurisdiction.⁷⁷ Under *County of Maui v. Hawaii Wildlife Fund*, an unpermitted discharge via groundwater is illegal if the discharge is the “functional equivalent of a direct discharge from the point source into navigable waters.”⁷⁸ The Supreme Court supplied several factors to determine whether a discharge via groundwater meets the functional equivalency test: (1) transit time, (2) distance traveled, (3) the nature of the material through which the pollutant travels, (4) the extent to which the pollutant is diluted or chemically changed as it travels, (5) the amount of pollutant entering the navigable waters relative to the amount of pollutant that leaves the point source, (6) the manner by or area in which the pollutant enters the navigable waters, and (7) the degree to which the pollution (at that point) has maintained its specific identity.⁷⁹

Among these, transit time and distance traveled from the point source to the WOTUS are usually the most important factors.⁸⁰ Another factor, “the nature of the material through which the pollutant travels,”⁸¹ is related to the time and distance factors.⁸² The Court in *Maui* determined that a point source approximately 1 to 1.5 miles from WOTUS where the pollutants reached WOTUS in as little as 84 days was a jurisdictional discharge that resulted in Clean Water Act liability.⁸³

Several lower courts have since applied the *Maui* test, including to waste stockpiles and impoundments akin to how CAFOs manage their waste. In *Black Warrior River-Keeper Inc. v. Drummond Co.*, the plaintiff alleged that groundwater polluted by a mine’s waste pile seeped into the nearby waterway, which no one disputed was a WOTUS. This contaminated

⁷⁵ Erickson Report at EX5. *See supra* I.D.

⁷⁶ Erickson Report at EX2–EX3.

⁷⁷ *See Cty. of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462, 1476 (2020) (establishing a non-exhaustive list of factors to consider in evaluating subsurface discharges).

⁷⁸ *Cty. of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462, 1468 (2020).

⁷⁹ 140 S. Ct. at 1476–77

⁸⁰ *Id.* at 1477.

⁸¹ *Id.* at 1466.

⁸² *See* Erickson Report at EX4–EX5 (explaining that the flow rate out of a lagoon depends on the permeability of the liner and the hydraulic gradient).

⁸³ *Cty. of Maui*, 140 S. Ct. at 1476; *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 984 (D. Haw. 2014); *Haw. Wildlife Fund v. Cnty. of Maui*, 550 F. Supp. 3d 871, 878 (D. Haw. 2021).

groundwater reached WOTUS in “as little as 1.5 to 4.4 days” and traveled “a relatively short distance” (approximately 30 to 100 feet as seepage). The Northern District of Alabama concluded that “contaminated groundwater flowing into the Locust Fork constitutes the functional equivalent of a direct discharge of pollutants.”⁸⁴

In *Stone v. High Mt. Mining Co., LLC*, a Colorado district court attached Clean Water Act liability to a mining operation whose settling ponds discharged to a WOTUS via groundwater.⁸⁵ The court noted that “Ponds 3 and 4 are upgradient from the Middle Fork and less than 100 feet away ... and it makes physical and logical sense that a discharge to groundwater so close to the river is the functional equivalent of a direct discharge into the river.”⁸⁶

And in *Parris v. 3M Co.*, a Georgia district court denied 3M’s motion to dismiss Clean Water Act claims that the company was causing the functional equivalent of direct discharges by land applying sludge that “then allegedly migrates through hydrologically connected groundwater into Raccoon Creek.”⁸⁷ The court went on to note that “[c]ourts routinely find that land application systems, spray head sprinklers, and trucks constitute point sources when used to spread treated wastewater and manure on land.”⁸⁸

On the other end of the spectrum, in *Conservation Law Foundation v. Town of Barnstable*, a Massachusetts district court considered whether wastewater poured into sand beds and transported to WOTUS by groundwater was the “functional equivalent” of a direct discharge under *Maui*.⁸⁹ In that case, while the pollution did not travel far (only around 1.5 miles), the defendant showed that the time it took pollutants to travel that distance was substantial: 21 years.⁹⁰ The court concluded that, while other *Maui* factors weighed in favor of Clean Water Act liability, the discharges failed to satisfy the *Maui* test “[b]ecause the approximate travel time is 21 years.”⁹¹

Applied here, the most important *Maui* factors strongly indicate that subsurface CAFO discharges in Idaho are jurisdictional due to the proximity of most Idaho CAFOs to jurisdictional surface waters and the fast rate of groundwater flow to those surface waters. As discussed above, nitrate—one of the primary CAFO pollutants of concern—is known to form plumes that are more than capable of traveling the short distance from the average Idaho CAFO to a surface water.⁹² Further, the fractured basalt and unconsolidated sediment that underly the land where most of Idaho’s CAFOs are located are highly permeable, meaning pollutants can travel from a source to a surface water relatively quickly. Many CAFOs within 10 miles of the Snake River are likely discharging their pollutants via groundwater to WOTUS in under 50 days, substantially

⁸⁴ 579 F. Supp. 3d 1310, 1315 (N.D. Ala. 2022).

⁸⁵ 627 F. Supp. 3d 1211 (D. Colo. 2022).

⁸⁶ *Id.* at 1229.

⁸⁷ 595 F. Supp. 3d 1288, 1322.

⁸⁸ *Id.*

⁸⁹ 615 F. Supp. 3d 14 (D. Mass. 2022).

⁹⁰ *Id.* at 23–24.

⁹¹ *Id.* at 24.

⁹² See Erickson Report at EX5–EX6, EX8 (describing nitrate plumes that traveled over 2 miles from the source to a surface water).

less time than the Supreme Court found to indicate a jurisdictional discharge in *Maui*.⁹³ Many CAFOs are significantly closer to WOTUS or conduits to WOTUS such as canals, pipes, or ditches than the facility at issue in *Maui*. And research shows that transmissivity is greater the closer to the Snake River a subsurface discharge occurs.⁹⁴ Thus, the facts in Idaho are analogous to the examples cited above where a court found a functional equivalent to a direct discharge or the possibility of one. Conversely, the situation in Idaho is a far cry from non-functional equivalent examples like the 21 years in *Conservation Law Foundation* or the hypothetical 50 miles taking “many years” in *Maui*.⁹⁵ Lastly, *Maui* factors 5 through 7 also indicate jurisdictional discharges because nitrate contaminants from CAFO waste move “unattenuated with ground water, migrating to the next receptor: ground water withdrawal or nearby surface water discharge.”⁹⁶

To date, the Idaho Permit has not mandated representative monitoring of discharges to surface or hydrologically connected ground waters despite increasingly incontrovertible evidence that Idaho CAFOs are discharging substantial amounts of pollution and contributing to water quality violations. However, the lack of monitoring in the Idaho Permit is just one piece of the chronic under-regulation of CAFOs in the state. Today, *none* of Idaho’s 365 large CAFOs are covered by a NPDES permit.⁹⁷ Consequently, Idahoans are left without redress for the myriad harms CAFOs are causing to the environment and their communities.

II. The Idaho Permit Must Require Representative Monitoring

Permitted CAFOs must monitor their facilities’ discharge points to ensure compliance with the Idaho Permit’s effluent limitations.⁹⁸ This foundational principle of the NPDES program has been reaffirmed numerous times now by Commenters and multiple Federal and State courts.⁹⁹ Yet, EPA now proposes to modify the remanded Permit *without mandating sufficient monitoring yet again*. This inexplicable response to *FWW v. EPA* is arbitrary, capricious, and contrary to law.

⁹³ See *supra* note 84 and associated text.

⁹⁴ See *supra* I.D.

⁹⁵ *Conservation Law Foundation*, 615 F. Supp. 3d at 24; *Maui*, 140 S. Ct. at 1476.

⁹⁶ Erickson Report at EX8.

⁹⁷ See Manning, *Idaho’s Sewer System Is the Snake River*, *supra* note 6 (explaining how, following the decision in *Waterkeeper Alliance v. EPA*, 399 F.3d 486 (2d Cir. 2005), the entire CAFO industry in Idaho made the “business decision” to opt out of the NPDES permitting program). Commenters further note our understanding that, as of the submitting of these comments, even 4 Bros. Dairy—which was caught egregiously violating the Clean Water Act and agreed to seek coverage under the Idaho Permit per the terms of a settlement with EPA (see generally Exhibit D)—has failed to secure permit coverage yet. And EPA’s 2019 inspection records strongly indicate that CAFOs in Idaho are using practices that are virtually certain to result in direct discharges to WOTUS. This underscores that Idaho’s CAFOs comprise a recalcitrant and rogue industry that is capitalizing on EPA’s long-standing failure to require monitoring that could bring greater accountability.

⁹⁸ 33 U.S.C. § 1318(a)(2)(A)(iii).

⁹⁹ See generally *FWW v. EPA*, 20 F.4th 506 (2021); *Washington State Dairy Federation v. Washington Department of Ecology*, 18 Wn. App. 2d 259 (Wash. Ct. App. 2021); Order Granting Petitioners’ Motion for Summary Judgment and Initial Decision, *Center for Biological Diversity and Food & Water Watch v. Colo. Dept. of Pub. Health and Env’t*, WQ 2022-0001 (May 18, 2023) (attached as Exhibit M). See also *Nat. Res. Def. Council v. EPA*, 808 F.3d 556 (2d Cir. 2015); *NRDC v. Cnty. of Los Angeles*, 725 F.3d 1194 (9th Cir. 2013).

The Clean Water Act demands that all NPDES permits, including CAFO permits, require representative monitoring and reporting capable of assuring compliance with effluent limitations contained in the permit.¹⁰⁰ Nothing in the Clean Water Act, EPA’s regulations, or case law provides a special exemption for CAFOs. EPA “shall require” permitted point sources to “install, use, and maintain such monitoring equipment or methods” requisite to “determin[e] whether [they] are in violation” of an applicable effluent limitation or other effluent standard.¹⁰¹ EPA’s regulations, in turn, state that all permits “shall include conditions” requiring representative monitoring “[t]o assure compliance with permit limitations.”¹⁰² Further, permits “shall specify” the “type, intervals, and frequency [of monitoring] sufficient to yield data which are representative of the monitored activity.”¹⁰³ Such monitoring conditions are necessary to verify compliance with effluent limits and to facilitate permit enforcement.¹⁰⁴ Monitoring requirements are in addition to, and separate from, permit conditions establishing the best management practices and technologies used to achieve compliance with permit limits.¹⁰⁵

EPA’s own NPDES permit writers’ manual makes this all quite clear: “One of the major strategies of the Clean Water Act . . . is to require effluent limitations based on the capabilities of the technologies available to control those discharges,” and “[m]onitoring is performed to determine compliance with effluent limitations established in NPDES permits.”¹⁰⁶ Thus, representative monitoring is necessary not only to comply with applicable regulations but also to make the pollution limits in the Idaho Permit enforceable.

As recently reiterated by the Ninth Circuit Court of Appeals, CAFO NPDES permits “fundamentally rel[y] on self-monitoring” because “[e]ffective self-monitoring reveals permit violations, thereby promoting enforcement of the [law].”¹⁰⁷ Without representative monitoring, regulators and the public are left in the dark as to whether permitted CAFOs are actually complying with the Permit or whether particular CAFOs are causing or contributing to violations of Idaho water quality standards.

Under the Clean Water Act, mere assumptions that implementing technologies and practices will result in permit compliance are impermissible. In *Natural Resources Defense Council v. EPA*, the Second Circuit Court of Appeals struck down a NPDES permit for ballast water from vessels because compliance with that permit’s water quality-based effluent

¹⁰⁰ 33 U.S.C. §§ 1318(a), 1342(a)(2); *Food & Water Watch*, 20 F.4th at 515 (“Our case law confirms that NPDES permits must contain monitoring provisions sufficient to ensure compliance with the terms of a permit.”); *Nat. Res. Def. Council v. EPA*, 808 F.3d 556, 565, 583 (2d Cir. 2015) (“Generally, an NPDES permit is unlawful if a permittee is not required to effectively monitor its permit compliance.” (quoting *Nat. Res. Def. Council v. County of L.A.*, 725 F.3d 1194, 1207 (9th Cir. 2013)).

¹⁰¹ 33 U.S.C. § 1318(a)(2)(A)(iii).

¹⁰² 40 C.F.R. §§ 122.44(i)(1), 122.41(j)(1).

¹⁰³ *Id.* § 122.48(b).

¹⁰⁴ *NRDC v. Cnty. of Los Angeles*, 725 F.3d 1194, 1208 (9th Cir. 2013).

¹⁰⁵ See 40 C.F.R. § 122.41(e).

¹⁰⁶ EPA, NPDES Permit Writers’ Manual (Sept. 2010) at 5-1, 8-2, https://www.epa.gov/sites/production/files/2015-09/documents/pwm_2010.pdf.

¹⁰⁷ *Food & Water Watch*, 20 F.4th at 516 (citing *Sierra Club v. Union Oil Co. of Cal.*, 813 F.2d 1480, 1491 (9th Cir. 1987), vacated and remanded on other grounds, 485 U.S. 931, 108 S. Ct. 1102, 99 L. Ed. 2d 264 (1988), and reinstated and amended by 853 F.2d 667 (9th Cir. 1988)).

limitations was merely assumed from compliance with other permit terms.¹⁰⁸ Such assumptions are equally unlawful here; the CAFO Permit must contain monitoring sufficient to assure compliance with the terms of the Permit, including water quality-based effluent limitations.

The Ninth Circuit in *FWW v. EPA* made the flaws in the previous iteration of the Idaho Permit plain: (1) “[w]ithout a requirement that CAFOs monitor waste containment structures for underground discharges, there is no way to ensure that production areas comply with the Permit’s zero-discharge requirements,” and (2) “[t]he Permit has no monitoring provisions for dry weather discharges from land-application areas.”¹⁰⁹ The fundamental idea underpinning the Court’s legal holdings and the cases the Court relied upon is that “NPDES permits must contain monitoring provisions sufficient to ensure compliance with the terms of a permit.”¹¹⁰ Thus, although the Court’s opinion did not explicitly touch on every conceivable production area or land application discharge activity, a NPDES CAFO permit that leaves any effluent limitation unmonitored is unlawful.

Monitoring can take different forms so long as it is appropriately tailored to the monitored activity and generates representative, publicly reported data that assures compliance.¹¹¹ Under no circumstances may the Idaho Permit simply forego monitoring that satisfies these requirements, even if EPA hopes and believes that certain best management practices are effective in preventing discharges or rendering CAFOs “low risk.”

III. The Idaho Permit’s Monitoring and Reporting Requirements Do Not Satisfy *FWW v. EPA* and Do Not Comply with the Clean Water Act’s Monitoring Mandate.

The Idaho Permit as proposed improves on the remanded permit but continues to fall short of basic NPDES requirements. Commenters appreciate that EPA has begun investigating the kind of monitoring schemes that are appropriate for CAFOs, such as Subsurface Discharge Monitoring Plans and visual monitoring of land application areas followed by sampling and in-stream monitoring when discharges occur. However, the Permit falters by requiring such monitoring only on a conditional basis in limited circumstances, using a risk-based approach to determine whether monitoring is needed, and omitting monitoring of some discharge pathways altogether. This is impermissible because representative monitoring to assure compliance is mandatory and must assure compliance with all effluent limitations. As explained below, EPA may use a risk-based approach to determine the *type and frequency* of monitoring, but not *whether* a CAFO needs to monitor for compliance with the Permit in the first place.

¹⁰⁸ 808 F.3d 556, 565, 583 (2d Cir. 2015) (rejecting EPA’s argument that if a vessel was in compliance with the permit’s other effluent limitations, the permittee was “generally expected to already be controlling [its] vessel discharges to a degree that is protective of water quality.”).

¹⁰⁹ 20 F.4th at 517, 518; *see also* Idaho Permit Fact Sheet at 11 (hereinafter, “Fact Sheet”) (highlighting same holdings).

¹¹⁰ 20 F.4th at 515 (citing *NRDC v. County of L.A.*, 725 F.3d 1194, 1207 (9th Cir. 2013)).

¹¹¹ *See id.* at 516–17 (finding that daily and weekly inspections of above-ground CAFO production area discharge control infrastructure can be “in effect, monitoring requirements”); *NRDC v. EPA*, 863 F.2d 1420, 1434 (9th Cir. 1988) (upholding a “visual sheen test as a method for monitoring compliance of the no discharge of oil limitation”).

This section addresses the Permit’s shortcomings and how to fix them. Three subsections relate to an effluent limitation that must be monitored for compliance in a manner that produces representative data capable of facilitating permit enforcement in the event of a violation. Each describes how, if at all, the proposed Permit monitors the effluent limitation at issue, addresses why the proposed monitoring method does not meet the Clean Water Act’s representative monitoring requirement, and discusses feasible monitoring options that satisfy the Clean Water Act and EPA’s implementing regulations. Finally, this section explains that EPA improperly prioritized affordability in establishing the Permit’s monitoring approach. By following these recommendations, EPA can begin to rectify the lack of accountability Idaho’s CAFOs have taken advantage of for far too long.

A. Subsurface discharges from the production area.

The Idaho Permit includes an effluent limitation that prohibits all discharges from the production area unless they consist of overflowing manure, litter, or process wastewater from an impoundment and the production area had capacity to contain the precipitation from a 25-year, 24-hour rainfall event.¹¹² The Permit proposes to monitor this effluent limit using a risk-based trigger that, under certain circumstances, would require permittees to create and implement a Subsurface Discharge Monitoring Plan.¹¹³ Under this framework, a CAFO need not prepare and implement a Subsurface Discharge Monitoring Plan if 1) it maintains documentation that its wastewater and manure storage structures comply with NRCS Appendix 10D and IDAPA 02.04.14.030.01; or 2) if none of the CAFO’s wastewater or manure storage structures receive a “High Risk” rating under Washington NRCS Engineering Technical Note #23, January 2013 (“Note #23”).¹¹⁴

1. The Permit’s proposed monitoring for subsurface discharges from the production area is inadequate.

In *FWW v. EPA*, the Ninth Circuit identified two separate subsurface discharge risks stemming from CAFO waste storage structures. First, the risk of lagoon failure such as a rupture “always exists.”¹¹⁵ Of equal concern, the Court discussed the potential for lagoons to leak or seep pollutants into groundwater that discharges to WOTUS. As the Court noted, when lagoon leakage occurs, it flows through either a rupture in a lagoon’s seal or through an *intact but inherently permeable* liner.¹¹⁶ The allowable seepage rate of 1×10^{-6} cm/sec is a design feature of lagoons that are constructed to the Permit’s pollution control standards.¹¹⁷ As explained above,

¹¹² Idaho Permit at II.A. The Permit prohibits all discharges from new sources at swine, poultry, and veal facilities that began construction after April 2003, but Commenters here focus on the CAFOs plaguing Idaho’s waters: dairy and beef CAFOs. *See Id.* at II.A.3.

¹¹³ *Id.* at III.A.2.a.

¹¹⁴ *Id.* at III.A.2.a.(iii)–(iv).

¹¹⁵ *Food & Water Watch*, 20 F.4th at 509.

¹¹⁶ *Id.*

¹¹⁷ *Id.*; *see also* Idaho Permit (allowing CAFOs with certification showing compliance with NRCS Appendix 10D and IDAPA 02.04.14.030.01); USDA, NRCS, Agricultural Waste Management Field Handbook, App’x 10D, <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17767.wba> at 10D-2 (allowing lagoon permeability of 1×10^{-6} cm/s where clay content of soil is at least 5 percent) (hereinafter “NRCS App’x 10D”); Idaho Admin. Code r. 02.04.14.030.01 (requiring that lagoons be constructed to a permeability rate of 1×10^{-6} cm/s).

many if not most CAFOs in Idaho are causing subsurface discharges that are the functional equivalent of direct discharges in this manner. By identifying both ways lagoons discharge to the subsurface and holding that the 2020 Permit lacked required monitoring for them, the Court plainly anticipated that its remand would be met by EPA modifying the Permit with monitoring provisions that address both lagoon failures and lagoon seepage.

Notably, other production area activities—such as stockpiling manure, compost, and silage on bare earth—are also known to discharge pollutants. Seepage from these areas is anticipated by Idaho regulations that are incorporated by reference into the permit. IDAPA 02.04.14.030.01 requires CAFOs to demonstrate “appropriate protections” to prevent contamination of surface and groundwater from all dairy byproduct storage, including compost and solid waste storage areas.¹¹⁸ Yet, the Permit modifications do not consider, much less require, any monitoring to assure compliance with these permit requirements.

Contrary to the Ninth Circuit’s mandate, the Idaho Permit still fails to require monitoring provisions capable of assuring that subsurface discharges from waste and other material storage areas to WOTUS do not occur. As written, the Permit only requires CAFOs undertaking pollution management activities EPA deems “risky”¹¹⁹ to prepare and execute Subsurface Discharge Monitoring Plans. However, this risk-based approach ignores that the lagoon standards mandated in the Permit—and that EPA apparently considers not risky—are exactly what the Ninth Circuit considered and determined must have representative monitoring. Impoundments with seepage rates of 1×10^{-6} are “designed to leak.”¹²⁰ All EPA has done is require documentation that only this discharge activity is occurring and not some higher discharge rate. This does not respond to the Court’s remand.

As for Subsurface Discharge Monitoring Plans, Commenters agree that such a Plan could be an effective method to monitor the zero-discharge effluent limitation, but only if it entails effective monitoring protocols tailored to the on-site characteristics of covered facilities. As proposed, the Permit is impermissibly vague; it does not set forth any framework for how such Plans must be developed. EPA must remedy this shortcoming by supplying CAFOs with explicit instructions for developing effective monitoring and requiring all CAFOs to implement the Plans. Commenters provide expert opinion on how EPA can accomplish that in subsection 2 below.

A secondary problem with the Idaho permit’s risk-based monitoring scheme lies in the alternatives the permit allows CAFO operators to choose between to demonstrate their lagoons are low-risk enough to forego a Subsurface Discharge Monitoring Plan. As written, the Permit allows CAFOs to forego monitoring if they provide documentation either (1) certifying compliance with NRCS Appendix 10D and IDADA 02.04.14.030.01 or (2) showing they did not receive high risk ratings on either the site or structure assessment portions of Washington NRCS Engineering Technical Note 23.¹²¹ Aside from the fact that simply not monitoring is never a

¹¹⁸ Idaho Admin. Code r. 02.04.14.030.01

¹¹⁹ Fact Sheet at 15–16; Idaho Permit at III.A.2.a.iii–iv (same).

¹²⁰ *Food & Water Watch*, 20 F.4th at 509.

¹²¹ Idaho Permit at III.A.2.a.iii–iv.

permissible option, these alternative compliance pathways are inadequate to assess risk even for the purpose of tailoring representative monitoring requirements. Specifically, only Technical Note 23 even begins to consider the factors necessary to inform subsurface discharge risk analyses.

While compliance with Technical Note 23 cannot excuse a CAFO from statutory monitoring requirements, this tool at least considers factors relevant to the Supreme Court's functional equivalency test. Unlike NRCS Appendix 10D and IDAPA 02.04.14.030.01, Technical Note 23 considers the distance to the nearest body of water as well as the hydraulic conductivity of the soils below the lagoon.¹²² Beyond confirming that lagoons are designed to leach pollutants to groundwater, neither NRCS Appendix 10D nor IDAPA 02.04.14.030.01 assess the type of information necessary to determine whether groundwater discharges are functionally equivalent to direct discharges to a WOTUS. Therefore, only Technical Note 23 can help determine whether a subsurface discharge constituting a violation of the Permit will occur. Thus, only Technical Note 23 is even useful as a tool to determine whether a permit is required based on subsurface discharges in the first place, and if so, the type of monitoring protocols a CAFO must include in its Subsurface Discharge Monitoring Plan. While compliance with NRCS Appendix 10D and IDAPA 02.04.14.030.01 may be useful best management practices, they do not prevent seepage, cannot take the place of monitoring, and have no bearing on what type of monitoring is appropriate.

2. Feasible and representative options to monitor subsurface discharges from CAFO production areas exist.

As established above, the Permit's minimum requirements for lagoon construction and other materials storage allows pollution discharges to WOTUS that are the functional equivalent of direct discharges at nearly all Idaho CAFOs. The starting point must be that any such CAFO requires a Subsurface Discharge Monitoring Plan. Commenters refer EPA to Mr. Erickson's report for our specific recommendations for what a Subsurface Discharge Monitoring Plan for those CAFO production areas must include: "a full groundwater monitoring plan with 2 upgradient and 3 downgradient wells and routine sampling."¹²³ Monitoring subsurface discharges using a series of up and down gradient wells is a "simple and well-established process"¹²⁴ that has been and is currently used by CAFOs and similar waste impoundments

¹²² Compare NRCS App'x 10D and Idaho Admin. Code r. 02.04.14.030.01 with Idaho Permit at 78.

¹²³ Erickson Report at EX10.

¹²⁴ Erickson Report at EX9–EX10.

elsewhere.¹²⁵ In fact, at least one CAFO in Idaho already has such a monitoring system in place and has been able to continue operating their business.¹²⁶

If a CAFO has documented and can substantiate more protective waste storage activities, EPA may require less demanding monitoring protocols. For example, if a CAFO lagoon is constructed with “synthetic liners with 2’ compacted clay subbase” it may only need “an abbreviated monitoring scenario (1 upgradient and 2 downgradient [wells]) and routine sampling.”¹²⁷ If a CAFO installs the gold standard for discharge mitigation—a “double synthetic liner with leak detection or a sump and pump design”—EPA might reasonably include appropriate inspection monitoring requirements in lieu of a system of groundwater monitoring wells.¹²⁸ Such inspection requirements must include documentation and ensure continuous and effective operation of the leak detection or sump pump features, appropriate inspections and repairs during cleanouts, and regular maintenance and repairs to sump pump and/or leak detection systems.¹²⁹

EPA can and must require each Idaho CAFO sited in the Snake River basin to conduct monitoring along the lines described above unless it demonstrates that it is not discharging to groundwater hydrologically connected to a WOTUS. Such a demonstration must be certified by a qualified professional and be included in a CAFOs application for permit coverage, open to public comment, and evaluated and approved or disapproved by EPA.

As for other production area activities, such as storing solid manure, composting manure, and silage, EPA must ensure that the Permit contains representative monitoring of these as well. Again, a progressively more stringent approach could be appropriate. But storing manure or silage on bare earth causes seepage of highly concentrated pollutants into groundwater and certainly requires both inclusion in a CAFO’s Subsurface Discharge Monitoring Plan and the rigorous monitoring described above regarding lagoons with a 1×10^{-6} seepage rate.¹³⁰

¹²⁵ See, e.g., EPA, *Lower Yakima Valley Groundwater*, <https://www.epa.gov/wa/lower-yakima-valley-groundwater>; Isiah Holmes, *Major Dairy Farm Now Required to Monitor Groundwater Quality*, WISC. EXAMINER (Mar. 31, 2022), <https://wisconsinexaminer.com/brief/major-dairy-farm-now-required-to-monitor-groundwater-quality/>; Cal. Water Boards, *Confined Animal Facilities – Groundwater Monitoring*, https://www.waterboards.ca.gov/centralvalley/water_issues/confined_animal_facilities/groundwater_monitoring/; Or. Dep’t of Agric. & Or. Dep’t of Env’t Quality, *Lost Valley Farm CAFO Permit FAQs*, <https://www.oregon.gov/oda/programs/naturalresources/documents/cafopublicnotices/lostvalleyfarm/lostvalleyfarmfaq.pdf>.

¹²⁶ See Exhibit H at EX118 (noting that Nederend Dairy “has installed test wells around the lagoons which are regularly monitored to detect leaks”).

¹²⁷ Erickson Report at EX9–EX10.

¹²⁸ See *id.* Consider the *Food & Water Watch* Court’s acceptance of daily inspections of water lines at production areas as “in effect, monitoring requirements.” 20 F.4th at 516. If those water lines were *designed to continuously* leak and send polluted water off the production area, it is inconceivable that the Court would have considered merely inspecting to confirm that such discharging activity was occurring at a specified rate would have been sufficient monitoring to ensure compliance with the zero-discharge limitation.

¹²⁹ Commenters present these options to assist EPA, but EPA could determine that additional quality control and/or inspections requirements are also needed to assure compliance.

¹³⁰ See Erickson Report at EX2–EX3, Fig. 1, 7 (“In my experience, these compost areas are a significant source of soil and ground water contamination where the areas were not managed properly.”). Commenters also note that a

Lastly, the Permit states that “[s]ubsurface discharges shall be sampled at the point of discharge to the receiving water. If the point of discharge to the receiving water is inaccessible, samples of subsurface discharges shall be collected at a point that provides a sample that is representative of the discharge to the receiving water.”¹³¹ While this sampling protocol could be appropriate for specific situations, would bolster a “functional equivalent” determination under *Maui* factor 5, and would assist in ascertaining more precisely how a CAFO is causing or contributing to a water quality standards violation, it also presents practical problems in some situations. For example, in the case of a CAFO located near the receiving water where no intervening sources of pollution exist, this would be an acceptable approach. But in other circumstances, such as where pollution from multiple CAFOs or other sources of contamination mingles prior to the point of discharge (a common complication given the extreme concentration of CAFOs in certain parts of the Snake River basin), applying this approach raises concerns regarding whether sampling at such points would be representative of a specific CAFO’s discharge or sufficiently facilitate enforcement. The CAFO industry is notorious for pointing fingers at any other possible source of pollution to avoid liability.¹³²

The logical and effective alternative in these situations is for EPA to require monitoring wells and sampling at CAFO production area boundaries. This approach has several benefits including ease of implementation, accuracy of sampling results, and the ability to distinguish a single CAFO’s pollution load from other sources polluting the same groundwater pathway. Some CAFOs already have such monitoring in place, showing that such an approach is effective and affordable.¹³³ Where permittees are unable to monitor at both the CAFO boundary and point of discharge, they should be required to model their discharge using a scientifically sound approach to estimate how much discharge will reach a WOTUS. A monitoring scheme that does not enable enforcement against particular permittees is not aligned with the Clean Water Act’s mandate that EPA provide for, encourage, and assist public participation in enforcement actions.¹³⁴

B. Direct discharges from land application areas.

Effluent limits covering the land application area are more numerous. Essentially, the Permit requires that CAFOs apply waste in accordance with their Nutrient Management Plan

single system of monitoring wells could be appropriate for an entire production area, lagoons and all, if the system generated representative data considering the facility’s layout.

¹³¹ Idaho Permit at IV.D.3.

¹³² See, e.g., Intervenor’s Initial Post-Hearing Brief at 26, *In the Matter of: Petition of Michigan Farm Bureau; the Michigan Milk Producers Association; Michigan Pork Producers Association; Michigan Allied Poultry Industries; Foremost Farms USA; Dairy Farmers of America; Select Milk Producers, Inc.; and 165 Identified Livestock Farms*, Docket No: 20-009773 (filing on behalf of Food & Water Watch and others in the Michigan Farm Bureau and 165 CAFOs’ attempt to strike down the Michigan Department of Environment, Great Lakes, and Energy’s CAFO general permit where CAFO Petitioners have tried to shift responsibility for their water pollution by blaming septic systems, nuisance wildlife, and even pet waste); Kim Bremmer, *Wall Street Journal Missed the Mark on CAFO Coverage*, WISC. STATE FARMER (Jan. 28, 2019), <https://www.wisfarmer.com/story/opinion/editorials/2019/01/28/bremmer-misinformation-cafos-has-easily-become-disguised-truth/2701200002/> (blaming septic systems and municipalities).

¹³³ See *supra* notes 126, 127 and associated text.

¹³⁴ 33 U.S.C. § 1251(e). See also *Waterkeeper Alliance, Inc. v EPA*, 399 F.3d 486, 503–504 (2d Cir. 2005) (holding that EPA’s 2003 CAFO rule violated the Clean Water Act for infringing upon citizens’ participatory rights).

(“NMP”) and must avoid applying waste when conditions amplify runoff risks (*e.g.*, when the ground is frozen or saturated). The Permit’s attempt to monitor compliance with these effluent limits is another risk-based assessment used to determine whether monitoring is required at all. Under this approach, EPA deems only two land application activities high risk enough to trigger visual monitoring followed by sampling when discharges occur. First, a CAFO applying liquid manure or process wastewater (collectively “liquid waste”) to a land application area scoring medium or higher on the P-Index or INTRA tool must monitor. Second, a CAFO applying liquid waste to a field within 100 feet of a down-gradient surface water must monitor. This approach is unlawful.

1. The Permit’s proposed monitoring for direct discharges from land application areas is inadequate.

Again, EPA’s approach of requiring monitoring only when a specific risk factor is present runs afoul of the Ninth Circuit’s confirmation that land applying CAFO waste always requires monitoring to ensure compliance with the no dry weather discharge effluent limitation.¹³⁵ As with production areas, the question for EPA is not whether the risk of discharge from the land application area is high or low, but rather what monitoring methods will generate representative data capable of ensuring compliance with the Permit. The draft Permit’s proposal to use these assessments to allow CAFOs to avoid visually monitoring all land application areas is both legally deficient and practically arbitrary.

Even if a low-risk rating could eliminate the need for monitoring—which it cannot—the P-Index and INTRA are too narrowly focused on nutrients to accurately assess the land application direct discharge risk on their own. Thus, these tools are not even adequate to inform how monitoring at all land application areas can be tailored appropriately. While the risk of nutrient transfer is undoubtedly a problem in Idaho, CAFO waste contains other harmful pollutants like pathogens, pesticides, pharmaceuticals, and heavy metals. Neither the P-Index nor INTRA is intended to assess the risks posed by these pollutants. As such, EPA’s proposal to only require visual monitoring of fields during and after land applications under what EPA deems “high risk” circumstances is legally deficient and untethered to the plethora of pollutants disposed of on land application areas.

Similarly, the Permit’s requirement to visually monitor when a field is within 100 feet of a down-gradient surface water is unlawful. Monitoring is always required, and as with EPA’s other risk factors, 100 feet is an arbitrary metric even to inform what type of monitoring is representative in a given situation. because EPA has provided no justification or evidence indicating waste streams do not enter surface waters that are further than 100 feet away or that adjacent, technically upgradient surface waters cannot receive CAFO pollution.¹³⁶ Indeed, CAFOs frequently dispose of waste on fields that are adjacent to culverts, ditches, and other infrastructure or atop tile drains that are conduits to WOTUS, even over low gradient landscapes;

¹³⁵ *FWW v. EPA*, 20 F.4th at 518.

¹³⁶ For example, consider a canal running along the upgradient edge of a field where a pressurized, center pivot irrigation is used to apply CAFO waste. *See* Exhibit H at EX114 (inspection report of an Idaho CAFO with such a set up); Exhibit K at EX181 (same).

EPA's inspection results demonstrate that these conveyances are found adjacent to land application fields.¹³⁷

For *all* land application activities, EPA must include monitoring that generates representative data sufficient to assure compliance with the Permit. Instead, EPA has determined that only a subset of land application activities require monitoring, apparently assuming that lower risk land application is categorically incapable of resulting in a discharge to WOTUS. As demonstrated herein this is incorrect. This does not satisfy the CWA's monitoring requirements nor the Ninth Circuit's mandate that the Idaho Permit require CAFOs to representatively monitor land application activities for direct discharges.

2. Feasible and representative options to monitor direct discharges from land application areas exist.

All land application events must be monitored. If a CAFO can substantiate that a land application area is low risk, perhaps according to the INTRA or P-Index in addition to a metric to inform risk from other pollutants, EPA could consider less rigorous monitoring regimes tailored to the specific area (such as fewer visual monitoring locations). But under no circumstances can the Permit leave out at least visual monitoring of a land application activity followed by sampling and in-stream water quality testing when a discharge occurs. This visual monitoring must generate results representative of both the land application area and the method of application. Additionally, the Permit should require monthly land application equipment inspections during any month when the equipment is in use (including infrastructure or vehicles necessary to transport CAFO waste from a production area or stockpile to the land application area).¹³⁸

Location and frequency are critical to determining whether visual monitoring will generate data representative of a CAFO's discharge activities. EPA must include more detail in the Permit to ensure that CAFOs are not allowed to game the system by conducting monitoring at locations or at times that will not discover discharges. Each field will have certain characteristics that will help identify appropriate monitoring locations, and this monitoring scheme should be incorporated into each CAFO's permit alongside its identification of land application fields.

The Permit Fact Sheet states that the Idaho Dairymen's Association ("IDA") raised concerns that requiring land application monitoring could result in "more manure being applied to smaller areas to minimize the monitoring cost."¹³⁹ Commenters are puzzled by this statement, as Federal law limits land application of CAFO waste to amounts authorized by NMPs and requires application in line with agronomic need. If IDA means to say that its member CAFOs will violate the law to avoid monitoring costs, such threats warrant investigation and enforcement, and certainly do not justify reducing the Idaho Permit's monitoring requirements to

¹³⁷ *Id.*; see *supra* note 52 and associated text.

¹³⁸ The Permit's requirement that land application equipment be inspected "periodically" is vague and ineffective. See Permit at II.B.7. EPA must strengthen this inspection requirement and ensure that inspection results are recorded and reported if it intends equipment inspections to play the role of representative monitoring.

¹³⁹ Fact Sheet at 9.

below the legal minimum. CAFOs are required to have a plan in place for disposing of the waste they generate, including sufficient acreage for field applications that comply with NMPs and ensure agronomic utilization.¹⁴⁰

EPA could consider creative solutions such as requiring CAFOs to install relatively cheap and durable cameras at appropriate locations, as well as along the down-gradient edges of a field, to generate representative visual monitoring results. Of course, such footage must be either monitored contemporaneously enough to enable water sampling of any discharges and to enable mitigation of environmental harm or utilize motion sensing technology to indicate when a discharge is occurring. Motion sensors would reduce the time it takes to review footage, since motion sensing cameras need not be continuously recording to achieve continuous monitoring.¹⁴¹ Edge-of-field monitoring is a perfectly feasible activity that crop farmers already undertake.¹⁴² There is no reason CAFOs cannot be held to the same standard. Using cameras has the added benefit of detecting discharge events later in time than immediately after land application activities are completed, or when a field is subsequently irrigated with non-CAFO waste but still contains CAFO pollutants capable of discharging.

C. *Subsurface discharges from land application areas.*

Land application of CAFO waste can result in seepage that can constitute a functional equivalent of a direct discharge just as production area subsurface discharges do.¹⁴³ Any such discharges constitute a violation of the Permit's zero dry weather discharge limitation. Thus, this effluent limitation needs accompanying monitoring to assure compliance. Yet the Permit entirely ignores subsurface discharges from land application areas, and thus contains no monitoring provisions for this discharge pathway to ensure compliance with the no dry weather discharge limitation. This is unlawful for the same reasons discussed in Section IV.A, *supra*.

¹⁴⁰ 40 C.F.R. § 122.42(e)(1). Commenters also note that current practice is generally to land apply CAFO waste as close to the production area as possible. *See* EPA CAFO Risk Assessment, *supra* note 3 at 1 (recognizing that CAFOs limit how far they will transport their waste for disposal via land application); Danica Schaffer-Smith et al., *Landscape Pollution Source Dynamics Highlight Priority Locations for Basin-Scale Interventions to Protect Water Quality under Extreme Events* at 13, https://d197for5662m48.cloudfront.net/documents/publicationstatus/116035/preprint_pdf/a1ac3c0b514827b3cd00d3a6b32919cf.pdf (assuming that lands within 5 miles of a CAFO would receive the generated waste “due to the cost associated with transporting waste”).

¹⁴¹ A plethora of such products are readily available on the market. *E.g.*, Jason Maddox, *Using Thermal Cameras to Monitor Water Flow, Water Seepage and Water Quality*, VULCAN SECURITY SYSTEMS (Oct. 1, 2018), <https://www.vulcansecuritysystems.com/using-thermal-cameras-to-monitor-water-flow-water-seepage-and-water-quality/>; Moultrie, *Moultrie Mobile*, <https://www.moultriefeeders.com/products/moultrie-mobile>; K&F Concept, *Motion Detector Trail Camera*, https://www.kentfaith.com/KF35.133277_motion-detector-trail-camera; LVT, <https://go.lvt.com/demo>.

¹⁴² *See* USDA, *Edge of Field Water Quality Monitoring – Data Collection & Evaluation*, CEMA 201 (attached as Exhibit N).

¹⁴³ Erickson Report at EX8; Figure 2, *supra*, shows an example of land application fields causing nitrate plumes migrating to surface waters.

1. The Permit's lack of monitoring for subsurface discharges from land application areas is unlawful.

The draft Permit's lack of monitoring for subsurface land application areas fails to acknowledge that land application areas seep pollutants into groundwater that discharges to WOTUS, just as production areas do. The Permit's failure to monitor for these types of subsurface discharges—which visually monitoring cannot identify—is especially problematic because the acreage of land application areas overlying Snake River Plain aquifers far exceeds the acreage occupied by production areas. Indeed, the monitoring model provided as Figure 1 above shows that nutrients applied at supposedly agronomic rates actually seep to the subsurface where they form significant nitrate plumes that emanate to surface waters.¹⁴⁴ Mr. Erickson's extensive experience has further established that land application areas leach pollutants into groundwater that discharges into WOTUS.¹⁴⁵ As the INTRA explains, “the primary loss mechanism of nitrogen in agricultural systems is leaching of nitrate below the root zone.”¹⁴⁶ The P-Index further notes that phosphorus leaching can be especially significant in “shallow soils overlying basalt,” as is the case in large swaths of the Snake River Plains Aquifer.¹⁴⁷ Therefore, the Idaho Permit is not ensuring compliance with the no dry weather discharge effluent limitation with representative monitoring.

2. Feasible and representative options to monitor direct discharges from land application areas exist.

The simplest and most effective way to obtain representative monitoring data for land application area subsurface discharges is to require CAFOs to monitor fields using soil moisture probes or lysimeters in conjunction with regular soil sampling.¹⁴⁸ The Permit disallows land application to fields when the top two inches of soil are saturated,¹⁴⁹ and application to an unsaturated field should never overwhelm the field's capacity thereby leaching nutrients below the root zone. If this happens, the CAFO is not abiding by the regulatory requirement to apply waste at a rate that “ensure[s] appropriate agricultural utilization of the nutrients” because once nutrients go below the root zone plants are unable to utilize them.¹⁵⁰ Phosphorus may adsorb to soil particles until the soil reaches capacity (at which point excess phosphorus will travel to groundwater, which is already happening in Idaho as described above), but nitrogen and nitrate will not and will instead travel with the leaching water to reach groundwater.¹⁵¹ Thus, soil moisture probes or lysimeter monitoring is necessary both to ensure CAFOs are not causing discharges via groundwater and to provide valuable feedback about agronomic rates that actually comply with EPA's regulations requiring that CAFOs ensure appropriate agronomic utilization of nutrients.

¹⁴⁴ See also Erickson Report at EX8, Att. 2 at EX23.

¹⁴⁵ See Erickson Report at EX8.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ Erickson Report at EX10–EX11.

¹⁴⁹ Permit at II.B.10.

¹⁵⁰ See 40 C.F.R. § 122.42(e)(1)(viii), (e)(5).

¹⁵¹ 2021 Groundwater Report, *supra* note 21 at 10; Erickson Report at EX8.

Soil probes are a simple technology “that indicate when the soil moisture is above field capacity and leaching of nutrients is occurring. The soil moisture data, combined with routine soil nutrient sampling . . . provide a more accurate assessment of a field’s ability to receive and retain CAFO waste than soil sampling alone.”¹⁵² If done correctly, this data collection should provide an operator with the information necessary to identify whether nutrients are leaching to groundwater.

Commenters request that EPA include the following changes to the Permit to include effective and representative monitoring of land application areas. First, the Permit’s annual soil sampling requirement¹⁵³ should be replaced with the soil sampling protocols outlined in Mr. Erickson’s expert report.¹⁵⁴ This includes appropriate densities and locations of soil samples to ensure that results are representative of the field. Second, soil moisture probes or lysimeters must be required and operational during land application events or during irrigation of fields that have received CAFO waste to ensure that contaminated water is not leaching below the root zone and therefore reaching groundwater where it will be transported and discharged to WOTUS.

Where this initial monitoring indicates that pollutants are leaching from the field into groundwater, the Permit must require a network of monitoring wells akin to the monitoring scheme presented above for production areas using earthen liners with a 1×10^{-6} cm/sec seepage rate.

D. EPA impermissibly considered affordability to minimize the Permit’s monitoring provisions.

As demonstrated above, feasible, representative, and affordable monitoring methods exist to assure compliance with CAFO permit production and land application area effluent limitations. Nonetheless, EPA has failed to include representative monitoring in several circumstances. It appears that it did so in part due to concern over the affordability of monitoring. This undue weighting of cost is an additional deficiency in EPA’s decision making because the Clean Water Act does not permit EPA to consider affordability in establishing monitoring in NPDES permits.

In the Permit Fact Sheet, EPA essentially concludes that CAFOs cannot possibly monitor their discharges because feasible and affordable monitoring options do not yet exist. EPA references the CAFO industry’s unsubstantiated claims that pollution monitoring is “prohibitively expensive.”¹⁵⁵ But these claims cannot justify foregoing provisions that are mandated by the Clean Water Act, especially where monitoring is necessary to safeguard public and environmental health. The Clean Water Act’s provisions on monitoring are plain. In carrying out the NPDES program, EPA “shall require” permitted point sources to “install, use, and maintain such monitoring equipment or measures (including where appropriate, biological monitoring methods)” that are necessary to determine whether the permittee is violating the

¹⁵² Erickson Report at EX11.

¹⁵³ Permit at III.A.2.g.ii.

¹⁵⁴ Erickson Report at EX10–EX11.

¹⁵⁵ Fact Sheet at 8.

terms of the permit.¹⁵⁶ EPA’s regulations echo this mandate, requiring permit writers to include monitoring of pollutant masses, effluent volumes, and the frequency of discharges for facilities that do not discharge continuously.¹⁵⁷ Permits must specify the type, interval, and frequency of monitoring “sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring.”¹⁵⁸ Nowhere in either the statutory or regulatory language is there any authorization for EPA to consider affordability in developing monitoring requirements for NPDES permits. EPA retains discretion to determine what is appropriate, but the relevant factors are whether monitoring yields data representative of the monitored activity and can demonstrate compliance with the Permit, not cost.¹⁵⁹

In considering affordability, EPA appears to be conflating the Clean Water Act’s requirements for monitoring with the requirements used to guide the agency’s development of effluent limitation guidelines. To develop effluent limitation guidelines, Congress instructed EPA to identify “the degree of effluent reduction attainable through the application of the best practicable control technology currently available.”¹⁶⁰ This standard explicitly requires that EPA consider the cost of applying a particular technology when deciding which effluent limits should apply.¹⁶¹ The lack of a similar instruction in the Clean Water Act’s standards for developing NPDES monitoring requirements indicates that cost is not an appropriate consideration to inform those provisions. When Congress uses qualifying language in one part of a statute but not another, Congress intended the latter to have broader application.¹⁶² And this makes sense given the central role of monitoring in ensuring effluent limits are effective and enforceable: absent monitoring, the Clean Water Act is rendered little more than a paper tiger.

That compliance with the law may involve additional operational expenses is no excuse for allowing permittees to operate without accountability, especially given that noncompliance shifts costs onto local communities and the environment. Allowing CAFOs to continue polluting Idaho’s waters with impunity comes at the price of lost fishing revenues, lost recreational and aesthetic opportunities, the cost of water treatment, and the cost of healthcare to treat ailments caused by pollution exposure. Idahoans should not be forced to subsidize an industry that is externalizing its pollution costs onto their environment. Yet, that is the outcome if EPA fails to require adequate monitoring in the final Permit based on a concern that CAFOs may have to spend money to bring their facilities into compliance.

In short, the cost of complying with the law is not a bargaining chip—especially for an industry that has received special treatment for far too long and is burdening the public at large with its avoided compliance costs.

¹⁵⁶ 33 U.S.C. § 1318(a).

¹⁵⁷ 40 C.F.R. § 122.44.

¹⁵⁸ 40 C.F.R. § 122.48(b).

¹⁵⁹ 33 U.S.C. § 1318(a); 40 C.F.R. §§ 122.44(i), 122.48(b).

¹⁶⁰ 33 U.S.C. § 1314(b)(1)(A).

¹⁶¹ *Id.* § 1314(b).

¹⁶² *See, e.g., United States v. Dangdee*, 616 F.2d 1118, 1119–20 (9th Cir. 1980); *Securities Industry Assn. v. Bd. of Gov. of Fed Reserve System*, 716 F.2d 92, 96 (“terms carefully employed by Congress in one place, and excluded in another, should not be implied where excluded” (citing *FTC v. Sun Oil Co.*, 371 U.S. 505, 514–15 (1963))).

In all, the Idaho Permit takes important steps towards adequately monitoring CAFOs, but still falls short of satisfying the Clean Water Act and the Ninth Circuit's orders in *FWW v. EPA*. Commenters urge EPA to revise the Permit by requiring monitoring for compliance with all effluent limitations, including the relevant limits for both production and land application areas as well as the limit prohibiting contributions to water quality impairments. Further, Commenters urge EPA to ensure monitoring is sufficient to detect both direct and subsurface discharges, and to determine monitoring requirements based on what will generate representative data, not on what is cheapest for industry. In doing so, EPA can and should consider risk, but it must do so in a way that tailors the monitoring to the risk, rather than making the monitoring contingent on high or low risk – or the cost.

IV. The Idaho Permit Does Not Comply with the Clean Water Act's Requirements to Report Monitoring Data.

Discharge monitoring reports are an essential piece of the Clean Water Act's regulatory framework.¹⁶³ Ordinarily, permitted entities regularly submit these reports to the permitting agency to facilitate agency enforcement as well as citizen suits.¹⁶⁴ Once again, however, CAFOs have inexplicably been treated as the exception to normal environmental oversight rules. In addition to improperly shielding CAFOs from enforcement actions, the Idaho Permit's inadequate reporting provisions also deprive EPA and Idaho regulators of valuable data that should be used to inform future permit conditions. However, EPA can easily remedy this deficiency by requiring that permitted CAFOs regularly submit their monitoring results to the permitting agency (EPA and/or the Idaho Department of Environmental Quality).

The draft Permit's reporting scheme is deficient because CAFOs do not have to report the results of those monitoring efforts to the permitting agency. Rather, CAFOs are allowed to retain these inspection results on-site unless the permitting agency specifically requests the records. As noted above, monitoring that does not enable enforcement against particular permittees is not aligned with the Clean Water Act's mandate that EPA provide for, encourage, and assist public participation in enforcement actions.¹⁶⁵

Although the Idaho Permit requires permittees to report any detected discharges, this does not include many of the provisions now serving as “in effect, monitoring.”¹⁶⁶ For example, CAFOs must report the results of visual monitoring of production area infrastructure as blessed

¹⁶³ 40 C.F.R. § 122.48(c); *See also Food & Water Watch*, 20 F.4th at 516 (citing cases that reinforce the importance of self-monitoring in revealing permit violations to facilitate enforcement); Robert W. Vinal, *Proof of Wrongful Discharge of Pollutant Into Waterway Under Federal Clean Water Act*, in 36 Am. Jur. 3d *Proof of Facts* § 20 (2020) (explaining that self-monitoring reports “constitute evidence-in-chief on the issue of liability in a CWA citizen suit [because they are] the litmus test as to whether the discharges are in compliance with [the terms of the permit].”).

¹⁶⁴ *See, e.g., Pub. Interest Research Grp. v. Powell Duffryn Terminals, Inc.*, 913 F.2d 64, 68–69, 79 (3d Cir. 1990) (using discharge monitoring reports as deciding evidence in Clean Water Act enforcement proceeding); *Save Our Bays & Beaches v. City & Cty. of Honolulu*, 904 F. Supp. 1098, 1106 nn.8-9, 1124-35 (D. Haw. 1994) (same).

¹⁶⁵ 33 U.S.C. 1251(e). *See also Waterkeeper Alliance, Inc. v EPA*, 399 F.3d 486, 503-504 (2nd Cir. 2005) (holding that EPA's 2003 CAFO rule violated the Clean Water Act for infringing upon citizens' participatory rights).

¹⁶⁶ *See Food & Water Watch*, 20 F.4th at 516.

by the *Food & Water Watch* court.¹⁶⁷ This is an crucial to ensuring compliance and creating accountability because if a permittee report fraudulent monitoring records or tampers with monitoring devices they incur separate violations of the Clean Water Act that carry independent liability.¹⁶⁸ Accordingly, EPA must revise the Idaho Permit to require that CAFOs report all monitoring results, including well tests, soil moisture probes, lysimeter readings, grab samples, and visual monitoring results. In the case of visual monitoring, records should include a log of who or what (in the case of camera placements) conducted the monitoring, where it was conducted, what the monitored activity was specifically, and the results of the monitoring. Where a discharge does occur, the subsequent monitoring results should be reported immediately. If no discharge occurs over the reporting period, visual monitoring results stating so serve the same function as a Discharge Monitoring Report listing “no discharge” for a monitoring period.

In general, the Idaho Permit’s reporting provisions could be brought into compliance with the Clean Water Act by clearly listing all the monitoring results that must be submitted to the permitting authority on a regular basis. To enforce the Idaho Permit’s general prohibition on any production area discharges not caused by a 25-year, 24-hour storm event, EPA should require—at minimum—that CAFOs regularly report weekly lagoon waste depth readings (including certification about whether wastewater levels are below those required to contain precipitation from a 25-year, 24-hour storm), any deficiencies discovered during lagoon inspections, and the results obtained via Subsurface Discharge Monitoring Reports. Likewise, to enforce the Permit’s restrictions on land applications of manure and wastewater, the EPA should require CAFOs to regularly report the details of all land application monitoring as explained above.

Public reporting of monitoring data is a pillar of the Clean Water Act and a routine undertaking for all kinds of NPDES permittees. Data on compliance with effluent limits is critical to both facilitating enforcement and effectuating the technology forcing ratchet built into the Clean Water Act for sectors’ pollution control practices.¹⁶⁹ Without such data, neither citizens nor regulators have the information they need to hold CAFOs accountable for violating permits or to update permits and CAFO effluent limitations guideline with the conditions necessary to help states meet water quality standards and protect public and ecosystem health. Accordingly, we ask EPA to update the Idaho Permit to require that CAFOs not only collect but publicly report the data EPA, state regulators, and citizens need to finally implement the Clean Water Act effectively in Idaho.

