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INNOVATIVE
AG SERVICES

HOLLANDIA FARMS DAIRY

2023 Annual Report

X	Report Form	NA	Attachment H
X	Attachment A	NA	Attachment I
X	Attachment B	NA	Attachment J
X	Attachment C	NA	Manure Tracking Manifests
X	Attachment D	NA	New or Revised Waste Water Agreements
X	Attachment E	X	Groundwater Monitoring Samples
X	Attachment F	NA	Monitoring Well Report
X	Attachment G	NA	Owner/Operator Change Form

Enclosed are the required documents to be submitted to the Regional Water Quality Control Board Central Valley Region in compliance with Order No. R5-2010-0130 Waste Discharge Requirements, General Order for Dairies with Manure Anaerobic Digester or Co-Digester Facilities for July 1, 2024.

(See attached delivery confirmation)

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Annual Report

Hollandia Farms Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Hollandia Farms Dairy
Facility Address	7905 Kansas Avenue, Hanford CA 93230

Owner/Operator as of 12/31/2023

Operator Name	Peter B. de Jong
Operator Phone	(559) 977-7730
Owner Name	Theo De Haan
Owner Phone	(559) 582-7689

1. Beginning and end dates of the annual reporting period: crops harvested January 1, 2023 through December 31, 2023.

2. Maximum and average number and type of animals (see Attachment A).

3. Estimated amount of total manure and process wastewater generated by the facility (see Attachment A).

4. Estimated amount of total manure and process wastewater applied to each land application area (see Attachment B).

5. Quantified ratio of total nitrogen applied to land application areas and total nitrogen removed by crop harvest (see Attachment B).

6. Estimated amount of total manure and process wastewater transferred to other persons by the facility (see Attachment C).

7. Total number of acres and the Assessor Parcel Numbers for all land application areas that were not used for application of manure or process wastewater (see Attachment D).

8. Total number of acres and the Assessor Parcel Numbers for all land application areas that were used for land application of manure and process wastewater (see Attachment D).

9. Summary of manure and process wastewater discharges from the production area
Provide a summary of all manure and wastewater discharges from the production area to surface water or to land areas (land application areas or otherwise) when not in accordance with the facility's Nutrient Management Plan, that occurred during the annual reporting period, including the date, time, location, approximate volume, a map showing discharge and sample locations, rationale for sample locations, and method of measuring discharge flows:

_X_ No discharges occurred during the reporting period.

__ Yes. ____ Number of discharges occurred (see Attachment H).

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Hollandia Farms Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

10. Summary of storm water discharges from the production area
Provide a summary of all storm water discharges from the production area to surface water, that occurred during the annual reporting period, including the date, time, approximate volume, duration, location, a map showing discharge and sample locations, rationale for sample locations, and method of measuring discharge flows:

X No discharges occurred during the reporting period.

__ Yes. ____ Number of discharges occurred (see Attachment I).

11. Summary of discharges from the land application area
Provide a summary of all discharges from the land application area to surface water, that occurred during the annual reporting period, including the date, time, approximate volume, location, source of discharge (i.e. tailwater, wastewater or blended wastewater), a map showing discharge and sample locations, rationale for sample locations, and method of measuring discharge flows:

X No discharges occurred during the reporting period.

__ Yes. ____ Number of discharges occurred (see Attachment J).

12. Nutrient Management Plan update
Has the NMP been updated, and if so, was it updated by a Certified Nutrient Management Specialist?

__ No.

X Yes, the new NMP was developed and approved by a Certified Nutrient Management Specialist.

13. Manure/Process Wastewater Tracking Manifests
Did you sell, give away, or otherwise remove manure or process wastewater from your property?

X No.

__ Yes, see attached manifests.

14. Written Agreements
Any process wastewater transferred to a third party that receives process wastewater from your dairy for its own use must have a written agreement consistent with State requirements. Attach copies of revised and/or new agreements not submitted previously. Do not resubmit agreements submitted previously.

X Not applicable; no written agreements.

__ No changes in agreement(s).

__ Yes, a new or revised agreement is attached.

15. Laboratory Analyses for Discharges
If you answered Yes to items #9, 10, or 11 above, attach copies of all laboratory analyses for all discharges (manure, process wastewater or tailwater), surface water (upstream and downstream of a discharge), and storm water, including chain-of-custody forms and laboratory quality assurance/quality control results, as applicable. (Results for Manure and process wastewater, storm water, and/or storm water are provided).

X Not Applicable.

__ Yes, provided with Attachment H, I, or J for #9, 10 and 11, respectively.

16. Tabulated Nutrient Analytical Data
Attach tabulated analytical data for samples of manure, process wastewater, irrigation water, soil, and plant tissue. The data shall be tabulated to clearly show sample dates, constituents analyzed, constituent concentrations, and detection limits (see Attachment E).

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Hollandia Farms Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

17. Record-Keeping Results

Attach results of the Record-Keeping Requirements for the production and land application areas specified in Record-Keeping Requirements. These include:

* Records documenting any corrective actions taken to correct deficiencies noted as a result of the inspections required in the Monitoring Requirements. Deficiencies not corrected in 30 days must be accompanied by an explanation of the factors preventing immediate correction.
* Records of the date, time, and estimated volume of any overflow or bypass of the wastewater storage or conveyance structures.
* Expected and actual crop yields (see Attachment F).
* Identification of crop, acreage, and dates of planting and harvest for each field (see Attachment F).
* Dates, locations, and approximate weight and moisture content of manure applied to each field (see Attachment B).
* Dates, locations, and volume of process wastewater applied to each field (see Attachment B).
* Whether precipitation occurred, or standing water was present at the time of manure and process wastewater applications and for 24 hours prior to and following applications (see Attachment G).
* Total amount of nitrogen, phosphorus, and potassium actually applied to each field, including documentation of calculations for the total amount applied (see Attachment B).

18. Groundwater Monitoring Section

X Groundwater monitoring results are attached.

__ Monitoring Well results are attached, if applicable.

A. All dischargers must attach groundwater information for supply wells and subsurface (tile) drainage systems including the location of sample collection and all field and laboratory data, including all laboratory analyses (including chain-of-custody forms and laboratory quality assurance/quality control results).

B. Dischargers who have monitoring well systems shall include all laboratory analyses (including chain-of-custody forms and laboratory quality assurance/quality control results) and tabular and graphical summaries of the monitoring data. Data shall be tabulated to clearly show the sample dates, constituents analyzed, constituent concentrations, detection limits, depth to groundwater and groundwater elevations. Graphical summaries of groundwater gradients and flow directions shall also be included. Each groundwater monitoring report shall include a summary data table for all historical and current groundwater elevations and analytical results. The groundwater monitoring results shall be certified by a California registered professional.

19. Storm Water Reporting Section

X No significant discharges of storm water occurred from the land application areas.

__ Yes, significant discharge(s) of storm water occurred from land application areas. The following information shall be submitted for those discharges.

__ It was not possible to collect any of the required samples or perform visual observations due to adverse climatic conditions.

20. Mortality Management Practices

* Dead cows are picked up and disposed of by rendering service.

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Hollandia Farms Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

DocuSigned by:
6F56C1B78BDA47...
Signature of Operator of Facility

Peter B. de Jong
Print Name

6/27/2024
Title and Date

DocuSigned by:
Theo de Haan
21B900B7CC724F3...
Signature of Owner of Facility

Theo De Haan
Print Name

6/27/2024
Title and Date

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Hollandia Farms Dairy 2023

Estimated Manure and Nutrients Generated (Attachment A)

Animal Type	Maximum No. of Head	Average No. of Head*	Housing Type	Weight	Total Manure Produced (tons/year)	NITROGEN Net (LB) Available for Land Application	PHOSPHORUS Net (LB) Available for Land Application	POTASSIUM Net (LB) Available for Land Application	SALTS Net (LB) Available for Land Application
Hol Milk Cows	2,530	2,466	Milk Freestall -	1,400	62,584.34	891,089.10	153,015.30	207,020.70	1,625,562.54
Hol Dry Cows	285	277	Flushed	1,450	4,042.02	50,552.50	7,077.35	33,364.65	71,339.69
Hol Heifers(15-24)	1,035	1,009	Flushed	1,000	10,532.47	139,948.30	22,097.10	66,291.30	259,861.90
Hol Heifers (7-14)	1,400	1,365	Flushed	750	13,127.58	129,538.50	21,921.90	74,733.75	164,787.92
Hol Calves (4-6)	485	472	Flushed	300	1,636.66	24,119.20	6,891.20	13,782.40	11,301.57
	5,735	**5,589**			**91,923.07**	**1,235,247.60**	**211,002.85**	**395,192.80**	**2,132,853.61**

* The Average No. of Head is used to calculate manure and nutrient production

Estimated Amount of Total Process Wastewater and Nutrients Generated

Total Gallons of Process Wastewater Generated***	Average TKN Concentration (mg/L)*	Average Total Phosphorus Concentration (mg/L)*	Average Potassium Concentration (mg/L)*	Average Total Dissolved Solids (mg/L)*	Total Nitrogen Generated (lb)**	Total Phosphorus Generated (lb)**	Total Potassium Generated (lb)**	Total Salt Generated (lb)**
75,434,102	468.83	61.38	690.17	4,791.67	294,598.96	38,571.20	433,677.32	3,010,920.7

* The average Total Kjeldahl Nitrogen, Total Phosphorus, Total Potassium, and Total Salt concentrations are based on an average of all process wastewater sample results for the year.
** The total pounds of Nitrogen, Phosphorus, Potassium and Total Dissolved Solids generated = Average Concentration (mg/L) X Total Gallons of Wastewater Generated X 8.33 X 0.000001.
*** The total gallons of process wastewater generated is calculated as the total gallons of process wastewater applied to all land application areas (Attachment B) plus the total gallons of process wastewater transferred offsite (Attachment C).