V. Conclusion

The draft Idaho Permit fails to comply with the Clean Water Act, EPA’s own regulations applicable to all NPDES permits, and the Ninth Circuit’s Order specifically addressing the requirements of this permit. It continues to lack monitoring to assure compliance with permit requirements and threatens to keep citizens and regulators in the dark about this industry’s

¹⁶⁷ *Id.*

¹⁶⁸ 40 C.F.R. § 122.41(j)(5).

¹⁶⁹ *NRDC v. EPA*, 822 F.2d 104, 123–24 (D.C. Cir. 1987) (“[T]he most salient characteristic of this statutory scheme, articulated time and again by its architects and embedded in the statutory language, is that it is technology forcing” and “progressively more demanding”).

unlawful pollution of Idaho’s waterways. Based on the foregoing, Commenters respectfully request that EPA revise the draft Idaho Permit to include representative monitoring that will ensure compliance with the all of Permit’s effluent limitations, along with comprehensive reporting that will enable enforcement against CAFOs that fail to comply. Representative monitoring and reporting are legal requirements of the Clean Water Act and a practical necessity for an effective Permit.

Respectfully,




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s/ Ferrell S. Ryan, III

F.S. (“Buck”) Ryan
Executive Director
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Hannah Connor
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Exhibit A

Expert Opinion of David J. Erickson, PG CPG



Expert Opinion

**David J Erickson, PG CPG
Idaho CAFO General Permit**

Introduction

I, David J. Erickson, have worked in the Hydrogeology/Geology field for 35 years. I am currently the Principal/Founder of Water & Environmental Technologies (WET), a 130-person engineering firm started in 2000 that provides engineering, environmental, and remediation services in a 10-state region to a wide variety of clients including private, industrial, and State agencies based in Butte, Montana. I previously served as President of WET for 20 years. I am a registered Professional Geologist in Utah and Wyoming and a Certified Professional Geologist with the American Institute of Professional Geologists.

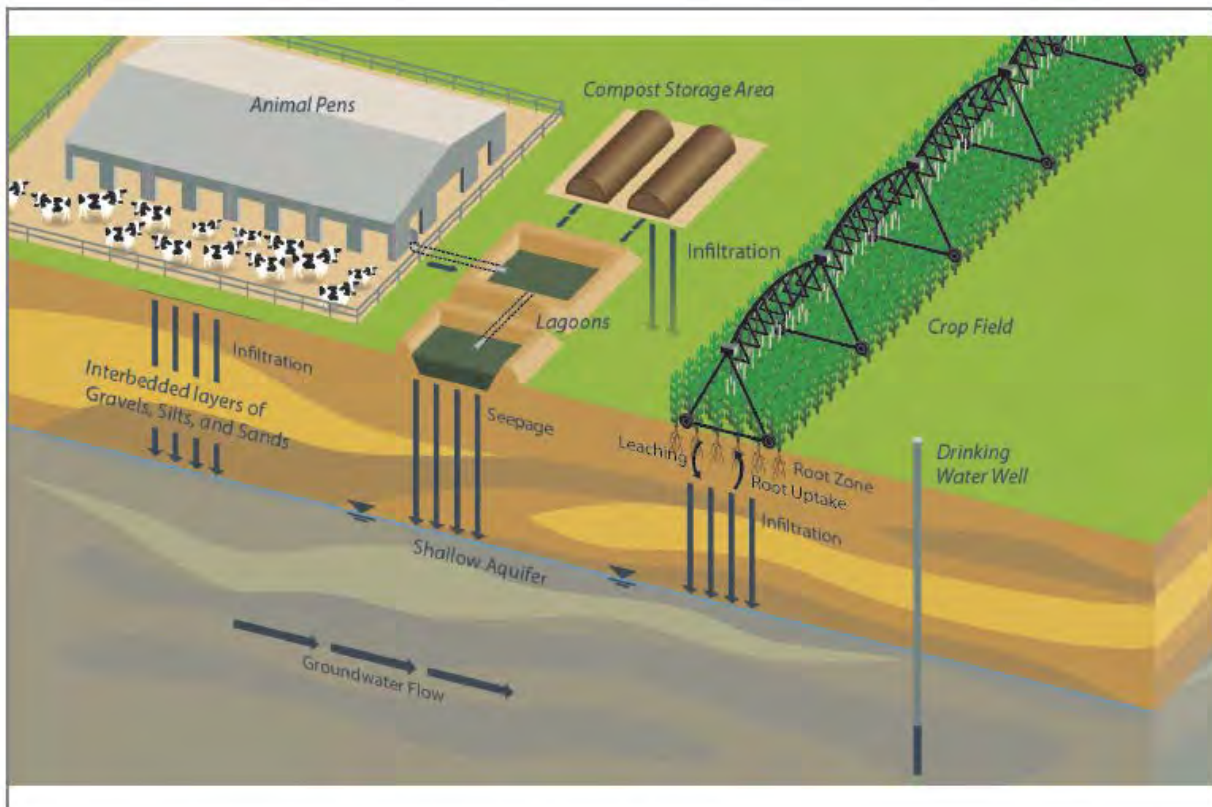
I received my Geological Engineering degree from Montana Tech in 1988. I worked in the petroleum industry in Houston for 1 year and later in the engineering consulting field. My technical focus has been on water related issues: investigation, development, remediation, permitting, litigation, and compliance. I serve as lead expert on several litigation issues as well as Project Manager/ Principal Hydrogeologist on complex remediation and investigation projects in the region including management of waste and water related environmental issues at coal fired generation facilities in Wyoming and Utah.

I have worked on more than 30 Concentrated Animal Feeding Operations (CAFOs) across the nation. I have successfully implemented long-term monitoring programs, lagoon lining projects, and management of CAFO facilities to minimize water quality impacts. Many of these projects are a result of litigation where I provided recommendations for the CAFO to achieve and maintain compliance. My full CV is attached as Attachment 1.

I started working CAFOs in the early 2000's in Montana and in 2013 in the Yakima, Washington area and currently work in several States investigating, characterizing and remediating the impacts to ground water, soil and surface water from these facilities. The principles, pathways and science behind the discharge of pollution by CAFOs is both simple and proven throughout industry. After completing an environmental investigation of more than 30 of these facilities, the sources of contributing contamination to the ground water and surface water include:

1. Lagoons designed to the standards mandated by the draft modified Idaho CAFO Permit (seepage rate of 1×10^{-6} cm/sec) leak and seep substantial volumes of process wastewater.
2. Manure applications to fields are both imprecise and often overapplied, intentionally and unintentionally.
3. Other sources, such as underground piping, compost areas, silage storage, cattle pens, and manure applications are potential sources of contamination.
4. Seepage, leaching, and surface discharges from these sources negatively impact water quality.
5. CAFO contaminated ground water flows toward and causes detrimental impacts to surface water.
6. Pollutants discharging from all areas of CAFOs are a significant threat to human health and the environment.

Figure 1, below, illustrates some of the ways that CAFO pollutants infiltrate or seep into ground water and then discharge to surface waters. Once in groundwater, pollutants will migrate in whatever direction the ground water flows.



Monitoring of groundwater, surface water, and soil conditions to assess a CAFO's pollution discharges does not require new or innovative technologies. These types of monitoring activities have been a well-established practice for decades. The only scientifically sound method of ensuring that a CAFO is not unlawfully discharging into jurisdictional waters is to: 1) monitor the places where the facility may discharge to surface water, and 2) monitor both groundwater contamination and migration. Such monitoring data are also essential to assessing the effectiveness of CAFO waste management practices and the relationship between precipitation, infiltration, ground water amount and quality, and surface water amount and quality.

CAFO monitoring plans must be tailored to individual facilities and land application areas, similar to how nutrient management plans are facility specific. These site-specific plans must be designed by a professional engineer or geologist with experience in monitoring methodology, systems, and analytical requirements (hereinafter, a "qualified professional"). All monitoring methodologies and systems must be documented in a Discharge Monitoring Plan and all resulting data must be included in publicly available reports, such as Discharge Monitoring Reports or their equivalent. The monitoring plan should be included as part of a CAFO's permit application and made available for public review and comment to ensure it can generate high-quality, representative data capable of demonstrating whether the CAFO has complied with the Permit's discharges restrictions.

Opinions specific to the modified Idaho CAFO General Permit

I. The construction and pollution management requirements in the Permit are not sufficient to prevent or detect discharges from CAFO production areas to surface water through ground water.

The water cycle is well documented and well understood throughout the world. Ground water almost always flows toward a surface water body, whether it be a stream, lake or the ocean. Many States have recognized this interconnection and limit ground water rights because it depletes surface water volumes.

Starting with the lagoon permeability allowance that is deemed protective by EPA, a simple analysis using Darcy's Law proves this position false. Darcy's Law is used to calculate the water movement through soil of a specific permeability. It is expressed as:

$$Q=Kia$$

Where:

- Q= water flow (gallons)
- K = liner permeability (cm/sec)
- i = hydraulic gradient through the material (ft/ft)
- a = cross sectional area where flow occurs (ft²).

The table below provides a range of allowed seepage rates and volumes out of a CAFO lagoon that meets the requirements of the Idaho general permit because it does not exceed the permit's maximum seepage rate of 1×10^{-6} cm/sec. Per NRCS guidelines, the majority of lagoons hold approximately 9 feet of liquid manure. Most CAFOs have 2 to 10 acres of lagoons, depending on several operational factors. Each 1-acre lagoon on a typical CAFO releases approximately 3,000,000 gallons of contaminated seepage per year or 8,313 gallons per day to the subsurface, clearly neither insignificant nor protective.

The table below uses the CAFO permit's allowed seepage rate times the different gradients based on the liquid level in the lagoon and calculates the seepage rate over a 1-acre lagoon. The highlighted row shows the seepage rate for the common allowed 9-foot depth of a lagoon. To summarize, the general permit allows 8,313 gallon of seepage per day or over 3,000,000 gallons of seepage per year per acre of CAFO lagoon.

Table 1. Typical Lagoon seepage rates

Permeability		Gradient	Q =Seepage per Acre per Day (Gallons)	Q =Seepage per Acre per Year (Gallons)
K (cm/sec)	K (ft/day)	i (ft/ft)		
1.00E-06	2.84E-03			
		1	923.7	337,159
		2	1847.4	674,319
		3	2771.2	1,011,478
		4	3694.9	1,348,638
		5	4618.6	1,685,797
		6	5542.3	2,022,957
		7	6466.1	2,360,116
		8	7389.8	2,697,276
		9	8313.5	3,034,435
		10	9237.2	3,371,595
		11	10161.0	3,708,754
		12	11084.7	4,045,914
		13	12008.4	4,383,073
		14	12932.1	4,720,233
15	13855.9	5,057,392		

Nitrate, the main contaminate from CAFO lagoons, has a very low partitioning coefficient, which causes nitrate to migrate quickly in the water and not sorb or diffuse into the soil. As a result, nitrate migrates very quickly through ground water and forms large ground water contamination plumes traveling long distances that can and do reach surface water.

CAFOs discharge contaminants from several areas of the operation; however, lagoon seepage and leakage cause large pollutant contamination including nitrate plumes in ground water that have a high likelihood of impacting surface water.

Construction requirements do not substitute for a leak detection system. Construction issues or mistakes result in leaks and the operator does not know if there is an impact to ground water or surface water without routine monitoring. Routine monitoring can be a set of monitoring wells downgradient of the system or a designed leak detection sump. These systems must be sampled on a routine basis to establish background conditions and sampled for the correct analytes to identify a wastewater discharge.

The Permit also requires visual inspections and routine cleaning. I have reviewed years of inspection data forms for lagoons in several States, and an inspector cannot visually see a leak below the liquid. The liquid is opaque and the leak rate would have to be catastrophic to be visible. As a result, these inspections are not effective in determining if a lagoon is leaking or seeping to a degree that will impact surface waters.

Also, the routine cleaning of manure solids results in excavation, erosion and liner damage over the life of the lagoon. A lagoon that meets the Permit requirement most likely will fail the requirements after the first cleaning. In addition, erosion of an earthen liner at the inlet is well documented and causes a liner breach resulting in a much higher leak rate than is documented above.

II. The liquid manure waste generated by CAFOs has a mix of contaminants that can cause impacts to human health and the environment. Pollution from CAFO wastewater harms the environment and endangers public health.

In addition to nitrogen contamination from lagoons, I have detected fecal coliform, hormones, bovine antibiotics, growth hormones, phosphorus, and chloride in the seepage and in the receiving ground water. These are all problematic contaminants in the environment; however, nitrate is the most mobile contaminant since it does not sorb to soil. These contaminants have known and recognized health effects to humans. Nitrate causes blue baby syndrome and other health effects, while the pharmaceuticals are known endocrine disrupters. Fecal coliform can cause severe gastrointestinal distress.

Data collected by EPA and WET in Washington State show a variety of contaminants are present.

The following table provides average concentration in CAFO wastewater from the Yakima Valley, Washington. These data were collected from sampling conducted by the EPA and WET.

Table 2. Contaminant concentrations in CAFO Wastewater

.pH	TDS	Chloride	Ammonia	TKN	Phosphorus	Calcium	Potassium
s.u.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

7.6	3100	230	330	1600	358	122	80
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The following list of contaminants is directly from an EPA study of the Dairy Cluster in Yakima, Washington. These compounds have been detected in the drinking water aquifer and are a result of leaking lagoons and overapplication of dairy wastewater.

Table 3. Contaminants found in CAFO Lagoons and Drinking Water Wells, Yakima Washington

Nutrients & Minerals	Antibiotics
Nitrate Nitrite Ammonia TKN Chloride	Tylosin Enthromycin Lincomycin Sulfamethazine Tiamulin Virginiamycin Monensin Chlortetracycline Tetracycline
Hormones	Pesticides & Herbicides
Estradiol Androsterone Testosterone 7-a-estradiol Androstadienedione 17- β -trenbolone Epitestosterone	Atrazine Alachlor DEHP DEET Bentazon

These compounds are all linked to animal wastes and fall into the general categories of nutrients, antibiotics, and growth hormones. All compounds were detected in both the dairy lagoons and in the drinking water aquifer serving hundreds of residents in the Lower Yakima valley.

III. Pollution from CAFO impoundments and land application areas can reach surface water through ground water due to the hydrological connection between surface water and ground water.

Based on years of performing remedial investigations at industrial facilities and over a decade of investigating CAFOs, the contaminant migration pathway from the source to ground water beneath the facility, with migration to or toward surface water is almost always complete (*i.e.*, ground water almost always flows toward and recharges surface water). It is a natural part of the water cycle. While dilution changes the discharge concentration, the migration pathway is easily characterized using standard ground water investigation techniques. The disturbing data from

these facilities is that the nearby neighbor's drinking water well can be as high as 200 ppm nitrate and have a mix of bacteria and other contaminants.

Since nitrate is very conservative, as discussed above, ground water plumes from CAFO operations have been documented to travel several miles. An investigation I completed in Wisconsin showed nitrate traveling in ground water over two miles from the dairy CAFO and impacting Lake Petenwell with concentration above drinking water standard in many of the private drinking water wells along the flowpath. In Washington, hundreds of private water supply wells over a mile downgradient from the CAFO facility are contaminated above drinking water standards. Similarly in California, nitrate has migrated over 2 miles downgradient. Nitrate, the primary contaminant from CAFO waste, moves unattenuated with ground water, migrating to the next receptor: ground water withdrawal or nearby surface water discharge.

Since the Wisconsin site mentioned above was a detailed investigation, cross sections of the site are attached for reference as Attachment 2. These cross sections and data clearly show impacts from a manure lagoon constructed to NRCS standards with a concrete bottom and impacts from overapplication of both manure and chemical fertilizer to the land application areas. They also show a complete contaminant pathway to human exposure and discharge to surface water.

Given the conservative nature of nitrate contamination, a minimal setback from any surface water (100 to 300 feet) is not protective of surface waters. Both the mobility of nitrate and the size and volume of the sources easily cause plumes to migrate more than 300 feet. The Wisconsin site has nitrate migration in excess of 8000 feet through ground water.

Similar to other States, Idaho CAFO density is focused on large alluvial valleys where there is abundant water and large areas favorable for agriculture. These alluvial aquifers are permeable with relatively shallow water tables and fertile soils for crop growth. The areas around the CAFOs are generally rural, relying on ground water wells for drinking water supply.

Due to low precipitation, most of the facilities are open pen facilities that generate large amounts of stormwater runoff, pen scrapings and compost. Compost is a mix of wet manure and bedding that is windrowed in specific areas until the composting process is complete. The compost is moved out of the pens at >50% plus moisture and turned until the moisture is reduced to approximate 30-40% when it starts to heat up and compost. This material drains 40% of the moisture from the manure mix into the ground or the stormwater collection system, if one exists. In my experience, these compost areas are a significant source of soil and ground water contamination where the areas were not managed properly.

IV. Pollution from CAFO land application areas can directly discharge to surface water through a variety of pathways.

CAFO pollution from land application areas can reach surface water directly in several ways in addition to transport via ground water. If CAFO waste is overapplied it can runoff into nearby

surface water features such as ditches, canals, rivers, and streams. Also, If CAFO waste is applied on frozen ground or prior to a precipitation event there is a much higher probability of direct discharge to surface water. If waste application equipment malfunctions, for example if an irrigation center pivot malfunctions during application, CAFO waste can reach surface waters as runoff or directly. CAFO waste can also reach surface waters if an operator improperly conducts waste application, such as not observing setbacks, mis-calibrating application equipment, applying to saturated soil, or overapplying.

V. Effective and feasible monitoring techniques are available.

As stated above, the types of monitoring activities sufficient to determine a CAFO's water pollution impacts have been a well-established practice for decades. Below I outline select monitoring options that can be effective and feasible if implemented properly.

A. Ground water monitoring

Purpose: To determine if a CAFO has discharged pollution to surface waters via groundwater.

Available monitoring methodology/system: Groundwater monitoring is a simple and well-established process. Monitoring wells are placed upgradient and downgradient of the field or lagoon to be monitored. Typically, 1-2 upgradient monitoring well(s) and 2-5 downgradient monitoring wells are installed using standard drilling technology. If ground water flow direction and seasonality are already understood at the site, fewer wells can be used to effectively monitor each area (*i.e.*, upgradient wells for 1 field can be downgradient wells for the next field). Sampling is conducted quarterly or semiannually according to the SAP to establish seasonal fluctuation in ground water quality or quantity, to collect representative data, and to establish statistically significant background data. Semiannual sampling is typically sufficient for detection monitoring, with sampling occurring a high ground water and low ground water conditions or prior to application in the spring and after harvest in the fall. If other fluctuations that directly affect ground water flow and transport are identified, more frequent monitoring may be required.

Well drilling, sampling and analysis protocols are documented in both Idaho and EPA documents.¹ Data analysis requires statistical evaluation of the data to determine if upgradient water quality is different than downgradient water quality. A statistically significant delta between these two data sets establishes that the monitored area is contributing pollutants to groundwater.

Multiple regulations have been promulgated that are examples of effective groundwater monitoring regulations, such as 40 CFR 257.90-.98, which applies to Coal Combustion Residuals

¹ *E.g.* 40 C.F.R. §§ 257.91-.95; Idaho Dept. of Env't Quality, Statistical Guidance for Determining Background Ground Water Quality and Degradation (Mar. 2014), <https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4807>.

(“CCR”) in landfills and surface impoundments. These regulations are relevant for CAFO waste management because they provided the basis for ground water monitoring and data analysis documenting the facilities impact to ground water. These regulations also detail construction standards to prevent discharges and corrective measure to remediate those discharges, if they occur. For example, 40 C.F.R. § 257.91(a)-(c) should inform monitoring of CAFO lagoons, silage storage, and manure composting areas and potentially land application areas:

The groundwater monitoring system must include the minimum number of monitoring wells necessary to meet the performance standards specified in paragraph (a) of this section, based on the site-specific information specified in paragraph (b) of this section. The groundwater monitoring system must contain:

- (1) A minimum of one upgradient and three downgradient monitoring wells; and
- (2) Additional monitoring wells as necessary to accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit and the quality of groundwater passing the waste boundary of the CCR unit.

Groundwater monitoring system should be progressively more rigorous depending on the type of waste impoundment liner used.

1. Earthen liners with a constructed seepage rate of 1×10^{-6} require a full groundwater monitoring plan with 2 upgradient and 3 downgradient wells and routine sampling;
2. Synthetic liners with 2' compacted clay subbase require an abbreviated monitoring scenario (1 upgradient and 2 downgradient) and routine sampling; and
3. Double synthetic liner with leak detection or a sump and pump design would not require a groundwater monitoring system.

The monitoring well network in the monitoring plan must be developed by a qualified professional with knowledge of well network design and sampling programs.

The Sample analyte list for groundwater should be, at a minimum:

- Major Mineral: Alkalinity, Calcium, Chloride, Magnesium, Potassium, Sodium, Sulfate
- Nutrients: Nitrate, Ammonia, TKN, Phosphorous
- WQ Parameters: pH, Temp, SC, DO, TDS, total coliform bacteria.

B. Soil monitoring at land application areas

1. Soil sampling

Purpose: Detect nutrient migration through the soil column to identify nutrient leaching to groundwater.

Available monitoring methodology/system: Soil collected with hand auger or mechanical soil probe and analyzed for nutrient and other characteristics.

In order to obtain quality data that are representative, soil samples will be collected at a density of at least 1 per 20 acres of crop. Larger fields of 220-640 acres or fields with consistent soil types could be decreased. The table below presents a recommended sampling density. A minimum of 4 locations should be sampled across each application field. Samples must be collected in each soil type present in the field and should not be composited with other soil types. Together these data provide a representative dataset for the entire application area. The samples will be collected at depth intervals of 0-1', 1-2', and 2-3'.² Soil core collection methodology can include hand auger or mechanical soil probe.

Field Acreage	Samples Required
0-20	4
20-40	6
40-160	8
160-640	12

Soil samples should be taken before each application to facilitate proper nutrient application; sampling soil only annually or every three years is not representative and does not enable an operator to make responsible application decisions.

Analysis of the soils should include:

- Ammonia
- Nitrate as N
- Phosphorus
- Potassium
- pH
- Electrical conductivity
- Soil Organic Matter

2. Soil moisture monitoring

Purpose: To determine if soils are saturated above field capacity and causing nutrients to leach to groundwater.

² The additional depths allow determination of plant uptake of nutrients versus nutrients leaching past the root zone and contaminating groundwater.

Available monitoring methodology/system: Soil moisture probes are a simple but readily available technology that are easier to operate than lysimeters and provide faster, continuous monitoring.

A soil moisture monitoring program is easily implemented with existing data that the CAFO facility already should have in its Nutrient Management Plan (“NMP”). These can be simple devices that indicate when the soil moisture is above field capacity and leaching of nutrients is occurring. The soil moisture data, combined with routine soil nutrient sampling described above, provide a more accurate assessment of a field’s ability to receive and retain CAFO waste. This data collection provides the operator with the information necessary to identify whether nutrients are leaching to groundwater.

Current soil moisture probe technology has data logging capabilities so the monitoring can continue without operator attention and the data can be downloaded at any time during the year to prevent overapplication that results in discharges to surface waters.

For each field that receives CAFO waste, each soil type present in the application area should contain 1 to 3 soil moisture probes as necessary to collect a representative sample of soil moisture. Operators must identify low lying areas of fields where liquid may pond and install at least 1 soil moisture probe in such areas.

Soil Type Acreage	Soil Moisture Probes Required
0-20	1
20-40	2
40-160	3
160-640	4

C. Above ground discharge monitoring for land application areas

Purpose: To identify surface water features and potential discharge points and monitor the quantity and quality of surface water discharges from a specific CAFO.

Available monitoring methodology/system: Visual monitoring that is representative of the land application area; in stream water quality sampling (up and down stream of a discharge point); and grab sampling of effluent discharges. Surface water sampling technology can be very simple, with grab samples collected by a sampling professional or a trained operator if a discharge point is accessible safely. The grab sample location should be permanently marked to allow collection in the same location over the monitoring period.

Surface water sampling can also be more complex. For example, an ISCO automatic flow proportionate sampling device could be considered, but these devices require experienced

operators. Similarly, an operator could use time- or event-controlled samplers such as Isco 6712 or 6712c.

Surface water sampling requires identifying monitoring locations that ensure collection of representative data. It is important to establish minimum requirements and standards, but due to the variability in where such monitoring locations will be for a given CAFO, a qualified professional should determine the correct location for representative sample collection to provide the necessary flexibility. The professional should also provide a monitoring plan that describes monitoring locations during and immediately following applications near surface water features. This assessment must be included in the facility's monitoring plan. This qualified professional must certify that the details contained in the monitoring plan are appropriately tailored to the specific CAFO and will generate representative data.

As discussed above, land application events can result in discharges to nearby surface water features. Land application often occurs over many acres, sometimes via largely automated systems such as pumps that deliver CAFO waste via pipes to irrigation center pivot systems.

Surface water monitoring must include, at a minimum,

- Frequency:
 - Visual monitoring to identify all pollutant discharges must occur during and after each land application event.
 - When a discharge occurs, analytical monitoring of both the effluent discharge and receiving water during the discharge event.
- Location:
 - For visual monitoring, operators must choose locations that are designed to produce data representative of the entire application area. This may require monitoring along the length of a downgradient edge of field, monitoring at the four corners of a field, or other set of locations tailored to the specific field's discharge potential. Visual monitoring must monitor for conduit discharges (e.g., tile drains) and sheet flow.
 - Grab sample at the point of discharge, if accessible safely.
 - For waters immediately adjacent to production or land application areas, 1 monitoring location immediately upstream of the CAFO and 1 monitoring location immediately downstream of the CAFO. If there are multiple discharge points, a monitoring plan may be able to collect representative data with 1 upstream and 1 downstream monitoring location, but if non-CAFO contributions are present operators should choose monitoring locations as close to the discharge point(s) as is practical to isolate the CAFO's impacts to the receiving water's quality.
 - Tile drain outfalls.
 - Furrows or other topographical features likely to discharge liquid from a field.
 - Application equipment must be inspected by a trained operator prior to each land application event.

The analyte list for CAFOs is provided below but EPA may require additional analysis to better characterize the surface water seasonality or local surface water variation.

Analyte List

- Major Mineral: Alkalinity, Calcium, Chloride, Magnesium, Potassium, Sodium, Sulfate
- Nutrients: Nitrate, Ammonia, TKN, Phosphorous
- WQ Parameters: pH, Temp, SC, DO, TDS, TSS, total coliform bacteria (e-coli P/A).

VI. The operation of multiple CAFOs in one concentrated area aggravates the impact of CAFO pollution on water quality.

Several States recognize cumulative effects from multiple facilities that discharge pollutants. This was especially evident in the Dairy Cluster Investigation completed by the EPA in the Yakima Valley ([Lower Yakima Valley Groundwater | US EPA](#)). The dairy cluster investigation identified leaking lagoons, overapplication in the fields and a general nitrate plume increasing from no detect to over 200 ppm nitrate in ground water. It also identified contamination of private drinking water supply wells above EPA Maximum Contaminant Levels (MCL) above which health effects are known and recognized in humans.

The increasing trend in nitrates along ground water flowpath are a direct result of cumulative effects from the multiple sources of soil and water contamination at the CAFO. In many investigations, the application fields are the major contributor to cumulative effects since they represent a constant nutrient load over each application field. The constant flux of nutrients from multiple sources at a single CAFO to ground water results in increasing concentrations along the ground water flowpath. Multiple CAFOs in the same area only increase the number of contaminant sources and result in increasing contaminant concentration along the ground water flowpath and subsequently in surface water.

The current knowledge base in the science of hydrogeology, hydrology and contaminants in the environment make clear that the Permit is not precluding the discharge of CAFO pollution to Idaho's surface waters. As these CAFOs continue to increase in size, the volume of manure generated becomes overwhelming and the facility is forced to become a waste handling operation. CAFO waste represents a highly mobile mixture of contaminants with known and recognized detrimental effects on human health and the environment, typically placed in an area with many human and environmental receptors.

To further illustrate this point, each dairy cow produces an estimated 140 pounds per day of waste and 22 pounds of produced milk per day per dairy cow. The waste to milk ratio is 6.36 lbs waste/ 1 lb of milk. At the same time the trend in the industry is less facilities confining greater numbers of animals. These data indicate that waste management issues at the CAFO are growing faster than actual milk production.

Dated August 23rd, 2023.

s/ Dave Erickson
David J. Erickson

Exhibit A, Attachment 1

David J. Erickson, PG, CPG
Founder/Principal Hydrogeologist
Water & Environmental Technologies, Inc.
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Butte, MT 59701
(406)782-5220
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Education

- Bachelor of Science, Geological Engineering, Montana College of Mineral Science & Technology 1988
- Continuing Education Credits – 1990, 1991

Professional History

- *Water & Environmental Technologies*; Butte, MT, Founder/Principal Hydrogeologist, August 2019 to present
- *Water & Environmental Technologies*; Butte, MT, President/Principal Hydrogeologist, August 2000 – August 2019
- *Atlant, Inc.*, Butte; MT, Principal Hydrogeologist/Project Manager, May 1994 – August 2000
- *Special Resource Management, Inc.*; Butte, MT, Geological Engineer/Hydrogeologist, 1990-1994
- *Woodward-Clyde Consultants*; Houston, Texas, Staff Geological Engineer/Hydrogeologist, 1989-1990
- *Petroleum Testing Service*; Houston, Texas, Geological Technician, 1988-1989

Representative Experience

Project Manager and Hydrogeologist responsible for the characterization and remediation of a dissolved solvent plume from a county landfill. Remediation consists of in-situ air sparging and a funnel-and-gate capture and in-situ treatment system. The sites complex fractured bedrock and extremely complex ground water flow characteristics required innovative investigation technology to understand the water and contaminant interaction between the bedrock and the alluvial aquifers and ground water and surface water.

Project highlights include:

- The use of geophysical method to characterize the bedrock topography and the connection and interaction between aquifers,
- The use of direct push subsurface investigation methods to characterize site conditions and identify contaminant transport pathways,
- Ground water flow and contaminant transport modeling to describe site conditions and test remedial options,
- The installation of source specific remedial methods to control landfill leachate impacts,
- Long term responsibility for all surface water, ground water, remediation, and reporting requirements for the site, and

- Presentation of site characteristics, model results, and site remediation costs in District Court.

Project Hydrogeologist and Lead Expert for the investigation and characterization of geologic, hydrogeologic, and contaminant migration characteristics of solvent and fuel contamination impacting a residential neighborhood. The goal of the investigation work was to determine the source of contamination and identify the responsible party. Geophysical methods (soil conductivity logging) and depth specific profile sampling was used to identify perchloroethylene migration and degradation in multiple production zones within the alluvial aquifer. This subsurface investigation established a connection between historical lagoon leakage and residential supply wells.

Lead Expert and Project Hydrogeologist on litigation against five large Dairy CAFOs in Washington. The dairies had all expanded over the past 10 years and the excess waste and wastewater production resulted in overapplication to the fields, large leaky storage lagoons and excess storage of waste material on the properties. Litigation ended with a Consent Decree outlining corrective measures to address each issue. Subsequently, Mr. Erickson was hired by one of the Dairies to line the waste lagoons, address the composting issues and aid the Dairy in compliance with the CD and the EPA.

Project Manager and Lead Expert conducting a site investigation to assess the impact of historical mining and milling activities on ground water and stream water quality. Dissolved metals concentrations impacting a small town public water supply system prompted a complaint against the Mining Company. Tailings investigations and in stream tracer testing established a direct connection between stream water contamination and spring contamination.

Project Hydrogeologist/Manager for the investigation and remediation of many UST and Hazardous Waste Sites. Contaminants include fuels, solvents, wood treating compounds, metals, pesticides, herbicides, fungicides, and fertilizers.

Project Manager/Hydrogeologist responsible for the design, installation, and monitoring of various types of remedial technologies or remedial methods including (air stripping, air sparging, vapor extraction, bioventing, bio-cell treatment, biostimulation (ORC), NAPL recovery, in-situ & ex-situ bioremediation, natural attenuation, excavation & off-site disposal).

Project Manager responsible for the investigation and remediation of 29 sites in Montana and North Dakota where pesticides, herbicides, fungicides, fuels and fertilizers were spilled.

Project Manager and Hydrogeologist for extensive study and ground water modeling of contaminant effects from ash disposal ponds on an arid Wyoming drainage. The study involved:

- Prediction of contaminant transport,
- Simulation of remedial options,

- Design, installation, optimization and operation of remediation system,
- Upgrades to recovery system using horizontal wells,
- Geophysical investigation of preferential pathways for contaminant migration,
- Permitting of facility expansion,
- Extensive presentations and negotiations with regulatory agencies, and
- Dispute resolution between the facility and potentially affected parties.

Project Engineer responsible for the design and permitting of a double-lined hazardous and non-hazardous repository with leachate collection and ground water relief system.

Project Engineer and Project Manager responsible for the design of ground water monitoring systems and subsurface geological, hydrogeological, and geotechnical investigation.

Project Hydrogeologist studying ground water fluctuations at a RCRA Part B TSD (Hazardous Waste Disposal Facility) in Oregon. Both hydrogeologic and contaminant transport characteristics were very complex.

Project Hydrologist responsible for sediment transport and stream water quality modeling for mine tailing disposal project in Malaysia.

Project Hydrogeologist responsible for re-permitting several industrial landfills for large coal-fired electric generating plants in Wyoming. Projects involved investigation of water quality degradation from fly ash disposal activities and characterization of the potential health risks. A statistical evaluation of the water quality was completed to identify potential impacts.

Project Hydrogeologist for evaluation water chemistry changes resulting from the use of wastewater for irrigation at a research farm in Utah.

Project Hydrogeologist for yearly monitoring data analysis at several industrial plants with ponds or landfills in Wyoming and Utah.

Project Hydrogeologist performing final phase of landfill siting study for new RCRA Subtitle D Municipal Solid Waste Landfill

Project Hydrogeologist/Manager for the investigation and remediation of many UST and Hazardous Waste Sites. Contaminants include fuels, solvents, wood treating compounds, metals, pesticides, herbicides, fungicides, and fertilizers.

Project Manager/Hydrogeologist responsible for the design, installation, and monitoring of various types of remedial technologies or remedial methods including (air stripping, air sparging, vapor extraction, bioventing, bio-cell treatment, biostimulation (ORC), NAPL recovery, in-situ & ex-situ bioremediation, natural attenuation, excavation & off-site disposal).

Principal Expert and Hydrogeologist for the investigation, characterization and Consent Decree negotiation for a seventeen (17) CAFOs in Washington, California, Georgia and Wisconsin. The projects involved investigation of application fields, compost areas, animal pens, waste lagoons and underground utilities to determine the nutrient and contaminant contribution from each potential source area. In most cases, the projects have reached settlement agreement that result in long-term review and consulting on mitigation methods and implementation of engineering controls to reduce contaminants released to the environment. Several cases involve discussions and negotiations with State or Federal agencies to obtain solutions to the contamination issues.

Expert Witness/Litigation Support Experience

- *Park County v. Burlington Northern Santa Fe Railway Company, Montana Sixth Judicial District Court, Park County, Cause No. DV 97-75, July, 1999.*
- *C&P Packing v. Burlington Northern Santa Fe Railway Company, Park County, January 2001.*
- *Hepp v. Conoco Inc. et. al., ADV-2003-14*
- *Town of Sunburst v. Texaco et. al., CDV-01-179 (a)*
- *Town of Superior v. Asarco Incorporated, US District Court, Missoula Division*
- *Aguiar v. Burlington Northern, United States District Court, Great Falls Division*
- *Schammel et. al. v. CR Kendall Corporation, United States District Court, Great Falls Division.*
- *Van Haur v. CR Kendal Corp United States District Court, Great Falls Division*
- *Weiss et. al. v. HCI Dyce Chemical Company, CV-00-123-BLG-JDS*
- *Sieben Livestock Company v. Harp Line Contractors.*
- *Friends of the Little Bitterroot v. Commissioners of Flathead County Cause No.: DV-06-560*
- *Mapleton City Corporation v. The Ensign-Bickford Company, Case No. 020404933*
- *Bergren v. BNSF: CV-03-120-BLG-RFC*
- *Devries v. BNSF: CV-03-121-BLG-RFC*
- *Outlook Enterprises v. BNSF: CV-03-139-BLG-RFC*
- *Hallett Minerals v. BNSF Cause No. CV-03-161-BLG-RFC*
- *Ruggles Excavation v. BNSF Cause No. CV-03-160-BLG-RFC*
- *Burley, Nelson, Meridith v. BNSF*
- *Anderson et. al. v. BNSF Cause No. ADV-2008-101*
- *Kerfoot v. Texaco et. al. Cause No BDV-08-1276*
- *City of Livingston et. al. V. BNSF, Cause No. DV07-141*
- *CARE, Inc. and Center for Food Safety, Inc. v. Cow Palace, LLC, Docket No. 2:13-cv-3016-TOR*
- *DeVries v. N&M Dairy #1 & #2 (E.D. Cal. No. CV-14-00395-JGB-SPx)*
- *Community Association for Restoration of the Environment, Inc. and Center for Food Safety, Inc. v. Cow Palace, LLC, Docket No. 2:13-cv-3016-TOR*
- *Washington State Dairy Federation, Puget Sound Keepers v. State of Washington Dept of Ecology. Consolidated case no. 07-016(c).*

Professional Development

- Hazardous Waste and Geotech Sampling Seminar
- Monitoring Well Installation Seminar
- Analytical Laboratory Seminar (ENSECO)
- Design & Construction of R/C Final Covers
- Enhanced Bioremediation (EPA)
- Ground Water Pollution & Hydrogeology, Princeton
- Geostatistical Analysis in Hazardous Waste Site Evaluation
- Ground Water Summit 2008
- Hydrogeology of Fractured Bedrock NGWA 2017
- Agrochemical Transport and Fate in Soil, Surface Water and Ground Water. June 2022
- Montana Water Law Conference 2007
- Landfill Gas Extraction & Ground Water Corrective Measures (presenter)
- National Ground Water Association Annual Conference – heterogeneity
- Environmental Geochemistry of Metals
- Environmental Isotopes in Ground Water Resource and Environmental Contamination
- Environmental Forensics: Methods & Applications
- 2004 NGWA Water & Environmental Law Conference

Certifications

Professional Geologist, Wyoming PG-3101

Professional Geologist, Utah PG-2250

Certified Professional Geologist, American Institute of Professional Geologists, CPG#9402

OSHA 29 CFR 1910.120 Health & Safety

OSHA 29 CFR Certified Waste Site Supervisor

Certified Monitoring Well Constructor

Affiliations

Association of Ground Water Scientists & Engineers

National Ground Water Association

American Institute of Professional Geologist

American Chemical Society

International Society of Environmental Forensics

International Association of Hydrogeologists

Officer Positions

Board of Directors - Montana Tech Foundation

Board of Directors – Port of Montana

Board of Directors – United Way of Butte and Anaconda

President – SepticNET

President – Real Estate Holding Companies

Awards

Montana Tech Distinguished Alumni Recognition Award, 2003

Montana Ambassador, Montana Entrepreneur of the Year, 2019

Exhibit B

David Green, *Frank Gibbs: Liquid Manure Is Too Wet*, STATE LINE OBSERVER (2006)



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Frank Gibbs: Liquid manure is too wet

Written by David Green. Aug. 20, 2006

By DAVID GREEN

Don't blame tile lines for discharges of liquid manure into drains, says soil scientist and farmer Frank Gibbs, and don't blame the rich soil with its worm holes leading to the tile.

Put the blame on the watered down manure. That's where the problem lies.

Gibbs, from the National Resources Conservation Service office in Findlay, Ohio, spoke to farmers last Wednesday at the annual Center for Excellence Field Day at Bakerlads Farm north of Clayton.

Gibbs told how he came to this conclusion several years ago, after he got a call from a producer in Ohio who had a problem. He was applying manure from his swine operation at only about half the recommended rate, but it was still finding its way into tile and drains.

A DNR officer told the farmer that he wouldn't cite him for discharges this time, but it had to be stopped.

"I went down there thinking I'd see big cracks in the ground," Gibbs said, "but the soil moisture was ideal. Impeccable shape. I saw lots and lots of night crawler holes and I thought, 'My God, could this be what's going on here?'"

Gibbs got ahold of some dye—similar to the kind used to check for leaks in a toilet tank—dumped it into the manure lagoon and agitated the mixture. After he dug down to a six-inch tile, manure was injected into the soil with a drag line. The tile was dry when the experiment began.

“We wondered how long it might take to percolate down to the tile lines. Twenty minutes? Should we go to lunch?”

There was no time for lunch, Gibbs said. The dye was there within seconds, and every time a pass was made over a lateral tile line, another pulse of colored liquid came through.

Gibbs wondered if the pressure from the applicator pump was the cause, so they next tried a gravity-feed system. Same problem. One more idea came to mind. This time they avoided the watery manure from the lagoon and loaded some of the thicker slurry from the pit under the hog barn.

“It didn’t go anywhere,” Gibbs said. “It behaved like manure. We dug up some areas with a back hoe and it was laying right where it was shot.”

He knew then not to fault the tile nor the healthy soil.

“The problem is simple. We’re watering manure down to where it behaves like water. Let me repeat that. We’re watering manure down to where it behaves like water. You don’t need to be a rocket scientist to understand that.”

Gibbs has heard the suggestion that no-till soil is at fault. Get rid of the worm holes and there’s no conduit for the manure.

Not true.

“Preferential flow will occur in conventional tillage through cracks and around the soil structure,” he said. “We need to stop confusing the issue with tillage. The issue is that we’re adding too much water.”

This is a situation that needs to be addressed, Gibbs said.

“We need to keep on top of this. We really do. I think some basic research could solve the problem.”

Maybe the percentage of solids needs to be up to four or five percent, he said. Or, from what he learned in Europe, even higher.

The Dutch method

With so many Dutch farmers investing in this area, Gibbs decided to take a trip to the Netherlands to see how they farmed in that country. He was in for a surprise.

He didn't see any of the watered down manure that the large dairies are using here. The solid content was at about eight percent.

He noticed a plastic membrane spread over a storage lagoon with rain water waiting to be pumped from an overnight storm. Gibbs figured it was to keep the water out of the lagoon, but he was wrong. It was to control odor.

Gibbs watched as a farmer loaded his applicator with manure and inserted a paper form into equipment that recorded his position by GPS. Once in the field, additional data was stamped onto the form. A sample bag of manure was collected to send for analysis by a government agency.

If manure exceeds the allowable nitrate rates, Gibbs was told, the farmer receives a bill from the government.

The Dutch farmer joked about having one government official for every farmer, but it isn't the heavy regulation that's hurting agriculture in Holland, he said, it's simply a lack of space.

Gibbs returned home knowing that the practice of watering down manure didn't come from Europe.

"That's our technology," he said. "We're going to all the work of writing up Comprehensive Nutrient Management Plans and then where does it go? Into the tile. We just need a little bit of research to figure this thing out so we don't have to scrap the whole thing."

Gibbs said he's made attempts to urge agricultural agencies to study the issue, but it's never gone far.

"Everybody's going off in other directions," he said. "We need to work together. We don't have to destroy our soils. We don't need to rip our tile out.

"What we should do is look at solids. Eight percent isn't that much. I don't know why we can't tweak that."

- Aug. 30, 2006

Stop it in the root zone

A visit to Wisconsin gave soil scientist Frank Gibbs additional hope for the future.

“They have some really good things going on there,” he said.

For example, the custom manure applicators have formed an association. They have standards and training, for those who choose to join the group. They work closely with the EPA. They practice cleanup of spills for when something goes wrong.

Gibbs was impressed with the beautiful crops growing on rolling hills. The key was the soil.

“They’ve got hay and they’ve got alfalfa and they put manure on it,” he said.

In this area, it’s almost always corn and soybeans, year after year. It’s the root system of a plant such as alfalfa that breaks up the soil to prevent compaction.

Custom applicators have to work with what they’re given, Gibbs said, and sometimes control structures are in order. Gibbs has built shut-off valves at the property line to stop the flow of liquid manure. A catch basin is added to collect the flow—a septic tank will do the job—and the manure can be pumped out and applied in a safe area between tile lines.

It’s just a Band-Aid approach, Gibbs said, not a solution, but it’s better than using rubber tile plugs in which case a farmer has no idea if the manure has left the tile. Besides, he asks, do we know where all the tile is? And if we miss one, who’s fault is it?

That’s when the arguing and finger-pointing begins. When manure flows into a drain, who is at fault—the farmer who owns the animals, the owner of the land where it’s being applied, or the person in charge of the application?

“If we do it the wrong way,” Gibbs said, “it’s going to be a mess.”

Any time manure enters a tile line, it’s wasted. At that point, Gibbs said, the nutrient is too deep to be absorbed by plants.

“We have to stop it in the root zone,” Gibbs said.

Smoke test highlights no-till

As a long-time proponent of no-till farming, Frank Gibbs often tries to convince other farmers to give it a try.

One of his early attempts was to dig out a cubic foot of his no-till soil and place it next to a sample from his neighbor’s sugar beet field that suffered from a lot of compaction due to trucks. Then he would pour a bottle of water onto each and watch it soak into his soil and run off his neighbor’s.

“It was kind of hokey,” Gibbs said. “Farmers would say, ‘You’re from the government. You probably poked holes in it.’ I needed a different way to show the value of no-till.”

He remembered a blower contraption a friend created for planting beans—it never worked right—and as a fan of Red Green, Gibbs got out the duct tape to rig up a device for blowing smoke into a tile line.

“I could make smoke come out of millions of worm holes,” he thought.

The smoke test shows good soil conditions and at the same time, it shows the avenue that liquid manure takes to reach tile lines. It takes the easiest route, Gibbs said, the path of least resistance. Through worm holes and cracks in the glacial till, manure can quickly makes its way to tile.

To set up the Center of Excellence Field Day at Bakerlads Farm, Gibbs dug a hole to reach a tile line. He found two hand-laid tile lines, then a plastic line, then another older line. Tile is everywhere.

He set up his blower, dropped in a smoke bomb and watched for smoke to start rising out of a soybean field. Smoke started to run toward the bean field, but the line made a turn and headed back into the cornfield. That’s the trouble with tile lines, he said, you never know how many there are or where they end up.

Watching smoke rise out of the soil is a great demonstration, Gibbs said, and a real attention-getter.

“It’s hard for folks to deny this stuff happens when there’s smoke coming up under their feet.”

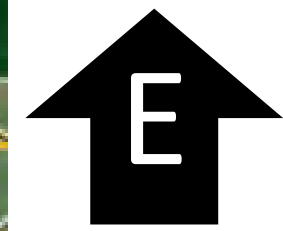
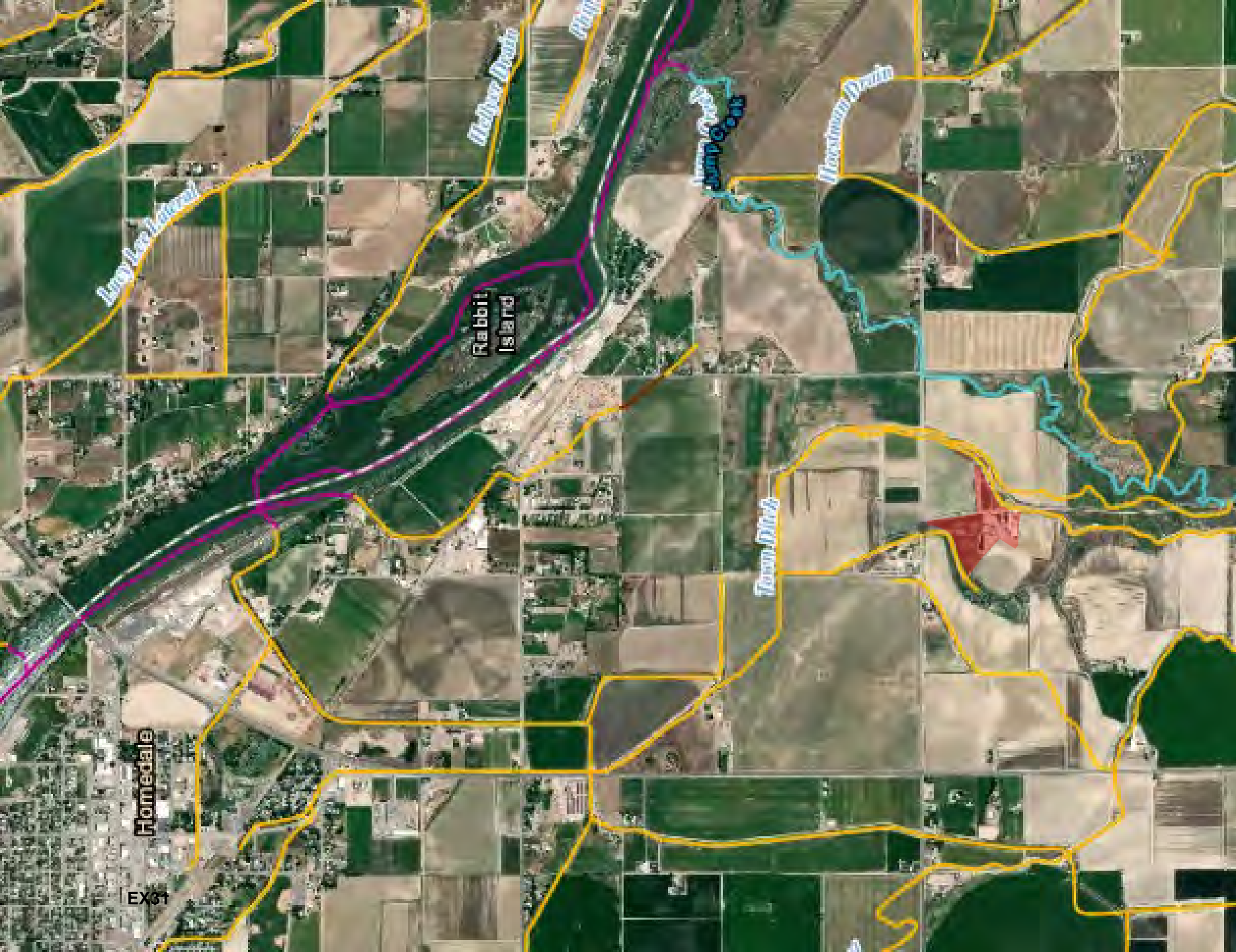
Exhibit C


Emily Montague, Owyhee Dairy Complaint
Investigation Report (May 22, 2019)

Owyhee Dairy Complaint Investigation Report

By Emily Montague


May 22, 2019



 Drains, Laterals, Canals, and Ditches

 Snake River

 Jump Creek

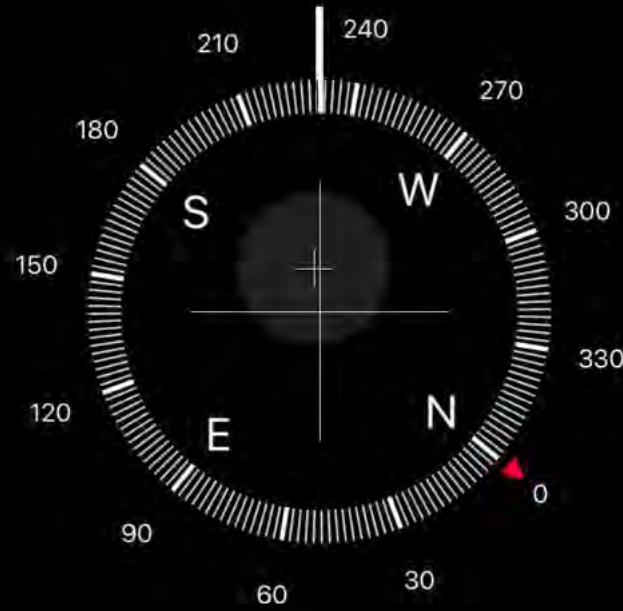
 Owyhee Dairy Points of Discharge



Location of 1st cut in bank



Photograph taken by Inspector Montague on May 21, 2019 facing 313 degrees Northwest shows placement of the first cut in the bank between the North corrals and the ditch that borders Owyhee Dairy on the North and Northwest side of facility. Slurry and effluent are shown coming out of corrals at the time of inspection. 1 ½ - 2 foot berm that was in place along ditch bank approximately one year ago is no longer in tact along ditch bank edge.



230° SW

43°35'18" N 116°55'11" W

Homedale, ID

2230 ft Elevation

Photograph taken by Inspector Montague on May 21, 2019 facing 230 degrees Southwest shows placement of the first cut in the bank between the North corrals and the ditch that borders Owyhee Dairy on the North and Northwest side of facility. Newly placed gravel and dirt line area in this location where 1 ½ - 2 foot berm was in place along ditch bank approximately one year ago.



Photograph taken by Inspector Montague on May 21, 2019 facing 281 degrees West shows pooled liquids commingled with slurry from corrals approaching ditch that borders Owyhee Dairy on the North and Northwest side of facility.



Photograph taken by Inspector Montague on May 21, 2019 facing 5 degrees North shows placement of uncontained solid slurry pile in the direction of the ditch bank that lies between the North corrals and the ditch that borders Owyhee Dairy on the North and Northwest side of facility. Slurry is shown coming out of corrals at the time of inspection.



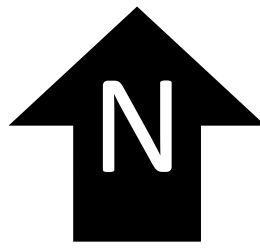
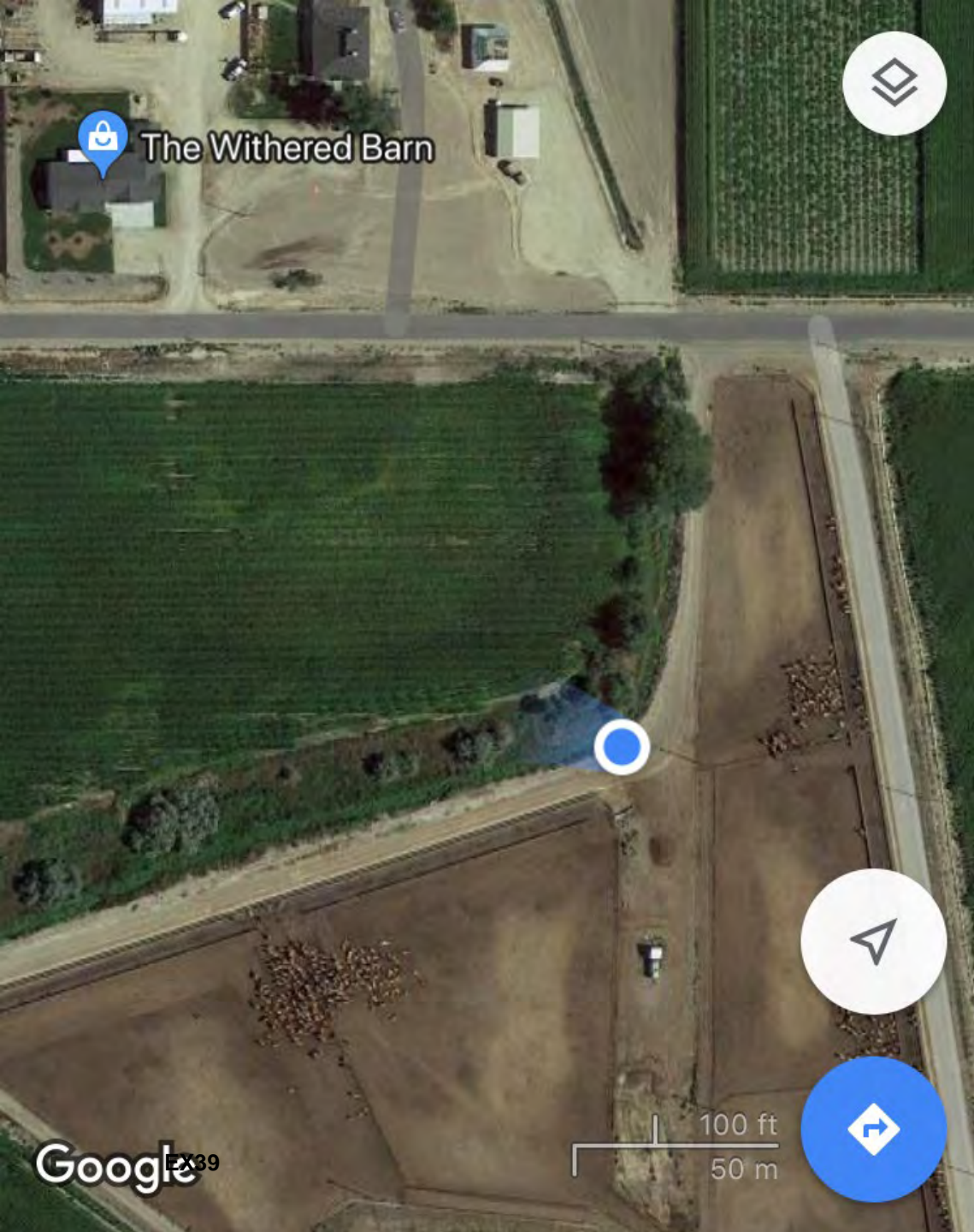
Photograph taken by Inspector Montague on May 21, 2019 facing 336 degrees Northwest shows evidence of past discharge directly North of pipe head coming out of bank that faces North corral area at Owyhee Dairy into Ditch that borders North and Northwest side of facility. Samples were collected at this time.



141° SE

43°35'16" N 116°55'10" W
Homedale, ID
2250 ft Elevation

Photograph taken by Inspector Montague on May 21, 2019 facing 141 degrees Southeast shows capped pipe head coming out of bank that faces North corral area at Owyhee Dairy into Ditch that borders North and Northwest side of facility.



Google Maps aerial photograph shows placement of where the pipe head coming out of the bank was observed in the ditch. Blue dot marks placement of where Inspector Montague was standing when the head of the capped pipe was observed on May 21, 2019.



Photograph taken facing 345 degrees North by Inspector Montague shows placement of pipe head where she observed evidence of past discharge. Gravel and dirt was recently put in place along bank edge. Photograph taken May 21, 2019.



EX40

Photograph taken facing 280 degrees West by Inspector Montague shows placement of 5-6 foot high gravel berming covering pooled effluent and second cut in bank between corrals and ditch. Photograph taken May 21, 2019.



Location of 2nd cut in bank



Location of 2nd cut in bank where dirt has been pushed into ditch



Photograph taken by Inspector Montague on May 21, 2019 facing 46 degrees Northeast shows approximate location of the second cut in the bank observed at the time of inspection along the bank that borders the North and Northwest side of Owyhee Dairy. Photograph shows dirt pushed into ditch and recently placed gravel and dirt along part of the ditch bank that borders the North and Northwest side of Owyhee Dairy.



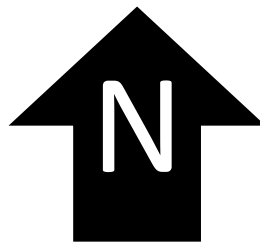
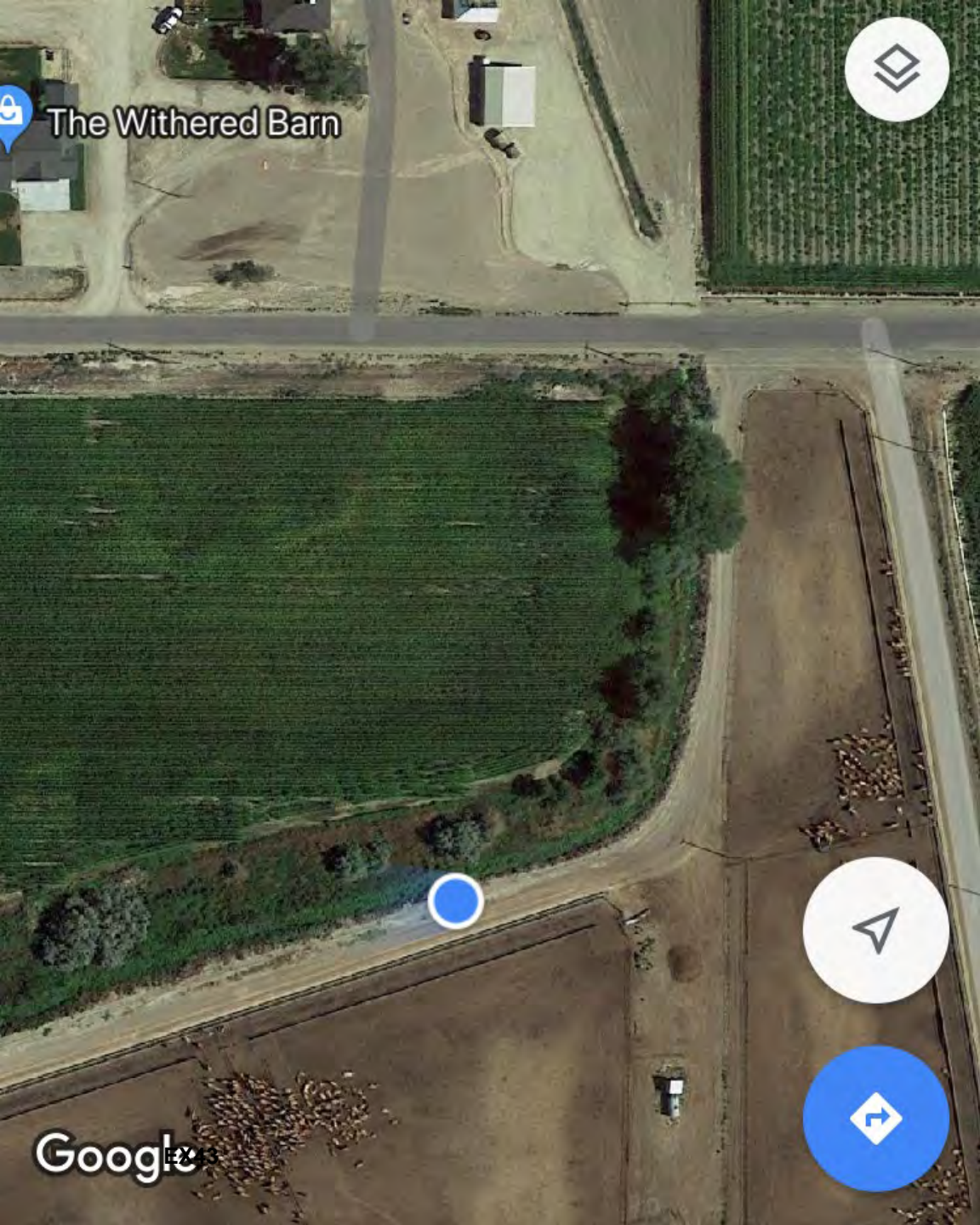
45° NE

43°35'16" N 116°55'13" W

Homedale, ID

2260 ft Elevation

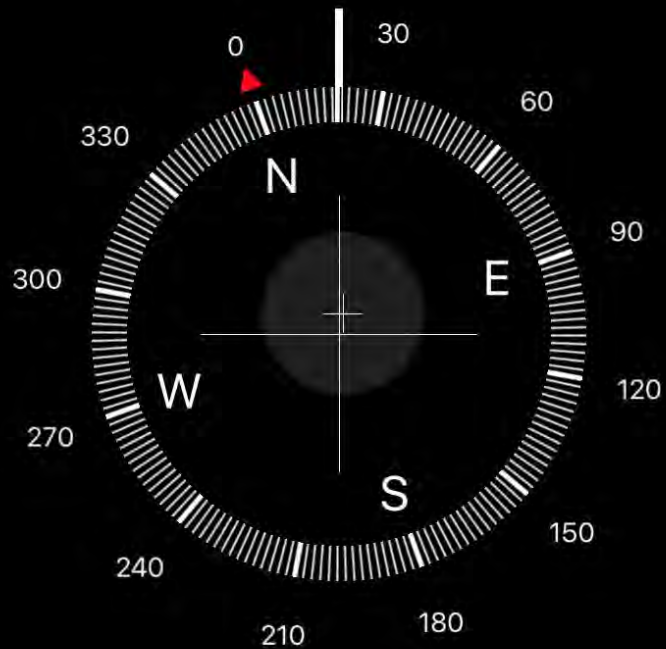
Photograph taken by Inspector Montague on May 21, 2019 facing 45 degrees Northeast shows placement of gravel and dirt over pooled effluent along the ditch bank that borders the North and Northwest side of Owyhee Dairy. Newly placed gravel and dirt line area in this location where 1 ½ - 2 foot berm was in place along ditch bank approximately one year ago.



Google Maps aerial photograph shows placement of where second cut in bank was observed at Owyhee Dairy facility. Blue dot marks placement of where Inspector Montague was standing when the second cut in the bank was observed on May 21, 2019.



Photograph taken by Inspector Montague on May 21, 2019 facing 113 degrees southeast shows where field lateral that borders facility meets ditch along the north and northwest side of Owyhee Dairy. Bank has been compromised and runoff from corrals is able to commingle with ditch water.



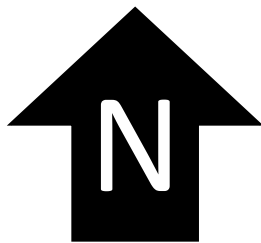
19° N

43°35'16" N 116°55'11" W

Homedale, ID

2250 ft Elevation

Photograph taken by Inspector Montague on May 21, 2019 facing 19 degrees north shows pooled stagnant effluent approximately two yards from the start of ditch that borders facility just north and northwest of the upper corrals and approximately four yards from where field lateral that borders facility ends.

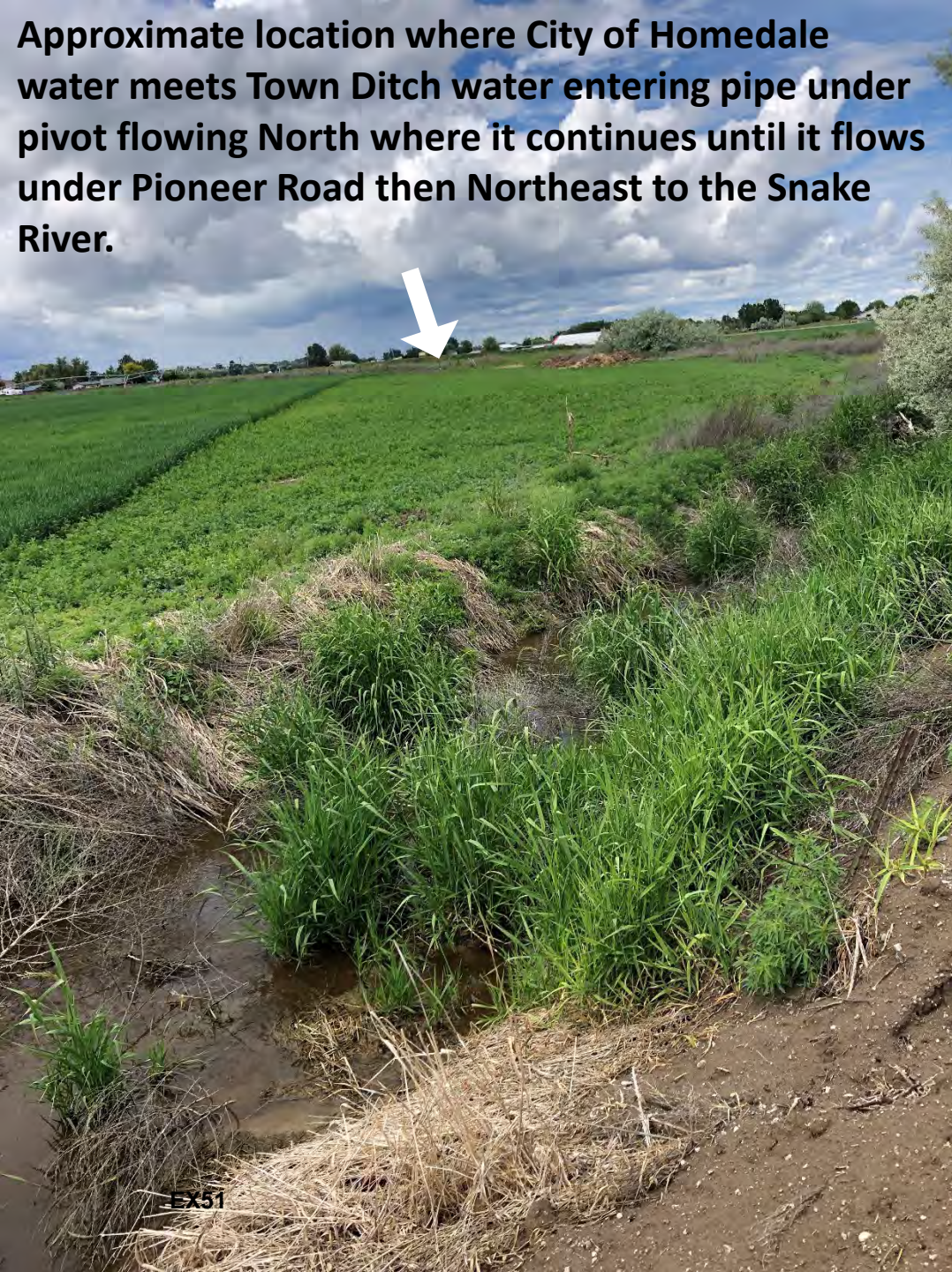


Google Maps aerial photograph shows placement of where third cut in bank was observed at Owyhee Dairy facility. Dirt and rubble was pushed into ditch at this location. Blue dot marks placement of where Inspector Montague was standing when the third cut in the bank was observed on May 21, 2019.



Photograph taken by Inspector Emily Montague on May 21, 2019 facing 166 degrees South shows ditch water downstream from point of discharge at the Archabal Drain/Town Ditch. Ditch contents were thoroughly contaminated with effluent from Owyhee Dairy discharge on May 221, 2019. At the time of inspection, Inspector Montague observed a strong odor coming from ditch contents consistent with the effluent observed at Owyhee Dairy on May 21, 2019. Samples for evidence were taken at this time.

Approximate location where City of Homedale water meets Town Ditch water entering pipe under pivot flowing North where it continues until it flows under Pioneer Road then Northeast to the Snake River.



Photograph taken by Inspector Montague on May 21, 2019 facing Northwest shows Town Ditch contents heading North then Northeast where contents reach the Snake River approximately 2,387 yards downstream.



Photograph taken by Inspector Montague on May 21, 2019 facing 295 degrees Northwest shows main point of Owyhee Dairy discharge from Southeast corrals into Town Ditch. Samples were taken for evidence shortly after discharge was observed.



162° S

43°35'11" N 116°55'22" W

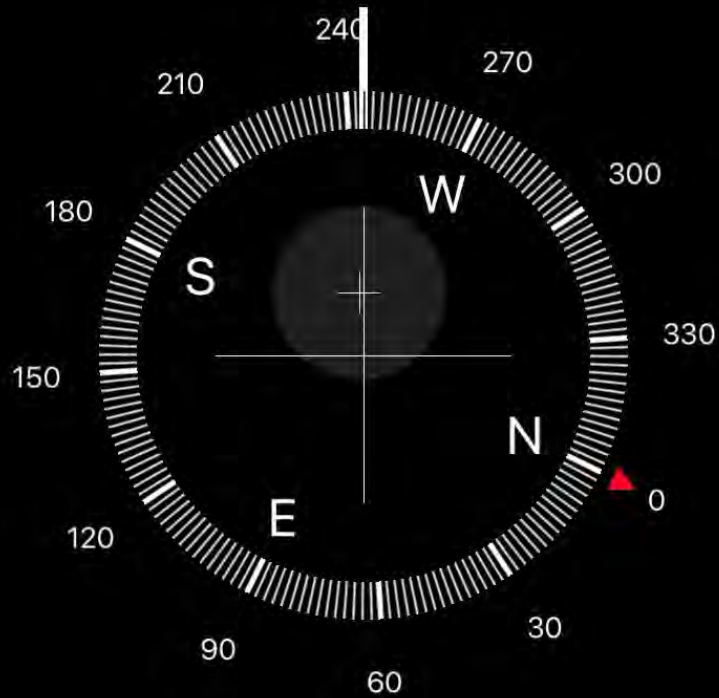
Homedale, ID

2230 ft Elevation

Photograph taken by Inspector Montague on May 21, 2019 facing 162 degrees shows clean water observed near spring that feeds to Town Ditch. Location was upstream from Town Ditch that borders Owyhee Dairy facility.



Photograph taken by Inspector Emily Montague on May 21, 2019 facing 87 degrees East shows where Town Ditch enters lateral that flows east towards drain that connects to Jump Creek.



243° SW

43°35'19" N 116°54'41" W

Homedale, ID

2230 ft Elevation

Photograph taken by Inspector Montague on May 21, 2019 facing 243 degrees Southwest shows placement of drain that connects Town Ditch water contents to Jump Creek.

Follow Up Inspection Completed May 22, 2019

By Emily Montague

May 22, 2019



Gravel put in place by Mr. Williams on the evening of May 21, 2019 to try and prevent additional runoff from going out of the corrals and into Town Ditch



Photograph taken by Inspector Montague taken on May 22, 2019 shows runoff is no longer flowing into Town Ditch from the main point of where runoff was discharging into Town Ditch the previous day.

All three photographs taken along southeast corral bank between the corrals and the bank of the ditch show six places where effluent was running off into Town Ditch on March 21, 2019. Photographs taken by Inspector Montague show runoff is no longer flowing into Town Ditch at the time of inspection conducted on March 22, 2019.

Gravel put in place by Mr. Williams on the evening of May 21, 2019 to try and prevent additional runoff from going out of the corrals and into Town Ditch



Gravel put in place by Mr. Williams on the evening of May 21, 2019 to try and prevent additional runoff from going out of the corrals and into Town Ditch



All three photographs taken along southeast corral bank between the corrals and the bank of the ditch show six places where effluent was running off into Town Ditch on March 21, 2019. Photographs taken by Inspector Montague show runoff is no longer flowing into Town Ditch at the time of inspection conducted on March 22, 2019.

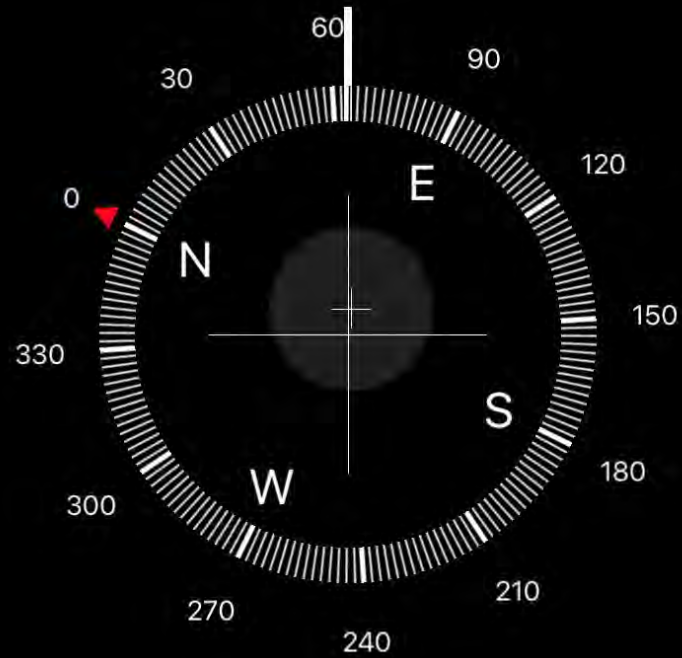


Photograph 1 taken by Inspector Montague on May 22, 2019 shows the point where commodity storage runoff was flowing into Town Ditch on May 21, 2019. Photograph shows runoff was no longer flowing into Town Ditch at the time of inspection on May 22, 2019. Photograph 2 taken by Inspector Montague on May 22, 2019 shows channel created by runoff from commodity storage area where runoff was flowing Southeast towards Town Ditch on May 21, 2019. Photograph shows runoff was no longer flowing into Town Ditch at the time of inspection on May 22, 2019. There was still a sheen film and smell of oil mixed with diesel on May 22, 2019.



Photograph taken by Inspector Montague on May 22, 2019 taken facing 249 degrees West shows placement of commodity storage area where pooled nutrients and oil and diesel fuel mix next to large cinder blocks that enclose commodity storage area.

EX63



63° NE

43°35'15" N 116°55'10" W

Homedale, ID

2240 ft Elevation

Photograph taken by Inspector Montague on May 22, 2019 facing 63 degrees Northeast shows pipe head coming from north corral area into ditch that no longer has a cap containing effluent from discharging into the ditch. Samples were taken at this time to show contents of liquids discharging from pipe head.



Photograph taken by Inspector Montague on May 22, 2019 facing 354 degrees North shows contents from pipe head that no longer has a cap discharging into the ditch. Samples were taken at this time to show contents of liquids discharging from pipe head.

CLIENT CODE: CHAIN OF CUSTODY RECORD

CLIENT INFORMATION: Project Manager: Emily Montague
Company: ISDA Dairy Bureau
Address: 2270 Old Penitentiary Rd Boise ID 83712
Phone: 208-332-8550 Fax: 208-334-4062

PROJECT INFORMATION: Project Name: Owyhee Dairy
PWS Number:
Purchase Order Number:
Required Due Date:
E-mail Address: Emily.Montague@isda-idaaho.gov

ANALYTICAL LABS, INC.
1804 N. 33rd Street • Boise, ID 83703
(208) 342-5515 • Fax: (208) 342-5591 • 1-800-574-5773
Website: www.analyticallaboratories.com
E-mail: ali@analyticallaboratories.com

TESTS REQUESTED

Lab ID	Date Sampled	Time Sampled	Sample Description (Source)	Sample Matrix	Total Coliform	Fecal Coliform	Ecoli	NO3	NH3	Remarks
	5/21/19	12:54	320' NW Owyhee Dairy Creek by N. Canyon		X	X	X			
	5/21/19	12:54	320' NW Owyhee Dairy Creek by N. Canyon				X	X		
	5/21/19	1:17	19' N Point of Past Discharge @ Owyhee Dairy		X	X	X			
	5/21/19	1:17	19' N Point of Past Discharge @ Owyhee Dairy				X	X		
	5/21/19	1:31	337' NW Owyhee Dairy Creek upstream		X	X	X			
	5/21/19	1:31	337' NW Owyhee Dairy Creek upstream				X	X		
	5/21/19	2:22	ACHABAI DITCH DRAIN Owyhee Dairy		X	X	X			
	5/21/19	2:22	ACHABAI DITCH DRAIN Owyhee Dairy				X	X		
	5/21/19	2:33	Owyhee Dairy SE Canal Discharge		X	X	X			
	5/21/19	2:33	Owyhee Dairy SE Canal Discharge				X	X		

Sampled by: (Please print) Emily Montague
Transported by: (Please print) Emily Montague

Special Instructions:

ALLOCATIONS OF RISK: Analytical Laboratories, Inc. will perform preparation and testing services, obtain findings and prepare reports in accordance with Good Laboratory Practices (GLP). If, for any reason, Analytical Laboratories, Inc. errors in the conduct of a test or procedure, their liability shall be limited to the cost of the test or procedure completed in error. Under no circumstances will Analytical Laboratories, Inc. be liable for any other cost associated with obtaining a sample or use of data.

Note: Samples are discarded 21 days after results are reported. Hazardous samples will be returned to client or disposed of at client expense.

Relinquished By: (Signature)	Print Name:	Company:	Date:	Time:
Received By: (Signature)	Print Name:	Company:	Date:	Time:
Relinquished By: (Signature)	Print Name: Emily Montague	Company: ISDA	Date: 5/22/19	Time: 10:55
Received By: (Signature)	Print Name: [Signature]	Company: ALI	Date: 5/22/19	Time: 1055

SAMPLE RECEIPT Total # of Containers: Chains of Custody Seals: Y / N / NA Intact: Y / N / NA Temperature Received: Condition:

CLIENT CODE: CHAIN OF CUSTODY RECORD

CLIENT INFORMATION: Project Manager: Emily Montague
Company: ISDA Dairy Bureau
Address: 2270 Old Penitentiary Rd Boise, ID 83712
Phone: 208-332-8550 Fax: 208-334-4062

PROJECT INFORMATION: Project Name: Owyhee Dairy
PWS Number:
Purchase Order Number:
Required Due Date:
E-mail Address: Emily.Montague@isda-idaaho.gov

ANALYTICAL LABS, INC.
1804 N. 33rd Street • Boise, ID 83703
(208) 342-5515 • Fax: (208) 342-5591 • 1-800-574-5773
Website: www.analyticallaboratories.com
E-mail: ali@analyticallaboratories.com

TESTS REQUESTED

Lab ID	Date Sampled	Time Sampled	Sample Description (Source)	Sample Matrix	Total Coliform	Fecal Coliform	Ecoli	NO3	NH3	Remarks
	5/22/19	7:46	Owyhee Dairy Lower Canal Discharge		X	X				
	5/22/19	7:46	Owyhee Dairy Lower Canal Discharge				X	X		

Sampled by: (Please print) Emily Montague
Transported by: (Please print) Emily Montague

Special Instructions:

ALLOCATIONS OF RISK: Analytical Laboratories, Inc. will perform preparation and testing services, obtain findings and prepare reports in accordance with Good Laboratory Practices (GLP). If, for any reason, Analytical Laboratories, Inc. errors in the conduct of a test or procedure, their liability shall be limited to the cost of the test or procedure completed in error. Under no circumstances will Analytical Laboratories, Inc. be liable for any other cost associated with obtaining a sample or use of data.

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Relinquished By: (Signature)	Print Name:	Company:	Date:	Time:
Received By: (Signature)	Print Name:	Company:	Date:	Time:
Relinquished By: (Signature)	Print Name: Emily Montague	Company: ISDA	Date: 5/22/19	Time: 10:55
Received By: (Signature)	Print Name: [Signature]	Company: ALI	Date: 5/22/19	Time: 1055

SAMPLE RECEIPT Total # of Containers: Chains of Custody Seals: Y / N / NA Intact: Y / N / NA Temperature Received: Condition:

Photographs taken by Inspector Montague show the two chain of custody forms filled out for the six sets of samples submitted to Boise Analytical Laboratories on May 22, 2019 for the samples taken both complaint inspections at Owyhee Dairy. Photograph one is for the samples taken on May 21, 2019 testing for NO3, NH3, Total Coliform, Fecal Coliform, and Ecoli. Photograph two is for the samples taken on May 22, 2109 testing for NO3, NH3, Total Coliform, Fecal Coliform, and Ecoli.

Follow Up Inspection Completed May 23, 2019

Completed by Inspector Montague and Soil Scientist Pradip Adhikari



Photograph taken by Inspector Montague on May 23, 2019 facing 222 degrees Southwest shows four feet high berming added between the North corrals and the ditch that borders the North and Northwest side of Owyhee Dairy. Berming still needs to be compacted to the required 300 PSI to protect potential runoff from the facility from entering the ditch.

EX69



Photograph taken by Inspector Montague on May 23, 2019 facing 94 degrees East shows newly observed pipe coming from ditch bank at Owyhee Dairy. At the time of investigation no effluent was observed to be coming from pipe head.

EX70

1

Effluent remnants from discharge observed on May 22, 2019.

Approximate location of where discharge was observed coming from pipe head on May 22, 2019. Pipe head was buried and not able to be seen at the time of investigation



Photographs taken by Inspector Montague on May 23, 2019 facing 306 degrees Northwest and 309 degrees Northwest shows where pipe head that was discharging on May 22, 2019 has since been covered by gravel and dirt and was not able to be inspected. Remnants of effluent remained directly below where original pipe head was observed on May 21, 2019 and May 22, 2019 at Owyhee Dairy along the ditch that borders the North and Northwest side of facility.

2



EX71



322° NW

43°35'12" N 116°54'57" W

Homedale, ID

2270 ft Elevation

Photograph taken by Inspector Montague on May 23, 2019 facing 322 degrees Northwest shows two feet high berming added between the Southeast corrals and the ditch that borders the South and Southeast side of Owyhee Dairy. Berming still needs to be compacted to the required 300 PSI to protect potential runoff from the facility from entering the ditch. Photograph also shows where the main active discharge was observed on May 21, 2019 has since been stopped.



Photograph taken by Inspector Montague on May 23, 2019 facing 245 degrees Southwest shows where commodity storage discharge was observed on May 21, 2019 at Owyhee Dairy has since been stopped. Nutrient runoff, oil, and diesel fuel are no longer running down towards Town Ditch at the time of inspection on May 23, 2019.

EX73

Exhibit D

Rule 11 Plea Agreement, U.S. v. 4 Bros Dairy, Inc., No. 1:20-cr-00216-CWD (Sept. 24, 2020)

BART M. DAVIS, IDAHO STATE BAR NO. 2696
UNITED STATES ATTORNEY
JOSHUA DAVID HURWIT, IDAHO STATE BAR NO. 9527
SEAN M. MAZOROL, OREGON STATE BAR NO. 116398
ASSISTANTS UNITED STATES ATTORNEY
DISTRICT OF IDAHO
1290 W. MYRTLE ST. SUITE 500
BOISE, ID 83702-7788
TELEPHONE: (208) 334-1211
FACSIMILE: (208) 334-1413

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA,

Plaintiff,

vs.

4 BROS DAIRY, INC.,

Defendant.

Case No.

RULE 11 PLEA AGREEMENT

I. GUILTY PLEA

A. **Summary of Terms.** Pursuant to Federal Rule of Criminal Procedure 11(c)(1)(B), the Defendant, the attorney for the Defendant, and the Government¹ agree that the Defendant will plead guilty to Count One of the Information, which charges the Defendant with Unlawful Discharge of Pollutant to Water of the United States, in violation of Title 33, United States Code, Sections 1311(a) and 1319(c)(1)(A).

This plea is voluntary and did not result from force, threats, or promises, other than any promise made in this Agreement. Upon acceptance of the Defendant's guilty plea, and the Defendant's full compliance with the other terms of this Agreement, the Government agrees not to initiate any further criminal charges against the Defendant for violating the Clean Water Act in February 2017 and, under Federal Rules of Criminal Procedure 11(c)(1)(B), will recommend a sentence within the range proposed by the United States Sentencing Commission Guidelines Manual ("USSG") as determined by the Court.

B. **Oath.** The Defendant's authorized corporate representative will be placed under oath at the plea hearing. The Government may use any statement that the Defendant's authorized corporate representative makes under oath against the Defendant in a prosecution for perjury or false statement.

II. WAIVER OF CONSTITUTIONAL RIGHTS AT TRIAL

The Defendant waives the following rights by pleading guilty pursuant to this Agreement: 1) the right to plead not guilty to the offense charged against the Defendant and to persist in that plea; 2) the right to a trial by jury, at which the Defendant would be presumed innocent and the burden would be on the Government to prove the Defendant's guilt beyond a reasonable doubt; 3)

¹ The word "Government" in this agreement refers to the United States Attorney for the District of Idaho.

the right to have the jury agree unanimously that the Defendant was guilty of the offense; 4) the right, at trial, to confront and cross-examine adverse witnesses; 5) the right to present evidence and to compel the attendance of witnesses; and 6) the right not to testify or present evidence without having that held against the Defendant. If the Court accepts the Defendant's guilty plea, there will be no trial.

III. NATURE OF THE CHARGES

A. **Elements of the Crime.** The elements of the crime of Unlawful Discharge of Pollutant to Water of the United States, as charged in Count One, are as follows:

1. The defendant is a person;
2. The defendant discharged a pollutant;
3. The discharge was from a point source;
4. The discharge was into waters of the United States;
5. The discharge occurred without a permit; and
6. The defendant acted negligently.

B. **Factual Basis.** The Defendant admits the following facts are true:

The Clean Water Act, 33 U.S.C. § 1251, et seq., is the Nation's comprehensive water pollution control statute. The purpose of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The Clean Water Act, among other things, prohibits discharges of pollutants into waters of the United States, except in compliance with a permit issued pursuant to the Clean Water Act under the National Pollution Discharge Elimination System ("NPDES") by the United States Environmental Protection Agency ("EPA") or an authorized state. *See* 33 U.S.C. §§ 1311(a) and 1342.

4 Bros. Dairy, Inc. ("4 Bros.") is a dairy operation with its principal place of business located in Shoshone, Idaho. 4 Bros. has been a registered corporation with the State of Idaho

since 1987. Since at least February 1, 2017, and at all times relevant to the Information, 4 Bros. has operated a large concentrated animal feeding operation (“CAFO”) at its dairy facility in Shoshone, Idaho, because it houses at least 1,000 head of cattle. 40 C.F.R. § 122.23(b)(4) & (6). Accordingly, the large CAFO itself is a point source and subject to permitting pursuant to the NPDES Program. Since at least February 1, 2017, and at all times relevant to the Information, however, 4 Bros. has not operated under a NPDES permit.

4 Bros. has several different wastewater lagoons in its facility that are adjacent to the Milner-Gooding Canal (the “Canal”). At all times relevant to the Information, the Canal was a water of the United States which flows to the Malad River, a traditional navigable water, and on to the Snake and Columbia Rivers. Wastewater lagoons are pond-like bodies of water or basins designed to receive, hold, and treat wastewater from the CAFO and are point sources. Since at least February 1, 2017, and at all times relevant to the Information, the wastewater lagoons on the 4 Bros. facility contained manure-laden wastewater, which is a pollutant.

The 2016-2017 winter season in Southern Idaho saw record precipitation, record snowpack, and significant flooding that resulted in a number of disaster declarations due to snow, flooding, and runoff volumes not seen for decades. It was during this unprecedented season that 4 Bros. discharged into the Canal.

The discharges into the Canal came from separate wastewater lagoons adjacent to the Canal located in the western and central portions of the 4 Bros. dairy facility (“West Discharge” and “Central Discharge,” respectively). The West Discharge occurred on or about between February 20, 2017 and February 22, 2017: 4 Bros. used earth-moving equipment to cut open a berm and lined it with plastic to cause manure-laden wastewater from a lagoon to flow into the Canal. The Central Discharge occurred on or about between February 19, 2017, and February 20, 2017: 4 Bros. mechanically pumped manure-laden wastewater from a wastewater lagoon into the

Canal.

Another discharge occurred between approximately February 10, 2017 and February 23, 2017, when an area of the 4 Bros. dairy facility known as the east pivot catchment area (“East Discharge”), overtopped and inadvertently breached, spilling snowmelt and for several days potentially manure laden wastewater.

4 Bros’ was aware of the East Discharge during that time, but did not attempt to repair the area until February 23, 2017, owing to soft ground caused by the inclement weather.

The three discharges described above, including failing to repair the East Discharge for fourteen days were negligent, not reasonable under the circumstances and amount to failures to exercise that degree of care which a person of ordinary prudence would exercise under similar circumstances.

IV. SENTENCING FACTORS

A. Penalties. The crime of Unlawful Discharge of Pollutant to Water of the United States, as charged in Count One, is punishable by:

1. a term of probation of not more than five (5) years;
2. a minimum fine of \$2,500 and a maximum fine of \$25,000 per day of violation; and
3. a special assessment of \$25.

B. Fines and Costs. The Court may impose a fine. The parties agree to jointly recommend a fine of \$95,000, which amount the Defendant agrees to pay prior to or at the time of sentencing. The Court may also order the Defendant to pay the costs of probation.

C. Special Assessment. The Defendant will pay the special assessment before sentencing and will furnish a receipt at sentencing. Payment will be made to:

The United States District Court, Clerk’s Office
Federal Building and United States Courthouse

550 West Fort Street, Fourth Floor
Boise, Idaho 83724

D. Restitution. In addition to paying any fine and costs imposed, the Defendant also agrees to pay restitution equal to the full amount of loss caused to any victim. The Defendant agrees that all monetary penalties imposed by the Court, including restitution, will be due immediately and can immediately be enforced by the Government (whether through 18 U.S.C. § 3613 or otherwise). The Defendant agrees that the payment schedule or plan is neither the only method, nor a limitation on the methods, available for enforcing the judgment. It is simply a schedule or plan for minimum payments. The Defendant is aware that voluntary payment of restitution prior to adjudication of guilt is a factor the Court can consider if the Defendant has accepted responsibility under U.S.S.G. § 3E1.1.

V. UNITED STATES SENTENCING GUIDELINES

A. Application of Sentencing Guidelines. The Government and the Defendant agree that the provisions of Chapter 8 of the United States Sentencing Guidelines, which pertain to fines imposed on organizational defendants, such as the Defendant, do not apply to environmental offenses, including Clean Water Act violations. *See* 18 U.S.C. §§ 3553 and 3572; U.S.S.G. §§ 8C2.1 and 8C2.10. The Government and the Defendant further agree that the remaining provisions of Chapter 8 of the Sentencing Guidelines apply to the Defendant. The Court must consider the U.S.S.G. in determining an appropriate sentence under 18 U.S.C. § 3553. The Court is not a party to this Agreement and the Agreement does not bind the Court's determination of the U.S.S.G. range. The Court will identify the factors that will determine the sentencing range under the U.S.S.G. The Court has complete discretion to impose any lawful sentence, including the maximum sentence possible.

Recognizing that this Agreement does not bind the Court, the parties agree to the recommendations and requests set forth below.

B. Sentencing Guidelines Recommendations and Requests.

1. **Government's Statements at Sentencing.** The Government reserves the right to allocute fully at sentencing regarding any sentencing recommendation. The Government may rely on or submit any information, including relevant conduct, in support of its recommendation regardless of whether the Agreement or the pre-sentence investigation report contain this information. Any exception must be specified in this Agreement.

2. **Acceptance of Responsibility.** If the Defendant clearly accepts responsibility for the offense, the Defendant will be entitled to a reduction of two levels in the combined adjusted offense level, under U.S.S.G. § 3E1.1(a). The Government will move for an additional one-level reduction in the combined offense level under § 3E1.1(b) if the following conditions are met: (1) the Defendant qualifies for a decrease under § 3E1.1(a); (2) the offense is level 16 or greater; and (3) the Defendant has timely notified authorities of the Defendant's intention to enter a plea of guilty, thereby permitting the Government to avoid preparing for trial and permitting the Court to allocate its resources efficiently. If, before sentence is imposed, the Defendant fails to meet U.S.S.G. § 3E1.1's criteria, or acts in a manner inconsistent with acceptance of responsibility, the Government will withdraw or decline to make the motion.

3. **Downward Departure or Variance Request by Defendant.** If the Defendant wishes to seek a departure or variance, the Defendant must provide written notice to the Government, along with the reasons and basis therefore, 21 days before the date set for sentencing.

VI. ENVIRONMENTAL COMPLIANCE

The Government and the Defendant agree that the terms of probation shall include the following special conditions, in addition to the Court's standard conditions:

A. **No Further Violations.** The Defendant will commit no further violations of the Clean Water Act, or other federal, state, or local law, and shall conduct all of its operations in accordance with EPA regulations and with other federal, state and local environmental regulations.

B. **NPDES Permit.** Defendant shall submit a Notice of Intent to seek coverage under the Idaho CAFO General NPDES Permit (2020) with the U.S. Environmental Protection Agency no later than ten days from the filing of this Plea Agreement. The Notice of Intent shall be submitted to:

United States Environmental Protection Agency
Region 10 Manager
NPDES Permits Section
1200 Sixth Avenue, Suite 155, WD 19-C04
Seattle, WA 98101-3188

Idaho State Department of Agriculture
2270 Old Penitentiary Road
P.O. Box 790
Boise, ID 83701

Idaho Department of Environmental Quality
Water Quality Division
IDEQ State Office
1410 N. Hilton
Boise, Idaho 83706

IDEQ Twin Falls Regional Office
1363 Fillmore St.
Twin Falls, ID 83301

C. **Access.** The Defendant agrees to provide the EPA, the Idaho Department of Environmental Quality (IDEQ), and the Idaho State Department of Agriculture (ISDA), and their respective authorized agents, upon reasonable notice, with full access to all offices, warehouses, and facilities owned or operated by Defendant, its principals, officers, agents, representatives, owners, employees or beneficiaries, engaged in the generation, storage, transportation, or modification, of any waste. As part of this Agreement, Defendant agrees to provide EPA, IDEQ,

and ISDA, and their authorized agents, access to all books and records produced or retained pursuant to the generation, storage, transportation, or modification, of any waste.

VII. WAIVER OF RIGHT TO DIRECT APPEAL AND TO COLLATERAL ATTACK UNDER 28 U.S.C. § 2255

A. **Waiver:** In exchange for this Agreement, and except as provided in subparagraph B, the Defendant waives any right to appeal or collaterally attack the entry of plea, the conviction, the entry of judgment, and the sentence, including forfeiture and restitution. This waiver includes any challenge to the constitutionality of any statute of conviction including arguments that the admitted conduct does not fall within any statute of conviction.

The Defendant acknowledges that this waiver will result in the dismissal of any direct appeal or collateral attack the Defendant might file seeking to challenge the plea, conviction or sentence in this case. Further, the filing of such an appeal or collateral attack will breach this Agreement and allow the Government to withdraw from it, as well as to take other remedial action.

If the Defendant believes the Government has not fulfilled its obligations under this Agreement, the Defendant will object at the time of sentencing; further objections are waived.

A. **Exceptions:**

1. **Direct Appeal:** Notwithstanding subparagraph A, the Defendant may file one direct appeal if one of the following unusual circumstances occurs:

- a. the sentence imposed by the Court exceeds the statutory maximum;
- b. the Court arrived at an advisory USSG range by applying an upward departure under chapter 5K of the USSG; or
- c. the Court exercised its discretion under 18 U.S.C. § 3553(a) to impose a sentence that exceeds the advisory USSG range as determined by the Court.

The Defendant understands that the above circumstances occur rarely and that in most cases this Agreement completely waives all appellate rights.

2. **Motion Under 28 U.S.C. § 2255:** Notwithstanding subparagraph A, the Defendant may file an ineffective assistance of counsel claim in a 28 U.S.C. § 2255 motion.

VIII. PROVIDING INFORMATION FOR THE PRESENTENCE REPORT

The Defendant agrees to provide corporate financial information and any other information requested by a representative of the United States probation office for use in preparing a pre-sentence investigation report, and agrees that the United States probation office may share all financial information with the Government. Failure to execute releases or to provide information for the pre-sentence investigation report violates this Agreement and relieves the Government of its obligations from it. Such failure by the Defendant and response by the Government will not, however, constitute grounds for withdrawing the plea of guilty unless the Government so requests. Providing materially false information will subject the Defendant to additional penalties, including an enhancement under U.S.S.G. § 3C1.1.

IX. DISCLOSING FINANCIAL INFORMATION

The Defendant agrees to disclose all the Defendant's assets and sources of income to the Government, including all assets over which the Defendant exercises or exercised direct or indirect control, or in which the Defendant has had any financial interest. The Defendant also agrees to cooperate in obtaining any records relating to ownership of assets when sought by the Government. The Defendant agrees truthfully to complete corporate financial statement within 14 days from the date the Defendant signs this Agreement or from the date the financial statement is provided to the Defendant or counsel, whichever is later. The Defendant agrees to provide updates with any material changes in circumstances, as described in 18 U.S.C. § 3664(k), within seven (7) days of the event giving rise to the changed circumstances.

The Defendant authorizes the Government: (a) to inspect and copy all financial documents and information held by the United States probation office; and (b) to obtain all financial records related to the Defendant.

Before sentencing, Defendant agrees not to dissipate any assets outside the normal course of business without the consent of both the Government's financial litigation unit and asset forfeiture unit. If any assets are sold, any sale proceeds will be deposited with the Clerk of Court and, upon sentencing, paid toward any monetary penalties ordered in the judgment.

X. NO RIGHT TO WITHDRAW PLEA

The Defendant understands that the Court may not follow the recommendations or requests made by the parties at the time of sentencing. The Defendant cannot withdraw from this Agreement or the guilty plea, regardless of the Court's actions.

XI. CONSEQUENCES OF VIOLATING AGREEMENT

A. Government's Options. If the Defendant fails to keep any promise in this Agreement or commits a new crime, the Government is relieved of any obligation: 1) to make a sentencing recommendation consistent with the terms promised in this Agreement; and 2) not to prosecute the Defendant on other charges, including charges not pursued due to this Agreement. Such charges may be brought without prior notice. If the Government determines that a breach warrants prosecution before sentencing, it may withdraw from this Agreement in its entirety. In addition, if the Government determines after sentence is imposed that the Defendant's breach of the Agreement warrants further prosecution, the Government may choose between letting the conviction under this Agreement stand or vacating such conviction so that charge may be re-prosecuted.

The Government's election to pursue any of the above options provides no basis for the Defendant to withdraw the guilty plea made pursuant to this Agreement.

B. Defendant's Waiver of Rights. If the Defendant fails to keep any promise made in this Agreement, the Defendant gives up the right not to be placed twice in jeopardy for the offense to which the Defendant entered a plea of guilty or which were dismissed under this Agreement. In addition, for any charge that is brought as a result of the Defendant's failure to keep this Agreement, the Defendant gives up: (1) any right under the Constitution and laws of the United States to be charged or tried in a more speedy manner; and (2) the right to be charged within the applicable statute of limitations period if the statute of limitations has expired.

Furthermore, if the Defendant does not enter an acceptable plea, the Government will move to continue the trial now set to allow the Government adequate time to prepare. The Defendant agrees not to contest such a continuance, and agrees that the resulting delay would be excludable time under 18 U.S.C. § 3161(h).

XII. CIVIL LIABILITY

By entering into this Agreement, the Government does not compromise any civil liability the Defendant may have incurred or may incur as a result of the Defendant's conduct and plea of guilty to the charge in the Information or otherwise extend to individual persons not a party or signatory to this Agreement.

XIII. MISCELLANEOUS

A. No Other Terms. This Agreement is the complete understanding between the parties, and no other promises have been made by the Government to the Defendant or to the attorney for the Defendant. This Agreement does not prevent any Governmental agency from pursuing civil or administrative actions against the Defendant or any property. Unless an exception to this paragraph is explicitly set forth elsewhere in this document, this Agreement does not bind or obligate Governmental entities other than that specified as the Government in this Agreement (i.e., the United States Attorney's Office for the District of Idaho).

B. Plea Agreement Acceptance Deadline. This plea offer is explicitly conditioned on the Defendant's notification of acceptance of this Agreement no later than September 9, 2020.

XIV. CORPORATE APPROVAL

A. Corporate Authorization. The Defendant agrees that it is authorized to enter into this Agreement. At the time of signing by the Defendant's corporate representative below, the Defendant shall provide the Government with a written statement in the form of a corporate resolution certifying that it is authorized to enter into and comply with all of the terms of this Agreement. The corporate resolution shall certify that the undersigned corporate representative is authorized to sign this Agreement and to obligate the corporation and affirm that all corporate formalities have been observed.

B. Application of the Agreement. This Agreement shall bind the Defendant and its successors and assigns and parent companies. The Defendant and its successors-in-interest, if applicable, shall provide the Government and the United States Probation Office with immediate notice of any name change, corporate reorganization, issuance, termination, or revocation of permits, or similar action affecting this Agreement. No change in name, change in corporate or individual control, corporate reorganization, change in ownership, merger, change of legal status, termination or revocation of permits, or similar action shall alter the responsibilities of the defendant under this Agreement. The Defendant shall not engage in any action to seek to avoid the obligations and conditions set forth in this Agreement.


XV. UNITED STATES' APPROVAL

I have reviewed this matter and the Agreement. This Agreement constitutes a formal plea offer from the Government. Any oral discussions with the Defendant and defense counsel about a plea do not constitute a plea offer. Any written offer or agreement made before this Agreement is

no longer a valid offer by the Government and is rescinded. I agree on behalf of the United States that the terms and conditions set forth above are appropriate and are in the best interests of justice.

BART M. DAVIS
UNITED STATES ATTORNEY

By:



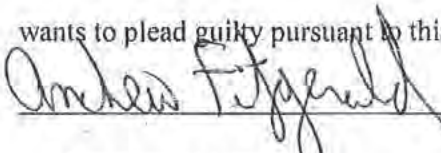
JOSHUA D. HURWIT
SEAN M. MAZOROL
Assistants United States Attorney

9/24/20

Date

XVI. ACCEPTANCE BY DEFENDANT AND COUNSEL

On behalf of the Defendant, 4 Bros. Dairy, Inc., I am authorized to sign this Plea Agreement and to bind 4 Bros. Dairy, Inc. I have received this Plea Agreement from counsel for 4 Bros. Dairy, Inc., Scott McKay. I have read it and discussed with counsel all of its provisions, including those addressing the charge, sentencing, conditions of probation, and waiver, as well as the Implications of agreeing to the disposition set forth in the Agreement pursuant to Rule 11(c)(1)(C) of the Federal Rules of Criminal Procedure. I understand the Plea Agreement fully. On behalf of and with the express authorization of 4 Bros. Dairy, Inc., I hereby accept its terms and conditions and acknowledge that it constitutes the Plea Agreement between the parties. 4 Bros. Dairy, Inc., understands that no additional promises, agreements, or conditions have been made or will be made unless set forth in writing and signed by the parties. 4 Bros. Dairy, Inc., wants to plead guilty pursuant to this Plea Agreement.

by  SEC-TRES

As Authorized Corporate
Representative for 4 Bros. Dairy, Inc.

9-8-20

Date

I have read this Agreement and have discussed the contents of the Agreement with the authorized corporate representative of 4 Bros. Dairy, Inc. This document accurately sets forth the entirety of the Agreement. I have conveyed all written offers from the Government to the Defendant pursuant to *Missouri v. Frye*, 132 S. Ct. 1399, 1408-09 (2012). I understand that this Agreement is a formal plea offer from the Government. Any oral discussions between the Government and me or my client about a plea do not constitute a plea offer. Any written offer or agreement made before this Agreement is no longer valid and is rescinded. My client, 4 Bros. Dairy, Inc. understands this Plea Agreement fully and wants to plead guilty. I concur in my client's decision to plead guilty as set forth above.



SCOTT McKAY
Attorney for the Defendant

9/9/2020

Date

Exhibit E

Email from Brynn Lacabanne, IPDES
Compliance and Enforcement Supervisor, Idaho
Dep't of Env'tl. Quality, to Brian Levo, NPDES
Enforcement Coordinator, EPA (Feb. 3, 2021)

Message

From: Brynn.Lacabanne@deq.idaho.gov [Brynn.Lacabanne@deq.idaho.gov]
Sent: 2/3/2021 5:29:18 PM
To: Levo, Brian [Levo.Brian@epa.gov]
CC: Lopez, Maria [Lopez.Maria@epa.gov]; Troy Smith [Troy.Smith@deq.idaho.gov]
Subject: RE: Enforcement Referral: Cedar Ridge Dairy (CONFIDENTIAL)

I'll contact Mitch and see if we can get them from him. Stay tuned.



Brynn M. Lacabanne | IPDES Compliance and Enforcement Supervisor
Idaho Department of Environmental Quality
1410 N Hilton St, Boise, ID 83706
Office: (208) 373-0289
<http://www.deq.idaho.gov/>

Go green! Please print this email only when necessary.

From: Levo, Brian [mailto:Levo.Brian@epa.gov]
Sent: Wednesday, February 03, 2021 10:28 AM
To: Brynn Lacabanne
Cc: Lopez, Maria; Troy Smith
Subject: RE: Enforcement Referral: Cedar Ridge Dairy (CONFIDENTIAL)

Received. Brynn, would it be possible to also access the NOV and penalty documents issued by ISDA?

We will review and follow-up on this.

Thank you,

Brian Levo
NPDES Enforcement Coordinator
Surface Water Enforcement Section
U.S. Environmental Protection Agency - Region 10
1200 6th Avenue, Suite 155, MS 20-C04, Seattle, WA 98101
Phone: (206) 553-1816, Fax: (206) 553-4743

From: Brynn.Lacabanne@deq.idaho.gov <Brynn.Lacabanne@deq.idaho.gov>
Sent: Tuesday, February 2, 2021 4:38 PM
To: Levo, Brian <Levo.Brian@epa.gov>
Cc: Lopez, Maria <Lopez.Maria@epa.gov>; Troy Smith <Troy.Smith@deq.idaho.gov>
Subject: Enforcement Referral: Cedar Ridge Dairy (CONFIDENTIAL)

Brian,

As we briefly discussed in a previous meeting, DEQ is referring an illegal discharge from Cedar Ridge Dairy, located in Filer, ID, to EPA for enforcement. ISDA originally received the referral Ex. 6 & 7C Personal Privacy (PP)/ Ex. 7(D) Confidential Source the canal to which the discharge occurred. ISDA investigated the complaint under the context of their own rules and referred it to us after their initial investigation. One of our compliance officers and a water quality scientist joined ISDA the following day to collect information for our own investigation. My understanding is that ISDA issue an NOV and fine to the individual.