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd2

Wheat, 38 Acres Planted on 11/20/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/10/2022	Corral Solids: Main Corral	5.00	Tons	13.80	2.39	0.87	1.27	%	190		7,829	2,853	4,160	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			532				
03/25/2023	Surface Water: Lakeside	6.00	Acre Inches		0.90			mg/L			46	0	0	4,642	
03/25/2023	Waste Water: Main Lagoon	1.10	Acre Inches		451.00	56.30	856.00	mg/L		1,135,050	4,264	532	8,094	48,031	
05/03/2023	Harvest	21.50	Tons	61.90	1.97	0.37	1.95	%							12,264
	Acre Inches Applied:	**7.10**						**Totals:**	**190**	**1,135,050**	**12,671**	**3,385**	**12,253**	**52,673**	**12,264**
Season Nitrogen Ratio: 1.03								**Lbs Per Acre:**			**333**	**89**	**322**	**1,386**	**323**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd3

Wheat, 75 Acres Planted on 11/14/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/18/2022	Surface Water: Lakeside	5.20	Acre Inches		0.00			mg/L			0	0	0	16,761	
10/18/2022	Waste Water: Main Lagoon	0.50	Acre Inches		329.00	46.50	912.00	mg/L		1,018,286	2,791	394	7,736	58,612	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,050				
03/18/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			80	0	0	7,940	
03/18/2023	Waste Water: Main Lagoon	0.60	Acre Inches		387.00	39.00	779.00	mg/L		1,221,944	3,939	397	7,929	44,685	
04/12/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			80	0	0	7,940	
04/12/2023	Waste Water: Main Lagoon	0.50	Acre Inches		451.00	56.30	856.00	mg/L		1,018,286	3,826	478	7,261	43,090	
05/07/2023	Harvest	19.00	Tons	73.10	1.75	0.42	2.33	%							13,417
	Acre Inches Applied:	**17.20**						**Totals:**		**3,258,516**	**11,764**	**1,269**	**22,926**	**179,028**	**13,417**
Season Nitrogen Ratio:	0.88							**Lbs Per Acre:**			**157**	**17**	**306**	**2,387**	**179**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd3

Corn, 75 Acres Planted on 06/02/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
05/22/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
05/22/2023	Waste Water: Main Lagoon	0.70	Acre Inches		451.00	56.30	856.00	mg/L		1,425,601	5,356	668	10,166	60,326	
06/20/2023	Surface Water: Lakeside	5.50	Acre Inches		0.90			mg/L			84	0	0	8,398	
07/11/2023	Surface Water: Lakeside	4.75	Acre Inches		0.90			mg/L			73	0	0	7,252	
07/11/2023	Waste Water: Main Lagoon	1.00	Acre Inches		338.00	45.10	579.00	mg/L		2,036,572	5,734	765	9,823	85,332	
07/24/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			80	0	0	8,016	
08/12/2023	Surface Water: Lakeside	4.80	Acre Inches		0.90			mg/L			74	0	0	7,329	
08/12/2023	Waste Water: Main Lagoon	1.00	Acre Inches		338.00	45.10	579.00	mg/L		2,036,572	5,734	765	9,823	85,332	
08/22/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
09/01/2023	Harvest	29.60	Tons	68.50	1.44	0.30	1.92	%							20,140
	Acre Inches Applied:	**33.00**						**Totals:**		**5,498,746**	**17,287**	**2,198**	**29,811**	**277,254**	**20,140**
Season Nitrogen Ratio:	0.86							**Lbs Per Acre:**			**230**	**29**	**397**	**3,697**	**269**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd4

Wheat, 75 Acres Planted on 11/19/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/20/2022	Surface Water: Lakeside	4.80	Acre Inches		0.00			mg/L			0	0	0	15,472	
10/20/2022	Waste Water: Main Lagoon	1.00	Acre Inches		329.00	46.50	912.00	mg/L		2,036,572	5,582	789	15,472	117,226	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,050				
03/20/2023	Surface Water: Lakeside	4.90	Acre Inches		0.90			mg/L			75	0	0	7,481	
03/20/2023	Waste Water: Main Lagoon	1.00	Acre Inches		387.00	39.00	779.00	mg/L		2