Said water quality scientist was able to confirm with the canal company that, during a normal year, the canal contributes flow to Deep Creek, which is a trib to the Snake River. Therefore, we determined the canal is WOTUS.

A few emails and the complaint investigation report are zipped in the cloud under our normal password protection:

Ex. 6, Ex. 7C Personal Privacy (PP)

Please note – there is a conflict of interest within the agency, which you will see mentioned in the report. As such, the only individuals at DEQ who are allowed to discuss this investigation are Troy, Mary Anne, **Tobby Kennedy** (compliance officer), Brent King (Deputy Attorney General), and me. The water quality scientist **Ex. 6 Personal Privacy (PP)**

If you need additional information, please reach out to me, and I can work with Tobby to get what you need.



Brynn M. Lacabanne | IPDES Compliance and Enforcement Supervisor
Idaho Department of Environmental Quality
1410 N Hilton St, Boise, ID 83706
Office: (208) 373-0289
<http://www.deq.idaho.gov/>

Go green! Please print this email only when necessary.

Exhibit F

**Consent Agreement and Final Order, In the
Matter of: W/T Land & Cattle Inc., Caldwell
Idaho, No. CWA-10-2013-0065 (June 17, 2013)**

RECEIVED

13 JUN 17 AM 10:22

HEARINGS CLERK
EPA -- REGION 10

BEFORE THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:)	DOCKET NO. CWA-10-2013-0065
)	
W/T Land & Cattle, Inc.,)	CONSENT AGREEMENT AND
Caldwell, Idaho)	FINAL ORDER
)	
Respondent.)	

I. STATUTORY AUTHORITY

1.1. This Consent Agreement and Final Order (CAFO) is issued under the authority vested in the Administrator of the U.S. Environmental Protection Agency (EPA) by Section 309(g)(2)(B) of the Clean Water Act (CWA), 33 U.S.C. § 1319(g)(2)(B).

1.2. The Administrator has delegated the authority to issue the Final Order contained in Part V of this CAFO to the Regional Administrator of EPA Region 10, who has redelegated this authority to the Regional Judicial Officer in EPA Region 10.

1.3. Pursuant to Section 309(g)(1) and (g)(2)(B) of the CWA, 33 U.S.C. § 1319(g)(1) and (g)(2)(B), and in accordance with the "Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties," 40 C.F.R. Part 22, EPA issues, and W/T Land & Cattle, Inc., (Respondent) agrees to issuance of, the Final Order contained in Part V of this CAFO.

II. PRELIMINARY STATEMENT

2.1. In accordance with 40 C.F.R. §§ 22.13(b) and 22.45(b), issuance of this CAFO commences this proceeding, which will conclude when the Final Order contained in Part V of this CAFO becomes effective.

2.2. The Director of the Office of Compliance and Enforcement, EPA Region 10 has been delegated the authority to sign consent agreements between EPA and the party against whom a Class II penalty is proposed to be assessed.

2.3. Part III of this CAFO contains a concise statement of the factual and legal basis for the alleged violations of the CWA, together with the specific provisions of the CWA and implementing regulations that Respondent is alleged to have violated.

III. ALLEGATIONS

3.1. CWA Section 301(a), 33 U.S.C. § 1311(a), prohibits the “discharge of any pollutant by any person” except as authorized by a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to CWA Section 402, 33 U.S.C. § 1342.

Section 502(12) of the CWA, 33 U.S.C. § 1362(12), defines the term “discharge of a pollutant” to include “any addition of any pollutant to navigable waters from any point source.”

Section 502(6) of the CWA, 33 U.S.C. § 1362(6), defines “pollutant” to include, *inter alia*, solid waste, sewage, sewage sludge, biological materials, and industrial and municipal waste. Section 502(7) of the CWA, 33 U.S.C. § 1362(7), defines “navigable waters” as “waters of the United States.” Section 502(14) of the CWA, 33 U.S.C. § 1362(14), defines “point source” to include, *inter alia*, “any . . . concentrated animal feeding operation . . . from which pollutants are or may be discharged.”

3.2. Respondent is a corporation and thus is a “person” as defined in Section 502(5) of the CWA, 33 U.S.C. § 1362(5).

3.3. Respondent owns and operates a feedlot located at 24010 Notus Road, Caldwell, Idaho 83607 (Facility).

3.4. An “animal feeding operation” or AFO is defined as any lot or facility where “(i) [a]nimals . . . have been, are, or will be stabled or confined and fed or maintained for a total of 45

days or more in any 12-month period, and (ii) [c]rops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.”

40 C.F.R. § 122.23(b)(1). An AFO that confines more than 1,000 head of beef cattle is a large “concentrated animal feeding operation” or CAFO. 40 C.F.R. § 122.23(b)(4).

3.5. Respondent’s Facility confined more than 1,000 cattle for a total of 45 days or more in a 12 month period at all times relevant to this action prior to May 21, 2011.

Respondent’s CAFO is therefore a point source as defined in 33 U.S.C. § 1362(14).

3.6. On June 3, 2011, Respondent’s facility was photographed with standing water in the pens resulting from flooding of the adjacent Boise River. The Boise River was flowing at 6,900 cubic feet per second (cfs) near Notus on that day.

3.7. Respondent’s facility floods each time the Boise River reaches a flow rate of 6,900 cfs or more near Notus and may flood more frequently. The Boise River reached a flow of 6,900 cfs near Parma and Respondent’s Facility flooded at least 32 times between April 11 and June 3, 2011. The Facility similarly flooded 16 times between April 30 and May 15, 2012.

3.8. Each time Respondent’s Facility floods, it discharges those flood waters back into the Boise River via shallow subsurface groundwater that is hydrologically connected to the Boise River.

3.9. At all relevant times to this action, Respondent’s Facility contained manure wastes. Those manure wastes came into contact and mixed with the flood waters entering the Facility. Those manure wastes discharged to the Boise River along with the floodwaters when the River receded.

3.10. Respondent discharged process wastewater from the CAFO to the Boise River. Process wastewater contains “pollutants” within the meaning of Section 502(6) of the CWA, 33 U.S.C. § 1362(6).

3.11. Respondent's Facility is not authorized to discharge by an NPDES permit, and all process wastewater discharges from the Facility are unlawful. Therefore the facility discharged process wastewater from the Facility to the Boise River on at least 48 days in violation of section 301(a) the CWA, 33 U.S.C. § 1311(a).

3.12. The Boise River flows into Snake River, which flows into the Columbia River. The Columbia River then flows into the Pacific Ocean. The Boise River, the Snake River, the Columbia River and the Pacific Ocean are all perennial water bodies that are susceptible to use in interstate or foreign commerce and thus are "navigable waters" within the meaning of Section 502(7) of the CWA, 33 U.S.C. § 1362(7), and are a "water of the United States" within the meaning of 40 C.F.R. § 122.2.

3.13. Under Section 309(g)(1) of the CWA, 33 U.S.C. § 1319(g)(1), EPA may assess an administrative penalty when EPA finds that "any person has violated section 1311" Consequently, under Section 309(g)(2)(B) of the CWA, 33 U.S.C. § 1319(g)(2)(B), Respondent is liable for the administrative assessment of civil penalties for violations at the Facility in an amount not to exceed \$16,000 per day for each day during which the violation continues, up to a maximum of \$177,500.

IV. CONSENT AGREEMENT

4.1. Respondent stipulates that EPA has jurisdiction over the subject matter alleged herein.

4.2. Respondent neither admits nor denies the specific factual allegations contained in Part III of this CAFO.

4.3. As required by Section 309(g)(3) of the CWA, 33 U.S.C. § 1319(g)(3), EPA has taken into account the nature, circumstances, extent, and gravity of the alleged violations as well

as Respondent's economic benefit of noncompliance, ability to pay, and other relevant factors. After considering all of these factors, EPA has determined and Respondent agrees to settle this action in the penalty amount of Forty Two Thousand Dollars (\$42,000.00).

4.4. Respondent agrees to pay the total civil penalty set forth in Paragraph 4.3, above, plus all applicable interest in such penalty, 30 days of the effective date of the Final Order.

4.5. Payment under this CAFO must be made by cashier's check or certified check payable to the order of "Treasurer, United States of America" and delivered via United States mail to the following address:

U.S. Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
P.O. Box 979077
St. Louis, MO 63197-9000

Respondent must note on the check the title and docket number of this action.

4.6. Respondent must deliver via United States mail a photocopy of the check described in Paragraph 4.5 to the Regional Hearing Clerk and EPA Region 10 at the following addresses:

Regional Hearing Clerk
U.S. Environmental Protection Agency
Region 10, Mail Stop ORC-158
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Steven Potokar
U.S. Environmental Protection Agency
Region 10, Mail Stop OCE-133
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

4.7. If Respondent fails to pay the penalty assessed by this CAFO in full by the due date set forth in Paragraph 4.4, the entire unpaid balance of penalty and accrued interest shall become immediately due and owing. Such failure may also subject Respondent to a civil action

to collect the assessed penalty under the CWA, together with interest, fees, costs, and additional penalties described below. In any collection action, the validity, amount, and appropriateness of the penalty shall not be subject to review.

4.7.1. Interest. Pursuant to Section 309(g)(9) of the CWA, 33 U.S.C. 1319(g)(9), any unpaid portion of the assessed penalty shall bear interest at a rate established by the Secretary of Treasury pursuant to 31 U.S.C. § 3717(a)(1) from the effective date of the Final Order set forth in Part V, provided however, that no interest shall be payable on any portion of the assessed penalty that is paid within 30 days of the effective date of the Final Order.

4.7.2. Attorneys Fees, Collection Costs, Nonpayment Penalty. Pursuant to Section 309(g)(9) of the CWA, 33 U.S.C. § 1319(g)(9), if Respondent fails to pay on a timely basis the penalty set forth in Paragraph 4.3, Respondent shall pay (in addition to any assessed penalty and interest) attorneys fees and costs for collection proceedings and a quarterly nonpayment penalty for each quarter during which such failure to pay persists. Such nonpayment penalty shall be in an amount equal to 20% of the aggregate amount of Respondent's penalties and nonpayment penalties which are unpaid as of the beginning of such quarter.

4.8. The penalty described in Paragraph 4.3, including any additional costs incurred under Paragraph 4.7, above, represents an administrative civil penalty assessed by EPA and shall not be deductible for purposes of federal taxes.

4.9. The undersigned representative of Respondent certifies that he or she is authorized to enter into the terms and conditions of this CAFO and to bind Respondent to this document.

4.8. The penalty described in Paragraph 4.3, including any additional costs incurred under Paragraph 4.7, above, represents an administrative civil penalty assessed by EPA and shall not be deductible for purposes of federal taxes.

4.9. The undersigned representative of Respondent certifies that he or she is authorized to enter into the terms and conditions of this CAFO and to bind Respondent to this document.

4.10. Except as described in Subparagraph 4.7.2, above, each party shall bear its own fees and costs in bringing or defending this action.

4.11. Respondent expressly waives any right to contest the allegations and waives any right to appeal the Final Order set forth in Part V.

4.12. The provisions of this CAFO shall bind Respondent and its agents, servants, employees, successors, and assigns.

4.13. The above provisions are STIPULATED AND AGREED upon by Respondent and EPA Region 10.

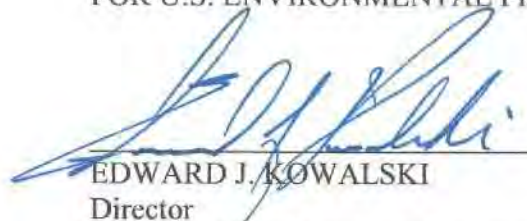
DATED: FOR W/T LAND AND CATTLE, INC.:

3/29/2013


TODD CHENEY
President
WT Land and Cattle Inc.

DATED: FOR U.S. ENVIRONMENTAL PROTECTION AGENCY:

6/12/2013


EDWARD J. KOWALSKI
Director
Office of Compliance and Enforcement

V. FINAL ORDER

5.1. The terms of the foregoing Parts I-IV are ratified and incorporated by reference into this Final Order. Respondent is ordered to comply with the terms of settlement.

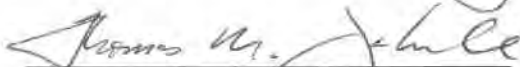
5.2. This CAFO constitutes a settlement by EPA of all claims for civil penalties pursuant to the CWA for the violations alleged in Part III. In accordance with 40 C.F.R. § 22.31(a), nothing in this CAFO shall affect the right of EPA or the United States to pursue appropriate injunctive or other equitable relief or criminal sanctions for any violations of law. This CAFO does not waive, extinguish or otherwise affect Respondent's obligations to comply with all applicable provisions of the CWA and regulations promulgated or permits issued thereunder.

5.3. In accordance with Section 309(g)(1) of the CWA, 33 U.S.C. § 1319(g)(1), and 40 C.F.R. § 22.38(b), the State of Idaho Department of Environmental Quality has been given the opportunity to consult with EPA regarding the assessment of the administrative civil penalty against Respondent.

5.4. Pursuant to Section 309(g)(4)(A) of the CWA, 33 U.S.C. § 1319(g)(4)(A), and 40 C.F.R. § 22.45(b), EPA has issued public notice of and provided reasonable opportunity to comment on its intent to assess an administrative penalty against Respondent. More than 40 days have elapsed since issuance of this public notice and EPA has received no petition to set aside the Consent Agreement contained herein.

5.5. This Final Order shall become effective upon filing.

SO ORDERED this 17th day of June, 2013.



THOMAS M. JAHNKE
Regional Judicial Officer
U.S. Environmental Protection Agency, Region 10

Certificate of Service

The undersigned certifies that the original of the attached **CONSENT AGREEMENT AND FINAL ORDER, In the Matter of : W/T Land and Cattle, Inc. Docket No.: CWA-10-2013-0065** was filed with the Regional Hearing Clerk and served on the addressees in the following manner on the date specified below:

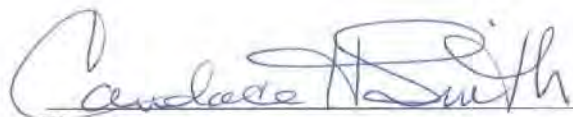
The undersigned certifies that a true and correct copy of the document was delivered to:

Mark Ryan
U.S. Environmental Protection Agency
1200 Sixth Avenue, ORC-158
Suite 900
Seattle, Washington 98101

Further, the undersigned certifies that a true and correct copy of the aforementioned document was placed in the United States mail certified/return receipt to:

Todd Cheney
PO Box 209
Notus, Idaho 83656

DATED this 17th day of June, 2013


Signature

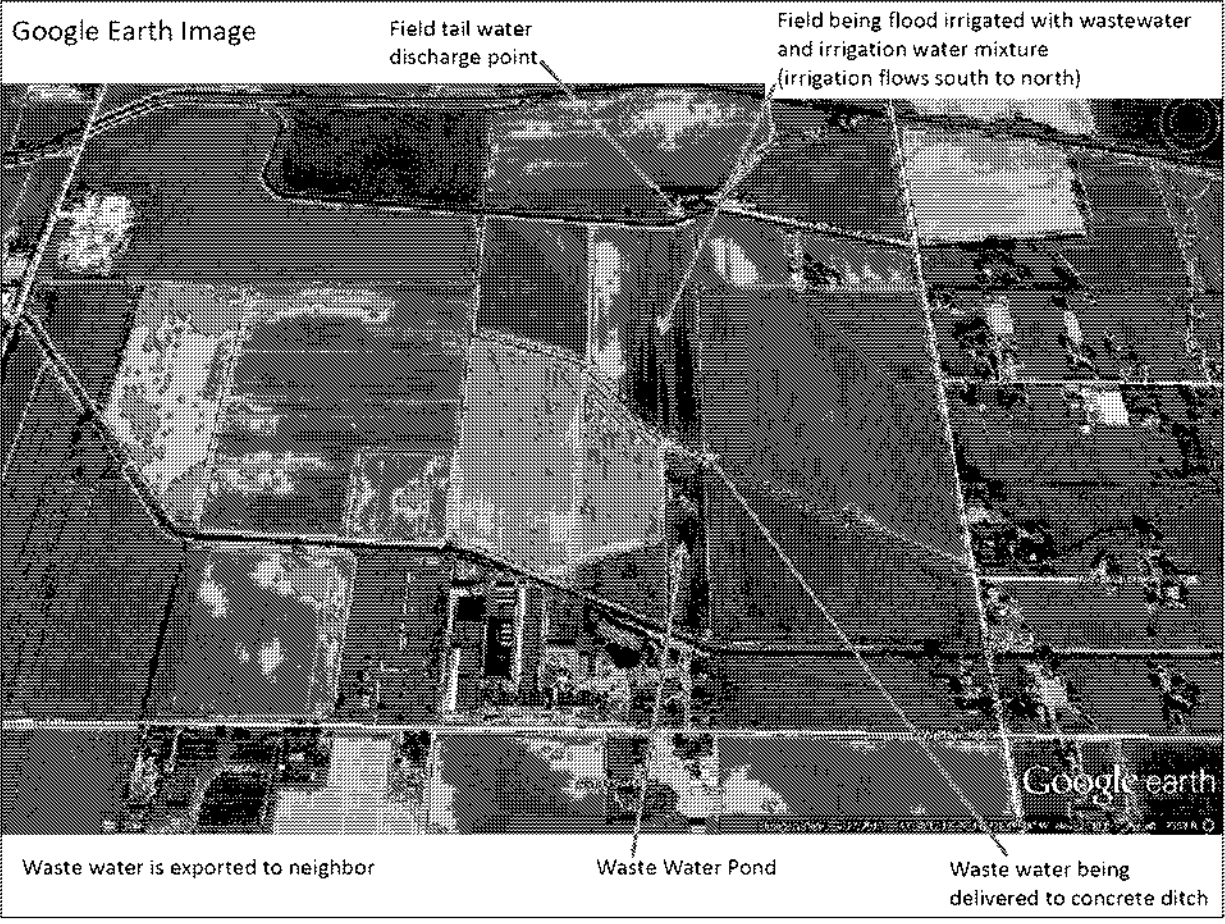
Candace H. Smith
Regional Hearing Clerk
EPA Region 10

Exhibit G

John Bilderback,
Complaint Investigation Photos

Complaint Investigation

by John Bilderback

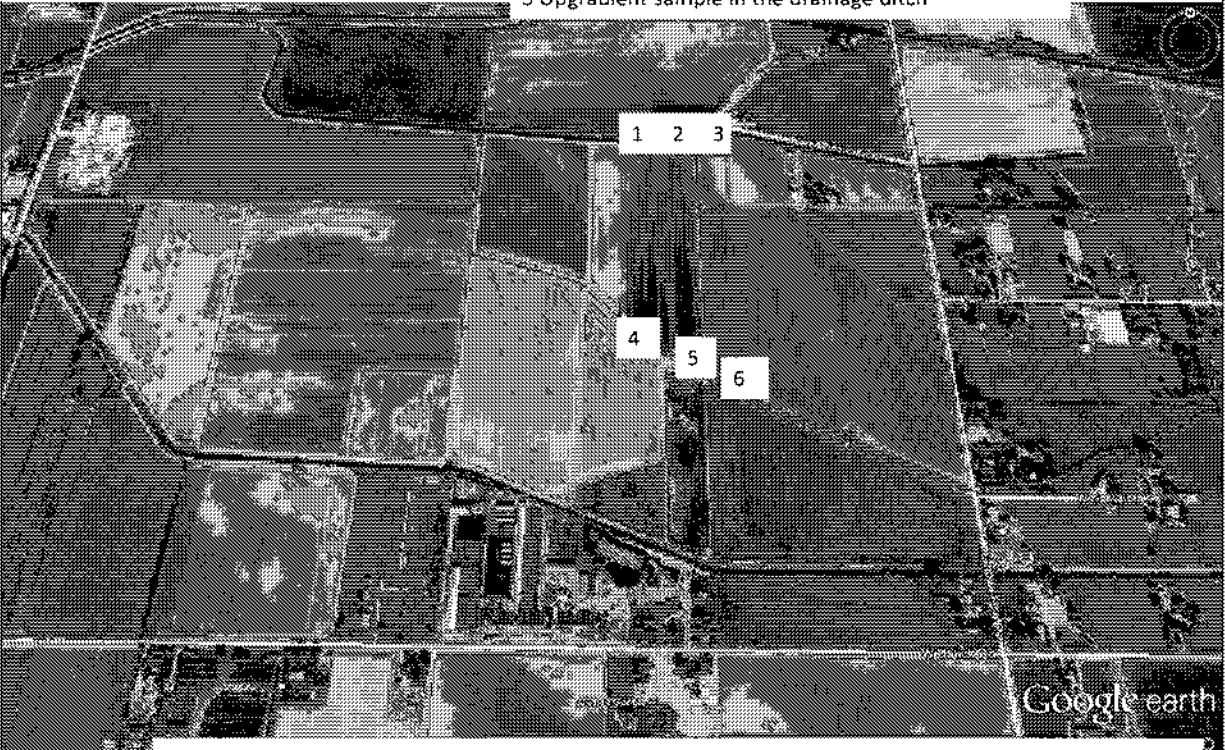


6 Sampling locations (approximate locations)

1 Downgradient sample in the drainage ditch

2 Discharge sample

3 Upgradient sample in the drainage ditch



4 Downgradient sample in the concrete ditch after mixing with irrigation water

5 Waste water sample directly from the pipe delivering the waste water to the concrete ditch

6 Upgradient sample in the concrete ditch of the irrigation water

Waste water pumped directly from the waste water pond to the concrete irrigation ditch where it mixes with irrigation water.

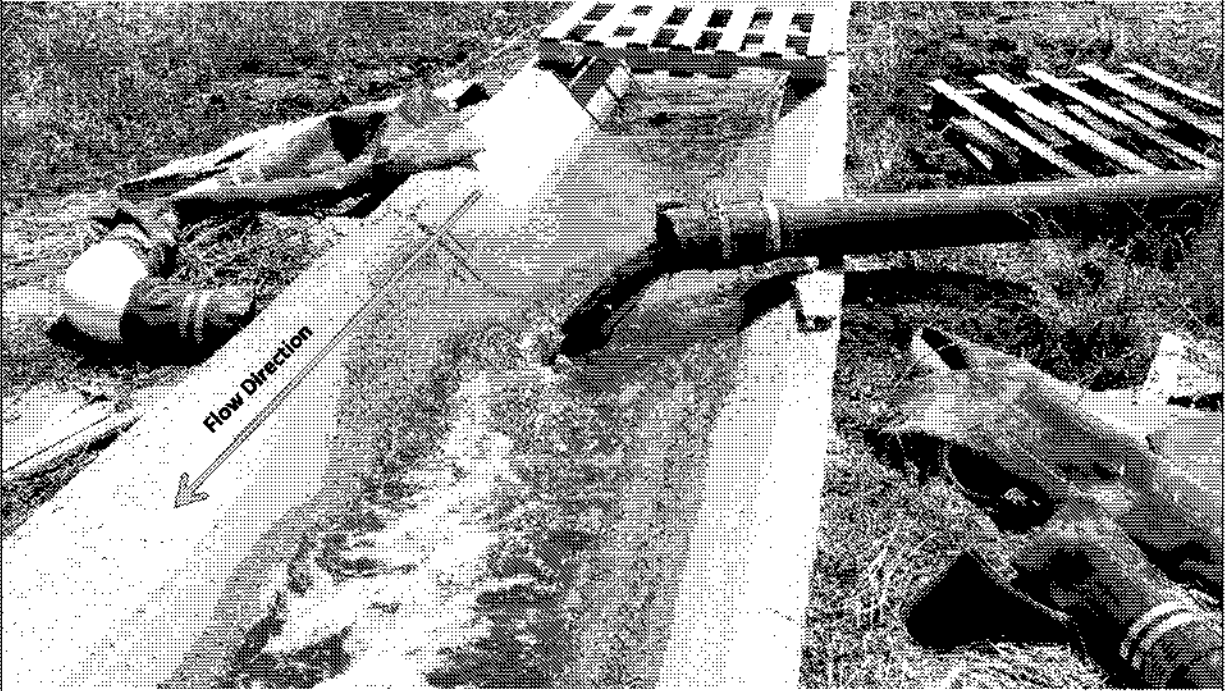


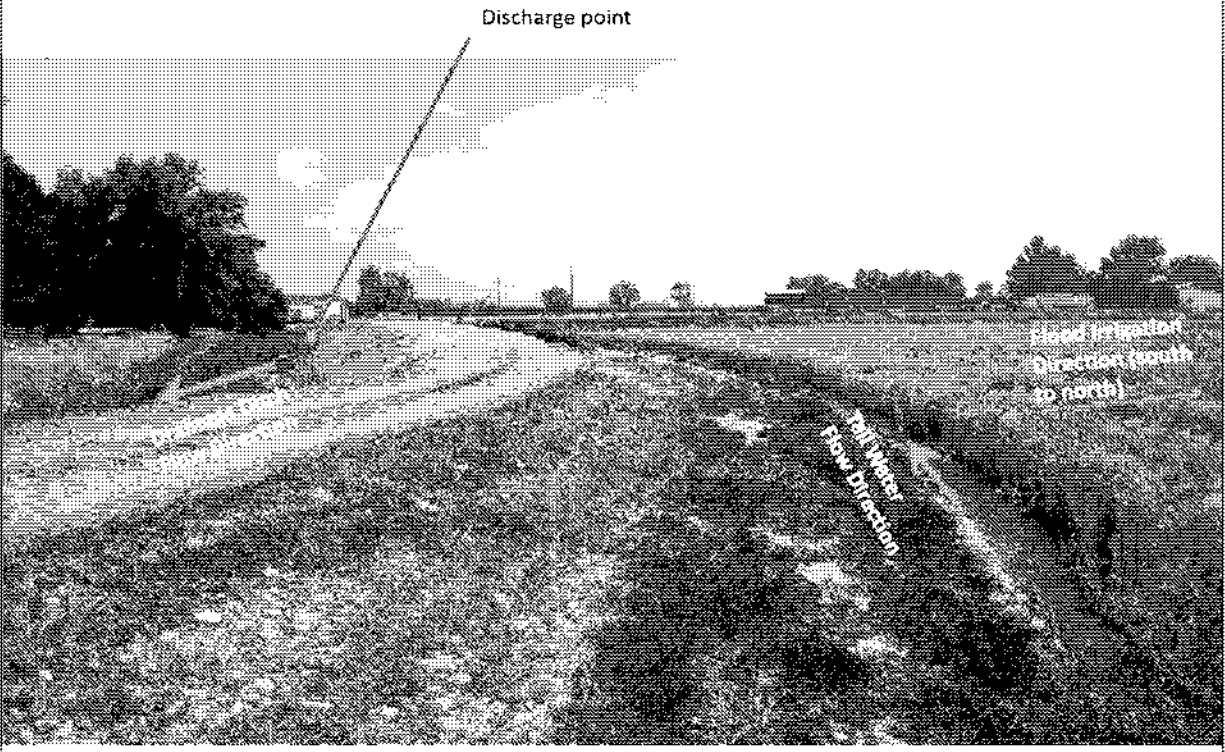
Photo: looking east, southeast

Waste water delivery point into concrete ditch



Waste water being land applied via siphon tubes

Photo: looking northeast



Waste water being land applied via siphon tubes

Photo: looking southwest



Exhibit H

**EPA, NPDES Compliance Evaluation
Inspection at Nederend Dairy (June 6, 2019)**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

ENFORCEMENT &
COMPLIANCE ASSURANCE
DIVISION

JUN 06 2019

Reply to: 20-C04

Mr. Hans Nederend IV
Nederend Dairy
4998 Hogg Road
Homedale, Idaho 83628

Re: NPDES Compliance Evaluation Inspection at Nederend Dairy located at 5101 Dobbins Lane in Marsing, Idaho.

Dear Mr. Nederend:

On April 2, 2019, the PG Environmental, on behalf of the United States Environmental Protection Agency (EPA), conducted a compliance inspection at your facility. The purpose of the inspection was to determine compliance with the Clean Water Act (CWA). A copy of the inspection report is attached to this letter. Please review the inspection report, note the areas of concern, if any, and take any actions necessary to ensure compliance with the CWA.

An EPA Compliance Officer will use this inspection report in evaluating your facility's compliance with the CWA. This may result in subsequent contact from EPA personnel if a violation is identified. This letter is sent only to transmit the inspection report, and it should not be interpreted as a final compliance determination. Please direct any questions regarding compliance evaluations to Steven Potokar at (206)-553-6354 or potokar.steven@epa.gov.

Thank you for the cooperation and assistance extended to the PG Environmental staff during the inspection.

Sincerely,

Jeff KenKnight, Chief
Surface Water Enforcement Section

Enclosure

cc: Mr. Mitch Vermeer
Idaho State Department of Agriculture

IDAHO CAFO INSPECTION REPORT

GENERAL INFORMATION

<p>Facility ID #: <u>N/A* – unpermitted CAFO</u></p> <p>Facility Name: <u>Nederend Dairy</u></p> <p>Facility Owner: <u>Nederend Farms, LLLP</u></p> <p>Facility Operator: <u>Hans Nederend IV</u></p> <p>Mailing Address: <u>4998 Hogg Rd.</u> <u>Homedale, ID 83628</u></p> <p>Physical Address: <u>5101 Dobbin Lane</u> <u>Marsing, ID 83647</u></p> <p>County: <u>Owyhee</u></p> <p>Contact Person: <u>Hans Nederend IV</u></p> <p>Phone (office): <u>N/R*</u> (fax): <u>N/R</u> (cell): <u>208-571-6059</u></p> <p>E-mail: <u>N/R</u></p> <p>Persons Present During Inspection: <u>Hans Nederend IV and John Nederend (Nederend Dairy); Rick Naerebout, Megan Satterwhite, and Tanya Oldham (Idaho Dairymen’s Association); Emily Montague and Pradip Adhikari (Idaho State Department of Agriculture (ISDA)); Tyler Fortunati and Bobby Kennedy (Idaho Department of Environmental Quality); Sirese Jacobson and Jennifer Ferrando (PG Environmental). The facility’s agronomist (name not recorded) joined the group for a portion of the initial interview prior to the site tour.</u></p> <p>Max. Animals Confined per Month: <u>N/R</u></p> <p>Max. Capacity of Facility: <u>The facility representatives did not know the facility’s maximum capacity.</u></p>	<p>Inspectors: <u>Sirese Jacobson and Jennifer Ferrando (PG Environmental)</u></p> <p>Inspection Date: <u>April 2, 2019</u></p> <p>Time In: <u>8:05 AM</u></p> <p>Time Out: <u>10:31 AM</u></p> <p>Weather: <u>Cloudy, approx. 45° F.</u></p> <p>GPS Reading (At Gate)</p> <p>North: <u>43.56232</u></p> <p>West: <u>-116.86237</u></p> <p>Does the facility owner/operator own and/or operate any other animal feeding operations? <u>Yes</u></p> <p>If yes provide name(s) and address(es) and indicate whether the facility is an AFO or a CAFO: <u>Mirada Dairy, Marsing, ID (address and AFO/CAFO status not determined).</u></p> <p>Location and name of nearest surface water¹ and description of flow path: <u>Nederend Dairy is approximately 1.6 miles south of the Snake River. A bermed irrigation canal runs along the facility’s northeast border. Based on a review of aerial imagery and discussion with the facility representatives, it appears that the irrigation canal flows to the Snake River.</u></p>		
Number of animals today (all animals in production area):			
	# confined		# confined
Cattle		Sheep	
Dairy mature	4,730 milking, 541 dry	Dairy heifers	340 springers
Swine (≥55#)		Swine (<55#)	
Turkeys		Laying hens	
Other chickens		Other (specify)	1,200 calves
<input checked="" type="checkbox"/>	Presented credentials? (check if yes) Presented Letter of Authorization dated March 26, 2019		
<input checked="" type="checkbox"/>	Inspection photos or site map/aerial photo attached? (check if yes)		
<input checked="" type="checkbox"/>	Potential compliance issues? (check if yes and summarize below)		

*NA = Not Applicable; NR = Not Requested

Note: The federal regulations cited throughout the checklist are included as reference for discharging CAFOs.

¹ Surface water means all waters of the United States.

SUMMARY OF POTENTIAL COMPLIANCE ISSUES

- The facility’s NMP did not include site-specific conservation practices; however, the facility representatives specified that they turn off the end guns on pivots when applying wastewater near the irrigation canals and use drop hoses with low pressure nozzles on the pivots. In addition, a berm along the irrigation canal prevents the discharge of wastewater into the canal. It is recommended that the facility’s NMP be updated to include site-specific conservation practices. The federal regulations at 40 CFR 122.23(e)(1) require documentation of site-specific conservation practices to prevent the runoff of pollutants from land application areas is required for discharges from the land application area to a water of the U.S. to meet the agricultural storm water definition.
- According to the facility representatives, the facility did not document land application of wastewater that occurred from November 2018 to March 2019 but planned to maintain land application records moving forward. It is recommended that the facility operator document land application events, including the date and amount of manure/wastewater applied to a specific field and calculations of tons of pounds of nutrients applied. The federal regulations at 40 CFR 122.23(e)(1) require documentation of land application events for discharges from the land application area to a Water of the U.S. to meet the agricultural stormwater definition.
- During the site tour, the inspectors observed ponding of silage leachate outside of a designated impoundment. According to the facility representatives, this wastewater is pumped to Lagoon 1 or onto an adjacent field. It is recommended that the facility operator pump wastewater from this area into a designated impoundment to ensure that the leachate nutrient content and volume are captured in the wastewater application rate calculations and records for the facility.
- According to the facility representatives, runoff from the westernmost corral flows into a ditch that runs along the western side of Pivot Field 2 between Lagoon 2 and the pivot field, outside the base of the eastern berm of Lagoon 2. Although the operator indicated that he had never seen wastewater in the ditch, it is recommended that the facility operator ensure that process wastewater cannot exit the ditch and lead to a discharge to a Water of the U.S.

INSPECTION OBSERVATIONS

Nutrient Management Plan (NMP)
Required NMP Element [40 CFR 122.42(e)(1)]
 Indicate whether the following elements are included in the NMP:

Yes	1. Is the facility’s NMP available on-site? Does it reflect the current operational characteristics and practices? [40 CFR 122.42(e)(2)(ii)] Date developed or last revised: <u>March 6, 2019.</u> <u>All statements about the NMP in this report refer to the March 6, 2019, version of the NMP. The NMP was developed by the facility’s agronomist, who is certified by ISDA to develop NMPs, using the current version of ISDA’s NMP software.</u>
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Nutrient Management Plan (NMP) (continued)

- Yes 2. Ensure adequate storage of manure and process wastewater, including operation and maintenance procedures. [40 CFR 122.42(e)(1)(i)]
The NMP identifies individual storage structures and capacities. Data provided in the NMP indicates that the facility has approximately five times more wastewater storage capacity than required. These calculations include the storage capacities for Nederend Dairy and the nearby Mirada Dairy, also owned by Nederend Farms, as the two facilities can transfer wastewater between them as needed. The facility representatives stated that an additional storage lagoon is being planned, west of Lagoon 1, to significantly increase available storage capacity. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 3. Ensure proper management of animal mortalities. [40 CFR 122.42(e)(1)(ii)]
The facility's NMP does not address animal mortality management. According to Mr. Hans Nederend, mortalities are temporarily stored near the northwest corner of Dairy Lagoon 1 until picked up by Darling International for rendering. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 4. Ensure that clean water is diverted, as appropriate, from the production area. [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, the irrigation canal to the north and localized topography would prevent run-on to the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 5. Prevent direct contact of confined animals with surface waters. [40 CFR 122.42(e)(1)(iv)]
Surface waters do not flow through any portion of the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 6. Ensure proper disposal of chemicals and other contaminants. [40 CFR 122.42(e)(1)(v)]
According to Mr. Nederend, all chemicals necessary for use in the operation are stored and mixed offsite. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.

NOTE: Unpermitted CAFOs with agricultural stormwater runoff are required to implement the following nutrient management planning elements (7 – 10) to qualify for the agricultural stormwater exemption [40 CFR 122.23(e)]

- No 7. Identify site-specific conservation practices to control runoff of pollutants. [40 CFR 122.42(e)(1)(vi)]
According to Mr. Nederend, the following practices are used to prevent nutrient loss from land application areas: a berm is maintained by the Irrigation District along the irrigation canal, the facility uses drop hoses with low-pressure nozzles on the pivots, and the facility turns off the end guns on pivots near the irrigation canal. The NMP does not reflect the facility's conservation practices in use.

Nutrient Management Plan (NMP) (continued)

- No 8. Identify protocols for manure, process wastewater, and soil sampling and testing. [40 CFR 122.42(e)(1)(vii)]
The NMP includes protocols for soil testing but does not include protocols for compost and wastewater testing. The results of wastewater and manure analyses performed are included in the calculations shown in the NMP. Wastewater and composted manure are applied to land application sites under the operational control of Nederend Dairy. Unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.
- Yes 9. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater. [40 CFR 122.42(e)(1)(viii)]
The facility's NMP was developed using ISDA software. Provided the software addresses all necessary considerations and data elements to ensure calculation of land application rates that ensure appropriate agricultural utilization of the applied manure and wastewater, this nutrient management planning requirement is satisfied.
- No 10. Identify specific records that will be maintained to document the implementation and management of the minimum NMP elements (#2-#9 above). [40 CFR 122.42(e)(1)(ix)]
The NMP does not identify the site-specific records that will be maintained to document the NMP elements listed above. See question 33 below for a description of the facility's record keeping specific to the nutrient management planning elements that apply to unpermitted CAFOs in the context of the Clean Water Act agricultural stormwater exemption (#7-#9 above).

Additional NMP Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

- Yes 11. Application rates are calculated as required by 40 CFR 412.4(c)(2).
The NMP was developed using ISDA software. Provided the software addresses field-specific risk of nitrogen and phosphorus transport to surface waters; the form, source, amount, timing, and method of nutrient application to achieve realistic yield goals; and consideration of multi-year phosphorus application, the rates in the plan were calculated in accordance with the referenced requirements.
- No 12. Specifies the manure, process wastewater, and soil sampling at the required frequencies and for the required parameters? [40 CFR 412.4(c)(3)] (*manure/wastewater annually for P & N, soils at least every 5 years for phosphorus transport*)
The NMP specifies soil sampling frequency and parameters but does not include manure and wastewater sampling protocols. According to Mr. Hans Nederend, manure and wastewater are sampled twice annually. This NMP element is not required for unpermitted CAFOs under the Clean Water Act; however, unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.

Nutrient Management Plan (NMP) (continued)

- No 13. Includes periodic inspection of land application equipment? [40 CFR 412.4(c)(4)]
The NMP does not address land application equipment inspection. The facility representative indicated that land application equipment is regularly calibrated and inspected for leaks. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 14. Includes 100-foot setback or 35-foot vegetated buffer, or approved alternative? [40 CFR 412.4(c)(5)]
Through review of aerial imagery, Idaho Department of Water Resources's (IDWR) interactive maps, and discussion with facility representatives, it appears that the irrigation canal that borders the facility and several of the land application fields leads to the Snake River. Note that the flow in the canal appeared to be to the south at the time of the inspection; however, according to facility representatives and based on data provided in the IDWR maps flow is typically to the north toward the Snake River. The facility's NMP does not identify site-specific conservation practices; however, Mr. Nederend stated that the end guns on the pivots near the canal to maintain a land application setback. In addition, the canal is bermed and the drop hoses on the pivots are below the top elevation of the berm.

Where applicable, identify each field and setback type:

Field ID	Setback Type
Pivot 2	End guns off near canal, drop hoses below berm height
Pivot 5	

Monitoring, Documentation and Recordkeeping

Does the facility maintain the following records?

- N/A 15. The completed permit application? [40 CFR 412.37(b)]
Nederend Dairy is an unpermitted CAFO.
- No 16. The current design of manure storage structures, including volume of solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity? [40 CFR 412.37(b)(5)]
The facility's NMP identifies individual storage structures and capacities but does not include all of the elements listed above. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 17. The date, time, and estimated volume of any overflow? [40 CFR 412.37(b)(6)]
According to Mr. Nederend, there have been no overflows from the impoundments at Nederend Dairy. The inspectors did not identify evidence of overflows during the site evaluation.
- No 18. Manure and process wastewater transfers, including the most current nutrient analysis of the manure or wastewater that was provided to the recipient, the date and approximate amount transferred, and the name and address of the recipient? [40 CFR 122.42(e)(3)]
- Yes a. Name of recipient
- Yes b. Address of recipient
- Yes c. Date of transfer
- Yes d. Approximate amount transferred (tons/gallons)

Monitoring, Documentation and Recordkeeping (continued)

No e. Recent (12 months or less) manure nutrient analysis provided

Wastewater and manure are applied to land application sites at Nederend Dairy. Manure and wastewater are also transferred to third-party farmers. The facility documents the information listed above but does not provide the results of nutrient analyses to the third-party farmers. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Additional Production Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

No 19. Documentation of daily and weekly visual inspections of the production area, including:

No a. Weekly inspection of stormwater diversions, waste storage structures, and process wastewater channeling devices? [40 CFR 412.37(b)(1)]

No b. Daily inspection of water lines? [40 CFR 412.37(b)(1)]

No c. Weekly inspection of impoundments and tanks? [40 CFR 412.37(b)(1)]

The facility representative indicated that the above items are inspected during routine operations in the production area; however, the visual inspections are not documented. In addition, the facility has installed test wells around the lagoons which are regularly monitored to detect leaks. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

No 20. Weekly records of the depth of manure and process wastewater in liquid impoundments and terminal tanks? [40 CFR 412.37(b)(2)]

The facility representative indicated that lagoon wastewater levels are evaluated during routine operations in the production area. The lagoons do not include depth markers and the facility does not document freeboard or any other indicator of wastewater levels in the impoundments. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

No 21. Documentation of actions taken to correct deficiencies found as a result of production area inspections? [40 CFR 412.37(b)(3)]

Documentation of actions taken to correct deficiencies was not included in the records reviewed. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Yes 22. Documentation of mortalities management? [40 CFR 412.37(b)(4)]

Mortalities are picked up by Darling International for rendering. The facility maintains hauling invoices that document the dates removed and the number of animals picked up. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Monitoring, Documentation and Recordkeeping (continued)**Land Application Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs**

- Yes 23. Expected crop yields? [40 CFR 412.37(c)(1)]
Expected crop yields are included in the facility's NMP. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 24. Date(s) manure or process wastewater is applied to each land application site? [40 CFR 412.37(c)(2)]
The facility documents the dates manure is applied to each land application site but had not documented the dates of wastewater applied from November 2018 to March 2019. The facility's agronomist, hired late in 2018, had not been aware of the need to document wastewater applications but indicated that those records would be maintained in the future. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 25. Weather conditions at the time of, and for 24 hours prior to and following, land application? [40 CFR 412.37(c)(3)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 26. Test methods used to sample and analyze manure, process wastewater, and soil? [40 CFR 412.37(c)(4)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- Yes 27. Results from manure, process wastewater, and soil analyses? [40 CFR 412.37(c)(5)]
- Yes 28. Manure and process wastewater application rates determined in accordance with the technical standards? [40 CFR 412.37(c)(6)]
Planned rates were calculated using ISDA's NMP software.

Monitoring, Documentation and Recordkeeping (continued)

- Yes 29. Calculations showing the total N and P to be applied to each land application site, including sources other than manure or process wastewater? [40 CFR 412.37(c)(7)]
The planned rates in the NMP were calculated using ISDA's NMP software. The NMP expresses planned rates in tons or gallons of manure or wastewater, respectively, to be applied. The inspectors did not evaluate the software, but presume, based on the information provided in the NMP, that the software calculates planned nutrient application rates based on crop nutrient needs, soil credits, and other nutrient inputs, and converts those rates to the tons or gallons to be applied based on the manure analysis data.
- No 30. Total amount of N and P actually applied to each land application site, including calculations? [40 CFR 412.37(c)(8)]
The facility's records for solid manure/compost included the application dates and fields used for land application but did not include the number of loads or tons applied to each field. The facility representatives stated that they maintain bills of lading for the third-party contractor that they use for land applying solid manure. Note that the inspectors did not review the bills of lading. According to the facility representatives, the bills of lading show the number of loads hauled to each site. This could be translated to tons based on the equipment used, which, in turn, could be used to calculate the pounds of nutrients applied using the manure analyses. In addition to maintaining records for wastewater applications (see question 24), the facility representatives indicated that the number of loads and amounts applied would be documented with the manure application records in the future to support calculation of the pounds of nutrients applied and to correspond with the planned rates in the NMP, expressed in tons of manure (or gallons of wastewater) to be applied. Records of the total amount of N and P applied to each field are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 31. Method used to apply manure and process wastewater? [40 CFR 412.37(c)(9)]
All wastewater is applied at Nederend Dairy using pivot sprinklers. The inspectors did not document the method of compost application. The method of application is not documented in the land application records. These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 32. Date(s) of manure application equipment inspections for leaks? [40 CFR 412.37(c)(10)]
These records are not required for unpermitted CAFOs under the Clean Water Act.

Monitoring, Documentation and Recordkeeping (continued)

33. Describe the records that are maintained to document implementation of the following nutrient management planning elements [40 CFR 122.23(e)]:

- a. Identify site-specific conservation practices to control runoff of pollutants.
Site specific conservation practices in use at the facility include drop hoses with low pressure nozzles on pivots, turning off end guns on pivots near the irrigation canal, and a berm maintained by the Irrigation District along the irrigation canal, according to the facility representatives. These conservation practices are not documented, however. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
- b. Identify protocols for manure, process wastewater, and soil sampling and testing.
The facility maintains laboratory analytical reports for soil, compost, and wastewater testing. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
- c. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.
The facility records included the dates of manure application to each field, but did not include the amount (either tons or loads) of manure applied. The facility maintained bills of lading that show the number of loads hauled to each field (see question 30 above). At the time of the inspection, the facility had not maintained wastewater application records from November 2018 to March 2019. Facility representatives indicated that complete records of manure and wastewater application would be maintained in the future. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.

Monitoring, Documentation and Recordkeeping comments:

The inspectors were not able to compare land application records to planned rates in the NMP. The current NMP was for the 2019 crop year and the land application records reviewed were for the 2018 crop year. As described above, the facility's past records documented the dates and locations of land application, but the amount of manure applied was only documented in separate bills of lading. Going forward, the facility representatives stated they planned to also include the number of loads and amount of manure and wastewater applied, consistent with the expression of rates, in tons and gallons, in the current NMP developed using the new ISDA software. However, the previous NMP that covered the 2018 crop year had been developed using the old ISDA program, OnePlan, which expresses planned rates in terms of pounds of N, P, and K. Therefore, the records maintained for land applications before the 2019 crop year would not be readily comparable to the corresponding NMP.

Land Application Sites

Yes 34. Does the facility apply manure or wastewater to land owned by or under the operational control of the CAFO?

- Number of land application sites: Number of sites not documented. The facility's NMP indicates that approximately 4,000 acres are available for land application of manure and wastewater from Nederend Dairy and Mirada Dairy. The inspectors' notes are inconsistent but indicate at least 2,000 and up to 6,000 additional acres are available through third-party export.
- Irrigation type(s): Pivot
- Furrow/flood irrigation sites – what is fate of applied wastewater and tailwater? N/A

Production Area

35. List impoundments

Impoundment ID	Wastewater Type	Wastewater Source(s)	Pumping level ²	Wastewater below pumping level?	Max. recorded level	Date of max. recorded level
Separators 1-4	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Milking parlor, runoff from corrals	N/A	N/A	N/A	N/A
Separators 5-8	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Separators 1-4	N/A	N/A	N/A	N/A
Lagoon 1	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Separators 5-8, corrals	N/A – not required for unpermitted CAFOs under the Clean Water Act	N/A	N/A	N/A
Lagoon 2	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 1		N/A Freeboard during inspection approx. 2 ft	N/A	N/A
Mixing pond	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 1, wastewater from Mirada Dairy		N/A	N/A	N/A

² The pumping level represents the minimum capacity necessary to contain runoff and direct precipitation from the 25-year, 24-hour rainfall event (40 CFR 40 CFR 412.37(a)(2)).

Production Area (continued)

36. Impoundment(s) collect all runoff from:

No Animal confinement areas?³

According to the facility representatives, runoff from the westernmost corral flows into a ditch that runs generally north along the outside of the eastern berm of Lagoon 2 and between Pivot Fields 2 and 5. The operator indicated that he had never seen wastewater in the ditch. The inspectors recommended that the facility operator ensure that process wastewater cannot exit the ditch and lead to a discharge to a Water of the U.S.

Yes Manure storage areas?⁴

No Raw material storage areas?⁵

Ponding of runoff from a silage storage area was observed outside of a designated impoundment. According to the facility representatives, this wastewater is pumped to the Lagoon 1 or onto an adjacent field. The inspectors recommended that the facility pump wastewater from this area into a designated impoundment to ensure that the wastewater nutrient content and volume are reflected in the wastewater application rate calculations and records for the facility.

Yes Waste containment areas?⁶

N/A Egg washing or egg processing facility?

Yes Mortality storage, handling, treatment or disposal area?

N/A Other? (describe): N/A

No 37. Was manure or wastewater observed in a waterway? If yes, describe: N/A

Yes 38. Adequate storage available for manure, litter, and process wastewater, and procedures are in place to ensure proper operation and maintenance of the storage facilities? [40 CFR 122.42(e)(1)(i)]
Lagoons 1 and 2 had remaining capacity. No evidence of uncontained manure or wastewater was observed.

Yes 39. Confined animals do not have direct contact with waters of the United States? [40 CFR 122.42(e)(1)(iv)]
Waters of the U.S. do not flow through the animal confinement areas.

³ Animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables (40 CFR 40 CFR 122.23(b)(8)).

⁴ Manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles (40 CFR 40 CFR 122.23(b)(8)).

⁵ Raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials (40 CFR 40 CFR 122.23(b)(8)).

⁶ The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water (40 CFR 40 CFR 122.23(b)(8)).

Production Area (continued)

N/A 40. Clean water is diverted from the production area? [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, localized topography would prevent run-on to the production area. Dry conditions during the inspection prevented observation of localized stormwater runoff flow.

Yes 41. Chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system? [40 CFR 122.42(e)(1)(v)]
The facility representative stated that all chemicals necessary for use in the operation are stored and mixed offsite, with the exception of foot bath chemicals, which are fully used and do not result in waste chemicals requiring disposal. The inspectors did not identify evidence of improper chemical disposal.

Additional Production Area Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs (Subparts C and D)

No 42. All open surface impoundments and terminal storage tanks have depth markers which clearly indicate the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event? [40 CFR 412.37(a)(2)]
Depth markers are not required for unpermitted CAFOs under the Clean Water Act.

Yes 43. Mortalities remain in the production area until disposal, are not disposed in liquid manure or process wastewater treatment systems, and are handled to prevent discharge of pollutants to surface waters? [40 CFR 412.37(a)(4)]
Mortalities are stored temporarily on site prior to pick up by the renderer. The mortality storage location is near the northwest corner of Lagoon 1; runoff from this area drains to Lagoon 1.

Production area comments:

Wastewater from the milking parlor and runoff from the corrals enter Separators 1-4 (these separators are referred to as Sand Traps by the facility representatives). Wastewater from Separators 1-4 flows by gravity to Separators 5-8, which include synthetic liners. Solids removed from the separators are transferred to Mirada Dairy's manure drying area. Wastewater from Separators 5-8 flows by gravity into Lagoon 1, which is plastic- and clay-lined. Wastewater from Lagoon 1 is pumped to Lagoon 2 (referred to as Field 5 Lagoon by the facility representatives). A portion of runoff from the northern corrals flows directly to Lagoon 1. Runoff from the westernmost corral and the feed storage area is not contained in the designated impoundments (see question 36).

Manure vacuumed from the freestall barns is hauled directly to the facility's land application sites or to the drying yard at Mirada Dairy.

The facility also has a Mixing Pond where wastewater from Lagoon 1 or 2 or from Mirada Dairy can be mixed with freshwater prior to land application. According to Mr. Nederend, the facility is planning to construct a new 12-acre, plastic-lined lagoon west of Lagoon 1 for additional storage capacity.

Inspector: _____



Date: 5/30/2019

Aerial Photo/Site Map



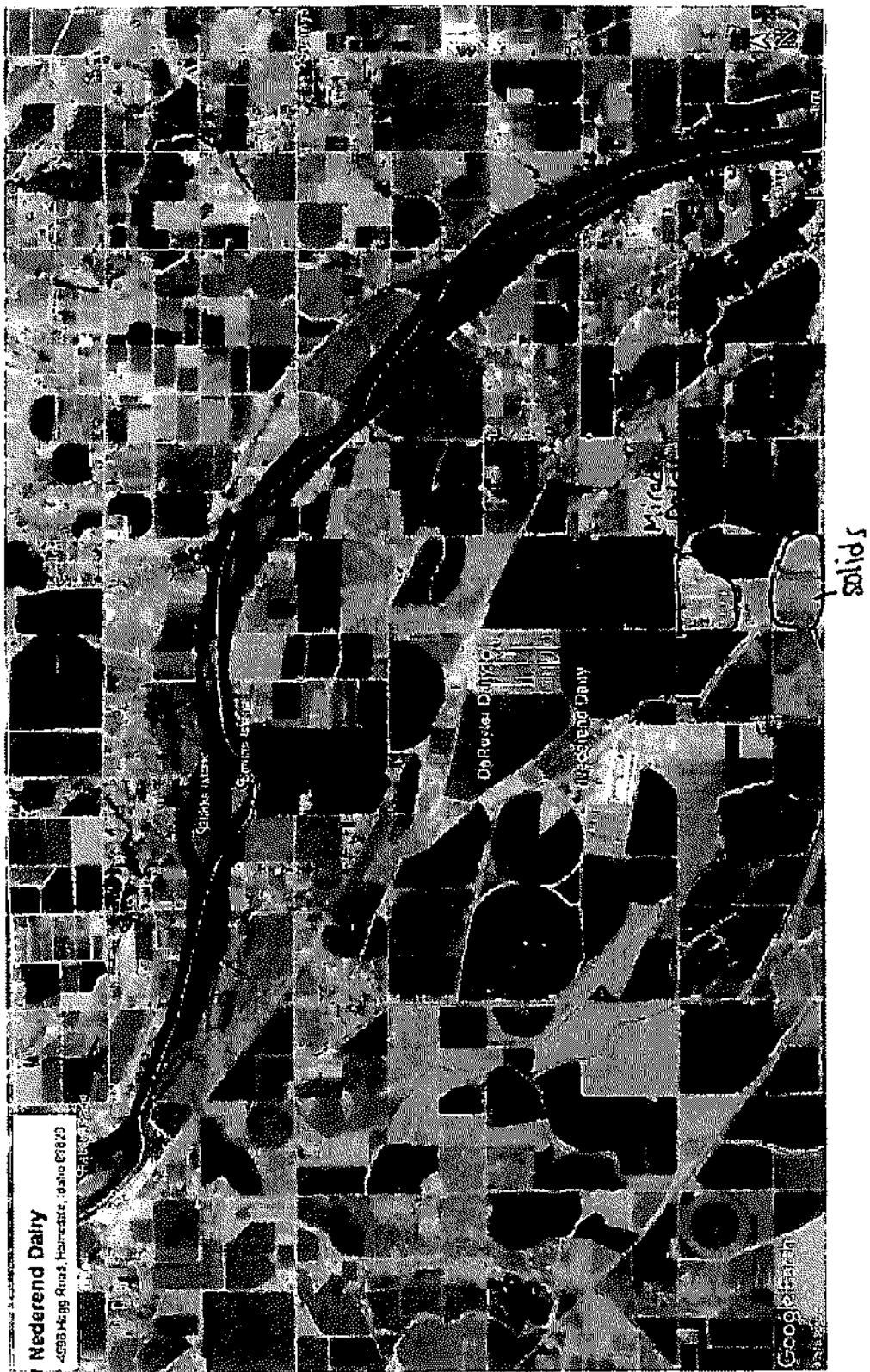


Exhibit I

**EPA, Clean Water Act Compliance Evaluation
Inspection at Sunview Dairy (June 6, 2019)**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3185

ENFORCEMENT &
COMPLIANCE ASSURANCE
DIVISION

JUN 06 2019

Reply to: 20-C04

Mr. Ed DeGroot
Sunview Dairy
6600 SW Blanksma Road
Mountain Home, Idaho 83647

Re: Clean Water Act Compliance Evaluation Inspection at Sunview Dairy at 6600 SW Blanksma Road in Mountain Home, Idaho.

Dear Mr. DeGroot:

On April 4, 2019, the PG Environmental, on behalf of the United States Environmental Protection Agency (EPA), conducted a compliance inspection at your facility. The purpose of the inspection was to determine compliance with the Clean Water Act (CWA). A copy of the inspection report is attached to this letter. Please review the inspection report, note the areas of concern, if any, and take any actions necessary to ensure compliance with the CWA.

An EPA Compliance Officer will use this inspection report in evaluating your facility's compliance with the CWA. This may result in subsequent contact from EPA personnel if a violation is identified. This letter is sent only to transmit the inspection report, and it should not be interpreted as a final compliance determination. Please direct any questions regarding compliance evaluations to Steven Potokar at (206)-553-6354 or potokar.steven@epa.gov.

Thank you for the cooperation and assistance extended to the PG Environmental staff during the inspection.

Sincerely,

Jeff KenKnight, Chief
Surface Water Enforcement Section

Enclosure

cc: Mr. Mitch Vermeer
Idaho State Department of Agriculture

IDAHO CAFO INSPECTION REPORT

GENERAL INFORMATION

<p>Facility ID #: <u>N/A* – unpermitted CAFO</u></p> <p>Facility Name: <u>Sunview Dairy</u></p> <p>Facility Owner: <u>DeGroot Family</u></p> <p>Facility Operator: <u>Ed DeGroot</u></p> <p>Mailing Address: <u>6600 SW Blanksma Rd.</u> <u>Mountain Home, ID 83647</u></p> <p>Physical Address: <u>6600 SW Blanksma Rd.</u> <u>Mountain Home, ID 83647</u></p> <p>County: <u>Elmore</u></p> <p>Contact Person: <u>Ed DeGroot</u></p> <p>Phone (office): <u>N/R*</u> (fax): <u>N/R</u> (cell): <u>208-941-3908</u></p> <p>E-mail: <u>N/R</u></p> <p>Persons Present During Inspection: <u>Ed DeGroot (Sunview Dairy); Rick Naerebout and Megan Satterwhite (Idaho Dairymen's Association [ISDA]); Emily Montague and Pradip Adhikari (Idaho State Department of Agriculture [ISDA]); James Craft and Brett Morrison (Idaho Department of Environmental Quality); Sirese Jacobson and Jennifer Ferrando (PG Environmental)</u></p> <p>Max. Animals Confined per Month: <u>~20,000</u></p> <p>Max. Capacity of Facility: <u>~20,000</u></p>	<p>Inspector: <u>Sirese Jacobson and Jennifer Ferrando (PG Environmental)</u></p> <p>Inspection Date: <u>April 4, 2019</u></p> <p>Time In: <u>12:04 PM</u></p> <p>Time Out: <u>2:00 PM</u></p> <p>Weather: <u>Partly cloudy, approx. 60° F.</u></p> <p>GPS Reading (At Gate)</p> <p>North: <u>43.00391</u></p> <p>West: <u>-115.76486</u></p> <p>Does the facility owner/operator own and/or operate any other animal feeding operations? <u>Yes: Mr. DeGroot owns, but does not operate, another dairy in Idaho.</u></p> <p>If yes provide name(s) and address(es) and indicate whether the facility is an AFO or a CAFO: <u>N/R</u></p> <p>Location and name of nearest surface water¹ and description of flow path: <u>Sunview Dairy is approximately 1.5 miles north of Rattlesnake Creek and 2.2 miles north-northeast of the Snake River. An unnamed, intermittent drainage originates near the southwest corner of the cow pens and flows approximately 2.5 miles south to its confluence with the Snake River.</u></p>
Number of animals today (all animals in production area):	
	# confined
Cattle	
Dairy mature	~10,000 (milking and dry)
Swine (≥55#)	
Turkeys	
Other chickens	
	# confined
	Sheep
	Dairy heifers
	Swine (<55#)
	Laying hens
	Other (specify)
	~10,000 young stock
X	Presented credentials? (check if yes) <u>Presented Letter of Authorization dated March 26, 2019</u>
X	Inspection photos or aerial photo/site map attached? (check if yes)
X	Potential compliance issues? (check if yes and summarize below)

*NA = Not Applicable; NR = Not Requested

Note: The federal regulations cited throughout the checklist are included as reference for discharging CAFOs.

¹ Surface water means all waters of the United States.

SUMMARY OF POTENTIAL COMPLIANCE ISSUES

- The facility’s NMP did not include site-specific conservation practices; however, the facility operator specified that the following conservation practices are used: Dammer Diker process during planting, cover crops, and drop hoses and low-pressure sprayers on the pivots. It is recommended that the facility’s NMP be updated to include site-specific conservation practices. The federal regulations at 40 CFR 122.23(e)(1) require documentation of site-specific conservation practices to prevent the runoff of pollutants from land application areas is required for discharges from the land application area to a water of the U.S. to meet the agricultural storm water definition.
- During the site tour, and on Google Earth aerial photography and USGS National Map data, the inspectors observed that an intermittent drainage originates near a low spot at the southwest end of the cattle pens. The inspectors did not observe evidence that wastewater drains to this area; however, a manure composting area was observed in the corner of the adjacent pivot field. To ensure that wastewater runoff from the cattle pens and compost area in the western portion of the facility does not discharge to the unnamed intermittent tributary and flow towards the Snake River, which is approximately 2.5 stream miles from the low spot (as measured using Google Earth aerial imagery), it is recommended that the facility operator regularly inspect this area, particularly during storm events.
- During the site tour, the inspectors observed an earthen berm along the south (upslope) side of the cattle pens. It is recommended that the facility operator continue to maintain this berm to ensure that any runoff from the southern end of the pens cannot flow offsite or toward the unnamed intermittent tributary to the Snake River that originates near the southwest corner of the production area.

INSPECTION OBSERVATIONS

Nutrient Management Plan (NMP)	
<i>Required NMP Elements (40 CFR 122.42(e)(1))</i>	
<i>Indicate whether the following elements are included in the NMP:</i>	
Yes	<p>1. Is the facility’s NMP available on-site? Does it reflect the current operational characteristics and practices? [40 CFR 122.42(e)(2)(ii)]</p> <p>Date developed or last revised: <u>October 3, 2018. All statements about the NMP in this report refer to the October 3, 2018, version of the NMP, unless otherwise specified.</u></p> <p><u>The NMP was developed by Ed DeGroot, who is certified by ISDA to develop NMPs, using the current version of ISDA’s NMP software.</u></p>
Yes	<p>2. Ensure adequate storage of manure and process wastewater, including operation and maintenance procedures. [40 CFR 122.42(e)(1)(i)]</p> <p><u>The NMP identifies individual storage structures and capacities. At the time of the inspection, a new wastewater storage lagoon was under construction. Data provided in the NMP indicates that the facility currently has approximately 1.2 times more wastewater storage capacity than required. The calculations include the lagoon that was under construction at the time of the inspection and the recently-constructed pens that will contribute drainage to that lagoon. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.</u></p>
No	<p>3. Ensure proper management of animal mortalities. [40 CFR 122.42(e)(1)(ii)]</p> <p><u>The facility’s NMP does not address animal mortality management. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.</u></p>

Nutrient Management Plan (NMP) (continued)

- N/A 4. Ensure that clean water is diverted, as appropriate, from the production area. [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, local site topography would prevent stormwater run-on to the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 5. Prevent direct contact of confined animals with surface waters. [40 CFR 122.42(e)(1)(iv)]
Surface waters do not flow through any portion of the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 6. Ensure proper disposal of chemicals and other contaminants. [40 CFR 122.42(e)(1)(v)]
According to Mr. DeGroot, all necessary chemicals are fully used, leaving no waste chemicals for disposal. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.

NOTE: Unpermitted CAFOs with agricultural stormwater runoff are required to implement the following nutrient management planning elements (7 – 10) to qualify for the agricultural stormwater exemption [40 CFR 122.23(e)]

- No 7. Identify site-specific conservation practices to control runoff of pollutants. [40 CFR 122.42(e)(1)(vi)]
According to Mr. DeGroot, the following practices are used to prevent nutrient loss from land application areas: cover crops, drop hoses with low pressure nozzles on pivots, and use of a Dammer Diker during planting. The NMP reflects the use of cover crops; however, the other conservation practices in use are not documented.
- No 8. Identify protocols for manure, process wastewater, and soil sampling and testing. [40 CFR 122.42(e)(1)(vii)]
The NMP includes protocols for soil testing but not for compost and wastewater testing. The results of wastewater analyses are included in the calculations shown in the NMP. Wastewater and composted manure are applied to land under the operational control of Sunview Dairy. Unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.
- Yes 9. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater. [40 CFR 122.42(e)(1)(viii)]
Mr. DeGroot, an ISDA-certified nutrient management planner, developed the facility's NMP using ISDA software. The inspection team presumes this nutrient management planning requirement is satisfied, provided the software addresses all necessary considerations and data elements to ensure calculation of land application rates that ensure appropriate agricultural utilization of the applied manure and wastewater.

Nutrient Management Plan (NMP) (continued)

No 10. Identify specific records that will be maintained to document the implementation and management of the minimum NMP elements (#2-#9 above). [40 CFR 122.42(e)(1)(ix)]
The NMP does not identify the site-specific records that will be maintained to document the NMP elements listed above. See question 33, below, for a description of the facility's record keeping specific to the nutrient management planning elements that apply to unpermitted CAFOs in the context of the Clean Water Act agricultural stormwater exemption (#7-#9 above).

Additional NMP Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

Yes 11. Application rates are calculated as required by 40 CFR 412.4(c)(2).
The NMP was developed using ISDA software. The inspection team presumes that the application rates in the plan were calculated in accordance with the referenced requirements, provided the software addresses field-specific risk of nitrogen and phosphorus transport to surface waters; the form, source, amount, timing, and method of nutrient application to achieve realistic yield goals; and consideration of multi-year phosphorus application.

No 12. Specifies the manure, process wastewater, and soil sampling at the required frequencies and for the required parameters? [40 CFR 412.4(c)(3)] (manure/wastewater annually for P & N, soils at least every 5 years for phosphorus transport)
The NMP specifies soil sampling frequency and parameters but does not include manure and wastewater sampling protocols. This NMP element is not required for unpermitted CAFOs under the Clean Water Act; however, unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.

No 13. Includes periodic inspection of land application equipment? [40 CFR 412.4(c)(4)]
The NMP does not address land application equipment inspection. The facility representative indicated that land application equipment is regularly calibrated and inspected for leaks. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.

N/A 14. Includes 100-foot setback or 35-foot vegetated buffer, or approved alternative? [40 CFR 412.4(c)(5)]
According to the facility representative, there are no downgradient surface waters or conduits to surface water within 100 feet of any land application sites. Review of aerial imagery and the NMP field maps did not indicate surface waters within 100 feet of land application sites.

Where applicable, identify each field and setback type:

Field ID	Setback Type
N/A	N/A

Monitoring, Documentation and Recordkeeping

Does the facility maintain the following records?

- N/A 15. The completed permit application? [40 CFR 412.37(b)]
Sunview Dairy is an unpermitted CAFO.
- No 16. The current design of manure storage structures, including volume of solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity? [40 CFR 412.37(b)(5)]
The facility's NMP identifies individual storage structures and capacities but does not include all of the elements listed above. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 17. The date, time, and estimated volume of any overflow? [40 CFR 412.37(b)(6)]
According to Mr. DeGroot, there have been no overflows from the impoundments at Sunview Dairy. The inspectors did not identify evidence of overflows during the site evaluation.
- No 18. Manure and process wastewater transfers, including the most current nutrient analysis of the manure or wastewater that was provided to the recipient, the date and approximate amount transferred, and the name and address of the recipient? [40 CFR 122.42(e)(3)]
 - Yes a. Name of recipient
 - Yes b. Address of recipient
 - Yes c. Date of transfer
 - Yes d. Approximate amount transferred (tons/gallons)
 - No e. Recent (12 months or less) manure nutrient analysis provided

Wastewater is applied to land application sites at Sunview Dairy. Most of the solid manure generated at the site is transferred to a third-party composter. Smaller volumes of compost are transferred to third-party farmers or applied to Sunview Dairy land application sites. The facility documents the information listed above but does not provide the results of nutrient analyses to the third-party farmers who receive manure from Sunview Dairy. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Additional Production Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

- No 19. Documentation of daily and weekly visual inspections of the production area, including:
 - No a. Weekly inspection of stormwater diversions, waste storage structures, and process wastewater channeling devices? [40 CFR 412.37(b)(1)]
 - No b. Daily inspection of water lines? [40 CFR 412.37(b)(1)]
 - No c. Weekly inspection of impoundments and tanks? [40 CFR 412.37(b)(1)]

The facility representative indicated that the above items are inspected during daily drives around the production area; however, the visual inspections are not documented. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Monitoring, Documentation and Recordkeeping (continued)

- No 20. Weekly records of the depth of manure and process wastewater in liquid impoundments and terminal tanks? [40 CFR 412.37(b)(2)]
The facility representative indicated that lagoon wastewater levels are evaluated during daily drives around the production area. The lagoons do not include depth markers and the facility does not document freeboard or any other indicator of wastewater levels in the impoundments. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- No 21. Documentation of actions taken to correct deficiencies found as a result of production area inspections? [40 CFR 412.37(b)(3)]
The facility records included a "Separator Maintenance Log" that included maintenance dates and notes for the mechanical separator. The records did not include documentation of other corrective actions. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- Yes 22. Documentation of mortalities management? [40 CFR 412.37(b)(4)]
Mortalities are picked up by Darling International for rendering. The facility maintains hauling invoices that document the number of animals picked up and the dates. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Land Application Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

- Yes 23. Expected crop yields? [40 CFR 412.37(c)(1)]
Expected crop yields are included in the facility's NMP. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater was performed in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- Yes 24. Date(s) manure or process wastewater is applied to each land application site? [40 CFR 412.37(c)(2)]
Dates of manure and process wastewater application are included in the facility's NMP. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 25. Weather conditions at the time of, and for 24 hours prior to and following, land application? [40 CFR 412.37(c)(3)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.

Monitoring, Documentation and Recordkeeping (continued)

- No 26. Test methods used to sample and analyze manure, process wastewater, and soil? [40 CFR 412.37(c)(4)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- Yes 27. Results from manure, process wastewater, and soil analyses? [40 CFR 412.37(c)(5)]
- Yes 28. Manure and process wastewater application rates determined in accordance with the technical standards? [40 CFR 412.37(c)(6)]
Planned rates are calculated using ISDA's NMP software.
- Yes 29. Calculations showing the total N and P to be applied to each land application site, including sources other than manure or process wastewater? [40 CFR 412.37(c)(7)]
The planned rates in the NMP are calculated using ISDA's NMP software. The NMP expresses planned rates in tons of manure or gallons of wastewater to be applied. The inspectors did not evaluate the software, but presume, based on the information provided in the NMP, that the software calculates planned nutrient application rates based on crop nutrient needs, soil credits, and other nutrient inputs, and converts those rates to tons or gallons of manure or wastewater to be applied based on manure analysis data.
- No 30. Total amount of N and P actually applied to each land application site, including calculations? [40 CFR 412.37(c)(8)]
The facility's records include the tons or gallons of manure or wastewater, respectively, applied to each field. This corresponds with the planned rates in the NMP, which are also expressed in tons or gallons of manure or wastewater to be applied. Records of the total amount of N and P applied to each field are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 31. Method used to apply manure and process wastewater? [40 CFR 412.37(c)(9)]
All wastewater is applied at Sunview Dairy using pivot sprinklers. Compost is applied with a compost spreader or a truck-mounted manure spreader. The application method is not documented in the land application records. These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 32. Date(s) of manure application equipment inspections for leaks? [40 CFR 412.37(c)(10)]
These records are not required for unpermitted CAFOs under the Clean Water Act.

Monitoring, Documentation and Recordkeeping (continued)

33. Describe the records that are maintained to document implementation of the following nutrient management planning elements [40 CFR 122.23(e)]:
- a. Identify site-specific conservation practices to control runoff of pollutants.
According to the facility representative, site specific conservation practices in use at the facility include cover crops, drop hoses with low pressure nozzles on pivots, and use of a Dammer Diker during planting, according to the facility representative. These conservation practices are not documented. Documentation of this information is required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
 - b. Identify protocols for manure, process wastewater, and soil sampling and testing.
The facility maintains laboratory analytical reports for soil, compost, and wastewater testing. Records identifying testing and sampling protocols are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
 - c. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.
The facility documents the dates of land application to each field, the tons of manure or gallons of wastewater applied (which correspond to the format used to express planned rates in the NMP), and the acres used for land application. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.

Monitoring, Documentation and Recordkeeping comments:

The inspectors were not able to compare land application records to planned rates in the NMP. The land application records reviewed were for the 2018 crop year. As described above, the records documented the tons of solid manure and gallons of wastewater applied. This is consistent with the expression of rates, in tons and gallons, in the current NMP developed using the new ISDA software. However, the previous NMP that covered the 2018 crop year had been developed using the old ISDA program, OnePlan, which expresses planned rates in terms of pounds of N, P, and K. Therefore, the records maintained for land applications before the 2019 crop year would not be readily comparable to the corresponding NMP.

Land Application Sites						
Yes 34. Does the facility apply manure or wastewater to land owned by or under the operational control of the CAFO? <ul style="list-style-type: none"> Number of land application sites: <u>Number of sites not documented. The facility's NMP indicates that approximately 15,600 acres are available for land application of manure and wastewater from Sunview Dairy (approximately 2,600 on site and approximately 13,000 through third-party export).</u> Irrigation type(s): <u>Pivot</u> Furrow/flood irrigation sites – what is fate of applied wastewater and tailwater? <u>N/A</u> 						
Production Area						
35. List impoundments:						
Impoundment ID	Wastewater Type	Wastewater Source(s)	Pumping level ²	Wastewater below pumping level?	Max. recorded level	Date of max. recorded level
Separator cells 1 - 4	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Mechanical separator (milking parlors, runoff from corrals and composting area)	N/A	N/A	N/A	N/A
Lagoon 1	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Separator cells	N/A – not required for unpermitted CAFOs under the Clean Water Act	N/A Freeboard during inspection approx. 3 ft.	N/A	N/A
Lagoon 2	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 1, eastern pens (if large rain event overwhelms collection pit)		N/A Freeboard during inspection approx. 3.5 ft	N/A	N/A
Lagoon 3	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 2, feed/commodities/silage, adjacent pens, calf hutches		N/A Freeboard during inspection approx. 7 ft	N/A	N/A
Lagoon 4	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Westernmost pens		N/A Under construction at time of inspection	N/A	N/A

² The pumping level represents the minimum capacity necessary to contain runoff and direct precipitation from the 25-year, 24-hour rainfall event (40 CFR 412.37(a)(2)).

Production Area (continued)

36. Impoundment(s) collect all runoff from:

No Animal confinement areas?³

Two rows of pens were recently constructed at the west end of the production area. Runoff from those pens will ultimately gravity flow to Lagoon 4, which was under construction at the time of the inspection. A temporary impoundment had been excavated immediately to the east of Lagoon 4 to contain runoff from the pens until construction of Lagoon 4 is complete. The facility operator indicated that cows had only been in the new pens for a short time and that the pens were not in use during the winter.

No Manure storage areas?⁴

A composting area located in the southeast corner of the pivot field immediately west of the production area does not drain to the impoundments. A temporary berm had been constructed to contain runoff within the compost area. The facility representative stated that runoff from the composting area would drain to Lagoon 4 when construction is complete.

Yes Raw material storage areas?⁵

Yes Waste containment areas?⁶

N/A Egg washing or egg processing facility?

Yes Mortality storage, handling, treatment or disposal area?

N/A Other? (describe): N/A

No 37. Was manure or wastewater observed in a waterway? If yes, describe:

N/A

Yes 38. Adequate storage available for manure, litter, and process wastewater, and procedures are in place to ensure proper operation and maintenance of the storage facilities? [40 CFR 122.42(e)(1)(i)]

The facility representative stated that the facility had not begun removing wastewater from the lagoons for spring land application. Lagoons 1 through 3 had remaining capacity. No evidence of uncontained manure or wastewater was observed.

³ Animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables (40 CFR 122.23(b)(8)).

⁴ Manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles (40 CFR 122.23(b)(8)).

⁵ Raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials (40 CFR 122.23(b)(8)).

⁶ The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water (40 CFR 122.23(b)(8)).

Production Area (continued)

- Yes 39. Confined animals do not have direct contact with waters of the United States? [40 CFR 122.42(e)(1)(iv)]
Waters of the U.S. do not flow through the animal confinement areas.
- N/A 40. Clean water is diverted from the production area? [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, local site topography would prevent stormwater run-on to the production area. Dry conditions during the inspection prevented observation of localized stormwater runoff flow.
- Yes 41. Chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system? [40 CFR 122.42(e)(1)(v)]
The facility representative stated that all necessary chemicals are fully used, leaving no waste chemicals for disposal. The inspectors did not evaluate the chemical storage location but did not identify evidence of improper chemical disposal.

Additional Production Area Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs (Subparts C and D)

- No 42. All open surface impoundments and terminal storage tanks have depth markers which clearly indicate the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event? [40 CFR 412.37(a)(2)]
Depth markers are not required for unpermitted CAFOs under the Clean Water Act.
- Yes 43. Mortalities remain in the production area until disposal, are not disposed in liquid manure or process wastewater treatment systems, and are handled to prevent discharge of pollutants to surface waters? [40 CFR 412.37(a)(4)]
Mortalities are stored temporarily on site prior to pick-up by the renderer. The mortality storage location is between the eastern pens and Lagoons 1 and 2; runoff from this area drains to the collection pit, or directly to Lagoon 2 in heavy storm events.

Production Area (continued)

Production area comments:

Wastewater from both milking parlors, runoff from the pens in the eastern half of the production area, and runoff from the compost area in the pivot corner at the northeastern corner of the production area flow to a concrete collection pit/sump located at the north side of the pen to the north of the eastern milk barn. During heavy rain events, runoff from the pens can bypass the collection pit and flow directly to Lagoon 2. Wastewater is pumped from the collection pit to the mechanical separator. Wastewater gravity flows from the mechanical separator to four concrete separator cells (the adjacent earthen separator cells are no longer used). From the separator cells, wastewater gravity flows to Lagoons 1, 2, and 3 in series.

Lagoon 3 also receives runoff from the pens south of Lagoon 3 and the two rows of pens immediately west of Lagoon 3 (including all pens in those two rows extending to the southern production area boundary). In addition, runoff from the feed, silage, and commodities storage area in the northeast portion of the production area and calf hutches north and east of Lagoon 1 gravity flows to Lagoon 3 via a drain located east of Lagoon 3.

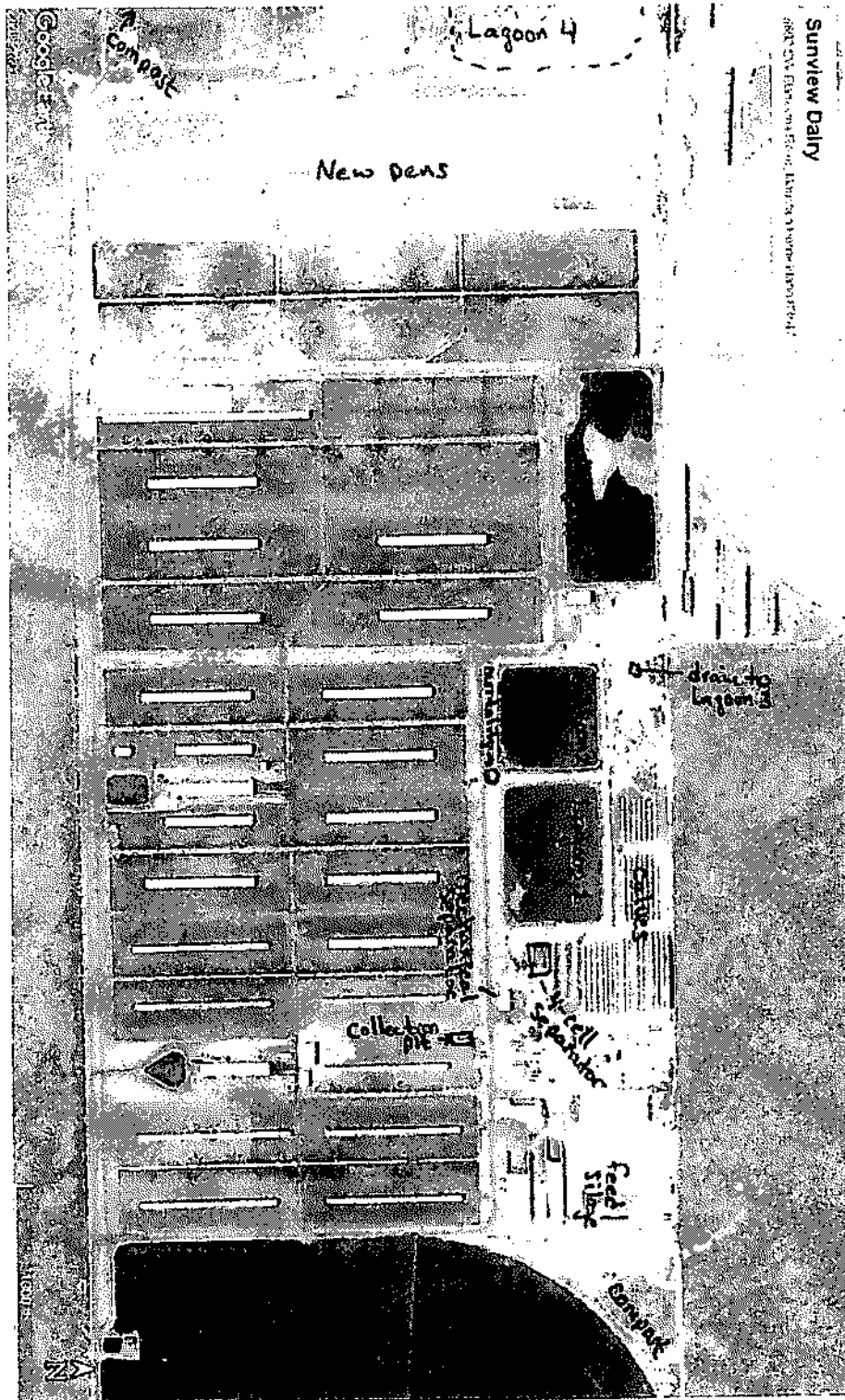
Two rows of pens were recently constructed at the west end of the production area. Runoff from those pens will ultimately gravity flow to Lagoon 4, which was under construction at the time of the inspection. A temporary impoundment had been excavated immediately to the east of Lagoon 4 to contain runoff from the pens until construction of Lagoon 4 is complete. The facility operator indicated that cows had only been in the new pens for a short time and that the pens were not in use during the winter.

Inspector: _____

Jennyfer Juarez

Date: _____

5/30/2019



Aerial Photo/Site Map

Exhibit J

EPA, NPDES Compliance Evaluation
Inspection at Vandenberg & Sons Dairy (June 6,
2019)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

ENFORCEMENT &
COMPLIANCE ASSURANCE
DIVISION

JUN 06 2019

Reply to: 20-C04

Mr. Bill Vandenberg
Vandenberg & Sons Dairy
13503 Goodson Road
Caldwell, Idaho 83607

Re: NPDES Compliance Evaluation Inspection at Vandenberg & Sons Dairy located at 13503 Goodson Road in Caldwell, Idaho.

Dear Mr. Vandenberg:

On April 3, 2019 the PG Environmental, on behalf of the United States Environmental Protection Agency (EPA), conducted a compliance inspection at your facility. The purpose of the inspection was to determine compliance with the Clean Water Act (CWA). A copy of the inspection report is attached to this letter. Please review the inspection report, note the areas of concern, if any, and take any actions necessary to ensure compliance with the CWA.

An EPA Compliance Officer will use this inspection report in evaluating your facility's compliance with the CWA. This may result in subsequent contact from EPA personnel if a violation is identified. This letter is sent only to transmit the inspection report, and it should not be interpreted as a final compliance determination. Please direct any questions regarding compliance evaluations to Steven Potokar at (206)-553-6354 or potokar.steven@epa.gov.

Thank you for the cooperation and assistance extended to the PG Environmental staff during the inspection.

Sincerely,

Jeff KenKnight, Chief
Surface Water Enforcement Section

Enclosure

cc: Mr. Mitch Vermeer
Idaho State Department of Agriculture

IDAHO CAFO INSPECTION REPORT

GENERAL INFORMATION

<p>Facility ID #: <u>N/A* – unpermitted CAFO</u></p> <p>Facility Name: <u>Vandenberg & Sons Dairy</u></p> <p>Facility Owner: <u>Bill Vandenberg</u></p> <p>Facility Operator: <u>Bill and Casey Vandenberg</u></p> <p>Mailing Address: <u>13503 Goodson Rd. Caldwell, ID 83607</u></p> <p>Physical Address: <u>13503 Goodson Rd. Caldwell, ID 83607</u></p> <p>County: <u>Canyon</u></p> <p>Contact Person: <u>Casey and Marnie Vandenberg</u></p> <p>Phone (office): <u>N/R*</u> (fax): <u>N/R</u> (cell): <u>208-941-0481</u></p> <p>E-mail: <u>N/R</u></p> <p>Persons Present During Inspection: <u>Bill, Casey, Marnie, Chase, and Katie Vandenberg (Vandenberg & Sons Dairy); Rick Naerebout, Megan Satterwhite, and Tanya Oldham (Idaho Dairymen's Association); Mitch Vermeer, Emily Montague, and Pradip Adhikari (Idaho State Department of Agriculture (ISDA)); Nicole Deinarowicz and Sarah Hansen (Idaho Department of Environmental Quality); Sirese Jacobson and Jennifer Ferrando (PG Environmental)</u></p> <p>Max. Animals Confined per Month: <u>2,500</u></p> <p>Max. Capacity of Facility: <u>3,050</u></p>	<p>Inspectors: <u>Sirese Jacobson and Jennifer Ferrando (PG Environmental)</u></p> <p>Inspection Date: <u>April 3, 2019</u></p> <p>Time In: <u>10:22 AM</u></p> <p>Time Out: <u>12:59 PM</u></p> <p>Weather: <u>Partly cloudy, approx. 50° F.</u></p> <p>GPS Reading (At Gate) North: <u>43.76416</u> West: <u>-116.66296</u></p> <p>Does the facility owner/operator own and/or operate any other animal feeding operations? <u>No.</u></p> <p>If yes provide name(s) and address(es) and indicate whether the facility is an AFO or a CAFO: <u>N/A.</u></p> <p>Location and name of nearest surface water¹ and description of flow path: <u>Vandenberg & Sons Dairy is approximately four miles north of the Boise River. Irrigation canals border the facility on the east and west sides; according to the facility representatives and based on site observation and evaluation of Idaho Department of Water Resources's interactive maps, these canals are located upgradient of the facility's impoundments and terminate in fields south of the facility.</u></p>		
Number of animals today (all animals in production area):			
	# confined		# confined
Cattle		Sheep	
Dairy mature	2,300-2,400	Dairy heifers	
Swine (≥55#)		Swine (<55#)	
Turkeys		Laying hens	
Other chickens		Other (specify)	
<input checked="" type="checkbox"/> X	Presented credentials? (check if yes) Presented Letter of Authorization dated March 26, 2019		
<input checked="" type="checkbox"/> X	Inspection photos or aerial photo/site map attached? (check if yes)		
<input checked="" type="checkbox"/> X	Potential compliance issues? (check if yes and summarize below)		

*NA = Not Applicable; NR = Not Requested

Note: The federal regulations cited throughout the checklist are included as reference for discharging CAFOs.

¹ Surface water means all waters of the United States.

SUMMARY OF POTENTIAL COMPLIANCE ISSUES

- The facility's NMP did not include site-specific conservation practices; however, the facility representatives specified that the following conservation practices are used: strip-tillage and low-pressure sprayers on the pivots. It is recommended that the facility's NMP be updated to include site-specific conservation practices. The federal regulations at 40 CFR 122.23(e)(1) require documentation of site-specific conservation practices to prevent the runoff of pollutants from land application areas is required for discharges from the land application area to a water of the U.S. to meet the agricultural storm water definition.
- According to the facility representatives, the facility was not sampling wastewater or maintaining land application records for wastewater applications. In addition, the records of compost applications documented loads hauled, but did not include calculations of tons of compost or pounds of nutrients applied. It is recommended that the facility maintain complete land application documentation to ensure that it has the information necessary to demonstrate that it is land applying nutrients in accordance with its NMP. The federal regulations at 40 CFR 122.23(e)(1) require records of land application at rates that ensure appropriate agricultural utilization of the nutrients for discharges from the land application area to a Water of the U.S. to meet the agricultural stormwater definition.
- The facility's impoundment that captures silage leachate and runoff from the south-central cattle pen was not listed in the facility's NMP. It is recommended that the facility revise its NMP to ensure that the impoundment's storage capacity is considered in the overall storage capacity for the facility.

INSPECTION OBSERVATIONS

Nutrient Management Plan (NMP)	
Required NMP Element [40 CFR 122.42(e)(1)]	
Indicate whether the following elements are included in the NMP:	
Yes	<p>1. Is the facility's NMP available on-site? Does it reflect the current operational characteristics and practices? [40 CFR 122.42(e)(2)(ii)]</p> <p>Date developed or last revised: <u>November 20, 2017</u></p> <p><u>All statements about the NMP in this report refer to the November 20, 2017, version of the NMP. The NMP was developed using Idaho OnePlan.</u></p>
Yes	<p>2. Ensure adequate storage of manure and process wastewater, including operation and maintenance procedures. [40 CFR 122.42(e)(1)(i)]</p> <p><u>The NMP identifies individual storage structures and capacities. Data provided in the NMP indicate that the facility has more wastewater storage capacity than required. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.</u></p>
No	<p>3. Ensure proper management of animal mortalities. [40 CFR 122.42(e)(1)(ii)]</p> <p><u>The facility's NMP does not address animal mortality management. According to the facility representatives, mortalities are temporarily stored at a location between Lagoons 5 and 6 prior to removal for offsite rendering. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.</u></p>

Nutrient Management Plan (NMP) (continued)

- N/A 4. Ensure that clean water is diverted, as appropriate, from the production area. [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, irrigation canals to the east and west of the facility as well as localized topography would prevent run-on to the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 5. Prevent direct contact of confined animals with surface waters. [40 CFR 122.42(e)(1)(iv)]
Surface waters do not flow through any portion of the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 6. Ensure proper disposal of chemicals and other contaminants. [40 CFR 122.42(e)(1)(v)]
According to the facility representatives, all chemicals necessary for use in the operation are fully used, creating no waste chemicals for disposal. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.

NOTE: Unpermitted CAFOs with agricultural stormwater runoff are required to implement the following nutrient management planning elements (7 – 10) to qualify for the agricultural stormwater exemption [40 CFR 122.23(e)]

- No 7. Identify site-specific conservation practices to control runoff of pollutants. [40 CFR 122.42(e)(1)(vi)]
According to the facility representatives, the following practices are used to prevent nutrient loss from land application areas: strip-tillage and low-pressure sprayers on the pivots. These conservation practices are not documented in the NMP.
- No 8. Identify protocols for manure, process wastewater, and soil sampling and testing. [40 CFR 122.42(e)(1)(vii)]
The NMP includes protocols for soil testing but does not include protocols for compost and wastewater testing and the facility was not testing wastewater. Wastewater and composted manure are applied to land application sites under the operational control of Vandenberg & Sons Dairy. Unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.

Nutrient Management Plan (NMP) (continued)

- No 9. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater. [40 CFR 122.42(e)(1)(viii)]
The facility's NMP was developed using Idaho OnePlan. Provided the software addresses all necessary considerations and data elements to ensure calculation of land application rates that ensure appropriate agricultural utilization of the applied manure and wastewater, that portion of the nutrient management planning requirement is satisfied. However, because the facility operator was not basing wastewater application on the results of current wastewater analyses and could not interpret the wastewater application rates as expressed in the NMP, protocols to land apply process wastewater as specified in the facility's NMP were not being implemented. Note that the facility representatives stated that they rely on post-harvest soil sampling to evaluate whether land application was conducted at appropriate rates, based on whether phosphorus is building up in the soil. However, this method would only detect overapplication after the fact rather than preventing overapplication. In addition, the phosphorus buffering capacity of some soils could mask overapplication of manure and wastewater for several years before soil test phosphorus increases. Finally, this method does not evaluate whether compost and wastewater application exceeded the crop's nitrogen recommendation.
- No 10. Identify specific records that will be maintained to document the implementation and management of the minimum NMP elements (#2-#9 above). [40 CFR 122.42(e)(1)(ix)]
The NMP does not identify the site-specific records that will be maintained to document the NMP elements listed above. See question 33 below for a description of the facility's record keeping specific to the nutrient management planning elements that apply to unpermitted CAFOs in the context of the Clean Water Act agricultural stormwater exemption (#7-#9 above).

Additional NMP Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

- Yes 11. Application rates are calculated as required by 40 CFR 412.4(c)(2).
The NMP was developed using Idaho OnePlan. Provided the software addresses field-specific risk of nitrogen and phosphorus transport to surface waters; the form, source, amount, timing, and method of nutrient application to achieve realistic yield goals; and consideration of multi-year phosphorus application, the rates in the plan were calculated in accordance with the referenced requirements. Note, however, that the wastewater application rates in the plan are expressed as percentages (versus units such as gallons per acre). The facility representatives did not know what the percentage signified. The ISDA staff stated that it represented a percent of wastewater volume but did not know whether the percentage was to be applied to the total wastewater volume or the volume of the impoundment being pumped for that particular land application event.
- No 12. Specifies the manure, process wastewater, and soil sampling at the required frequencies and for the required parameters? [40 CFR 412.4(c)(3)] (*manure/wastewater annually for P & N, soils at least every 5 years for phosphorus transport*)
The NMP specifies soil sampling frequency and parameters but does not include manure and wastewater sampling protocols. This NMP element is not required for unpermitted CAFOs under the Clean Water Act; however, unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.

Nutrient Management Plan (NMP) (continued)					
No	13. Includes periodic inspection of land application equipment? [40 CFR 412.4(c)(4)] <u>The NMP does not address land application equipment inspection. The facility representative indicated that land application equipment is regularly calibrated and inspected for leaks. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.</u>				
N/A	14. Includes 100-foot setback or 35-foot vegetated buffer, or approved alternative? [40 CFR 412.4(c)(5)] <u>According to the facility representatives, there are no downgradient surface waters or conduits to waters of the U.S. within 100 feet of any land application sites. Review of aerial imagery, Idaho Department of Water Resources's maps, and the NMP field maps did not indicate surface waters or conduits to waters of the U.S. within 100 feet of land application sites.</u>				
Where applicable, identify each field and setback type:					
<table border="1"> <thead> <tr> <th>Field ID</th> <th>Setback Type</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>		Field ID	Setback Type	N/A	N/A
Field ID	Setback Type				
N/A	N/A				
Monitoring, Documentation and Recordkeeping					
Does the facility maintain the following records?					
N/A	15. The completed permit application? [40 CFR 412.37(b)] <u>Vandenberg & Sons Dairy is an unpermitted CAFO.</u>				
No	16. The current design of manure storage structures, including volume of solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity? [40 CFR 412.37(b)(5)] <u>The facility's NMP identifies individual storage structures, capacities, and dimensions but does not include all of the elements listed above. In addition, the NMP did not list the unnamed impoundment, located east of the silage pit, which collects runoff from the silage pit and adjacent cattle pens. This documentation is not required for unpermitted CAFOs under the Clean Water Act.</u>				
N/A	17. The date, time, and estimated volume of any overflow? [40 CFR 412.37(b)(6)] <u>According to the facility representatives, there have been no overflows from the impoundments at Vandenberg & Sons Dairy. The inspectors did not identify evidence of overflows during the site evaluation.</u>				
No	18. Manure and process wastewater transfers, including the most current nutrient analysis of the manure or wastewater that was provided to the recipient, the date and approximate amount transferred, and the name and address of the recipient? [40 CFR 122.42(e)(3)]				
No	a. Name of recipient				
No	b. Address of recipient				
No	c. Date of transfer				
No	d. Approximate amount transferred (tons/gallons)				

Monitoring, Documentation and Recordkeeping (continued)

No e. Recent (12 months or less) manure nutrient analysis provided

All compost and most of the solid manure generated at the site is transferred to a third-party composter. Wastewater and small volumes of solid manure (compost) are applied to Vandenberg & Sons Dairy land application sites. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Additional Production Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

No 19. Documentation of daily and weekly visual inspections of the production area, including:

No a. Weekly inspection of stormwater diversions, waste storage structures, and process wastewater channeling devices? [40 CFR 412.37(b)(1)]

No b. Daily inspection of water lines? [40 CFR 412.37(b)(1)]

No c. Weekly inspection of impoundments and tanks? [40 CFR 412.37(b)(1)]

The facility representative indicated that the above items are inspected during daily drives around the production area; however, the visual inspections are not documented. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

No 20. Weekly records of the depth of manure and process wastewater in liquid impoundments and terminal tanks? [40 CFR 412.37(b)(2)]

The facility representative indicated that lagoon wastewater levels are evaluated during daily drives around the production area. The lagoons do not include depth markers and the facility does not document freeboard or any other indicator of wastewater levels in the impoundments. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

No 21. Documentation of actions taken to correct deficiencies found as a result of production area inspections? [40 CFR 412.37(b)(3)]

Documentation of actions taken to correct deficiencies was not included in the records reviewed. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Yes 22. Documentation of mortalities management? [40 CFR 412.37(b)(4)]

Mortalities are picked up by Darling International for rendering. The facility maintains hauling invoices that document the dates of removal and the number of animals picked up. This documentation is not required for unpermitted CAFOs under the Clean Water Act.

Land Application Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

Yes 23. Expected crop yields? [40 CFR 412.37(c)(1)]

Expected crop yields are included in the facility's NMP. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.

Monitoring, Documentation and Recordkeeping (continued)

- No 24. Date(s) manure or process wastewater is applied to each land application site? [40 CFR 412.37(c)(2)]
The facility representatives had records of the dates of manure applications but were not recording the dates of wastewater applications at the time of the inspection. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 25. Weather conditions at the time of, and for 24 hours prior to and following, land application? [40 CFR 412.37(c)(3)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 26. Test methods used to sample and analyze manure, process wastewater, and soil? [40 CFR 412.37(c)(4)]
The facility representatives had records of soil test methods but did not have records of manure test methods and were not testing wastewater. These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 27. Results from manure, process wastewater, and soil analyses? [40 CFR 412.37(c)(5)]
The facility records included results of soil and compost analyses but the facility representatives were not testing wastewater.
- Yes 28. Manure and process wastewater application rates determined in accordance with the technical standards? [40 CFR 412.37(c)(6)]
Planned rates were calculated using Idaho OnePlan.
- Yes 29. Calculations showing the total N and P to be applied to each land application site, including sources other than manure or process wastewater? [40 CFR 412.37(c)(7)]
The planned rates in the NMP were calculated using Idaho OnePlan. The NMP expresses planned compost application rates in tons; wastewater application rates are expressed as a percentage (see question 11 above). The inspectors did not evaluate the software, but presume, based on the information provided in the NMP, that the software calculates planned nutrient application rates based on crop nutrient needs, soil credits, and other nutrient inputs, and converts those rates to the tons or gallons to be applied based on the manure analysis data.

Monitoring, Documentation and Recordkeeping (continued)

- No 30. Total amount of N and P actually applied to each land application site, including calculations? [40 CFR 412.37(c)(8)]
The facility's records include the loads of manure applied to each field. This does not correspond with the planned rates in the NMP, which are expressed as pounds of N, P, and K to be applied. Records of wastewater application were not maintained. Records of the total amount of N and P applied to each field are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 31. Method used to apply manure and process wastewater? [40 CFR 412.37(c)(9)]
All wastewater is applied at Vandenberg & Sons Dairy using pivot sprinklers. Manure is applied with a manure box spreader. The method of application is not documented in the land application records. These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 32. Date(s) of manure application equipment inspections for leaks? [40 CFR 412.37(c)(10)]
These records are not required for unpermitted CAFOs under the Clean Water Act.
33. Describe the records that are maintained to document implementation of the following nutrient management planning elements [40 CFR 122.23(e)]:
- Identify site-specific conservation practices to control runoff of pollutants.
Site specific conservation practices in use at the facility include strip-tillage and low-pressure nozzles on pivots, according to the facility representatives. These conservation practices are not documented, however. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
 - Identify protocols for manure, process wastewater, and soil sampling and testing.
The facility maintains laboratory analytical reports for soil and compost testing but were not testing wastewater. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
 - Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.
The facility documents the dates of manure application to each field and the loads of manure applied (which does not correspond to the format used to express planned rates in the NMP), and the acres used for land application. The facility does not maintain wastewater land application records. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.

Monitoring, Documentation and Recordkeeping (continued)

Monitoring, Documentation and Recordkeeping comments:

The inspectors were not able to compare land application records to planned rates in the NMP. The facility was not maintaining wastewater application records. The land application records reviewed were for the 2018 crop year. The manure application records documented the loads of manure applied to each field but did not track the tons of manure applied. The NMP was developed using the old ISDA program, OnePlan, which expresses planned rates in terms of pounds of N, P, and K. Therefore, the records maintained for land application, recorded as loads of manure applied, were not readily comparable to the corresponding NMP without additional information on the application equipment used and the results of the manure analyses.

Land Application Sites

Yes 34. Does the facility apply manure or wastewater to land owned by or under the operational control of the CAFO?

- Number of land application sites: Number of sites not documented. The facility's NMP indicates that approximately 6,000 acres are available for land application of compost and wastewater from Vandenberg & Sons Dairy.
- Irrigation type(s): Pivot
- Furrow/flood irrigation sites – what is fate of applied wastewater and tailwater? N/A

Production Area						
35. List impoundments						
Impoundment ID	Wastewater Type	Wastewater Source(s)	Pumping level ²	Wastewater below pumping level?	Max. recorded level	Date of max. recorded level
Concrete Separator	<input checked="" type="checkbox"/> process generated <input type="checkbox"/> runoff	milking parlor	N/A	N/A	N/A	N/A
Earthen Separator 1	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Concrete separator, pen runoff	N/A	N/A	N/A	N/A
Earthen Separator 2	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Earthen separator 1	N/A	N/A	N/A	N/A
Lagoon 1	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Earthen separator 2	N/A – not required for unpermitted CAFOs under the Clean Water Act	N/A	N/A	N/A
Lagoon 2	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 1, pen runoff	N/A – not required for unpermitted CAFOs under the Clean Water Act	N/A	N/A	N/A
Lagoon 3	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 2, concrete separator, pen runoff		N/A	N/A	N/A
Lagoon 4	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 2, concrete separator		N/A	N/A	N/A
Lagoon 5	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 2, concrete separator		N/A	N/A	N/A
Lagoon 6	<input type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Pen runoff, feed storage area runoff		N/A	N/A	N/A
Lagoon 7	<input type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Tailwater from adjacent field, compost, and pen runoff		N/A	N/A	N/A

² The pumping level represents the minimum capacity necessary to contain runoff and direct precipitation from the 25-year, 24-hour rainfall event (40 CFR 40 CFR 412.37(a)(2)).

Production Area (continued)						
Impoundment ID	Wastewater Type	Wastewater Source(s)	Pumping level ³	Wastewater below pumping level?	Max. recorded level	Date of max. recorded level
Lagoon 8	<input type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Compost		N/A	N/A	N/A
Unnamed impoundment	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Silage pit runoff and leachate, pen runoff		N/A	N/A	N/A
<p>36. Impoundment(s) collect all runoff from:</p> <p>Yes Animal confinement areas?⁴</p> <p>Yes Manure storage areas?⁵</p> <p>Yes Raw material storage areas?⁶</p> <p>Yes Waste containment areas?⁷</p> <p>N/A Egg washing or egg processing facility?</p> <p>Yes Mortality storage, handling, treatment or disposal area?</p> <p>N/A Other? (describe): <u>N/A</u></p> <p>No Was manure or wastewater observed in a waterway? If yes, describe: <u>N/A</u></p> <p>Yes 37. Adequate storage available for manure, litter, and process wastewater, and procedures are in place to ensure proper operation and maintenance of the storage facilities? [40 CFR 122.42(e)(1)(i)] <u>Lagoons 1 – 8 had remaining capacity. Lagoon 5 was completely empty. No evidence of uncontained manure or wastewater was observed.</u></p> <p>Yes 38. Confined animals do not have direct contact with waters of the United States? [40 CFR 122.42(e)(1)(iv)] <u>Waters of the U.S. do not flow through the animal confinement areas.</u></p>						

³ The pumping level represents the minimum capacity necessary to contain runoff and direct precipitation from the 25-year, 24-hour rainfall event (40 CFR 40 CFR 412.37(a)(2)).

⁴ Animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables (40 CFR 40 CFR 122.23(b)(8)).

⁵ Manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles (40 CFR 40 CFR 122.23(b)(8)).

⁶ Raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials (40 CFR 40 CFR 122.23(b)(8)).

⁷ The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water (40 CFR 40 CFR 122.23(b)(8)).

Production Area (continued)

N/A 39. Clean water is diverted from the production area? [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, berms maintained by the irrigation district along irrigation canals located upgradient to the east and west of the facility as well as localized topography would prevent run-on to the production area. Dry conditions during the inspection prevented observation of localized stormwater runoff flow.

Yes 40. Chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system? [40 CFR 122.42(e)(1)(v)]
The facility representative stated that all chemicals necessary for use in the operation are fully used, creating no waste chemicals for disposal. The inspectors did not evaluate the chemical storage location but did not identify evidence of improper chemical disposal.

Additional Production Area Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs (Subparts C and D)

No 41. All open surface impoundments and terminal storage tanks have depth markers which clearly indicate the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event? [40 CFR 412.37(a)(2)]
Depth markers are not required for unpermitted CAFOs under the Clean Water Act.

Yes 42. Mortalities remain in the production area until disposal, are not disposed in liquid manure or process wastewater treatment systems, and are handled to prevent discharge of pollutants to surface waters? [40 CFR 412.37(a)(4)]
Mortalities are stored temporarily on site prior to pick up by the rendering company. The mortality storage location is between Lagoons 5 and 6; runoff from this area flows to Lagoon 5.

Production Area (continued)**Production area comments:**

Wastewater from the milking parlor flows to a Concrete Separator located east of the milking parlor. Solids are removed from the Concrete Separator once every two weeks. Wastewater from the Concrete Separator is pumped to Earthen Separator 1, then overflows to Earthen Separator 2, in series. The Earthen Separators also receive runoff from the cattle pens located west and northwest of the separators. Wastewater from Earthen Separator 2 flows into Lagoon 1. From Lagoon 1, wastewater is pumped to the adjacent pivot or to Lagoon 2. Lagoon 2 also receives runoff from the cattle pens to the east of the lagoon. Wastewater from Lagoon 2 is pumped to Lagoons 3, 4, or 5, as needed. Wastewater can also be pumped from the Concrete Separator to Lagoons 3, 4, or 5 if needed. Lagoons 2 and 3 also receive runoff from the cattle pen located east of Lagoon 2. According to facility representatives, solids are removed from Lagoon 2 once per year.

Lagoon 6 captures runoff from the cattle pens to the north and east of the lagoon and the commodities storage area located east of the lagoon. The facility representatives also identified another impoundment located east of the silage pit, which captures silage pit runoff and leachate as well as runoff from the pens immediately north of the impoundment. This impoundment was not identified in the facility's NMP.

Lagoon 7, located at the southeast corner of the cattle pens collects runoff from the cattle pens to the west, as well as tailwater from the adjacent pivot field and runoff from a portion of the compost area located east of the lagoon. A portion of the runoff from that compost area also flows to Lagoon 8, which is located between the compost area and the pivot field.

The inspectors observed minor gully erosion on the embankments of Lagoon 7 and recommended that the facility operators monitor to ensure erosion does not progress to a level that would compromise the integrity of the lagoon liner.

The facility has a second compost area located in a pivot corner southeast of the silage and feed storage area, which is used as needed for additional capacity. According to the facility representatives, one compost row is positioned along the south end of compost area to prevent runoff to the adjacent pivot field.

Inspector: _____

Date: 5/30/2019

Aerial Photo/Site Map

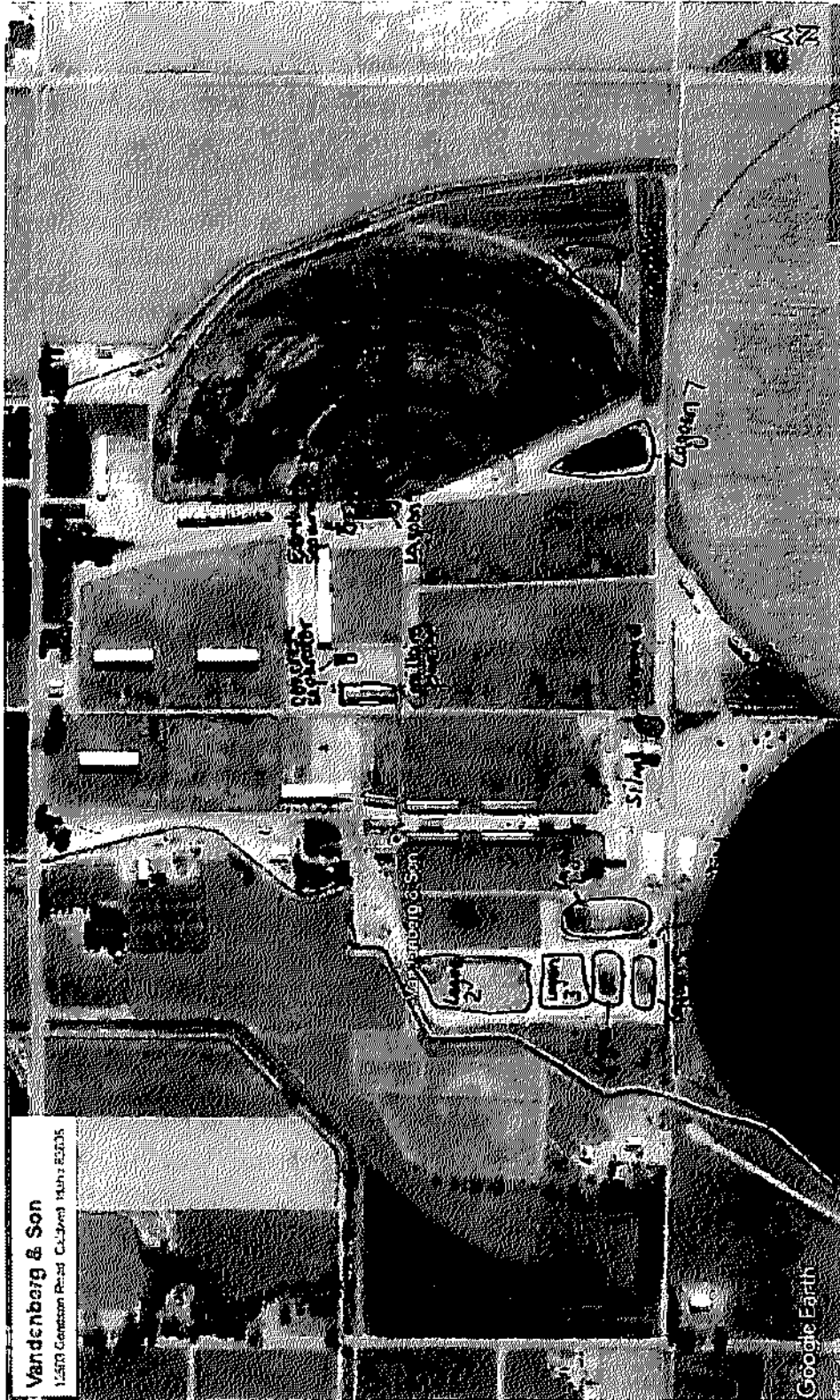


Exhibit K

**EPA, Clean Water Act Compliance Evaluation
Inspection at DeRuyter Dairy (June 6, 2019)**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

ENFORCEMENT &
COMPLIANCE ASSURANCE
DIVISION

JUN 06 2019

Reply to: 20-C04

Mr. Nick DeRuyter
DeRuyter Dairy
P.O. Box 580
Marsing, Idaho 83647

Re: Clean Water Act Compliance Evaluation Inspection at DeRuyter Dairy at 4699 Buntrock Road
in Marsing, Idaho.

Dear Mr. DeRuyter:

On April 2, 2019, the PG Environmental, on behalf of the United States Environmental Protection Agency (EPA), conducted a compliance inspection at your facility. The purpose of the inspection was to determine compliance with the Clean Water Act (CWA). A copy of the inspection report is attached to this letter. Please review the inspection report, note the areas of concern, if any, and take any actions necessary to ensure compliance with the CWA.

An EPA Compliance Officer will use this inspection report in evaluating your facility's compliance with the CWA. This may result in subsequent contact from EPA personnel if a violation is identified. This letter is sent only to transmit the inspection report, and it should not be interpreted as a final compliance determination. Please direct any questions regarding compliance evaluations to Steven Potokar at (206)-553-6354 or potokar.steven@epa.gov.

Thank you for the cooperation and assistance extended to the PG Environmental staff during the inspection.

Sincerely,

Jeff KenKnight, Chief
Surface Water Enforcement Section

Enclosure

cc: Mr. Mitch Vermeer
Idaho State Department of Agriculture

IDAHO CAFO INSPECTION REPORT

GENERAL INFORMATION

<p>Facility ID #: <u>N/A* – unpermitted CAFO</u></p> <p>Facility Name: <u>DeRuyter Dairy</u></p> <p>Facility Owner: <u>Nick and Suzanne DeRuyter</u></p> <p>Facility Operator: <u>Nick DeRuyter</u></p> <p>Mailing Address: <u>PO Box 580</u> <u>Marsing, ID 83647</u></p> <p>Physical Address: <u>4699 Buntrock Rd.</u> <u>Marsing, ID 83647</u></p> <p>County: <u>Owyhee</u></p> <p>Contact Person: <u>Jake DeRuyter</u></p> <p>Phone (office): <u>208-896-5402</u> (fax): <u>N/R*</u> (cell): <u>N/R</u></p> <p>E-mail: <u>N/R</u></p> <p>Persons Present During Inspection: <u>Jake DeRuyter (DeRuyter Dairy); Rick Naerebout, Megan Satterwhite, and Tanva Oldham (Idaho Dairyman's Association); Emily Montague and Pradip Adhikari (Idaho State Department of Agriculture [ISDA]); Tyler Fortunati and Tobby Kennedy (Idaho Department of Environmental Quality); Sirese Jacobson and Jennifer Ferrando (PG Environmental).</u></p> <p>Max. Animals Confined per Month: <u>Approx. 8,900</u></p> <p>Max. Capacity of Facility: <u>Permitted through ISDA for 10,780 animal units (AUs)</u></p>	<p>Inspectors: <u>Sirese Jacobson and Jennifer Ferrando (PG Environmental)</u></p> <p>Inspection Date: <u>April 2, 2019</u></p> <p>Time In: <u>11:00 AM</u></p> <p>Time Out: <u>1:45 PM</u></p> <p>Weather: <u>Cloudy with light drizzle.</u></p> <p>GPS Reading (At Gate) North: <u>43.57269</u> West: <u>-116.85226</u></p> <p>Does the facility owner/operator own and/or operate any other animal feeding operations? <u>Yes</u></p> <p>If yes provide name(s) and address(es) and indicate whether the facility is an AFO or a CAFO: <u>The DeRuyters operate 2 other dairy facilities in Idaho (addresses and AFO/CAFO status N/R).</u></p> <p>Location and name of nearest surface water¹ and description of flow path: <u>DeRuyter Dairy is approximately 0.8 miles south of the Snake River. An irrigation canal borders the southwest portion of the production area. Based on a review of aerial imagery and discussion with the facility representatives, it appears that the irrigation canal flows to the Snake River.</u></p>																								
<p>Number of animals today (all animals in production area):</p> <table border="1"> <thead> <tr> <th></th> <th># confined</th> <th></th> <th># confined</th> </tr> </thead> <tbody> <tr> <td>Cattle</td> <td></td> <td>Sheep</td> <td></td> </tr> <tr> <td>Dairy mature</td> <td>6,400</td> <td>Dairy heifers</td> <td>500</td> </tr> <tr> <td>Swine (≥55#)</td> <td></td> <td>Swine (<55#)</td> <td></td> </tr> <tr> <td>Turkeys</td> <td></td> <td>Laying hens</td> <td></td> </tr> <tr> <td>Other chickens</td> <td></td> <td>Other (specify)</td> <td>1,500 – 2,000 calves</td> </tr> </tbody> </table>			# confined		# confined	Cattle		Sheep		Dairy mature	6,400	Dairy heifers	500	Swine (≥55#)		Swine (<55#)		Turkeys		Laying hens		Other chickens		Other (specify)	1,500 – 2,000 calves
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X	Presented credentials? (check if yes) <u>Presented Letter of Authorization dated March 26, 2019</u>																								
X	Inspection photos or site map/aerial photo attached? (check if yes)																								
X	Potential compliance issues? (check if yes and summarize below)																								

*NA = Not Applicable; NR = Not Requested

Note: The federal regulations cited throughout the checklist are included as reference for discharging CAFOs.

¹ Surface water means all waters of the United States.

SUMMARY OF POTENTIAL COMPLIANCE ISSUES

- The facility's NMP did not include site-specific conservation practices; however, the facility representatives specified that they turn off the end guns on pivots when applying wastewater near roads and ditches, and use drop hoses with low pressure nozzles on the pivots that are below the top of the berm along the irrigation canal. It is recommended that the facility's NMP be updated to include site-specific conservation practices. For discharges from the land application area to Waters of the U.S. to meet the agricultural storm water definition, federal regulations at 40 CFR 122.23(e)(1) require documentation of site-specific conservation practices to prevent the runoff of pollutants from land application areas.
- The berm that prevents runoff from flowing into the downgradient irrigation canal along the southwest boundary of the southern corrals was in need of maintenance. The berm was uneven and appeared to be uncompacted in some areas. It is recommended that the facility operator perform the necessary construction or repairs to ensure the berm can prevent cattle pen runoff from entering the irrigation canal, which is tributary to the Snake River. This action is required to ensure the facility does not have an unpermitted discharge to Waters of the U.S.
- The facility was using several fields for land application that were not included in the facility's NMP. It is recommended that the facility's NMP be updated to include the new fields, and that the facility operator ensure and document that the facility is land applying manure/wastewater to those fields in accordance with its NMP. The NMP must include all fields that receive manure or wastewater for discharges of stormwater runoff from land application areas to a Waters of the U.S. to meet the agricultural stormwater definition.
- The facility's records did not include solid manure land application amounts or calculations of pounds of nutrients applied. It is recommended that the facility operator maintain complete land application documentation to demonstrate that it is land applying nutrients in accordance with its NMP, and that discharges from the land application area to Waters of the U.S. meet the agricultural stormwater definition.
- During the site tour, the inspectors observed little to no freeboard at the northwest corner of the Main Lagoon. Although it appeared that an overflow from this lagoon would flow into the West Drying Yard (Compost 2) area, which drains to the Compost 2 Runoff Catch Basin, it is recommended that the lagoon be pumped down to maintain at least two feet of freeboard.
- The available storage capacity information in the facility's NMP did not reflect current site conditions. The NMP indicated that the facility has approximately double the required storage capacity, but the Compost 2 Runoff Catch Basin was not listed in the NMP's waste storage summary table. It is recommended that the facility's NMP be updated to include all waste storage structures.
- The NMP information supporting calculations for required storage capacity was not clear. The annual recommended storage requirements listed in the NMP were very close in value to the 180-day storage requirements for the following areas that contribute storm runoff to impoundments: Compost 1 and Compost 2 drying areas, Heifer Calf Lots. It was unclear why the annual and 180-day storage estimates were so similar as some amount of runoff from these areas would be expected for most months in an average year. It is recommended that the facility operator check or clarify these storage capacity values in the NMP.

INSPECTION OBSERVATIONS

Nutrient Management Plan (NMP)

Required NMP Element [40 CFR 122.42(e)(1)]

Indicate whether the following elements are included in the NMP:

- Yes 1. Is the facility's NMP available on-site? Does it reflect the current operational characteristics and practices? [40 CFR 122.42(e)(2)(ii)]
- Date developed or last revised: August 8, 2016
- All statements about the NMP in this report refer to the August 8, 2016, version of the NMP. The NMP was developed by iSDA using Idaho OnePlan.
- The facility acquired new fields in 2018 that were not reflected in the 2016 NMP. The inspectors recommended that the NMP be revised to include these new fields to ensure and document that manure and wastewater are being applied to these fields in accordance with the facility's approved NMP. Inclusion of all land application sites in the NMP is necessary for discharges from the land application area to Waters of the U.S. to meet the agricultural stormwater definition.
- No 2. Ensure adequate storage of manure and process wastewater, including operation and maintenance procedures. [40 CFR 122.42(e)(1)(i)]
- The NMP indicated that the facility has adequate storage capacity, but the information was unclear and should be revised. The NMP identifies individual storage structures and capacities. Data provided in the NMP indicates that the facility has approximately two times more wastewater storage capacity than required. However, the annual recommended storage requirement for runoff from several areas (Compost 1, Compost 2, and Heifer Calf Lots) was nearly the same as the 180-day storage requirement for those areas, implying minimal storm runoff from those areas for a six-month period. In addition, the NMP did not include the Compost 2 Runoff Catch Basin in the storage capacity calculations. The inspectors recommended that the NMP be revised to include all impoundments and to clarify the recommended storage capacity calculations. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 3. Ensure proper management of animal mortalities. [40 CFR 122.42(e)(1)(ii)]
- The facility's NMP does not address animal mortality management. According to Mr. DeRuyter, mortalities are temporarily stored near the Concrete Pit until picked up by Darling International for rendering. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 4. Ensure that clean water is diverted, as appropriate, from the production area. [40 CFR 122.42(e)(1)(iii)]
- Based on information provided by the facility representative and site observations, localized topography would prevent run-on to the production area. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- N/A 5. Prevent direct contact of confined animals with surface waters. [40 CFR 122.42(e)(1)(iv)]
- Surface waters do not flow through any portion of the production area. The southwest corrals are separated from the adjacent irrigation canal by a fence and a road. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.

Nutrient Management Plan (NMP) (continued)

No 6. Ensure proper disposal of chemicals and other contaminants. [40 CFR 122.42(e)(1)(v)]
Chemicals used on site include disinfectants for foot baths located on both sides of the milk barn. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.

NOTE: Unpermitted CAFOs with agricultural stormwater runoff are required to implement the following nutrient management planning elements (7 – 10) to qualify for the agricultural stormwater exemption [40 CFR 122.23(e)]

No 7. Identify site-specific conservation practices to control runoff of pollutants. [40 CFR 122.42(e)(1)(vi)]
According to Mr. DeRuyter, the following practices are used to prevent nutrient loss from land application areas: a berm is maintained by the Irrigation District along the irrigation canal, the facility uses drop hoses with low-pressure nozzles that are set below the top elevation of the berm, the facility uses end guns on pivots only for clean irrigation water and the end guns do not reach the irrigation canal. The NMP does not reflect the facility's conservation practices in use.

No 8. Identify protocols for manure, process wastewater, and soil sampling and testing. [40 CFR 122.42(e)(1)(vii)]
The NMP includes protocols for soil testing but not compost and wastewater testing. Wastewater and composted manure are applied to land application sites under the operational control of DeRuyter Dairy. Unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.

Yes 9. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater. [40 CFR 122.42(e)(1)(viii)]
The facility's NMP was developed using Idaho OnePlan. Provided the software addresses all necessary considerations and data elements to ensure calculation of land application rates that ensure appropriate agricultural utilization of the applied manure and wastewater, this nutrient management planning requirement is satisfied.

No 10. Identify specific records that will be maintained to document the implementation and management of the minimum NMP elements (#2-#9 above). [40 CFR 122.42(e)(1)(ix)]
The NMP does not identify the site-specific records that will be maintained to document the NMP elements listed above. See question 33 below for a description of the facility's record keeping specific to the nutrient management planning elements that apply to unpermitted CAFOs in the context of the Clean Water Act agricultural stormwater exemption (#7-#9 above).

Nutrient Management Plan (NMP) (continued)

Additional NMP Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs

- Yes 11. Application rates are calculated as required by 40 CFR 412.4(c)(2).
The NMP was developed using Idaho OnePlan. Provided the software addresses field-specific risk of nitrogen and phosphorus transport to surface waters; the form, source, amount, timing, and method of nutrient application to achieve realistic yield goals; and consideration of multi-year phosphorus application, the rates in the plan were calculated in accordance with the referenced requirements.
- No 12. Specifies the manure, process wastewater, and soil sampling at the required frequencies and for the required parameters? [40 CFR 412.4(c)(3)] *(manure/wastewater annually for P & N, soils at least every 5 years for phosphorus transport)*
The NMP specifies soil sampling twice per year but does not specify frequencies for manure and wastewater sampling. Mr. DeRuyter stated that soils and manure are sampled twice annually; he was not sure whether wastewater is sampled and suggested that book values had been used for the calculations in the NMP. This NMP element is not required for unpermitted CAFOs under the Clean Water Act; however, unpermitted CAFOs with agricultural stormwater runoff must implement protocols for appropriate manure, process wastewater, and soil testing and maintain associated records to qualify for the agricultural stormwater runoff exemption under the Clean Water Act.
- No 13. Includes periodic inspection of land application equipment? [40 CFR 412.4(c)(4)]
The NMP does not address land application equipment inspection. The facility representative indicated that land application equipment is regularly calibrated and inspected for leaks. This NMP element is not required for unpermitted CAFOs under the Clean Water Act.
- No 14. Includes 100-foot setback or 35-foot vegetated buffer, or approved alternative? [40 CFR 412.4(c)(5)]
Review of aerial imagery and Idaho Department of Water Resources' interactive maps indicates that the irrigation canal bordering the facility and several of the land application fields flows to the Snake River. The facility's NMP does not identify site-specific conservation practices; however, Mr. DeRuyter stated that the end guns on the pivots are not used when irrigating wastewater. In addition, the canal is bermed and the drop hoses on the pivots are below the top elevation of the berm.

Where applicable, identify each field and setback type:

Field ID	Setback Type
Pivot fields adjacent to irrigation canal	End guns not used for wastewater irrigation, drop hoses below berm height

Monitoring, Documentation and Recordkeeping

Does the facility maintain the following records?

- N/A 15. The completed permit application? [40 CFR 412.37(b)]
DeRuyter Dairy is an unpermitted CAFO.
- No 16. The current design of manure storage structures, including volume of solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity? [40 CFR 412.37(b)(5)]
The facility's NMP includes design information for all impoundments except the Compost 2 Runoff Catch Basin. This documentation is not required for unpermitted CAFOs under the Clean Water Act; however, the inspectors recommended that the facility's NMP be updated to include all waste storage structures.
- N/A 17. The date, time, and estimated volume of any overflow? [40 CFR 412.37(b)(6)]
According to Mr. DeRuyter, there have been no overflows from the impoundments at DeRuyter Dairy. The inspectors did not identify evidence of overflows during the site evaluation.
- No 18. Manure and process wastewater transfers, including the most current nutrient analysis of the manure or wastewater that was provided to the recipient, the date and approximate amount transferred, and the name and address of the recipient? [40 CFR 122.42(e)(3)]
- Yes a. Name of recipient
- Yes b. Address of recipient
- Yes c. Date of transfer
- Yes d. Approximate amount transferred (tons/gallons)
- No e. Recent (12 months or less) manure nutrient analysis provided
- Wastewater and manure are applied to land application sites at DeRuyter Dairy. Manure and wastewater are also transferred to third-party farmers. The facility documents the information listed above but does not provide the results of nutrient analyses to the third-party farmers. Manure transfer records include the recipient's last name, the destination field, the volume of slurry hauled, the number of loads of solid manure hauled, equipment used for hauling (enabling calculation of the volume of solid manure hauled), and the hauling date. The addresses of exported manure recipients are listed in the facility's NMP. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- Additional Production Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs*
- No 19. Documentation of daily and weekly visual inspections of the production area, including:
- No a. Weekly inspection of stormwater diversions, waste storage structures, and process wastewater channeling devices? [40 CFR 412.37(b)(1)]
- No b. Daily inspection of water lines? [40 CFR 412.37(b)(1)]

Monitoring, Documentation and Recordkeeping (continued)

- No c. Weekly inspection of impoundments and tanks? [40 CFR 412.37(b)(1)]
The facility representative indicated that the above items are inspected at least weekly during routine operations in the production area; however, the visual inspections are not documented. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- No 20. Weekly records of the depth of manure and process wastewater in liquid impoundments and terminal tanks? [40 CFR 412.37(b)(2)]
The facility representative indicated that lagoon wastewater levels are evaluated during routine operations in the production area. The lagoons do not include depth markers and the facility does not document freeboard or any other indicator of wastewater levels in the impoundments. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- No 21. Documentation of actions taken to correct deficiencies found as a result of production area inspections? [40 CFR 412.37(b)(3)]
Documentation of actions taken to correct deficiencies was not included in the records reviewed. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- Yes 22. Documentation of mortalities management? [40 CFR 412.37(b)(4)]
Mortalities are picked up by Darling International for rendering. The facility maintains hauling invoices that document the dates removed and the number of animals picked up. This documentation is not required for unpermitted CAFOs under the Clean Water Act.
- Land Application Area Records for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs*
- Yes 23. Expected crop yields? [40 CFR 412.37(c)(1)]
Expected crop yields are included in the facility's NMP. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- Yes 24. Date(s) manure or process wastewater is applied to each land application site? [40 CFR 412.37(c)(2)]
These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 25. Weather conditions at the time of, and for 24 hours prior to and following, land application? [40 CFR 412.37(c)(3)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.

Monitoring, Documentation and Recordkeeping (continued)

- No 26. Test methods used to sample and analyze manure, process wastewater, and soil? [40 CFR 412.37(c)(4)]
These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 27. Results from manure, process wastewater, and soil analyses? [40 CFR 412.37(c)(5)]
Analytical results for soil and solid manure sampling were included in the facility records. Mr. DeRuyter was not sure whether wastewater is sampled and suggested that book values had been used for the calculations in the NMP. These records may be required for unpermitted CAFOs under the Clean Water Act, to the extent that they are necessary to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater. Mr. DeRuyter stated that he relies on post-harvest soil sampling to evaluate whether land application was conducted at appropriate rates, based on whether phosphorus is building up in the soil. Note, however, that this method would only detect overapplication after the fact rather than preventing overapplication. In addition, the phosphorus buffering capacity of some soils could mask overapplication of manure and wastewater for several years before soil test phosphorus increases. Finally, this method does not evaluate whether compost and wastewater application exceeded the crop's nitrogen recommendation.
- Yes 28. Manure and process wastewater application rates determined in accordance with the technical standards? [40 CFR 412.37(c)(6)]
Planned rates are calculated using Idaho OnePlan.
- Yes 29. Calculations showing the total N and P to be applied to each land application site, including sources other than manure or process wastewater? [40 CFR 412.37(c)(7)]
The planned rates in the NMP were calculated using Idaho OnePlan. The inspectors did not evaluate the software, but presume, based on the information provided in the NMP, that the software calculates planned nutrient application rates based on crop nutrient needs, soil credits, and other nutrient inputs, and converts those rates to the tons or gallons to be applied based on the manure analysis data.

Monitoring, Documentation and Recordkeeping (continued)

- No 30. Total amount of N and P actually applied to each land application site, including calculations? [40 CFR 412.37(c)(8)]
The facility's records for compost and wastewater application included the application date, field, number of loads, equipment/machinery used to haul manure/wastewater, and manure type. For solid manure, this information could be used in conjunction with the manure analysis results to calculate the amount of N and P applied for comparison with the planned nutrient application rates in the NMP. This would not be possible for wastewater as the facility had not been testing wastewater. The inspectors recommended that the facility operator also include in the land application records the tons or gallons of manure applied and/or pounds of nutrients applied. Records of the total amount of N and P applied to each field are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 31. Method used to apply manure and process wastewater? [40 CFR 412.37(c)(9)]
Mr. DeRuyter stated that the application method is dictated by the manure type. For example, all slurry is surface-applied using a tank spreader followed by disking. Wastewater is applied through pivot sprinklers. The inspectors did not document the method of compost application. These records are not specifically required for unpermitted CAFOs under the Clean Water Act but may be useful to demonstrate land application of manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.
- No 32. Date(s) of manure application equipment inspections for leaks? [40 CFR 412.37(c)(10)]
These records are not required for unpermitted CAFOs under the Clean Water Act.
33. Describe the records that are maintained to document implementation of the following nutrient management planning elements [40 CFR 122.23(e)]:
- Identify site-specific conservation practices to control runoff of pollutants.
According to the facility representative, site specific conservation practices used at the facility include drop hoses with low pressure nozzles on pivots, turning off end guns on pivots when irrigating with wastewater, and a berm along the irrigation canal maintained by the Irrigation District. These conservation practices are not documented in the NMP. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.
 - Identify protocols for manure, process wastewater, and soil sampling and testing.
The facility maintains laboratory analytical reports for soil and compost testing but was not testing wastewater. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.

Monitoring, Documentation and Recordkeeping (continued)

- c. Establish protocols to land apply manure or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.
The facility records included information that would support calculation of the amount of nutrients applied from solid manure for comparison with the NMP but did not have complete information (i.e., analytical results) to support such a comparison for wastewater applications. These records are required for unpermitted CAFOs with agricultural stormwater runoff to qualify for the agricultural stormwater exemption under the Clean Water Act.

Monitoring, Documentation and Recordkeeping comments:

The inspectors did not conduct the necessary calculations to compare solid manure application records (documented in loads hauled) to planned rates in the NMP (expressed in pounds of nutrients to be applied).

Land Application Sites

Yes 34. Does the facility apply manure or wastewater to land owned by or under the operational control of the CAFO?

- Number of land application sites: Number of sites not documented. The facility's NMP indicates that approximately 6,800 acres are available for land application of manure and wastewater from DeRuyter Dairy (nearly 4,000 owned by the dairy and more than 2,800 through third-party export).
- Irrigation type(s): Pivot
- Furrow/flood irrigation sites – what is fate of applied wastewater and tailwater? N/A

Production Area						
35. List impoundments						
Impoundment ID	Wastewater Type	Wastewater Source(s)	Pumping level ²	Wastewater below pumping level?	Max. recorded level	Date of max. recorded level
Concrete Pit	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Milking parlor, freestalls, and runoff from corrals	N/A	N/A	N/A	N/A
4-Cell Concrete Separator	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Concrete Pit (via Mechanical Separator)	N/A	N/A	N/A	N/A
Separator Pond	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	4-Cell Concrete Separator	N/A	N/A	N/A	N/A
Lagoon 2	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Separator Pond	N/A – not required for unpermitted CAFOs under the Clean Water Act	N/A	N/A	N/A
Main Lagoon	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Lagoon 2		N/A Minimal freeboard during inspection	N/A	N/A
Mixing Pond	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Main Lagoon		N/A	N/A	N/A
Berming Compost 1 (Compost 1 Runoff Catch Basins)	<input type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Runoff from Compost 1 and feed storage		N/A	N/A	N/A
Runoff Pond	<input checked="" type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Runoff from calf hutches, slurry from freestalls		N/A	N/A	N/A
Compost 2 Runoff Catch Basin	<input type="checkbox"/> process generated <input checked="" type="checkbox"/> runoff	Runoff from Compost 2		N/A	N/A	N/A

² The pumping level represents the minimum capacity necessary to contain runoff and direct precipitation from the 25-year, 24-hour rainfall event (40 CFR 40 CFR 412.37(a)(2)).

Production Area (continued)

36. Impoundment(s) collect all runoff from:

- No Animal confinement areas?³
According to the facility representatives, runoff from the southwest corrals is retained by a berm that runs along the southwest boundary of the corrals. The inspectors observed that the berm was eroded in places and appeared to be in need of reconstruction or repair to ensure runoff would be retained. The inspectors recommended that the facility operator conduct the necessary repairs to ensure that process wastewater cannot exit the corrals and enter the adjacent irrigation canal.
- Yes Manure storage areas?⁴
Runoff from the Compost 1 drying area flows to a catch basin (identified as "Berming Compost 1" in the NMP) at the southeast corner of the composting area. Runoff from the Compost 2 drying area flows to a catch basin at the northwest corner of the Compost 2 drying area; however, that catch basin was not included in the NMP. The inspectors recommended that the NMP be revised to include the Compost 2 Runoff Catch Basin.
- Yes Raw material storage areas?⁵
- Yes Waste containment areas?⁶
- N/A Egg washing or egg processing facility?
- Yes Mortality storage, handling, treatment or disposal area?
- N/A Other? (describe): N/A
- No 37. Was manure or wastewater observed in a waterway? If yes, describe: N/A
- Yes 38. Adequate storage available for manure, litter, and process wastewater, and procedures are in place to ensure proper operation and maintenance of the storage facilities? [40 CFR 122.42(e)(1)(i)]
Although the Main Lagoon (Photograph 1) and Runoff Pond were full, no evidence of manure or wastewater spills or overflow was observed. However, the conditions on site did not appear to support NMP calculations indicating that the facility maintains double the amount of storage capacity required. Note that the area had unusually wet conditions in February 2019 and the facility had not yet begun spring dewatering.
- Yes 39. Confined animals do not have direct contact with waters of the United States? [40 CFR 122.42(e)(1)(iv)]
Waters of the U.S. do not flow through the animal confinement areas.

³ Animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables (40 CFR 40 CFR 122.23(b)(8)).

⁴ Manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles (40 CFR 40 CFR 122.23(b)(8)).

⁵ Raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials (40 CFR 40 CFR 122.23(b)(8)).

⁶ The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water (40 CFR 40 CFR 122.23(b)(8)).

Production Area (continued)

- N/A 40. Clean water is diverted from the production area? [40 CFR 122.42(e)(1)(iii)]
Based on information provided by the facility representative and site observations, localized topography would prevent run-on to the production area.
- Yes 41. Chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system? [40 CFR 122.42(e)(1)(v)]
The inspectors did not specifically evaluate the facility's chemical storage area or procedures but did not identify evidence of improper chemical disposal.

Additional Production Area Requirements for Large Dairy Cow, Cattle, Swine, Poultry, and Veal Calf CAFOs (Subparts C and D)

- No 42. All open surface impoundments and terminal storage tanks have depth markers which clearly indicate the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event? [40 CFR 412.37(a)(2)]
Depth markers are not required for unpermitted CAFOs under the Clean Water Act.
- Yes 43. Mortalities remain in the production area until disposal, are not disposed in liquid manure or process wastewater treatment systems, and are handled to prevent discharge of pollutants to surface waters? [40 CFR 412.37(a)(4)]
Mortalities are stored temporarily on site prior to pick up by the renderer. The mortality storage location is near the Concrete Pit; runoff from this area drains to the Concrete Pit.

Production area comments:

Wastewater from the milking parlor and runoff from the northern corrals flows to the Concrete Pit. Wastewater is pumped from the Concrete Pit to the mechanical separator. Solids from the mechanical separator are composted and separated wastewater flows to the 4-Cell Concrete Separator and then to the Separator Pond, Lagoon 2, and the Main Lagoon, in series. Wastewater from the Main Lagoon is mixed with fresh water in the irrigation pond prior to land application.

The inspectors observed little to no freeboard at the northwest corner of the Main Lagoon (Photograph 1). Although it appeared that an overflow from this lagoon would flow into the Compost 2 area, which drains to the Compost 2 Runoff Catch Basin, the inspectors recommended that the facility operator pump down the lagoon to maintain at least two feet of freeboard.

Runoff from the feed and commodities storage area flows to the Compost 1 Catch Basin, along with runoff from the Compost 1 drying area. Runoff from the Compost 2 drying area flows to the catch basin at the northwest corner of the Compost 2 drying area.

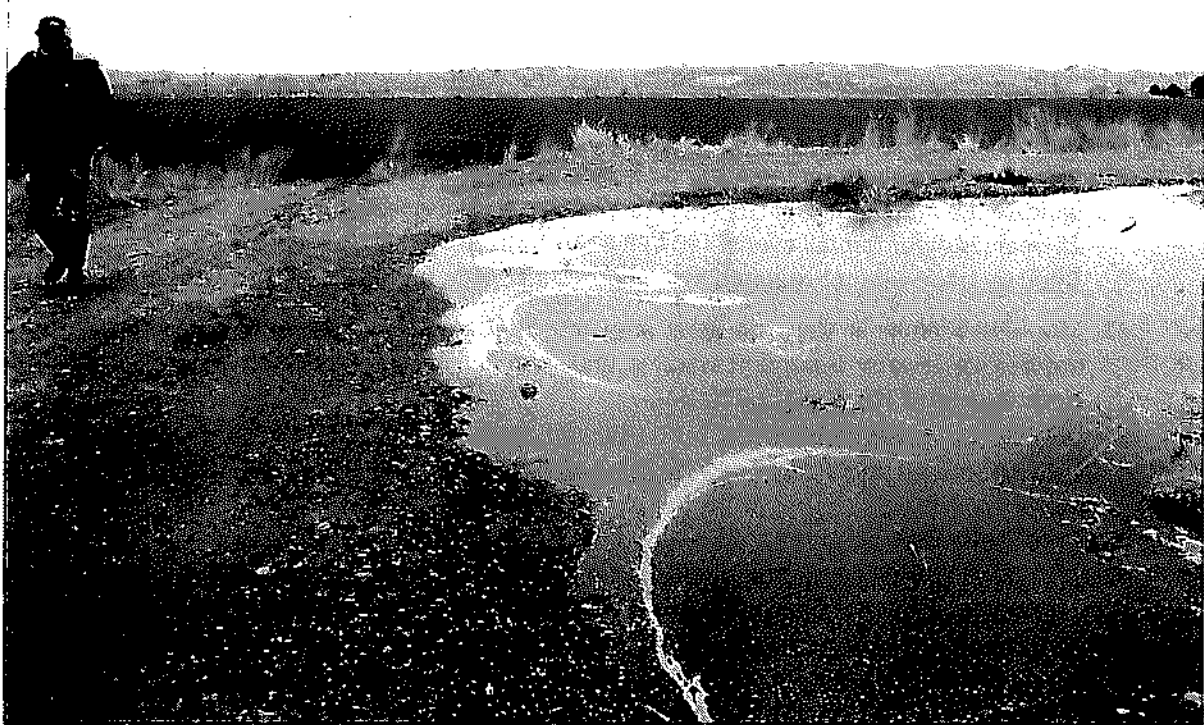
Slurry is removed from the freestalls using a honey vac and hauled directly to the land application sites. During wet conditions, slurry from the freestalls is stored in the high-density polyethylene (HDPE)-lined Runoff Pond located north of the calf hutches. The Runoff Pond also receives runoff from the calf hutches. Due to recent wetter-than-normal conditions, the Runoff Pond was full (approximately 2 feet of freeboard remaining) at the time of the inspection. It appeared that overflows from the Runoff Pond would back up into the calf hutch area.

Inspector:

Jennifer Fernando

Date: 5/30/2019

Idaho CAFO Inspection – Photograph Log: DeRuyter Dairy



Photograph 1. Minimal freeboard was observed at the northwest corner of the Main Lagoon (view looking north). It appeared that overflows from the Main Lagoon would occur at this point and flow west into the Compost 2 drying area.

Aerial Photo/Site Map



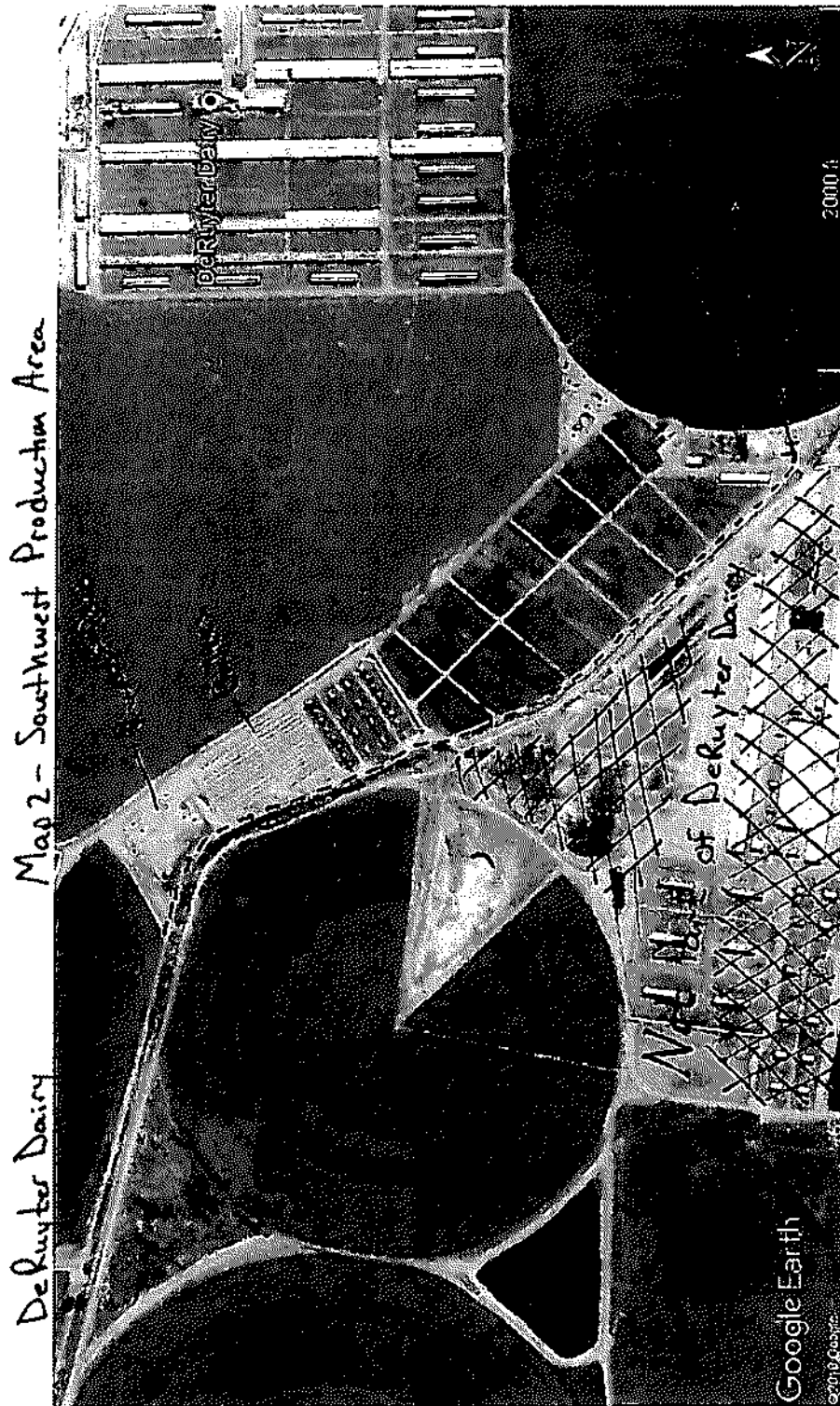


Exhibit L

University of Idaho, Eastern Snake River Plain
Surface and Ground Water Interaction (Jan. 18,
2002)

Eastern Snake River Plain Surface and Ground Water Interaction

This page provides a description of physical characteristics and activities most important to understanding surface and ground water interaction on the eastern Snake River Plain. The section focuses on the eastern Snake River Plain because of the intensive water use in the area and the significant surface and ground water interaction.



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[Evaluation Methods](#)

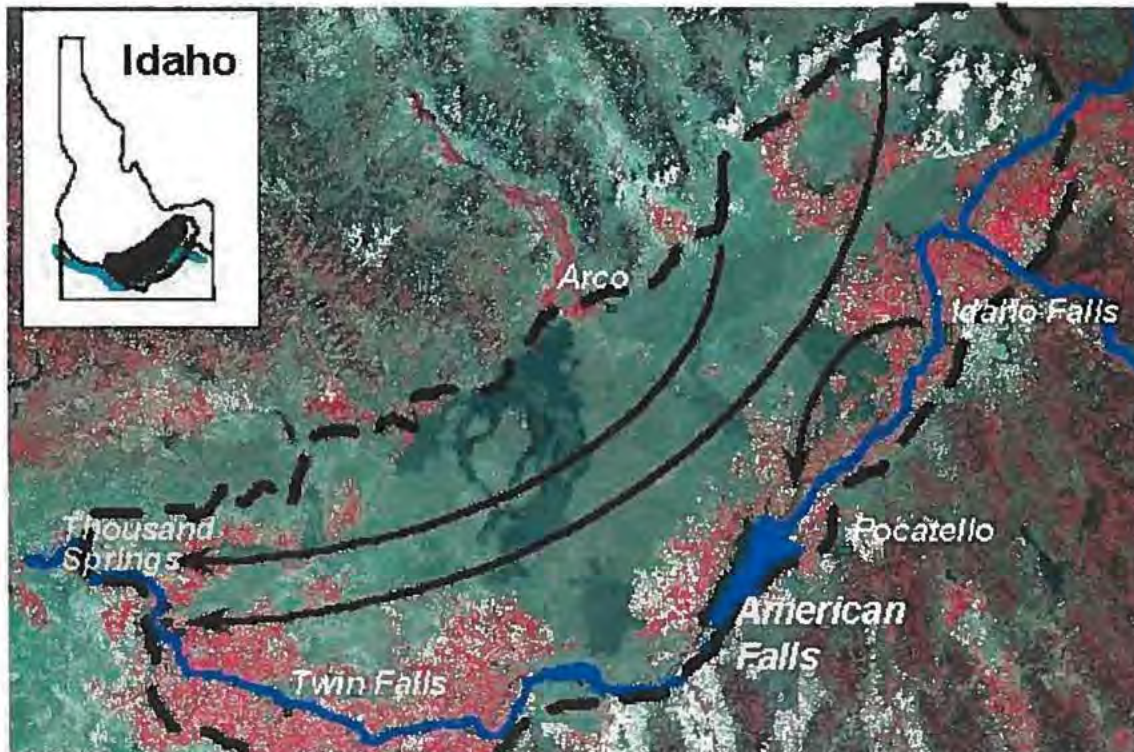
Physical Description

The eastern Snake River Plain extends as a two hundred mile long arc, about 60 miles in width, across southeast Idaho. This plain was formed by the deposition of basaltic lava extruded from numerous vents across the plain. Wind and water deposited sediments overlie the basalt in most areas and are also found interbedded with basalt flows in the subsurface. A more detailed geologic description can be found in the sections on [Hydrogeology](#) and [Origin of the Snake River Plain](#).

Precipitation ranges from about 8 inches/year in the lower elevations in the west to about 14 inches/year in the higher elevations in the northeast. The majority of the water supply originates in mountains on the north and east sides of the basin, including the southern portion of Yellowstone National Park. Within the boundaries of the Snake River Plain, rainfall is insufficient to support commercial levels of

agriculture without irrigation that requires substantial diversions from surface and ground-water systems. The Snake River flows along the southern margin of the plain, fed by tributaries flowing out of the mountains on the south and east side of the plain. A few tributaries from the northern valleys flow into the Snake River, but many disappear through seepage into the permeable Snake River Plain basalts.

Hydrogeology



Flow in the Snake River Plain aquifer is generally from recharge areas in the north and east, to springs in the American Falls and Thousand Springs reaches of the Snake River.

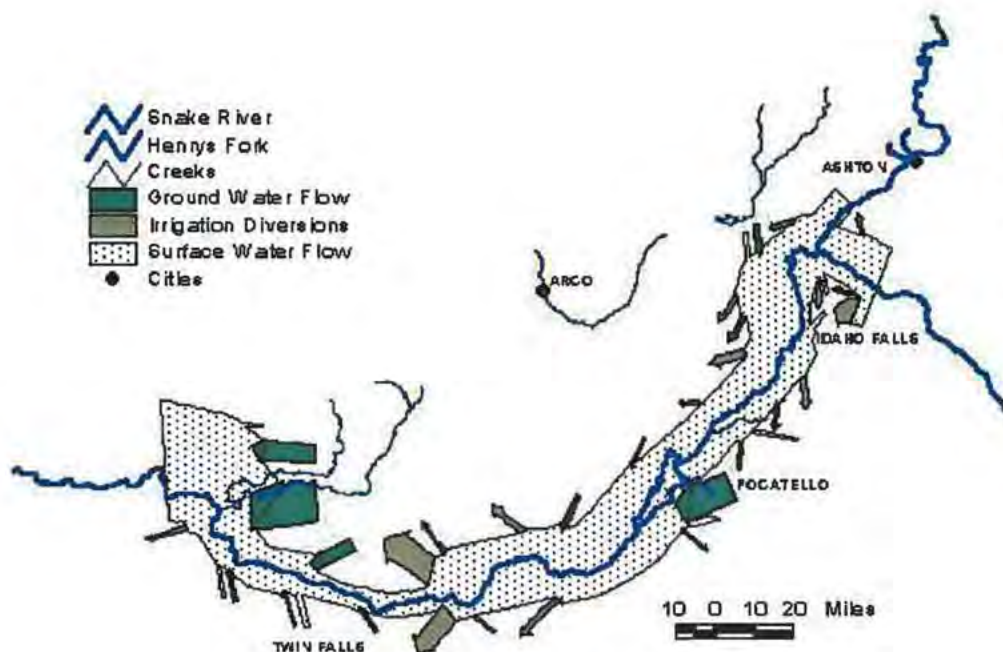
The highly productive Snake River Plain aquifer underlies the eastern Snake River Plain. It has been declared a sole source aquifer by the U.S. Environmental Protection Agency, due to the nearly complete reliance on the aquifer for drinking water supplies in the area.



The aquifer is hosted in layered basalts with sediment occasionally deposited between layers. Highly fractured rubble zones at the contacts between layers provide the primary conduit for ground-water flow. The aquifer is considered to be unconfined but may locally respond as a confined aquifer

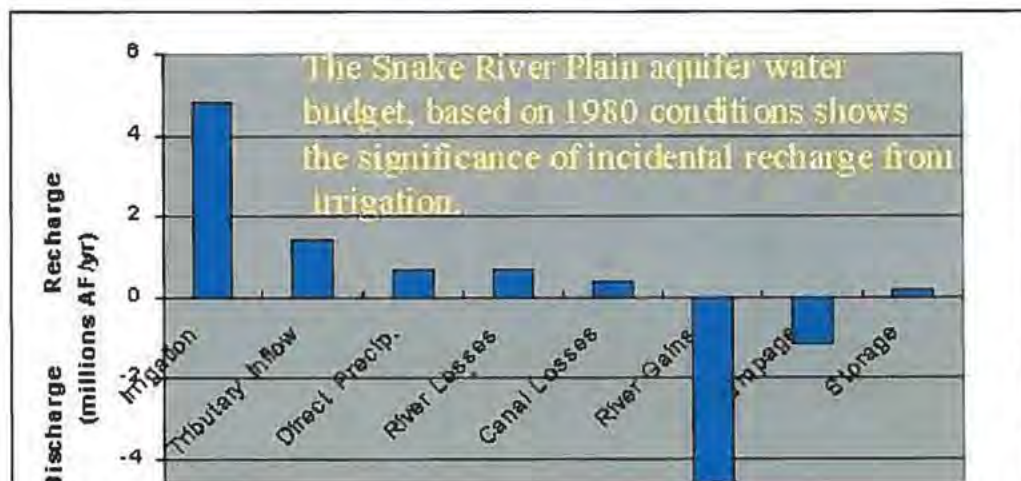
during short duration pumping. This is presumably due to vertical stratification and the presence of lower permeability sediments interbedded among the basalt layers.

Aquifer recharge occurs mainly in the north and east portions of the plain, resulting in generally southwest trending flow lines. Natural discharge from the aquifer occurs primarily along two reaches of the Snake River: 1) near American Falls Reservoir, in which spring discharges total about 2,600 cfs; and 2) in the Kimberly to King Hill reach (Thousand Springs reach), where the collective discharge is about 5,200 cfs.



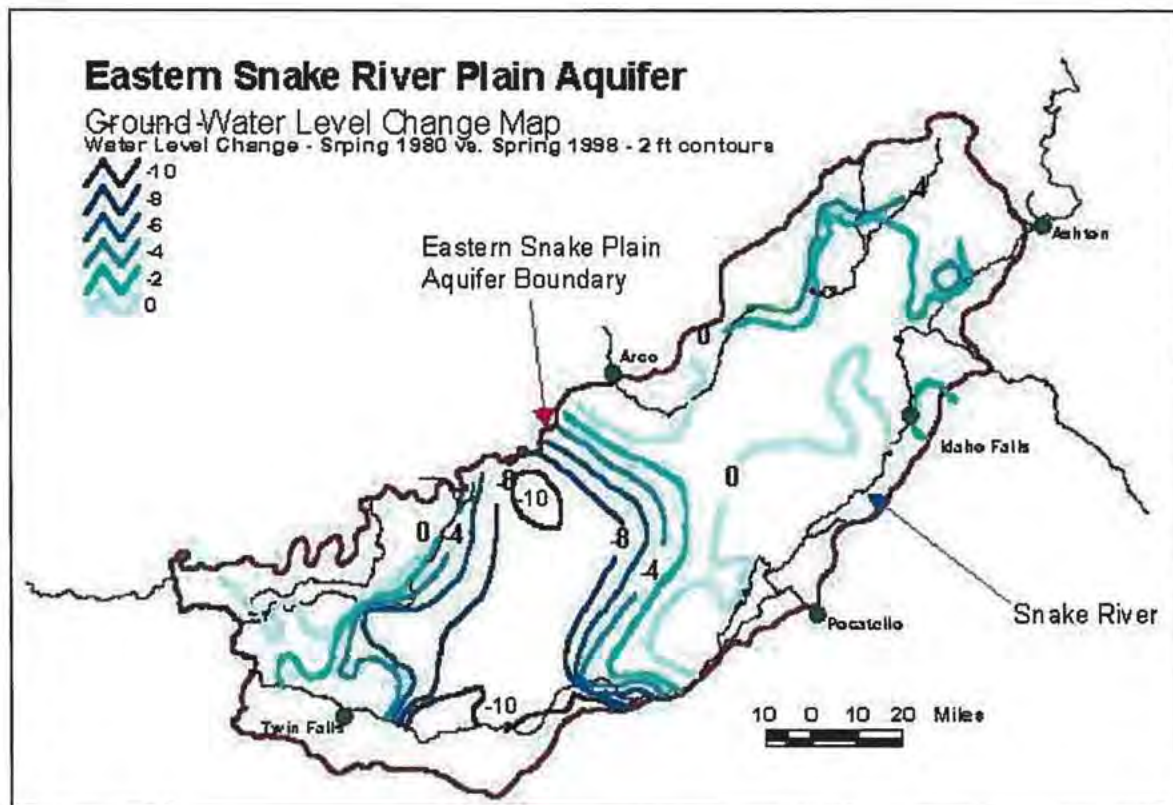
During summer, the spring flows provide the majority of the flow in the Snake River below the irrigation diversions of Milner Dam. The Snake River basin contains 15 of the Nation's 65 first magnitude springs (discharge greater than 100 cfs).

Flow in the Snake River is strongly affected by irrigation diversions and by inflow from springs.



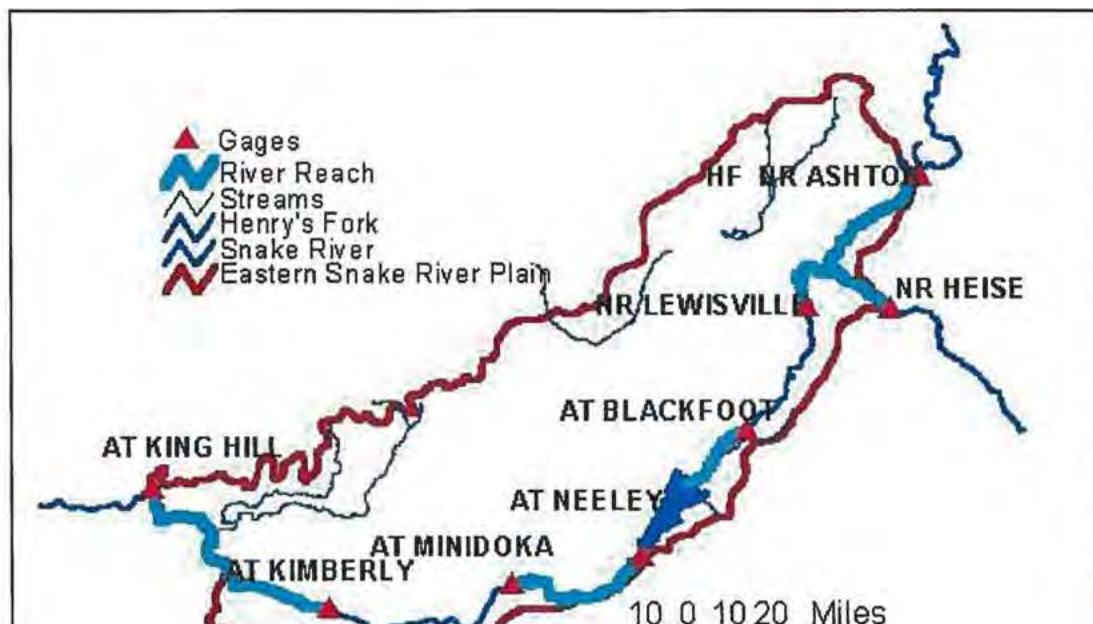
The graph to the left is a water budget for the Snake River Plain aquifer representing 1980 conditions. Surface water irrigation is by far the largest component of aquifer recharge, with smaller contributions from tributary valley

underflow and seepage from rivers. During the past several decades, ground water storage has been depleted, causing water levels to drop.



Variations in weather patterns and changes in irrigation practices on the Snake River Plain have caused changes in aquifer water levels. The map to the left shows changes in water levels from Spring 1980 to Spring 1998. Some areas

of the aquifer have experienced drops in water levels where other areas have experienced slight increases in water levels. (Map provided by the Idaho Department of Water Resources.)



One of the major concerns of conjunctive management is the identification of river reaches or surface water bodies that are hydraulically interconnected with an aquifer. The conceptual basis for this concern is described in the section on ["Surface Water](#)

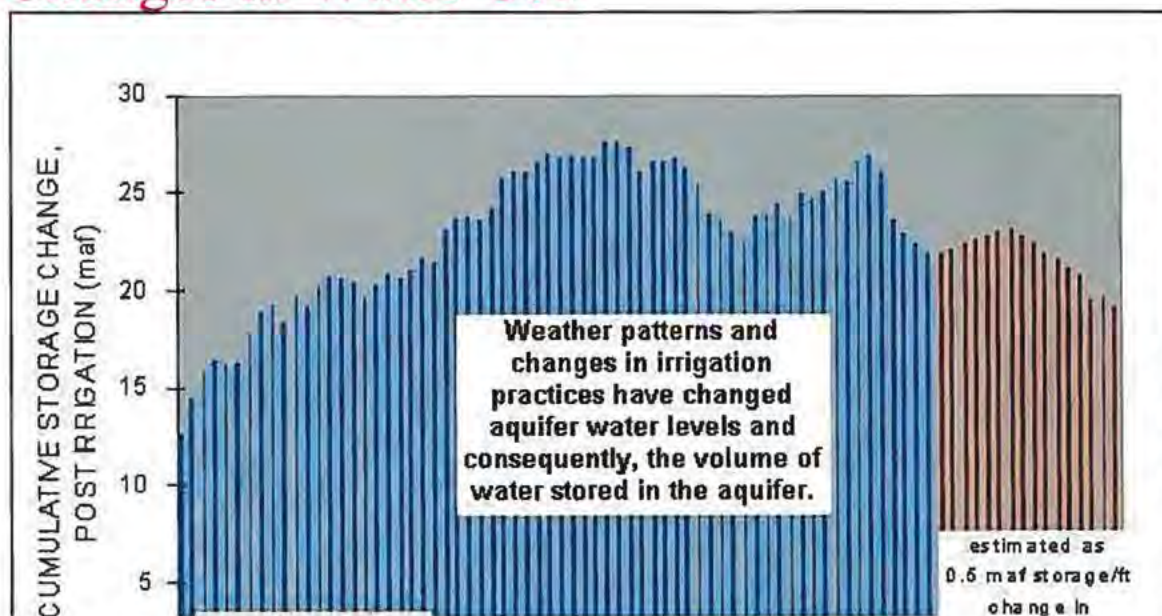
and Ground

Water Interaction". In some cases it is difficult to determine the degree of interconnection because of uncertainties in river bottom conditions and water table depth and because conditions vary with time. A river reach that at one time is hydraulically connected to the aquifer may be perched at another time when aquifer water levels are lower. The State's computer model of the Snake River Plain aquifer treats four major reaches (bounded by gaging stations) of the Snake River as interconnected with the aquifer (illustration above).

- 1) The Kimberly to King Hill reach (Thousand Springs reach), in which the river is deeply incised in a canyon and springs discharge along the canyon wall and in the bottom of the river. Total spring discharge in this reach is about 5,200 cfs. The discharge in this reach varies seasonally and also has shown long term variations reflecting weather and irrigation patterns.
- 2) The Neeley to Minidoka reach which may alternately gain and lose water depending upon water table elevation. The U.S. Geological Survey estimated that this reach had a net gain of 180 cfs in 1980 (Garabedian, 1992).
- 3) The Blackfoot to Neeley reach in which springs contribute about 2,600 cfs to the flow of the river. Spring discharges in this reach exhibit seasonal variation (graph), but have not shown the long-term variation like the Kimberly to King Hill reach (graph). The reason for the long-term stability in this reach is not known.
- 4) The Henrys Fork and Upper Snake River reaches which were estimated to jointly gain approximately 260 cfs in 1980 (Garabedian, 1992).

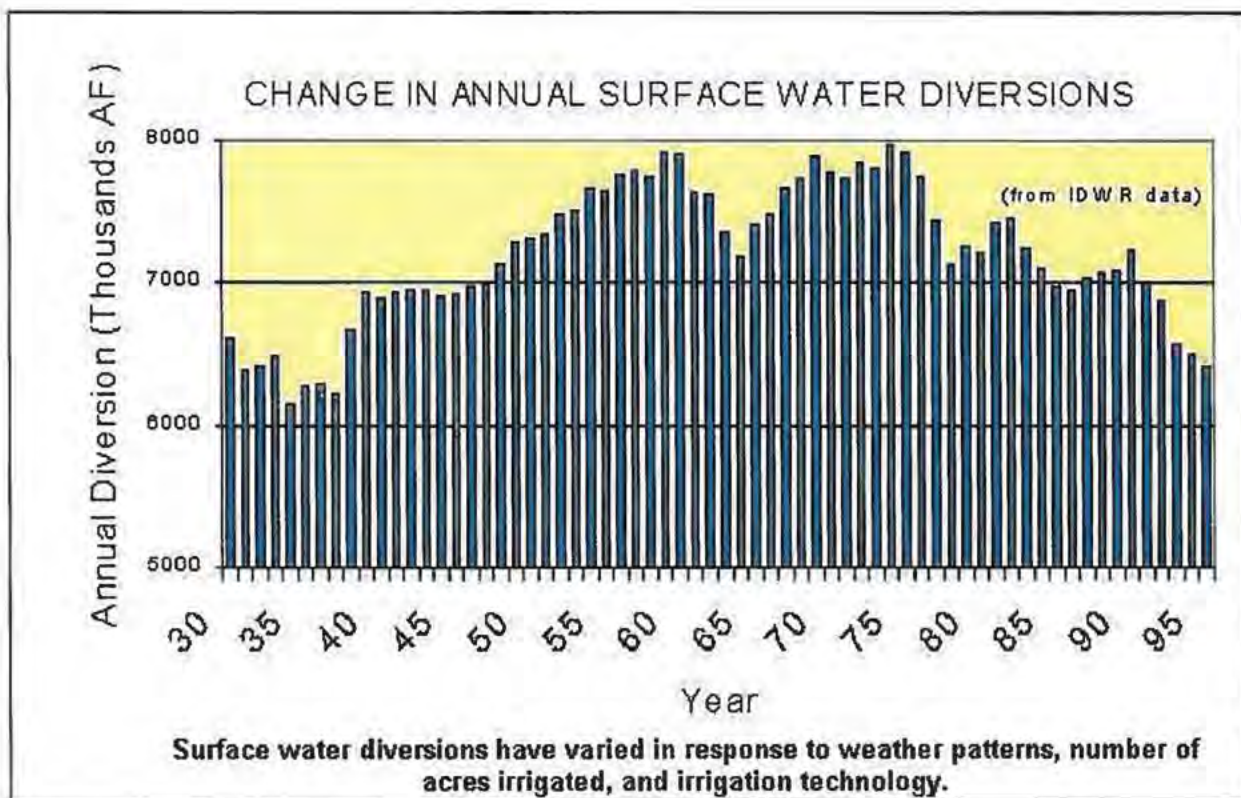
Changes in water table elevation, due to natural causes or man caused activities, result in changes in river gains and losses in these reaches. Although the effects of ground water pumping cannot be measured or separated from effects of natural events, ground water models can provide estimates of individual and collective pumping effects.

Changes in Water Use



Extensive irrigation from the Snake River and its tributaries began in the late 1800s on the eastern Snake River Plain. Gravity irrigation systems typically

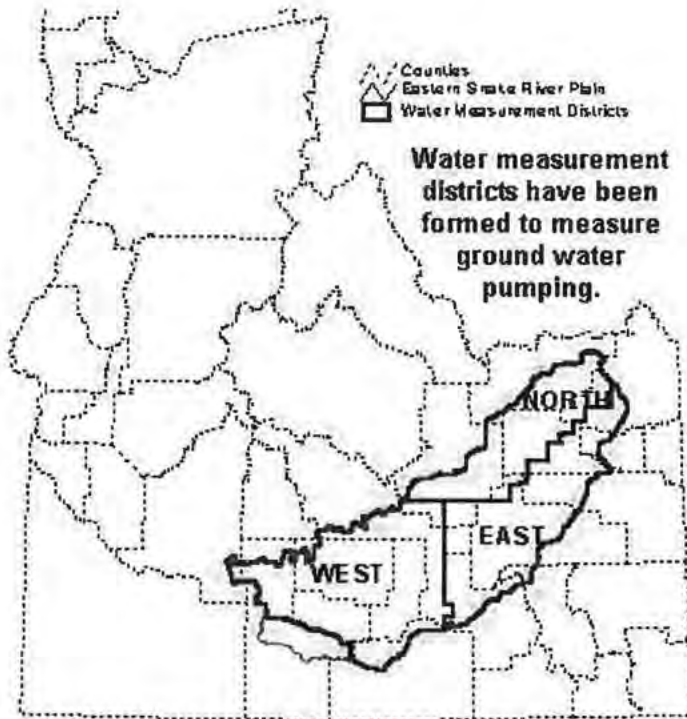
divert more than twice the amount of water necessary to meet crop requirements (Goodell, 1985). The remainder of the water returned to the Snake River or infiltrated to the aquifer. The incidental recharge from the approximately 900,000 acres of surface water irrigated land resulted in increased elevation of ground water levels. The volume of water stored in the aquifer, as shown in the above graph, increased by about 15 million acre-feet between 1915 and 1955. On the average, 340,000 acre-feet of water were being added to aquifer storage annually during this period. [Spring discharge](#), especially in the Thousand Springs reach, also increased dramatically during this period due to higher water levels. Cumulative discharge in the Thousand Springs reach increased from about 4,800 cfs in 1915 to about 6,800 cfs in 1955. An infrared image of the plain shows the approximate extent of [irrigated lands](#) in the early 1990s for areas that appear in red adjacent to the Snake River.



In the mid-19th century, irrigation on the eastern Snake River Plain began to change. An increase in water use efficiency resulted from the

of additional surface water storage facilities, water conservation programs, and, probably most importantly, increased use of sprinkler irrigation. Surface water diversions for irrigation began decreasing in the early 1970s (see above graph). The increased efficiency of the system led to decreased ground-water recharge that has contributed to the decline of ground water levels and spring discharge. In addition, ground-water withdrawals for irrigation increased dramatically during the last half of the century. About 800,000 acres of ground water irrigated land have been brought into production since the 1950s. At an average estimated irrigation demand of 1.8 acre-feet/acre, the total aquifer withdrawal is about 1.5 million acre-feet/year. The combined effects of decreased recharge from surface water irrigation and increased ground-water withdrawals, along with weather variation, are apparent in the declines in ground-water storage and spring discharge since the mid-1950s. The average rate of decline in ground-water storage between 1975 and 1995 is about 350,000 acre-feet/year. Changes in the collective discharge of springs in the Blackfoot to Neeley and Kimberly to King Hill reaches of the Snake River are shown by a [hydrograph](#).

Recent Challenges in System Management



The State of Idaho administers water rights according to the Prior Appropriation Doctrine (see [Water Rights and Conjunctive Management](#)). Idaho fully recognized the need to implement conjunctive management of its water resources in 1984 when the Idaho Supreme Court determined that hydropower water rights of Idaho Power Company at Swan Falls Dam were not subordinated to junior upstream irrigation rights. The case alerted water users in the basin that ground water pumping for irrigation was impacting spring discharge and flow in the Snake River, and that surface and ground water rights were to be jointly administered. In 1992, a moratorium was imposed on new

irrigation pumping on the eastern Snake River Plain (Idaho Department of Water Resources, 1996), which is still in place. Subsequently, IDWR promulgated [conjunctive management rules](#) to provide a mechanism to stem conflicts between surface and ground water users when water supplies are limited. IDWR has also formed water measurement districts in the Eastern Snake River Plain (see above figure) that require the measurement and reporting of ground-water pumping at rates exceeding 0.24 cfs, or irrigating areas greater than 5 acres.

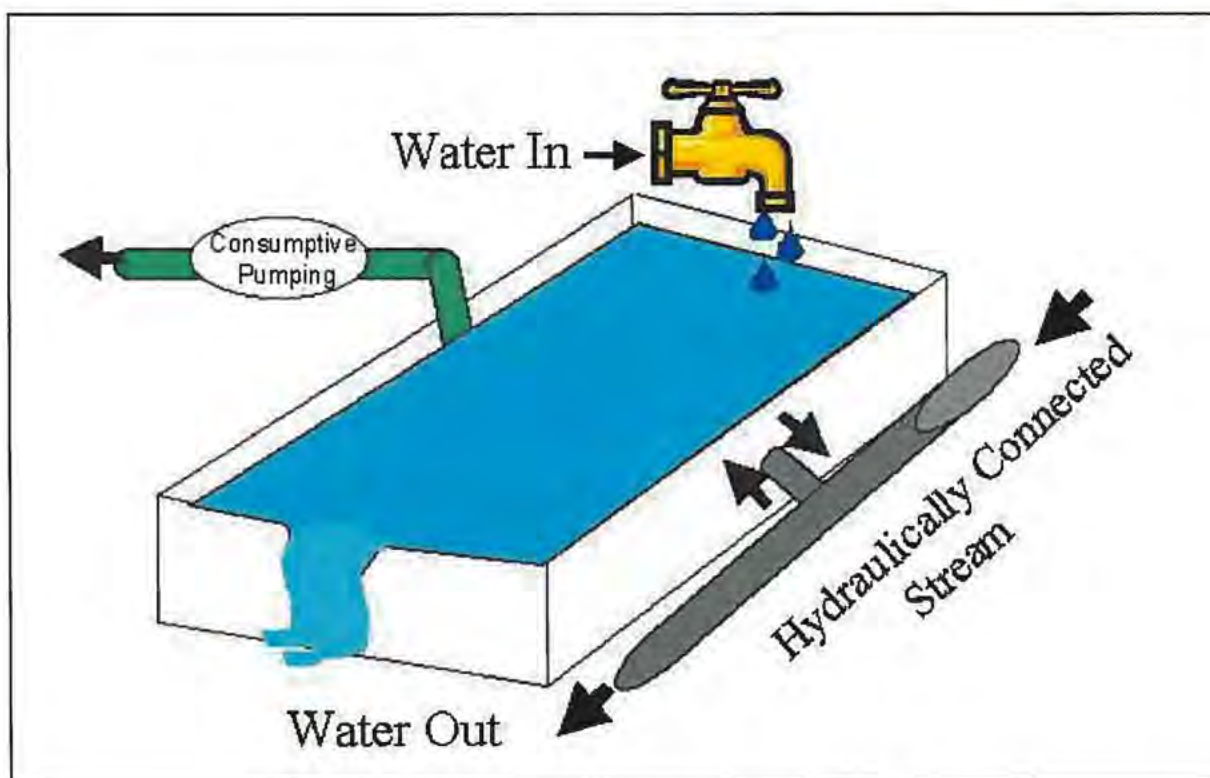
Depletion of spring flows and declining ground-water levels are a collective effect of drought, changes in surface-water irrigation acreage and practices, and ground-water pumping. A recent model study (IDWR, 1997) indicates that the collective effects of all ground-water pumping within the boundaries of the eastern Snake River Plain depletes spring discharge and flow of the Snake River by about 900,000 acre-feet per year (1,200 cfs). The same study projects that changes in surface water irrigation practices have depleted the spring discharge by about 500,000 acre-feet per year (700 cfs). IDWR and the courts are placed in the position of determining the degree to which junior ground-water users have injured senior surface-water users. Isolating cause and effect relationships on a case by case basis will be difficult and costly.

Although most water users and managers accept the concept that ground water use depletes surface water supplies, it is not necessarily accepted that depletion constitutes legal injury. The conjunctive management rules provide for weighing the time of year in which depletion is experienced, the efficiency of use of the senior water users, and the maximum economic benefits of all uses, against the possibility of "futile call".

The State's conjunctive management rules allow junior priority water users to mitigate injury to senior surface and ground water users. One of the mechanisms is to provide supplemental recharge to the aquifer. Both surface and ground water users have embraced artificial or managed recharge as a means of avoiding future conflicts and litigation.

Estimates of Surface and Ground Water Interaction

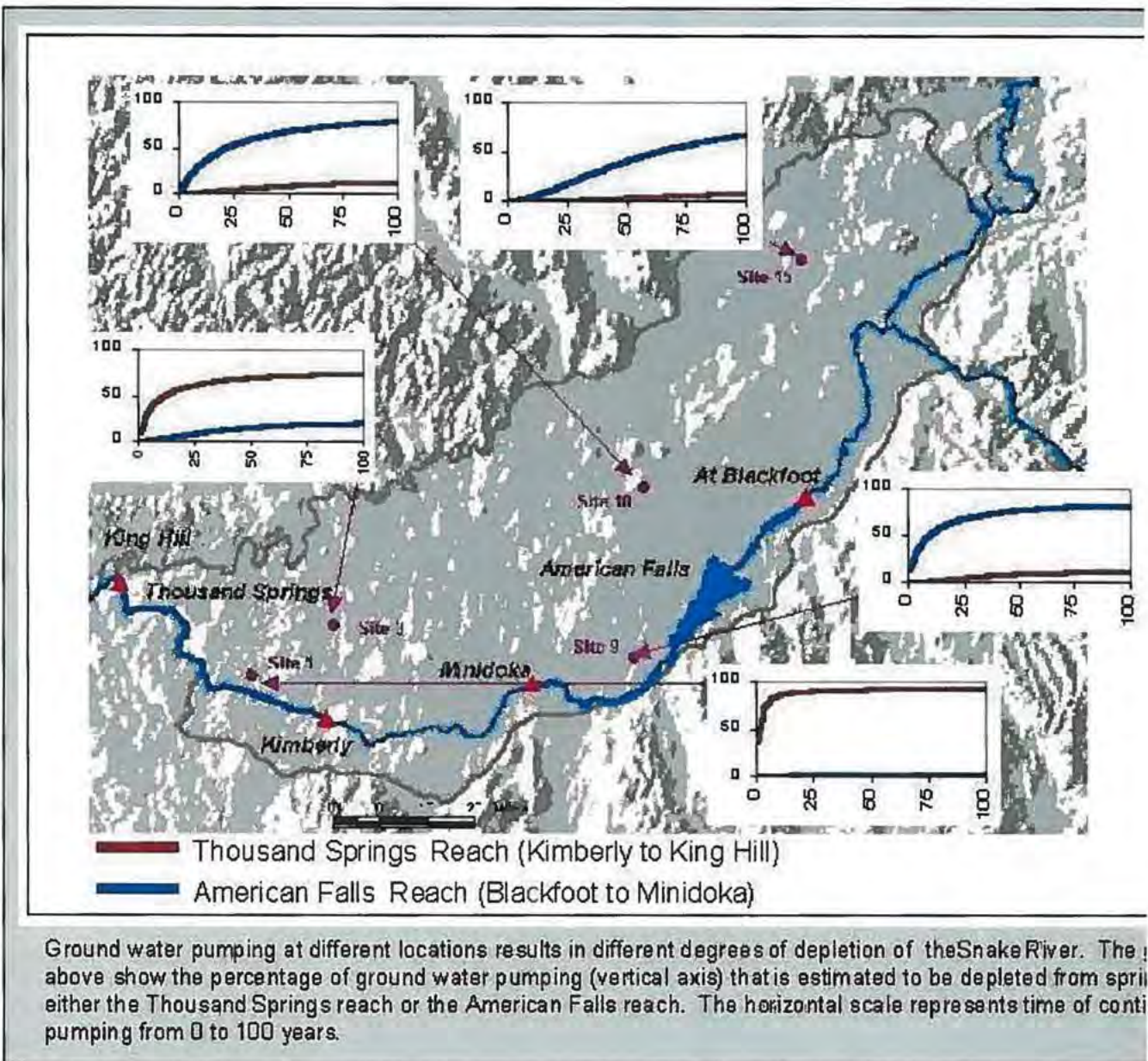
There are several reaches of the Snake River, as well as small streams, that are hydraulically connected with the Snake River Plain aquifer. Ground water pumping from the aquifer initially causes a localized decline in the water table. That decline, or cone of depression, propagates progressively outward until it encounters hydraulically connected surface water bodies. The surface water bodies are subsequently depleted as a result of the pumping. There are four primary points to recognize about the effects of pumping on surface water in the eastern Snake River Plain. The reader should recognize that throughout this discussion the focus is on ground water pumping, but the same concepts, in reverse, apply to aquifer recharge. For more information on these concepts consult [Surface Water and Ground Water Interactions](#).



Aquifer Inflows in Balance with Outflows.

1) Pumping effects propagate in all directions through the aquifer, not just down-gradient. This means it is possible for a down-gradient water user to affect stream flow in the upper reaches of the plain. This appears to be in contrast to the logic that "water flows downhill", but in fact it is not. Consider the analogy of a water tank in which water is entering from two sources on one end and continuously discharging from an overflow weir on the other end, as shown in the illustration. The water in the tank represents the Snake River Plain aquifer. The one source of fill is a faucet that does

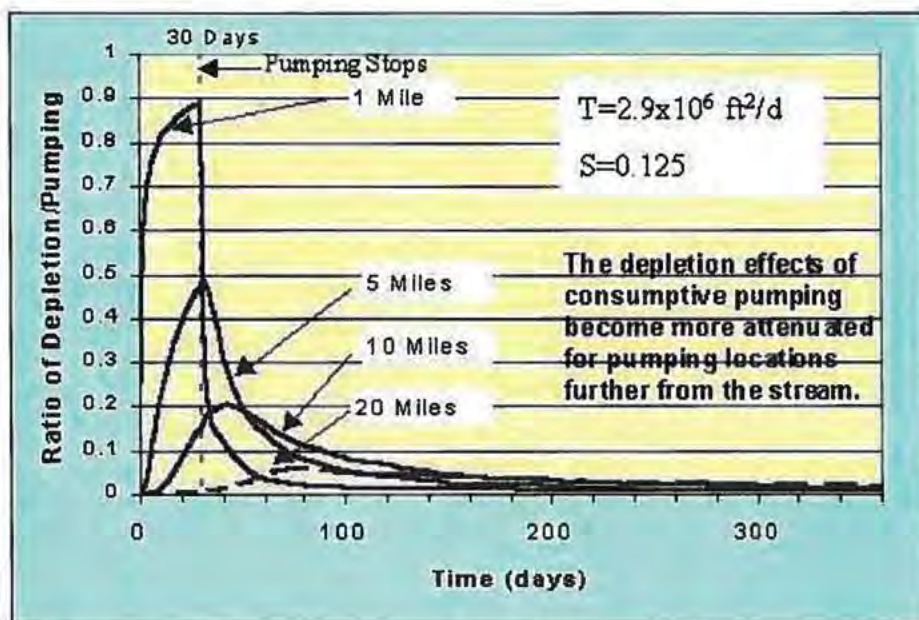
not make direct contact with the water level in the tank, therefore it cannot siphon. This represents recharge to the aquifer resulting from perched streams, precipitation, and irrigation sources. If the water level in the tank (i.e. aquifer) changes, it has no effect on this recharge. The second source of fill is a pipe connected below the water surface in the tank. This source represents hydraulically connected stream and river channels. If the water level in the tank drops, more water will flow out of the pipe and into the tank. If a pump is introduced to extract water from the middle of the tank, what will happen? Water levels in the tank will decline, causing the outflow over the weir to be reduced (similar to Thousand Springs). In addition, the inflow from pipe connected beneath the water surface will increase or outflow will decrease (similar to river connection in the Henrys Fork and the upper Snake River). This increase occurs despite the fact that water is flowing through the tank from the inlet to the outlet sides. In the Snake River Plain aquifer, if water is pumped, or recharged, in the center of the plain, gains and losses of the Snake River may be affected at many locations, not just along the flow lines. Flow lines in an aquifer have limited meaning when evaluating the propagation of pumping or recharge effects; they are significant with respect to water quality considerations.



The radial propagation of pumping effects is evident from depletion graphs generated from a numerical model of the Snake River Plain aquifer. It is apparent from the graphs superimposed on the map of the Snake River Plain that effects do not preferentially propagate along the flow lines in the aquifer (see figure). Although pumping sites in the upper portion of the basin are aligned with flow lines that discharge near Thousand Springs, the majority of the impact is expected near American Falls. The simulations did not include effects of the hydraulic connection of the Henrys and upper Snake River, although they may be significant.

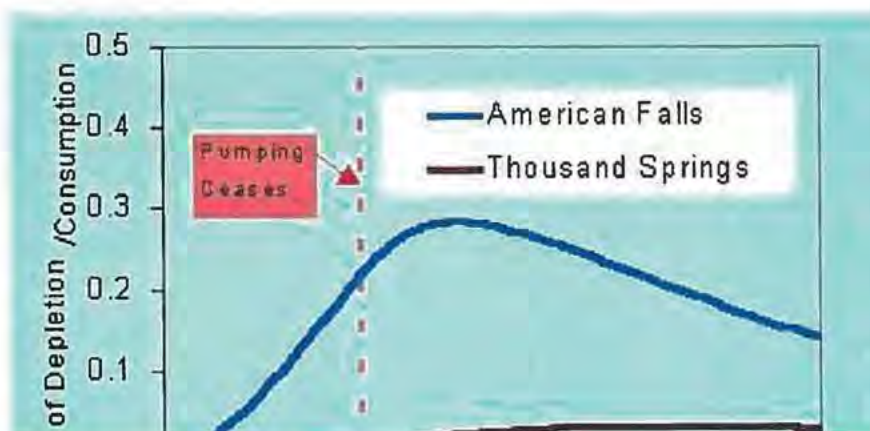
2) The total volume of water pumped and consumptively used from the Snake River Plain aquifer will ultimately be depleted from surface water sources and cause a reduction in ground water storage. It is obviously true that water pumped and consumptively used is water that would otherwise have gone somewhere else. If we again consider the water tank above, when our pump is taking water out of the tank, the discharge of the tank is diminished and the inflow from the submerged pipe is

increased. The pumping has not exceeded the rate of recharge to the tank, but it has impacted outflow (analogous to springs) and inflow (analogous to a hydraulically connected river reach). In the Snake River Plain aquifer, the entire volume of water pumped and consumptively used will either be depleted from spring discharge, cause a corresponding increase in river losses, or cause a corresponding decrease in river gains. We can neither create nor destroy water in the process of pumping.



3) Pumping and aquifer recharge effects on surface water are often greatly attenuated. Even though the entire volume of water consumptively pumped throughout the Snake River Plain aquifer will ultimately be drawn from surface water sources and ground water storage, that depletion may be distributed over time periods ranging from days to decades. The attenuation of the effects is related to the proximity of the pumping location and surface water

body, and the hydraulic properties of the aquifer and stream. The expected approximate attenuation of pumping or recharge effects within about 25 miles of the Snake River in the Thousand Springs area is illustrated graphically. The effects of a 30 day pumping or recharge event are seen to become more attenuated as the site becomes progressively more distant from the river. The illustration uses aquifer properties typical of the Thousand Springs area that may not be representative of other locations within the Snake River Plain aquifer. At greater distances, the effects are much more attenuated. The effects of a 30 year pumping event in the northeast portion of the plain are expected to continue for decades even after the pumping ceases (see graph below).



4) Our ability to estimate ground water pumping impacts on surface water resources is limited. Although this page has presented many illustrations that quantitatively relate consumptive ground water pumping or recharge to surface water depletion, these illustrations are approximate. They are the result of analytical and numerical models, but those models are the

limited knowledge about the real system. More detail can be found in the section on "[Evaluation Methods](#)", current representations of our

The above points are extremely significant to water management in the Snake River and the Snake River Plain aquifer. Some of the primary management considerations are:

- 1) Negative impacts can result from consumptive ground water pumping, even though the rate of pumping does not exceed natural recharge. This is because other users or system needs are dependent on the aquifer.
- 2) There is no "no-impact" consumptive pumping. Every gallon of water consumptively used is not available somewhere else in the system where it would otherwise have existed.
- 3) Conjunctive administration of water rights under the Prior Appropriation Doctrine will be an involved process. Complication results from the propagation of effects to changes in consumptive ground water pumping or managed recharge in all directions and the attenuation of those effects in the aquifer and to the stream, and due to our limited knowledge about the aquifer.
- 4) Managed aquifer recharge can offset some of the adverse economic and environmental impacts of consumptive ground water pumping.

Evaluation Methods

Several methods may be applied to estimate the impact of ground water pumping or recharge on surface water resources. General application of these methods is discussed in the section on "[Surface Water and Ground Water Interaction](#)". The primary method used for the Snake River Plain aquifer has been numerical modeling. Numerical modeling allows us to use as much information about the system physical characteristics as we have available; however, our knowledge of the system is never complete.

Several models have been constructed of the Snake River Plain aquifer, or portions of the aquifer. The two most complete models were constructed by the University of Idaho for the Idaho Department of Water Resources (IDWR) and the U.S. Geological Survey (USGS). These two models have similar boundaries and employ the same computer code. They differ, however, in their purpose for construction and, consequently, their design. The USGS model was constructed largely as an investigative tool to explore concepts of the regional ground water flow and improve our scientific understanding of the system. The IDWR model was designed primarily as an aquifer planning and management tool. The IDWR model presents a more simplified concept of the aquifer in that it uses a single model layer. The single layer was used because it was felt that data were inadequate to develop the multi-layer approach used by the USGS. Nevertheless, extremely sophisticated concepts can be simulated with each model. Our development of models is limited by data availability and our understanding of the real system. A comparison of predictions from these two models is currently being explored as part of the Bureau of Reclamation's SR3 project. More information on these models can be found in Cosgrove and others (1999) and Garabedian (1992).

The model developed for the IDWR is the tool that has been, and probably will continue to be, used for

evaluating ground water and surface water relationships. [Click here](#) for a view of the IDWR State model grid and boundaries. The model was used to perform the Upper Snake River Basin Study (IDWR, 1997) and was used to develop response functions for the river and aquifer (Johnson and Cosgrove, 1999, to be supplied).

The models of the Snake River Plain aquifer described above have been used for many years and presently are accepted to represent the effects that consumptive ground water pumping and managed recharge have on ground water storage and on interactions between the river and the aquifer. However, it is important to recognize that these models are not precise. Although our models will never be perfect, they can always be improved. For example, more ground water-level measurements are needed near the Snake River to better understand and represent the interconnection between the river and the aquifer.

[Top](#)

Exhibit M

**Order Granting Petitioners' Motion for
Summary Judgment and Initial Decision, Center
for Biological Diversity and Food & Water
Watch v. Colorado Dep't of Public Health and
Environment, No. WQ 2022-0001 (May 18,
2023)**

STATE OF COLORADO OFFICE OF ADMINISTRATIVE COURTS 1525 Sherman Street, 4 th Floor, Denver, Colorado 80203	
CENTER FOR BIOLOGICAL DIVERSITY AND FOOD & WATER WATCH, Petitioners, vs. COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, DIVISION OF ENVIRONMENTAL HEALTH AND SUSTAINABILITY AND WATER QUALITY CONTROL DIVISION, Respondent And COLORADO LIVESTOCK ASSOCIATION Respondent.	CASE NUMBER: WQ 2022-0001
ORDER GRANTING PETITIONERS' MOTION FOR SUMMARY JUDGMENT AND INITIAL DECISION	

Summary

This case is an action by the Petitioners to require the Colorado Department of Public Health and Environment (“CDPHE”) to modify its “General Permit for Concentrated Animal Feeding Operations (COA934000),” as modified June 7, 2022, (“General Permit”). Petitioners seek requirements in the General Permit to insure that pollution from feedlots does not contaminate the water supply. A feedlot, a “concentrated animal feeding operation,” or “CAFO,” is required to apply to CDPHE for certification under the General Permit.¹ CAFO’s are required to apply for an individual “NPDES” (National Pollutant Discharge Elimination System) permit, or submit a notice of intent for coverage under a general permit. 40 C.F.R. sec. 122.23(d)(1). States may administer their own NPDES permitting program as long as they comply with federal law. 33 U.S.C. sec. 1342(b) and 40 C.F.R. sec. 123.1.

The Petitioners assert that the General Permit is unlawful in that it does not require “representative monitoring” for pollution from feedlots, “to surface water through groundwater with a direct hydrological connection to surface water.” Respondents assert that because the General Permit prohibits this kind of pollution, it has no authority to

¹ See: <https://cdphe.colorado.gov/environmental-agriculture-program/general-information-for-animal-feeding-operations> or at: <https://bit.ly/3HYyRJJ>.

require such monitoring. The Administrative Law Judge (“ALJ”) rejects this assertion. He grants the Petitioners’ March 31, 2023 Motion for Summary Judgment and orders the General Permit to be modified to require “representative monitoring” for such pollution.

Background

On February 23, 2022, the Office of Administrative Courts (“OAC”) received a “case transmittal” letter from the CDPHE. The letter stated that the Executive Director was requesting that an Administrative Law Judge (“ALJ”) be appointed to hear this appeal between Center for Biological Diversity and the CDPHE, Division of Environmental Health and Sustainability and Water Quality Control Division. The OAC assigned this case no. WQ 2022-0001. On June 7, 2022 CDPHE modified the General Permit. On July 6, 2022, the OAC received a second case transmittal from the CDPHE regarding the appeal of this modification. On October 14, 2022, the ALJ granted Food & Water Watch’s September 22, 2022 request for party status as one of the Petitioners. On November 22, 2022, the ALJ granted Colorado Livestock Association’s request for party status as one of the Respondents.

CDPHE’s July 27, 2022 Motion to Dismiss

The case of *Food & Water Watch v. U.S. EPA*, 20 F.4th 506 (9th Cir. 2021) plays a large role in this dispute. That case ordered the federal Environmental Protection Agency (“EPA”) to issue a new general permit for feedlots in the state of Idaho. It remanded the case and ordered that the general permit require underground monitoring that would ensure compliance with limitations on water pollution. The Petitioners seek such a monitoring requirement for the General Permit.

On July 27, 2022, the Respondents moved to dismiss this appeal on ripeness grounds. That motion asserted that it did not know how the EPA would respond to the *Food & Water Watch* remand. The Respondents (then termed “the Program”) said that it had to wait for this response to know whether it could impose further restrictions in its General Permit. The ALJ denied the Motion to Dismiss August 19, 2022. He reasoned that how the EPA planned to respond to the remand should not affect the Program’s own ability to draft a legally compliant General Permit.

The ALJ’s August 19, 2022 order also questioned how it was that he had authority to hear this appeal and to enforce federal water law. That August 19, 2022 order asked the parties to show cause how this was the case. The parties and the ALJ agree that this is a proceeding per Section 25-8-403, C.R.S., which provides in pertinent part:

During the time permitted for seeking judicial review of any final order or determination of the commission or division, any party directly affected by such order or determination may apply to the commission or division, as appropriate, for a hearing or rehearing with respect to, or reconsideration of, such order or determination.

The ALJ questioned whether public policy organizations such as the Center for Biological Diversity were “directly affected” by the General Permit so as to allow the hearing. In an order dated November 2, 2022, the ALJ determined that there was no jurisdictional bar to the Petitioners being granted this reconsideration. The parties saw

no jurisdictional issue and noted that Water Quality Commission (“Commission”) rules at 21.4 (A) 3), 5 CCR 1002-21 and 61.7, 5 CCR 1002-61 permit an appeal by “any aggrieved person,” or “any other person, affected or aggrieved.”

Respondents’ Joint Motion for Summary Judgment

On December 2, 2022, the Respondents moved for summary judgment. On December 15, 2022, the Petitioners responded in opposition, and on December 21, 2022, the Respondents submitted a reply. The ALJ denied the December 2, 2022 motion for summary judgment January 4, 2023.

The General Permit (as modified) prohibits discharges, “to surface water through groundwater with a direct hydrological connection to surface water.” These prohibitions appear in the General Permit at Part I (D)(2)(g) and Part II (A)(5)(a):

(2) The following facilities are not eligible for coverage under this permit:

...

(g) A CAFO that has a discharge to surface water through groundwater with a direct hydrological connection to surface water.

...

(5) Prohibitions applicable to all CAFOs (new and existing)

(a) There shall be no discharge of manure, litter, or process wastewater into surface water through groundwater with a direct hydrological connection to surface water.

The Respondents’ joint motion for summary judgment asserted that because such discharges are prohibited, the monitoring for such discharges is also prohibited. This counter-intuitive argument is based on 33 U.S.C. secs. 1342(a)(1) and (2) which permits the EPA Administrator to “issue a permit for the discharge of any pollutant.” Respondents also rely on the definition of “effluent limitation” at 33 U.S.C. sec. 1362(11) as any restriction on “chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters” The Respondents’ asserted that a total prohibition on certain discharges is not an “effluent limitation” and monitoring is not authorized. Only “actual” discharges can be monitored.

As argued by the Petitioners, that a discharge is prohibited does not mean it is not occurring, and not “actual.” It makes no sense to allow monitoring for those discharges (presumably less problematic ones) that are allowed under a permit, but not to monitor for those (presumably more problematic) that are not.

The *Food & Water Watch* case above does not support Respondents’ argument, and Respondents assert that it was wrongly decided. That case also concerned a permit that absolutely prohibited certain discharges from feedlots. The EPA in that case did not make the Respondents’ argument that it was *prevented* from monitoring for prohibited discharges. At 517, the Court described EPA’s position:

It [the EPA] concedes that a permit must contain sufficient monitoring requirements to ensure that a CAFO complies with the effluent limitations in its permit. However, the EPA argues that the Idaho Permit contains sufficient monitoring requirements to ensure compliance, and that we must defer to its expertise.

Food & Water Watch at 517 also treated the Idaho permit's zero-discharge limitation as an "effluent limitation." In their December 21, 2022 reply at pp. 6-7, Respondents sought to distinguish this holding. They asserted that a "zero-discharge" permit limitation *is* an "effluent limitation," but that a "complete prohibition of any discharge of pollutants" is different and is not. This is hairsplitting and a distinction without a difference.

Respondents also relied on *Waterkeeper Alliance, Inc. v. United States EPA*, 399 F.3d 486 (2d Cir. 2005). To the extent that that case is helpful to the Respondents, it is only in its limited holding at 504-505 that a CAFO is not required to *apply* for an NPDES permit unless it is actually discharging pollutants. But that is not the same thing as saying that a general permit is barred from monitoring for prohibited discharges. Similarly, *Nat'l Pork Producers Council v. United States EPA*, 635 F.3d 738 (5th Cir. 2011) provides only that the EPA could not require an application for an NPDES permit for CAFO's that are not discharging, but may fit the special definition of "proposing to discharge" under the regulations.

Respondents assert that because no monitoring is permitted for prohibited discharges, Colorado law also prohibits it from monitoring. It cites Section 25-8-504(2), C.R.S., which provides that no permit for animal waste can be more stringent than required by federal law. For what it is worth, this limitation applies only to animal waste on "farms, ranches, and horticultural or floricultural operations." "Feedlots" or "CAFO's" are not included. CAFO's are defined at 40 C.F.R. sec. 122.23 as lots where animals are stabled and fed for 45 days and crops are not grown. This does not sound like what is commonly thought of as a "farm" or "ranch." Words in statutes are to be construed according to common usage. Section 2-4-201, C.R.S.

Subsequent submissions

Following the ALJ's denial of Respondents' joint motion for summary judgment, Respondents submitted a January 30, 2023: "Respondents' Joint Motion for Clarification and Issuance of Initial Decision" ("Joint Motion"). The "clarification" sought at p. 3 of the Joint Motion was as follows:

Respondents request clarification as to whether the Court [the ALJ] has determined, as a matter of law, that the General Permit's prohibition on discharges of pollutants to waters of the United States through groundwater is an "effluent limitation" under the federal Clean Water Act for which groundwater monitoring is required to ensure compliance. ... If that is the Court's legal conclusion, because Respondents concede that the General Permit does not contain groundwater monitoring for discharges to waters of the United

States through groundwater, then the issue on appeal is effectively resolved in Petitioners' favor.

The Petitioners were opposed to such a resolution of this case. On February 9, 2023, they filed a response in opposition and their own "Cross-Motion for Clarification and Issuance of an Initial Decision." They objected to "groundwater monitoring," as described by the Respondents. The Petitioners argued that "representative monitoring" is what is required. They cited 40 C.F.R. secs. 122.41(j)(1) and 122.48(b) which require monitoring "representative of the monitored activity," and capable of yielding "data which are representative of the monitored activity."

The Petitioners were concerned that the term "groundwater monitoring" would leave the ALJ's decision vulnerable on appeal due to potential differences in interpretation. (As it turns out, this suspicion was justified. The Respondents resist the idea of "representative monitoring," despite its source in the federal regulations.) At that point it seemed to the ALJ that the parties were close to a resolution. He proposed in an order dated February 17, 2023 that the parties come to an agreement on language that contained both the terms "groundwater monitoring" and "representative monitoring."

In a February 21, 2023 "joint response" to the Petitioners' February 9, 2023 submission, the Respondents stated that "representative monitoring" was unacceptable. They do not dispute that this is the language in the above referenced portions of the C.F.R. They state that because the Petitioners used the term "groundwater monitoring" in their earlier internal agency appeals, they are stuck with it now. Respondents assert that to issue a decision with the term "representative monitoring" would exceed the scope of the issues referred to the ALJ.

There is no such restriction. Hearings referred to the OAC are to be conducted by ALJ's. Section 25-8-401(4), C.R.S. There are no "hearing officers" at the OAC. Part 10, article 30 of title 24 of the C.R.S. The initial decision of the ALJ shall include findings of fact and conclusions of law upon all the material issues of fact, law, or discretion presented by the record. Section 24-4-105(14)(a), C.R.S. In any case, the February 23 and July 6, 2022 referrals to the OAC sought a determination whether there was a violation of 40 C.F.R. part 122 by not including sufficient groundwater monitoring requirements. That part of the C.F.R. describes "representative monitoring" at 40 C.F.R. secs. 122.41(j)(1) and 122.48(b). Also, the February 23, 2022 case transmittal to the OAC contained a request for a hearing from the Center for Biological Diversity relying on the *Food & Water Watch* case. That case held at 515 that "representative monitoring" per 40 C.F.R. secs. 122.41(j) and 122.48(b) was the legal requirement, and that Idaho had failed to meet it.

Petitioners' Motion for Summary Judgment

On March 31, 2023, the Petitioners themselves moved for summary judgment ("Motion"). On April 10, 2023, Respondents responded in opposition ("Response"). On April 17, 2023, the Petitioners submitted a reply ("Reply").

Summary judgment is appropriate when the pleadings and supporting documentation show that no genuine issue of material fact exists and the moving party is entitled to judgment as a matter of law. C.R.C.P. 56(c); *W. Elk Ranch, L.L.C. v. United*

States, 65 P.3d 479, 481 (Colo. 2002). The Colorado Rules of Civil Procedure, the rules of procedure in the district courts, apply “to the extent practicable” to administrative hearings. Section 24-4-105(4), C.R.S.

As stated, the Respondents are unwilling to resolve this case with a requirement for “representative monitoring.” At the same time, the April 10, 2023 Response asserts that CDPHE has met the “representative monitoring” requirement by insuring that feedlots have liners that contain engineer certification, and which are inspected weekly. The Respondents argue that the facts in the present case are different than those in *Food & Water Watch*, *supra* because, among other things, the geology in Idaho is different than that in Colorado. They argue that their expert witness, Dr. David Parker, will testify that Colorado’s liner and inspection requirements, as well as other facts, meet “representative monitoring” requirements.

Respondents assert that the General Permit incorporates impoundment controls and monitoring requirements contained in 5 CCR 1002-81. Response at 7. The Response does not identify where in the General Permit these are located, but they are presumably the following at pages 15 and 18 of the General Permit:

(4) Impoundments shall be operated and maintained in compliance with section 81.7 of Regulation No. 81 to demonstrate lack of direct hydrological connection to surface water.

...

(F) ADDITIONAL SPECIAL DOCUMENTATION The permittee shall retain the applicable documentation, certifications, and records required under section 81.7 of Regulation No. 81 to demonstrate that no direct hydrological connection exists between impoundments and surface waters.

Although Respondents do not say so explicitly, they apparently are offering Dr. Parker’s information about impoundments and liners to show a genuine issue of material fact making summary judgment improper per C.R.C.P. 56. But if this is true, why then did they assert in their January 30, 2023 joint motion that the ALJ’s denial of their motion for summary judgment meant that: “the issue on appeal is effectively resolved in Petitioners’ favor.” This appears to concede that factual disputes have been resolved. As Petitioners point out, Respondents’ position has heretofore been that no monitoring is permitted, not that liners and other safeguards meet legal requirements.

Whether the General Permit provides for monitoring “representative of the monitored activity,” and capable of yielding “data which are representative of the monitored activity” as required by 40 C.F.R. secs. 122.41(j)(1) and 122.48(b) is a legal question. It can be resolved by summary judgment without the input of a professional engineer such as Dr. Parker per C.R.E. 702. That proper maintenance of liners combined with Colorado geology and other physical factors makes leakage unlikely does not eliminate the legal requirement to have representative monitoring to make sure such leakage does not occur. *Food & Water Watch* at 517 provides: “Without a requirement

that CAFOs monitor waste containment structures for underground discharges, there is no way to ensure that production areas comply with the Permit's zero-discharge requirement.”

Order granting Petitioners’ Motion for Summary Judgment

The ALJ grants Petitioners’ Motion and issues this Initial Decision. The hearing scheduled for October 3 and 4, 2023 is cancelled.

Colorado has been authorized to issue NPDES permits. 40 Fed. Reg. 16713; <https://www.epa.gov/npdes/npdes-state-program-authority>. Such authorization requires that states have the authority to carry out the permit program. 33 U.S.C. sec. 1342(b); 40 C.F.R. sec. 123.25(a). The General Permit for Concentrated Animal Feeding Operations (COA934000), as modified June 7, 2022, (“General Permit”) prohibits discharges, “to surface water through groundwater with a direct hydrological connection to surface water.” These prohibitions appear in the General Permit at Part I (D)(2)(g) and Part II (A)(5)(a) and are an “effluent limitation” as defined at 33 U.S.C. sec. 1362(11). The prohibition requires representative monitoring as described at 40 C.F.R. secs. 122.41(j)(1), 122.44(i)(1), and 122.48(b).

Initial Decision

CDPHE’s “General Permit for Concentrated Animal Feeding Operations (COA934000),” as modified June 7, 2022, is unlawful in that:

1. The General Permit’s prohibition on discharges to waters of the United States through groundwater is an effluent limitation for which representative monitoring is required to assure compliance; and
2. The General Permit does not contain representative monitoring provisions sufficient to assure compliance with that effluent limitation.

Per Section 24-4-105(14)(a), C.R.S., this Initial Decision will be sent to the agency for mailing. A courtesy copy will also be emailed to counsel at the below addresses. Unless exceptions are filed, this Initial Decision is the Final Agency Decision of the agency. Section 24-4-105(14); *Colo. State Bd. of Med. Exam’rs v. Lopez-Samayoa*, 887 P.2d 8, 11, n. 4 (Colo. 1994).

DONE AND SIGNED

May 16, 2023



MATTHEW E. NORWOOD
Administrative Law Judge

CERTIFICATE OF SERVICE

I certify that I have sent a courtesy copy of the above **ORDER GRANTING PETITIONERS' MOTION FOR SUMMARY JUDGMENT AND INITIAL DECISION** to the parties listed below by email to:

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Dated: May 18, 2023

/s/ Katherine Singleton _____
Office of Administrative Courts

Exhibit N

USDA, CEMA 201, Edge-of-Field Water
Quality Monitoring – Data Collection and
Evaluation (Oct. 2022)



Conservation Evaluation and Monitoring Activity

Edge-of-Field Water Quality Monitoring - Data Collection and Evaluation

CEMA 201

Definition

Water quality monitoring and evaluation under this conservation activity standard are the actions and activities, using acceptable tools and protocols, by which a producer will measure the effectiveness of conservation practices and systems.

The purposes of this CEMA include:

- Evaluating the effectiveness of a practice or system of practices in reducing concentrations and/or loads of targeted constituents.
- Using evaluation techniques to acquire insight about existing land management and where applicable, institute change to achieve a future desired condition.
- Collecting site specific edge-of-field water quality data to calibrate, validate, and verify predictive models.

Evaluation of conservation practice effectiveness through edge-of-field monitoring will lead to a better understanding of constituent loading and will assist NRCS and participants in adapting or validating the application of conservation measures.

Applicable Land Uses

This conservation activity applies to all land uses where conservation practices are or will be addressing surface and subsurface drainage water quality, and there is a need to determine the effects and performance of applied conservation practices. The pollutant(s) to be measured at the edge-of-field must be tied to a water quality constituent of concern for the associated receiving stream or water body. This ties the activity to addressing a resource concern using the NRCS conservation planning process and promotes a systems approach to conservation.

REQUIREMENTS

Qualified Individual Requirements

The Natural Resources Conservation Service (NRCS) strongly encourages participants to know the following Qualified Individual (QI) Requirements to ensure the person they hire is a good match for their needs and objectives.

A QI for this CEMA meets all of the qualifications listed below:

- 1) Has demonstrated successful management of at least two relevant Edge-of-Field water quality monitoring projects that acquire(d) flow, precipitation, and water quality sample data collection – including operation and maintenance of the monitoring system(s).
- 2) Demonstrate proper sample collection and preservation and oversight of the laboratory analysis.
- 3) Completed statistical analysis of the data collected.



- 4) Has documented prior system installation and is prepared to provide a copy of previous installation report, including photographs, with personally identifiable information redacted.

Non-qualified individuals are allowed to collect data under the guidance and oversight of a QI.

The NRCS National Water Quality and Quantity Team (NWQQT) will maintain a list of Qualified Individuals (QIs) for this activity. Prospective QIs may contact the NWQQT to be added to or removed from the list. NRCS staff may also contact the NWQQT to inquire about or provide information regarding QIs for their respective regions. Please contact karma.anderson@usda.gov for more information.

General Requirements

- 1) This CEMA includes the performance of work and documentation of the tasks, results, interpretations, and other activities described herein by a QI.
- 2) Prior to initiation of the CEMA, the QI must arrange a pre-work conference to ensure all parties understand the participant's objectives, required deliverables, and characteristics of the CEMA tasks.
 - a) The parties in the pre-work conference must include the participant, the QI, and the NRCS field office staff. The parties should agree whether they will join in-person or join via phone, web-meeting, etc.
 - b) If the participant will employ a Technical Service Provider (TSP) to implement a Conservation Planning Activity (CPA) or Design and Implementation Activity (DIA) that will be supported by results of this CEMA, it is recommended to invite them to the pre-work conference too.
- 3) A QI may use any reference information, resource concerns, conservation practice standards and related documents served in the NRCS Field Office Technical Guide (FOTG) for the state where this CEMA is performed. The FOTG home page hyperlink is: <https://efotg.sc.egov.usda.gov/#/>

Technical Requirements

Monitoring Design

To maintain a defensible scientific foundation capable of providing data at the level required for evaluating the effectiveness of a practice or a practice system, a paired field approach or an above and below treatment approach is required.

A paired approach provides for a determination of conservation practice effectiveness by comparing a control field and a treatment field that are similar in terms of soil, slope, vegetation, hydrology, initially receive identical management, and receive the same weather (e.g., precipitation events) (Clausen and Spooner 1993). Monitor both fields (watersheds) under identical crop and management conditions without any new practice implementation during the baseline period. Follow this with monitoring of both fields after conservation practice implementation in the treatment field. The monitoring regime (i.e., sample location, method, and frequency) must remain the same through both baseline and post-implementation periods.

Selecting a single field with split drainage areas simplifies the paired approach.

Another appropriate design for certain practices is an in-field above and below approach. In this system, the first station monitors water quality above treatment and a second station monitors water quality below treatment. As with the paired approach, follow the baseline period with a



post-treatment monitoring period (USDA-NRCS, 2003).

Site Selection

Identification of a specific, significant in-stream or downstream water-body water quality resource concern(s) linked to an agricultural pollutant (one of the water quality constituents identified in this document) should be the first step in site selection. Additionally, there should be “avoiding”, “controlling”, and “trapping” conservation practices available to address the pollutant(s).

Additional site selection criteria:

- 1) Drainage catchments should be no smaller than 3 acres. The difference in drainage area of the control field and the treated field should be ≤ 5 acres. Fields should be adjacent or as close as possible. The fields should not have outside influences such as receiving drainage from other fields or suburban areas.
- 2) In fields without drain tile, establish edge-of-field sites by surveying to locate the catchment drainage outlet and to measure the drainage area. The drainage area to the monitoring station should have homogeneous land use, preferably within the field's natural drainage, provide for wet weather travel access, and the assurance that system will not interfere with normal farming operations or future conservation practice implementation. Berm construction may be necessary to direct runoff to the inlet of the monitoring system.
- 3) The participant must have control of the land and its management for the length of the monitoring period.
- 4) To the extent possible, field sites should allow the system to blend into the landscape to reduce the possibility of vandalism.

System Criteria

System criteria necessary for Quality Assurance Project Plan (QAPP) development is found in Edge-of-Field Water Quality Monitoring – System Installation (201).

Operational Requirements

Water Quality Constituents

Laboratory analysis of water quality samples must use standard protocols outlined in the *National Environmental Methods Index* (NEMI, 2012). The QAPP must document a detailed description or procedure reference number of the laboratory analysis. It must also document the use of duplicate and blank samples (typically 10 percent of the samples). Instruct laboratories to perform analysis only when there is sufficient volume present in the sample to analyze all water quality constituents.

At a minimum, analyze the following constituents in all samples:

- 1) $\text{NH}_4\text{-N}$ (Ammonium Nitrogen only required when animal waste is land applied)
- 2) $\text{NO}_2\text{-N} + \text{NO}_3\text{-N}$ (Nitrite plus Nitrate Nitrogen)
- 3) TKN (Total Kjeldahl Nitrogen)
- 4) Soluble Reactive P (Orthophosphate Phosphorus)
- 5) TP (Total Phosphorus)
- 6) SSC (Suspended Sediment Concentration) – *Preferred*



7) TSS (Total Suspended Solids) – *When SSC is not available through the lab*

Sample Handling

The data collector’s QAPP describes sample handling in detail.

Required Site Visits

System maintenance must be a high priority to ensure meaningful data (USEPA, 1997). A list of monitoring and maintenance items follows:

- 1) Visit the site at least once per week or on alternating weeks when sampling events are not anticipated.
- 2) Visit all sites as soon as possible (as determined by guidelines listed in the QAPP) after sampling events to retrieve samples, inspect flow measurement and automated sampler function, and make necessary repairs. Excessive delay in retrieving water samples can result in changes to their chemical composition and thus inaccurate representation of actual water quality.
- 3) General maintenance tasks:
 - a) Commit adequate time to conduct necessary equipment inspection, maintenance, and repair.
 - b) Inspect power sources, stage recorders, pumps, sample tubes, sample intakes, and desiccant strength.
 - c) Check and/or calibrate stage recorders to ensure flow measurement accuracy.
 - d) Retrieve collected data weekly or bi-weekly to limit the amount of data potentially lost due to equipment failure or logger capacity limitations.
 - e) Remove debris, snow, and ice upstream and downstream from the flow control structure. Clean site and assure unimpeded flow through the structure(s).

Monitoring Duration

The monitoring duration should be based on the number of years in the crop rotation. The minimum recommended duration is found in table 1. Typically this is one crop rotation for baseline and two crop rotations for post practice application. If after the second crop rotation statistically significant data have been collected and the effectiveness of the monitored practice(s) is established, the third crop rotation may be used for additional practice implementation. No change can be made in the monitored fields without consultation of the data collector. The participant may request a different monitoring duration in writing (5 year min, 9 year max). The request goes to the state water quality monitoring specialist who will seek approval through the NRCS National Water Quality Specialist.

Table 1. Monitoring Duration Based on Crop Rotation.

Number of Years in the Crop Rotation	Baseline	Post Installation of Practice(s)
1 year crop rotation	2 years	4 years
2 year crop rotation	2 years	4 years
3 year crop rotation	3 years	6 years



Data Management

Data Storage

Data will be stored and distributed as outlined in Appendix A.

Data Analysis

Many statistical designs are appropriate to analyze monitoring data USGS (2002), U SEPA (1997), Clausen and Spooner (1993), and USDA-NRCS (2003). Paired field data are often analyzed by Analysis of Covariance (ANCOVA), a procedure that combines linear regression with Analysis of Variance (ANOVA) (Grabow et al. 1998). A key element for proper analysis is having a design and purpose prior to collecting data. Outline and reference the statistical design for the monitoring project in the QAPP.

Reporting Requirements

Monitoring data provided to NRCS contains Personally Identifiable Information (PII). At a minimum, these data must be transmitted in a zipped and password protected format.

System Installation

The Monitoring Conservation Activity Installation Report (Appendix B) will be submitted. An approved Water Quality Monitoring Plan (Appendix C) and a QAPP (Appendix D) must be submitted and approved as a part of the installation. The historic operations form (Appendix F) should be submitted with the installation report. NRCS must complete a quality assurance check of existing practice management (Appendix F) known as the Annual Field Check form. These forms, along with digital photos of the installation, serve as documentation for system installation. The maximum allowable photo resolution is 1.9 megapixels (1600X1200). All photographs must be date stamped.

Semi-Annual Data Submittal

For each water quality station, rainfall and flow data will accompany electronic (.pdf) copies of the laboratory analysis for each event. Weekly or bi-weekly checklists and/or a log book should provide information about the performance of the monitoring system, specifically noting any malfunctions, gaps in data collection, or conditions that might be useful in interpreting the results of collected data. The operations form (Appendix F) should be completed for the reporting period. Weekly or bi-weekly photos of the field and the system will be provided digitally. An Excel spreadsheet containing all water quality data for all the events of the reporting period will be submitted. The spreadsheet and all digital files will follow the naming convention outlined in Appendix A. All information in this paragraph is required as the documentation for a semi-annual data submittal.

Annual Submittal

The annual submittal includes all requirements of a semi-annual data submittal for the second half of the monitoring year. In addition this report will summarize the findings for the year and will include a status review with the participant.

The data should be summarized in such a way that it is meaningful to the participant. NRCS must complete a quality assurance check of existing practice management (Appendix F) known as the Annual Field Check form. All information in this paragraph is required as the documentation for an annual submittal. The report should include:



- 1) Summary data –Tabular (Peak and Total Discharge, Precipitation or Irrigation and Load)
- 2) Graphs – Discharge (cfs), Runoff (inches) and Load (lbs/acre)
- 3) Interpretation of graphical data
- 4) Discuss comparison of control and treatment sites
- 5) Explain Results
 - a) Event mean concentration (EMC) vs. discharge
 - b) Unexpected events (data outliers)
- 6) Explain the difference between nutrient inputs and nutrient loads leaving the field (lb/acre)
 - a) Physical effects
 - b) Biological effects
 - c) Economic effects
 - d) Potential operational adjustments to reduce off-site loss (must state whether adjustment is allowable at the specific sites being monitored in the document and discuss at meeting)
- 7) Potential data collection issues
 - a) Issues to be resolved
 - b) Issues to improve data collection or cooperation in getting quality data
- 8) Issues associated with data loss or inability to collect data for a time period (due diligence)

Comprehensive Report

A comprehensive report with an executive summary is required at the end of the monitoring period. This report will include a summary of all annual report contents for the period of analysis. Any correlation of in-stream, outlet of the HUC 12 (if these exist) and edge-of-field monitoring should be mentioned. The report should discuss the effectiveness of the practice(s) and any determined statistical significance of the collected data. The report should have a comparison of treated and control sites using graphs and tables to assist in showing load effects relative to discharge and precipitation or irrigation applied. All information in this paragraph is required.

The report should include:

- 1) Summary data –Tabular (Peak and Total Discharge, Precipitation or Irrigation and Load)
- 2) Graphs – Discharge (cfs), Runoff (inches) and Load (lbs/acre)
- 3) Interpretation of graphical data
- 4) Discuss comparison of control and treatment sites
- 5) Active in-stream monitoring within HUC-12 or smaller watershed where edge-of-field monitoring occurred.
 - a) Station location
 - b) Time frame of secondary data



- c) Graphics and text explaining any statistical correlation between practice and in-stream data on activity constituents.
- 6) Practice(s) effectiveness evaluation
 - a) Statistical analysis used (describe any data transformations)
 - b) Results of analysis
 - i) Event mean concentration (EMC) vs. discharge
 - ii) Unexpected events (data outliers)
- 7) Explain the difference over the monitoring period between control and treatment for nutrient inputs versus nutrient loads (lb/acre) and sediment yields (tons/acre) leaving the field. The report should make a connection between off-site nutrient and sediment loss and the following:
 - a) Physical effects
 - b) Biological effects
 - c) Economic effects
 - d) Potential operational adjustments to reduce off-site loss (must state whether adjustment is allowable at the specific sites being monitored in the document and discuss at meeting)
- 8) Implications of Statistical Analysis
 - a) Was practice(s) effective?
 - b) If not, what is the reasoning?
 - c) Any suggested changes to improve practice effectiveness on similar sites to those monitored.

Considerations

Watershed Study Approach to Edge-of-Field Monitoring

Although edge-of-field monitoring as defined in this document is limited to on-farm assessment, the monitoring design, system specifications and methodologies required for this activity may provide sufficient quality of data for additional analysis at other geographic scales (figure 1).

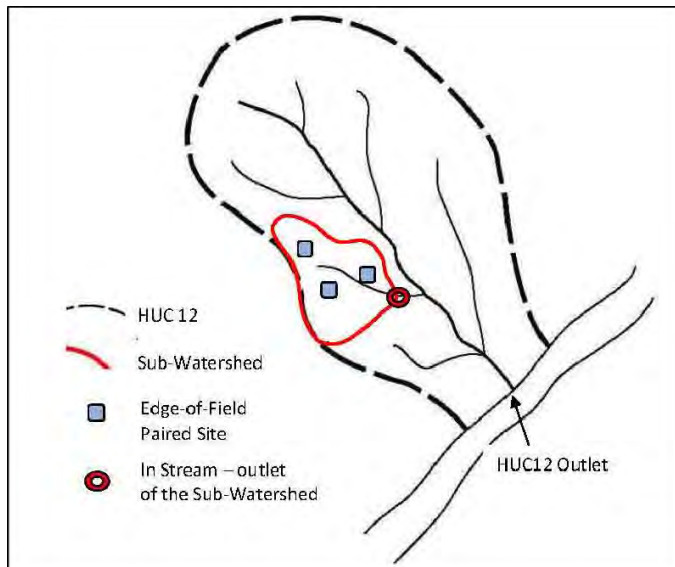


Figure 1: Potential Sub-Watershed approach to edge-of-field monitoring.

For the purposes of this document, sub-watersheds of the HUC12 are those that have drainage areas of approximately 500 – 1,000 acres. Monitoring conducted at the outlet of the sub-watershed is “in-stream” monitoring. Collected data at this point should include continuous flow (discharge) and concentration of the identified agricultural pollutant of concern.

The three levels of monitoring: edge-of-field, in-stream and HUC12 outlet (or other water body), should coexist and each station should collect monitoring data of consistent quality. NRCS will support edge-of-field monitoring and will rely on other partners for in-stream monitoring and monitoring at the outlet of the HUC12 (or other water body).

The success of identifying water quality improvements at geographic scales greater than the field level relies heavily on the identification of an agricultural pollutant that is a primary cause of poor water quality. There must also be NRCS conservation practices that do a good job of controlling, avoiding, or trapping the pollutant. Below are some additional considerations:

- 1) Monitor practices or suites of practices that are likely to be adopted or have been widely used by producers in the HUC12 or the sub-watershed, to increase the likelihood of detecting water quality improvements through edge-of-field and in-stream monitoring. Edge-of-field sites should represent typical agricultural operational practices and physical features of the HUC12 watershed. Consider physical features such as soil and slope.
- 2) Only monitor practices that are atypical in a watershed if they are on sites with typical physical features and the practice(s) would have a widespread impact on the water quality resource concern if widely used throughout the watershed or sub-watershed.
- 3) High priority should be given to sites where flow and continuous monitoring of water quality data, particularly the constituent(s) of interest in-stream and at the outlet of the HUC12 is being collected according to USGS or EPA protocol. Where possible, sites should be located upstream of existing in-stream monitoring sites with available historical flow and water quality record (Harmel et al., 2006a).

Correlate In-Stream Sediment Load with Stream Geometry

When sediment is the constituent of concern, it is important to identify a load distribution. The



loading associated with stream bank erosion can be the dominant source. USDA-NRCS National Water Management Center (NWMC) is available for assistance using Regional Hydraulic Geometry Curves to estimate in-stream contributions to sediment load.

Adaptive Management

Avoid management changes until securing enough information to establish a statistically significant conclusion concerning the effect of the first new treatment through the paired-watershed analysis. Once established, the information will be used to adapt and plan more effectively those conservation practices or management changes that impact water quality at the field or farm level. No land management change or practice implementation should take place within the monitored field without consulting the data collector.

DELIVERABLES

The QI must provide documentation showing all the tasks indicated in the **General Requirements** section, the **Technical Requirements** section, and the following sections:

Cover Page

Cover page reporting the technical services provided by the QI. Cover page(s) must include the following:

- 1) CEMA name and number.
- 2) Participant information: Name, farm bill program name, contract number (QI obtains contract number from participant), land identification (e.g., state, county, farm, and tract number).
- 3) QI name, address, phone number, email.
- 4) A statement by the QI explaining how they currently meet the Qualified Individual Requirements for this CEMA. Attaching or enclosing a copy of documentation for how the QI requirements are met is encouraged. Examples include:
 - Certification Name and Number,
 - License Name and Number,
 - Agricultural Retailer Business Name, or
 - Other brief written statement indicating how the requirements of a QI for this CEMA are met.
- 5) A statement by the QI that services provided meet NRCS requirements, such as:

I certify the work completed and delivered for this CEMA:

 - *Complies with all applicable Federal, State, Tribal, and local laws and regulations.*
 - *Meets the general requirements, technical requirements and deliverables for this CEMA.*
 - *Is consistent with and meets the conservation objectives for which the program contract was entered into by the participant.*
 - *Addresses the participant's conservation objectives for this CEMA.*

QI Signature: _____ Date: _____

- 6) A Participant's acceptance statement, such as:

I accept the completed CEMA deliverables as thorough and satisfying my objectives.



Participant Signature: _____ Date: _____

- 7) A space for an NRCS reviewer to certify the agency's acceptance of the completed CEMA and, such as:

NRCS administrative review completion by:

Signature: _____ Title: _____ Date: _____

Notes and Correspondence

- 1) Document each site visit, its participants, the activity completed in the field, and results of each site visit.
- 2) Copies of correspondence between the QI and the participant relating to decision-making and completion of this CEMA.
- 3) Copies of observations, data, technology tool output, or test results prepared during completion of this CEMA.

Maps

- 1) At a minimum, all maps developed for the CEMA will include:
 - a) Title block showing:
 - i) Map title.
 - ii) Participant's name (individual or business).
 - iii) Prepared with assistance from [QI Name].
 - iv) Date prepared.
 - v) Map scale.
 - vi) North arrow
- 2) Provide information needed to locate the assessment or monitoring area, such as geographic coordinates, public land survey coordinates, or a general location map of the implementation areas showing access roads to the location.
- 3) For soil testing, show soil map units and sample locations.
- 4) For water testing, show location of well or intake being sampled, as well as Deliver Completed Work.

Deliver Completed Work

- 1) The QI must prepare and provide the participant two sets of all of the items listed in the **General Requirements**, the **Technical Requirements** and the **Deliverables** sections of this document.
- 2) One set is for the participant to keep.
- 3) The other set is for the local NRCS Office.
- 4) The QI may transmit a set of the completed work to the local NRCS Office, if their participant has authorized it.

It is recommended to provide the NRCS field office an opportunity to review the CEMA

deliverables, prior to asking for their acceptance.

Glossary

Adaptive Management - Process of adjusting management operations to achieve a future desired condition based on input gathered through monitoring or evaluation techniques.

Ammonium Nitrogen (NH₄-N) - One of many forms of nitrogen that exists in the environment. Ammonium ions (NH₄⁺) are strongly basic, carry a positive charge, and are soluble in water. This form can be beneficially used by plants or be toxic to aquatic life when concentrated in water.

Automated Sampler - A device used to automatically sample runoff passing through a water control structure and temporarily storing in a container until a field technician can process the sample.

Baseline - The existing level (of water quality) prior to implementation of management changes or conservation practices.

Blanks - A blank is a sterile sample included in a submittal to the laboratory and is to facilitate quality control.

Bubbler - A type of water level device that measures depth by estimating the pressure required to emit a “bubble”. As the water level increases, the pressure required increases.

Composite Sampling - A sampling scheme where multiple samples are combined to comprise one representative sample.

Constituent - A water quality parameter such as total nitrogen, nitrate, or soluble reactive phosphorus that is being evaluated through monitoring.

Cork Gauge - A non-recording gauge based on the “bathtub ring principle”. It consists of a PVC pipe containing a wooden dowel and granulated cork. As the water rises, so does the powdered cork. When the water goes down, the cork granules remain stuck to the wooden dowel at the level of highest water.

Data Logger - An instrument capable of storing data generated by a measuring device and transferring the information electronically on demand to a computer.

Discharge - A measurement of the volume rate of water as it flows through a given cross-sectional area (e.g., cubic feet per second). Another term used to describe stream flow.

Drainage Catchment - An area where water collects to a common outlet.

Edge-Of-Field Monitoring - Field scale watershed monitoring involving the capture and analysis of surface and subsurface drainage. Runoff sampling occurs in the field or at the edge of a field prior to entering a defined drainage channel such as a ditch or a stream.

Event Mean Concentration (EMC) - A common method for reporting constituent concentrations defined as the arithmetic mean of individual sample concentrations collected on equal discharge (flow-weighted) intervals.

Hydrologic Unit Code (HUC) - A classification system describing watersheds by assigning numeric digits. As watersheds continue to be subdivided into smaller units of measure, additional digits are designated to the code.

Hypothesis - A preliminary idea that is tested by collecting observations or data to support or reject the position.



In-Stream Monitoring - Monitoring conducted at the outlet of a HUC12 sub-watershed. (see the definition of sub-watershed)

Load - Mass of constituent transported. The EMC multiplied by the total flow volume represents the constituent load.

Model Validation - The process of verifying, through data collection and analysis, that a mathematical representation of situation approximates reality.

Nitrate Nitrogen (NO₃-N) - One of many forms of nitrogen that exists in the environments. Nitrate (NO₃⁻) carries a negative charge and is soluble in water. This form can be beneficially used by plants or be harmful to living organisms when concentrated in water.

Nitrite Nitrogen (NO₂-N) - A relatively unstable form of nitrogen that quickly converts to nitrate in the presence of oxygen.

Non-Parametric - Statistical tests used to test a hypothesis that are valid regardless of whether or not the data are normally distributed.

Normal Distribution - Data that has a distribution pattern that has a single peak and is symmetrical around a mean. The mean, median, and mode are nearly equal and the data set when graphed illustrates a “bell-shaped” curve.

Parametric - Statistical tests frequently used to test a hypothesis when a data set approximates a normal distribution.

Physiographic Region - Broad-scale subdivisions of land based on terrain texture, rock type, and geologic structure and history.

Peristaltic Pump - A type of pump used in automatic water samplers that pumps water by using a roller on a tube to compress and pump fluid.

Pollutant - A contaminant present at a concentration sufficient to cause harm to living organisms.

Pressure Transducer - A type of water level device that converts pressure exerted on a mechanical membrane into a electronic signal.

Quality Assurance Project Protocol (QAPP) - A document that describes the activities of a project involved with the acquisition of environmental information, whether generated from direct measurement activities or collected from other sources.

Recurrence Interval - The historical chance that a particular storm event can produce precipitation or runoff of a given magnitude in a given year. Recurrence interval may be expressed in percent, or in years. For example, a 5 year recurrence interval is equivalent to a 20% chance.

Regional Hydraulic Geometry Curves - Expresses the relationship between bankfull discharge and bankfull channel dimensions (cross sectional area, top width, mean depth, and mean velocity) for specific stream types.

Soluble Reactive Phosphorus (Ortho-P) - A form of phosphorus (PO₄³⁻) that is readily soluble in water.

Staff Gauge - A type of ruler used to quickly measure surface level in reservoirs, rivers, streams, irrigation channels, weirs and flumes. When used with granulated cork in a tube, this gauge has the capacity to record the peak stage that occurred during a storm event. (see cork gauge).

Stage - The height of the water surface at a location along a stream, river, or as runoff exits the edge of a field through a water control structure.

Standard Rain Gauge - A non-recording gauge is a Standard Rain Gauge. Typically, it is a metal cylinder with a funnel on top and a plastic measuring tube in the middle. The measuring tube can handle up to 2.00 inches of rain before overflowing into the larger outer cylinder. During the winter, the observer removes the funnel and inner tube and allows the snow to collect in the outer tube. The observer then melts the snow and measures it, getting an accurate water equivalent to report.

Stilling Well - A type of structure used to measure stage that allows for water levels to equilibrate in an environment with minimal turbulence to improve the accuracy of the stage measurement.

Sub-Watershed - Watersheds within the HUC12 that have drainage areas of approximately 500 – 1,000 acres.

Suspended Sediment Concentration - A laboratory procedure made by measuring the dry weight of all the sediment from a known volume of a water-sediment mixture.

Total Kjeldahl Nitrogen (TKN) - A laboratory measurement of the amount of organic and ammonia nitrogen components in a sample.

Total Phosphorus (TP) - A laboratory measurement of all the forms of phosphorus (i.e., organic and inorganic).

Total Suspended Solids (TSS) - Material trapped by a filter paper, including silt, decaying plant and animal matter, or wastes.

Transformation - A mathematical procedure used to transform non-normal data distributions to more normal distributions for parametric statistical testing procedures.

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USDA NRCS National Biology Manual

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USDA NRCS National Engineering Manual

USDA NRCS National Forestry Manual

USDA NRCS National Plant Materials Manual

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APPENDIX A – NAMING CONVENTIONS AND DIRECTORY STRUCTURE

SITE NAMING CONVENTION

STCOFIPSYR01- this is the Unique Monitoring Station ID (UMSID)

- ST – two digit state abbreviation
- COFIPS – three digit FIPS code
- YR – two digit year – This is the Fiscal Year the contract is approved.
- 01, 02, 03 etc. – number assigned by the state water quality specialist at onset of a contract application

DIRECTORY STRUCTURE¹ AND FILE NAMING CONVENTION

Field Office Server

S:\Service_Center\NRCS\Monitoring\Submitted\{Payment Year}\{UMSID}

\Installation

Installation Report.xls --- install_{UMSID}.xls
Qapp.docx----QAPP_{UMSID}.docx
Monitoring plan.docx-----mon_plan_{UMSID}
Water Quality Operations Data.xls-----WQOD_install_{UMSID}.xls

\PHOTOS²

YY_MM_DD_##_{UMSID}.jpg

\Semi_Annual_Data

Water and Flow Data.xls-----waterflow_semi_{UMSID}.xls
Checklists or Logbook.xls or .pdf-----Maintenance_semi_{UMSID}.xls or .pdf
Water Quality Operations Data.xls----- WQOD_semi_{UMSID}.xls
Water Quality Data.xls-----WQData_semi_{UMSID}.xls
Lab Analysis Reports.pdf or .xls-----Lab_semi_{UMSID}.pdf or .xls

\PHOTOS

YY_MM_DD_##_{UMSID}.jpg

\Annual_Submittal

Water and Flow Data.xls----- Waterflow_annual_{UMSID}.xls
Checklists or Logbook.xls or .pdf ---Maintenance_annual_{UMSID}.xls or .pdf
Water Quality Operations Data.xls----- WQOD_annual_{UMSID}.xls
Water Quality Data.xls---- WQData_annual_{UMSID}.xls
Lab Analysis Reports.pdf or .xls-----Lab_annual_{UMSID}.pdf or .xls
Data Summary.docx

\PHOTOS

YY_MM_DD_##_{UMSID}.jpg

¹ Monitoring data provided to NRCS contains Personally Identifiable Information (PII). At a minimum, these data must be transmitted in a zipped and password protected format.

² Maximum allowable photo resolution is 1.9 megapixels (1600X1200). All photographs must be date stamped. Photographs will not receive automatic backup from ITS (Information Technology Services).

\Comprehensive
Report.docx-----comp_report_{UMSID}.docx

\GIS
Drainage Area polygon shapefile ----- da_{UMSID}
Location point shapefile (UTM NAD83 ZoneXX) ----- loc_{UMSID}

State Office and National Office

The State Office and National Office directory structure will be exactly the same as the field office structure; however, there will be both a “submitted” and a “certified” folder. When the state specialist pulls data from the field office server, the data will be placed in the “submitted” directory until it can be certified and approved for payment. Upon certification, the state specialist will move all files to the “certified” folder. The state specialist will notify the National Water Quality Specialist that data are available for pick up.

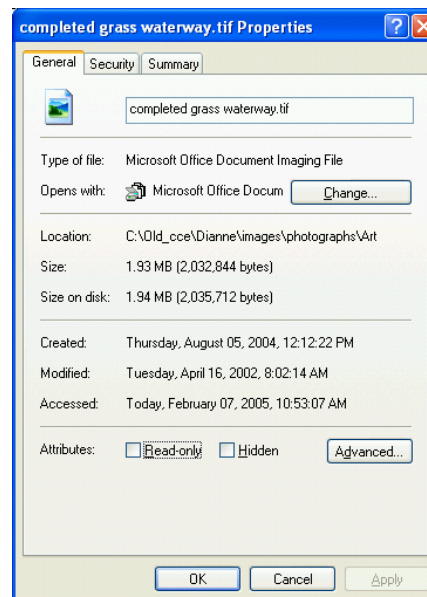
S:\Service_Center\NRCS\Monitoring\Submitted\{Payment Year}\{UMSID}\

S:\Service_Center\NRCS\Monitoring\Certified\{Payment Year}\{UMSID}\

The state specialist will need to submit a permissions request for read and write access to these folders on the service center servers. The national specialist will need to have read write access to the pertinent state servers and folders.

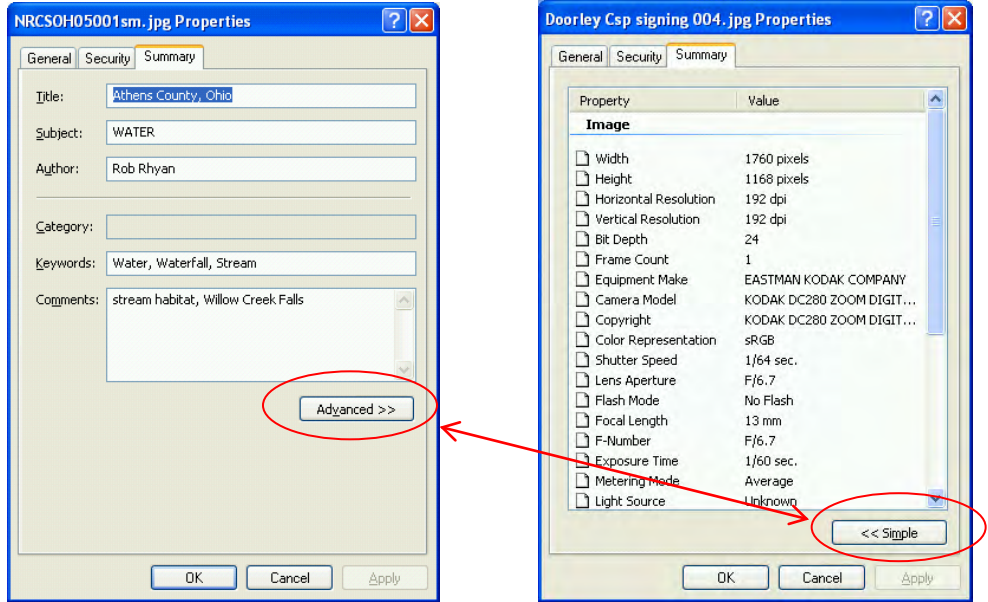
Captioning Digital Photos Using “File Properties”

1. Start My Computer
2. Select the Drive your photos are in (i.e., C, H, etc.)
3. Locate the directory your photos are in
4. Arrow over the file name and right click
5. Select Properties
6. In the General Tab, you will see information like file name, size, and date created.



7. Select the Summary Tab (Simple view)

If this is not the window you see, change to simple view.



8. This is the area to complete the necessary information.

- Title – NRCS Monitoring XX (where XX is the two digit state abbreviation)
- Subject – Water Quality
- Author – Your name
- Keywords – monitoring, water quality, Unique Monitoring Station ID (UMSID)
- Comments – Details about the picture, date of picture if it is not date stamped

****Note:** Be careful not to use any personally identifiable information when captioning the photo. For example do not use farm or tract number and do use participants' name.***

APPENDIX B – INSTALLATION REPORT FORM

APPENDIX C – MONITORING PLAN TEMPLATE

Water quality monitoring activities benefit from the development of a monitoring plan. A monitoring plan is required for NRCS water quality monitoring. The template in this Appendix must be used as the basis of the monitoring plan. Among others, a monitoring plan describes roles and responsibilities, site description, system, reporting requirements and the monitoring timeline.

Text displayed in black is standard language and must be included; text displayed in *red italics* identifies the required information to be provided for each section.

Water Quality Monitoring Plan

For

PARTICIPANT NAME

Monitoring Station XXXX: *Provide Directions to the site*

Monitoring Station XXXX: *Provide Directions to the site*

Date

Data Collector's Name

Data Collector's Address

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.)

Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (VOICE AND TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

ROLES AND RESPONSIBILITIES

The following people have been involved in the development of this water quality monitoring plan:

Participant:	<i>CONTACT INFORMATION</i>
Data Collector:	<i>CONTACT INFORMATION</i>
Certified Planner:	<i>CONTACT INFORMATION</i>
District Conservationist:	<i>CONTACT INFORMATION</i>

Participant – will follow this plan and ensure the monitoring activity is carried out on the identified field(s). The participant is also responsible for meeting any reporting deadlines and will work closely with the data collector in completing operational forms that outline all management practices completed on the monitored field(s).

Data Collector – is responsible for installing and maintaining monitoring system. In addition, they ensure quality data are obtained by following all aspects of the Quality Assurance Project Plan (QAPP). As outlined in the QAPP, data collection, analysis, storage and reporting are performed by the data collector on behalf of the participant. Another key role of the data collector is to hold a yearly meeting with the participant to review what was learned about constituent loads during the year.

Certified Planner – is responsible for reviewing the Monitoring Plan developed by the data collector to ensure all required elements are present. They are also responsible for ensuring the participant understands all aspects of the monitoring activity including site accessibility and duration of monitoring.

District Conservationist – is responsible for maintaining an awareness of what is taking place on the site to ensure monitoring is moving forward in an acceptable manner. They are also responsible for obtaining all reported information from the participant and forwarding this information to the state monitoring specialist for storage, review and certification

Purpose

This monitoring plan identifies the monitoring activities that will be performed on private land controlled by *participant* within the *target* Watershed under the *Mississippi River Basin Healthy Watershed Initiative or other initiative / program*. Monitoring is being performed to *insert the specific purpose of water quality monitoring at this site. List the water quality concern, the primary constituent of interest as well as the conservation practice(s) which will be monitored.*

SITE DESCRIPTION

Station Identification and Location Map

Identify the station name, the Farm Service Agency(FSA) Farm, Tract and Field numbers, the drainage area of the station, the land use and if this is the control or treatment site. The location map should include a point indicating the GPS coordinates of the station location as well as a polygon outlining the drainage area for the station.

Soils Description

Discuss the soil properties for the drainage area of the monitoring stations. As a part of these discussions, include a table with the following fields: Station ID, Soil Map Unit, Acres, % of Drainage Area and Hydrologic Soil Group.

MONITORING SYSTEM

System Description

Describe the equipment to be used on the site in terms the participant will understand. Pictures of typical equipment should be included if available.

Sampling Protocol

Monitoring will take place year round and the goal of the project is to obtain runoff data from every event. Events include rainfall, snow melt and irrigation. *Provide information to help the participant understand how frequently someone will visit the site and what they will be doing when they are there. Specifically cover winter monitoring and how this will take place including any special maintenance or anticipated more frequent visits to the site.*

If monitoring includes tile flow or flow from denitrifying bioreactors, include information on obtaining a weekly sample as well as event based samples.

In the case where irrigation is being applied and sample runoff events are anticipated, the source water will be grab sampled for the constituents below at least once at the beginning of the irrigation season.

All runoff event samples will be analyzed for the following constituents:

- a. NH₄-N (Ammonium only required when animal waste is land applied)
- b. NO₂-N + NO₃-N (Nitrate + Nitrite)
- c. TKN (Total Kjeldahl Nitrogen)
- d. Soluble Reactive P (Orthophosphate)
- e. TP (Total Phosphorus)
- f. SSC (Suspended Sediment Concentration) – *Preferred*
- g. TSS (Total Suspended Solids) – *When SSC is not available through the lab*
- h. *Identify any additional voluntary constituents*

PARTICIPANT Requirements

Miscellaneous Requests for Assistance

List any requests for assistance that will be made of the participant (for example they must call the data collector if they intend to irrigate at a rate that will trigger a sample). Identify any anticipated or required conservation practices to be installed and the required completion date.

Reporting Requirements

Monitoring data provided to NRCS contains Personally Identifiable Information (PII). At a minimum, these data must be transmitted in a zipped and password protected format.

System Installation

The Monitoring Conservation Activity Installation Report (Appendix B) will be submitted. An approved Water Quality Monitoring Plan and a QAPP must be submitted and approved as a part of the installation. The historic operations form (Appendix F) should be submitted with the installation report. NRCS must complete a quality assurance check of existing practice management (Appendix F) known as the Annual Field Check form. These forms, along with digital photos¹ of the installation, serve as the documentation for the system installation.

Semi-Annual Data Submittal

For each water quality station, rainfall and flow data will accompany electronic (.pdf) copies of the laboratory analysis for each event. Weekly or bi-weekly checklists and/or a log book should provide information about the performance of the monitoring system, specifically noting any malfunctions, gaps in data collection, or conditions that might be useful in interpreting the results of collected data. The operations form (Appendix F) should be completed for the reporting period. Weekly or bi-weekly photos of the field and the system will be provided digitally. An Excel spreadsheet (Appendix A) containing all water quality data for all the events of the reporting period will be submitted. All information in this paragraph is required as the documentation for a semi-annual data submittal.

Annual Submittal

The annual submittal includes all requirements of a semi-annual data submittal for the second half of the monitoring year. In addition this report will summarize the findings for the year and will include a status review with the participant. The data should be summarized in such a way that it is meaningful to the participant. NRCS must complete a quality assurance check of existing practice management (Appendix F) known as the Annual Field Check form. All information in this paragraph is required as the documentation for an annual submittal. The report should include:

1. Summary data – Tabular (Peak and Total Discharge, Precipitation or Irrigation and Load)
2. Graphs – Discharge (cfs), Runoff (inches) and Load (lbs/acre)
3. Interpretation of graphical data
4. Discuss comparison of control and treatment sites
5. Explain Results
 - a. Event mean concentration (EMC) vs. discharge
 - b. Unexpected events (data outliers)
6. Explain the difference between nutrient inputs and nutrient loads leaving the field (lb/acre)
 - a. Physical effects
 - b. Biological effects
 - c. Economic effects
 - d. Potential operational adjustments to reduce off-site loss (must state whether adjustment is allowable at the specific sites being monitored in the document and discuss at meeting)
7. Potential data collection issues
 - a. Issues to be resolved

¹ Maximum allowable photo resolution is 1.9 megapixels (1600X1200). All photographs must be date stamped.

- b. Issues to improve data collection or cooperation in getting quality data
- 8. Issues associated with data loss or inability to collect data for a time period (due diligence)

Comprehensive Report

A comprehensive report with an executive summary is required at the end of the monitoring period. This report will include a summary of all annual report contents for the period of analysis. Any correlation of in-stream, outlet of the HUC 12 (if these exist) and edge-of-field monitoring should be mentioned. The report should discuss the effectiveness of the practice(s) and any determined statistical significance of the collected data. The report should have a comparison of treated and control sites using graphs and tables to assist in showing load effects relative to discharge and precipitation or irrigation applied. All information in this paragraph is required.

The report should include:

1. Summary data – Tabular (Peak and Total Discharge, Precipitation or Irrigation and Load)
2. Graphs – Discharge (cfs), Runoff (inches) and Load (lbs/acre)
3. Interpretation of graphical data
4. Discuss comparison of control and treatment sites
5. Active in-stream monitoring within HUC-12 or smaller watershed where edge-of-field monitoring occurred.
 - a. Station location
 - b. Time frame of secondary data
 - c. Graphics and text explaining any statistical correlation between practice and in-stream data on activity constituents.
6. Practice(s) effectiveness evaluation
 - a. Statistical analysis used (describe any data transformations)
 - b. Results of analysis
 - i. Event mean concentration (EMC) vs. discharge
 - ii. Unexpected events (data outliers)
7. Explain the difference over the monitoring period between control and treatment for nutrient inputs versus nutrient loads (lb/acre) and sediment yields (tons/acre) leaving the field. The report should make a connection between off-site nutrient and sediment loss and the following:
 - a. Physical effects
 - b. Biological effects
 - c. Economic effects
 - d. Potential operational adjustments to reduce off-site loss (must state whether adjustment is allowable at the specific sites being monitored in the document and discuss at meeting)
8. Implications of Statistical Analysis
 - a. Was practice(s) effective?
 - b. If not, what is the reasoning?
 - c. Any suggested changes to improve practice effectiveness on similar sites to those monitored.

Monitoring Timeline

Develop a timeline for monitoring. Include installation of system, deadline for the semi-annual data submittal and the annual submittal for each year monitoring is to take place; include a deadline for meeting with the participant to cover the previous year's monitoring activity. The comprehensive report should be the last entry.

Due Date	Tract	Field	Station ID	Activity

APPENDIX D – NRCS QUALITY ASSURANCE PROJECT PLAN (QAPP) TEMPLATE

Water quality monitoring activities benefit from the development of a Quality Assurance Project Plan (QAPP). A QAPP is required for NRCS-assisted water quality monitoring. The template in this appendix must be used as the basis of the QAPP when NRCS is the lead funding agency.

Among other items, a QAPP will fully describe the process of sample preservation, handling, and processing. The QAPP documents the results of a project's technical planning process, providing in one place a clear, concise, and complete plan for the environmental data operation and its quality objectives and identifying key project personnel.

Text displayed in black is standard language; text displayed in *red italics* identifies the information required for the section.

NRCS QUALITY ASSURANCE PROJECT PLAN

Title of Project

Prepared for:

<Enter the contact information including affiliation and physical address>

Prepared by:

<Enter the contact information including affiliation and physical address>

<Enter date>

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<TOC must be generated upon completion of QAPP content>

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SECTION 7.0 – Data Handling Procedures	pg#
SECTION 8.0 – Assessment and Oversight	pg#

Quality Assurance Project Plan (QAPP)

This document provides an outline and description of minimum information required in each section for the QAPP when a project does not use EPA funds. When a project uses EPA funds, an EPA QAPP will be required. The participant will be responsible for the content in the QAPP and approval by EPA.

Section 1.0: Project Overview and Objectives

This section should provide sufficient detail to describe the overall project and the long-term anticipated outcome. Discussion on how this project can be related to monitoring at the outlet or in-stream for the HUC12 or other water body should be included if applicable.

Section 2.0: Project Organization and Management

2.1 Project Contacts – in tabular format (Table 2.1). Include name, title, phone numbers and email for all involved parties including the participant, the data collector and laboratory contact.

2.2 Project Participants and Responsibilities – in tabular format. If the listed individual holds any particular certification or credentials, please list this with their name in Table 2.2.

Table 2.2 Roles & Responsibilities

Individual(s)	Responsible for:	Authorized to:
Name	<ul style="list-style-type: none"> • Task • Task • 	<ul style="list-style-type: none"> • Action • Action •

Section 3.0: MONITORING Approach

This section should include:

- 1. Monitoring design – paired watershed or above and below approach with both baseline and treatment periods. Length of baseline and treatment periods.*
- 2. Location map(s) that should include points to represent monitoring stations and polygons to represent drainage area. Appropriately label the control and treatment locations.*
- 3. Monitoring duration and frequency.*
- 4. Major agricultural pollutant of concern of the HUC12 or water body must match one of the constituents identified in item 6.*
- 5. Irrigation source water quality will be established by analyzing the concentration of the constituents identified in item 6. This will be accomplished by taking at least one grab sample at the beginning of the irrigation season.*

6. *Constituents to be monitored at a minimum include:*
 - a. *NH₄-N (Ammonium only required when animal waste is land applied)*
 - b. *N₀₂-N + N₀₃-N (Nitrate + Nitrite)*
 - c. *TKN (Total Kjeldahl Nitrogen)*
 - d. *Soluble Reactive P (Orthophosphate)*
 - e. *TP (Total Phosphorus)*
 - f. *SSC (Suspended Sediment Concentration) – Preferred*
 - g. *TSS (Total Suspended Solids) – When SSC is not available through the lab*
7. *Practice(s) being monitored and whether these practices target the major agricultural pollutant of concern of the targeted HUC12 or water body*
8. *Estimated potential adoption and application of the monitored practice(s) within the targeted HUC12 or small watershed (<1,000 acres).*

Also important in this section is a discussion of other monitoring efforts that will complement this project. Specifically identify any monitoring by other partners in-stream, at the outlet of the HUC12, and the outlet of the HUC8. Include in this discussion what is being monitored such as flow and constituents and whether these are grab samples or continuous. Describe the history of monitoring at these sites for example, if grab samples are used define how many samples per year and how many years the data has been gathered. If there is a site planned that is not yet operational but is expected to be installed provide a timeline for installation and an expected date for monitoring to initiate.

Section 4.0 Sample Procedures

Provide a discussion of the sampling equipment to be used with pictures.¹ if possible. Include the name brand of any data loggers and sensors. Also discuss any manual equipment such as a rain gauge and/or cork gauge.

Describe and provide samples in the Appendix of any site checklists that will be used for example, pre-event and runoff event checklists.

Describe calibration procedures used to ensure runoff monitoring system will respond as expected during actual events.

Describe the methods for collecting and handling samples include information on standard labeling procedures and where comments for any unusual circumstances surrounding samples will be stored. Include maximum holding times in the machine and preservation.

Provide details about how samples will be transported, which lab(s) will conduct the analysis and the chain of custody process and documentation. Year round monitoring is required. If there is a danger of freezing during the winter months, describe in detail how this will be overcome to ensure quality data collection during these times.

¹ Maximum allowable photo resolution is 1.9 megapixels (1600X1200). All photographs must be date stamped.

Section 5.0 Testing and Measurement Protocols

In tabular format provide the lab analysis method to be used; field headers should include the constituent, method number, method name, and maximum lab holding time for each constituent. An acceptable NEMI protocol must be followed.

Section 6.0 Quality Assurance / Quality Control (QA/QC)

Field blanks and/or duplicates must be used. Describe the methodology and frequency of use.

If appropriate, describe the calibration technique and potential corrective action(s) to be used for all sensors. If no setting for calibration exists describe the methodology for periodic checks to ensure stage accuracy.

Describe the laboratory calibration procedures employed by the lab(s) conducting analysis. This should include discussions for any equipment used in the analysis of the submitted samples.

Describe the methods to be used after each runoff event to statistically summarize data and observations include discussions on how these summaries will be stored and protected.

Section 7.0 Data Handling Procedures

Subsection 7.1 Methods for Data Acquisition and Storage

Monitoring data provided to NRCS contains Personally Identifiable Information (PII). At a minimum, this data must be transmitted in a zipped and password protected format. Describe additional measures taken to protect the participants PII.

Provide the step by step process that will be used to acquire data from the logger. Retrieve collected data weekly or bi-weekly to limit the amount of data potentially lost due to equipment failure or logger capacity limitations.

Explain where the raw data will be stored to ensure it is not lost and follow the naming convention and directory structure outlined in Appendix A.

- *Water Quality Data (excel spreadsheet)*
- *Site visit check lists or log book (.pdf)*
- *Laboratory analysis report (.pdf)*
- *Historical cultural data (excel spreadsheet)*
- *Certification practices are being maintained (excel spreadsheet)*
- *Cultural practices throughout the year (excel spreadsheet)*

If there are provisions for creating backups of the raw data for archiving purposes explain this.

Subsection 7.2 Methods of Analyses

Discuss the steps leading up to and including discharge, and load and yield calculations. If there are situations that may require editing of the data, describe this in detail. Include how the determination would be made, corrections were needed, and how the corrections would take place.

Discuss data analysis methods used to ensure calibration of the paired basins.

Describe the hypothesis to be tested and the procedures to be used to statistically analyze the data including tests for normality and data transformations. Possible strategies are listed below:

- *Establishing a hypothesis and setting the desired significance level (α) to compare data. The objectives of loading evaluations may require very conservative statistical analysis (e.g. $\alpha = 0.05$) to minimize the chance of not detecting an error. Yet, farmers utilizing adaptive management may accept more statistical risk when making management decisions or adjusting farming operations (e.g. $\alpha = 0.20$).*
- *Frequently, water quality data does not follow a normal distribution. Testing water quality data for normality is important to determine the type of statistical analysis to use (e.g. transformations, parametric, or non-parametric tests).*
- *Analytical value – what will be compared (e.g. annual, monthly or weekly mean, mode, monthly or annual maximum loads, etc.)*
- *For paired or above and below watershed analysis, develop regression relationships during the calibration period between the watersheds, and test to determine if this relationship significantly changes following application of conservation treatment.*

Section 8.0 Assessment and Oversight

Describe the method for assessing discharge data after a surface water runoff event to determine if corrections are needed. Examples for discussion would include 1) considerable flume tilt or observed ice or debris, 2) the expected outcome of regression analysis results in unusually large residual, or 3) the sample interval needed to capture the storm exceeded the capacity of the system. A method should be provided for documenting all of these situations.

Describe the method for assessing concentration data after a surface water runoff event. Discussions should include documentation methods for recording if samples were analyzed within the allowed holding time, if duplicates tested were within a relative standard deviation of less than 10%, if blanks show potential contamination and if concentrations were consistent when compared to other events.

An internal annual review of the monitoring process should be conducted. A checklist or series of questions should be developed to determine if the methods outlined in the QAPP are being followed for each storm and if not, why.

APPENDIX E – DATA DICTIONARY FOR WATER QUALITY DATA

umsid – Unique NRCS monitoring station identifier

mondes – Treated = t; Below = b; Control = c and Above = a

samptype – Monitoring phase associated with sample (e.g. baseline=bl or evaluation=ev)

colectdt – Sample collection date (MM/DD/YY)

colecttime – Military time sample collection initiated

All the constituent measurements below are flow weighted for the composite sample providing the Event Mean Concentration (EMC)

nh4_n – (ammonium N plus ammonia N) (mg N/l)

no2_3_n - (nitrite N plus nitrate N) concentration in (mg N/l)

tkn - Total Kjeldahl Nitrogen (mg/l)

nloss - Total pounds of nitrogen lost (lbs/ac)

srp - Soluble Reactive Phosphorus (Orthophosphate) (mg/l)

tp –total phosphorus (mg/l)

ploss – Total pounds of phosphorus lost (lbs/ac)

ssc - Suspended Sediment Concentration (mg/l)

ssctn - Suspended Sediment Concentration (English short tons) per event

tss - Total Suspended Solids (mg/l)

precip - Rainfall (in)

runoff – Total runoff volume per event (ac-in)

irrigate - Applied water (ac-in) associated with a sampling event. Acceptable values are zero (0) and above.

APPENDIX F – OPERATIONS FORMS

Water Quality Monitoring and Evaluation Historical Operations Report

Participant (Personal Identifiable Information)

Last Name First Name Contract Number County

Address State Zip Phone

Email Historical Operations

FSA Farm Number FSA Tract Number Field ID Number Field Acres 12 Digit HUC

UTM NAD83 Field Coordinates Zone Easting Northing

Historical Production Information

Last Year	<input type="text"/>	Crop 1 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
		Crop 2 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
Cover Crop?	<input type="checkbox"/>	Cover Crop Species <input type="text"/>	Residue Management <input type="text"/>	
2 Years Ago	<input type="text"/>	Crop 1 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
		Crop 2 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
Cover Crop?	<input type="checkbox"/>	Cover Crop Species <input type="text"/>	Residue Management <input type="text"/>	
3 Years Ago	<input type="text"/>	Crop 1 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
		Crop 2 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
Cover Crop?	<input type="checkbox"/>	Cover Crop Species <input type="text"/>	Residue Management <input type="text"/>	
4 Years Ago	<input type="text"/>	Crop 1 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
		Crop 2 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
Cover Crop?	<input type="checkbox"/>	Cover Crop Species <input type="text"/>	Residue Management <input type="text"/>	
5 Years Ago	<input type="text"/>	Crop 1 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
		Crop 2 <input type="text"/>	Yield (/acre) <input type="text"/>	Tillage Type <input type="text"/>
Cover Crop?	<input type="checkbox"/>	Cover Crop Species <input type="text"/>	Residue Management <input type="text"/>	

Historical Drainage Information

Tile Drainage (check if applicable)

Tile Age Tile Size Tile Type Tile Drainage Area Drainage Controlled Drain Diameter

Tile Layout Tile Depth Tile Spacing Number of Risers Number of Surface Inlets

Number of Water & Sediment Control Basins Sub-irrigation with Tile Surface Irrigation

Surface Drainage

Precision Graded Slope % Soil Map Unit ID Dominant Soil Hydrologic Group Constructed Drainage Conveyance

Water Quality Monitoring and Evaluation Operations Data Form

For Production Year:

Participant (Personal Identifiable Information)

Last Name	<input type="text"/>	First Name	<input type="text"/>	Contract Number	<input type="text"/>
Address	<input type="text"/>		State	<input type="text"/>	12 Digit HUC
	<input type="text"/>		County	<input type="text"/>	
Zip	<input type="text"/>	Phone	<input type="text"/>	Email <input type="text"/>	
FSA Farm Number	<input type="text"/>	FSA Tract Number	<input type="text"/>	Field ID Number	<input type="text"/>
				Field Acres	<input type="text"/>
UTM NAD83 Field Coordinates				Zone	<input type="text"/>
		Easting	<input type="text"/>		Northing
					<input type="text"/>

This Monitoring Season (click all that apply)

Crop 1	<input type="text"/>	Planting Date 1	1 / 1 / 2012	Seeding Rate(/acre)	<input type="text"/>	Yield /acre	<input type="text"/>
		Harvest Date 1	1 / 1 / 2012	Variety	<input type="text"/>		
Crop 2	<input type="text"/>	Planting Date 2	1 / 1 / 2012	Seeding Rate(/acre)	<input type="text"/>	Yield /acre	<input type="text"/>
		Harvest Date 2	1 / 1 / 2012	Variety	<input type="text"/>		
Tillage Operation 1	<input type="text"/>	Tillage Date 1	1 / 1 / 2012	Approximate Depth	<input type="text"/>		
Tillage Operation 2	<input type="text"/>	Tillage Date 2	1 / 1 / 2012	Approximate Depth	<input type="text"/>		
Tillage Operation 3	<input type="text"/>	Tillage Date 3	1 / 1 / 2012	Approximate Depth	<input type="text"/>		
Tillage Operation 4	<input type="text"/>	Tillage Date 4	1 / 1 / 2012	Approximate Depth	<input type="text"/>		

Comments

Conservation in Place on the Land Meeting NRCS Standards. Select from this practice list (use Shift/Ctrl key for multiple selection, then populate).

- Crop Technology Bundle #8 (Reduces Inputs, improves SQ and WQ, benefits pollinators/beneficials)
 - Access Control
 - Access Road
 - Agrichemical Handling Facility
 - Agricultural Secondary Containment Facility
 - Agriculture Energy Management Plan, Headquarters - Applied
 - Agriculture Energy Management Plan, Headquarters - Written
 - Agriculture Energy Management Plan, Landscape - Applied
 - Agriculture Energy Management Plan, Landscape - Written
 - Air Filtration and Scrubbing
 - Alley Cropping
 - Alley cropping establishment for wildlife and beneficial insect habitat
 - Amendments for the Treatment of Agricultural Waste
 - Anaerobic Digester
 - Animal Mortality Facility

Your Selection(s)

This Monitoring Season (click all that apply)

Fertilizer Applied?	Method	Rate	Units	Fertilizer Grade (%)			Nutrients Applied (lbs/a)		
				N	P2O5	K2O	N	P2O5	K2O
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									

Manure Applied?	Method	Rate	Units	Available Nutrients (/unit)			Nutrients Applied (lbs/a)		
				N	P2O5	K2O	N	P2O5	K2O
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									

Two Monitoring Seasons Ago (click all that apply)

Crop 1		Planting Date 1	1 / 1 / 2012	Harvest Date 1	1 / 1 / 2012	Yield /acre	
Crop 2		Planting Date 2	1 / 1 / 2012	Harvest Date 2	1 / 1 / 2012	Yield /acre	
Tillage Operation 1		Tillage Date 1	1 / 1 / 2012	Approximate Depth		Comments	
Tillage Operation 2		Tillage Date 2	1 / 1 / 2012	Approximate Depth			
Tillage Operation 3		Tillage Date 3	1 / 1 / 2012	Approximate Depth			
Tillage Operation 4		Tillage Date 4	1 / 1 / 2012	Approximate Depth			

Irrigation Application (check if applicable)

	Date	Operation Time	Date	Operation Time
Source	1 / 1 / 2012		1 / 1 / 2012	
Method	1 / 1 / 2012		1 / 1 / 2012	
Flow Rate (gallons/minute)	1 / 1 / 2012		1 / 1 / 2012	
	1 / 1 / 2012		1 / 1 / 2012	
	1 / 1 / 2012		12/25/2011	
	1 / 1 / 2012		1 / 1 / 2012	
	1 / 1 / 2012		1 / 1 / 2012	
	1 / 1 / 2012		1 / 1 / 2012	
	1 / 1 / 2012		1 / 1 / 2012	
	1 / 1 / 2012		1 / 1 / 2012	

APPENDIX G – SAMPLE SITE VISIT CHECKLIST

Monitoring & Evaluation Site Visit Checklist

Site Location

Landowner Participant:	County, State	Watershed Hydrologic Unit Code:	
Sample Site Nomenclature:	Sampler Serial Number:	Arrival Time:	
		Departure Time:	

Pre-Event System Service Check (at least bi-monthly)

Component	Procedure	Response	
Bubbler Rate	Rate of Expulsion	<input type="text"/>	#/second
Bubbler Tube	Tube Free From Obstruction?	YES	No
Stilling Well	Free from sediment?	YES	No
Water Level (Stage)	Record Stage	<input type="text"/>	feet
Stage Adjustment	Note Any Adjustment	<input type="text"/>	+/- feet
Sample Intake	Tube Free From Obstruction?	Yes	No
Battery	Check Battery Voltage each site visit	<input type="text"/>	Volts
Battery (monthly)	Check battery under load	<input type="text"/>	Volts
Pump Test (monthly)	Verify operation through cycles	Pass	Fail
Desiccant	Check if desiccant color is blue. Replace if pink.	Pass	Fail
Precipitation Gauge	Intake free from debris?	Yes	No
Flume	Free from obstruction?	Yes	No
Repairs	Replacement parts installed?	Yes	No

List any equipment issues, replacement parts, or problems:

Post Event Sample Collection Checklist

Total # of Samples =				<input style="width: 100px;" type="text"/>
For Composite Sampling		For Sequential Sampling		
ID	<input type="text"/>	a.	ID	<input type="text"/>
Volume Collected	<input type="text"/>		Volume	<input type="text"/>
		b.	ID	<input type="text"/>
			Volume	<input type="text"/>
		c.	ID	<input type="text"/>
			Volume	<input type="text"/>
		d.	ID	<input type="text"/>
			Volume	<input type="text"/>
Duplicate		Duplicate		
ID	<input type="text"/>	ID	<input type="text"/>	
Volume	<input type="text"/>	Volume	<input type="text"/>	
Appearance		Appearance		
Color	<input type="text"/>	Color	<input type="text"/>	
Odor	<input type="text"/>	Odor	<input type="text"/>	
Algae	<input type="text"/>	Algae	<input type="text"/>	
Preservative Added	Yes No	Preservative Added	Yes No	

Data Download	Signature Block	
Precipitation Data Loaded	Yes	No
Flow Data Loaded	Yes	No
Field Personnel:		Date: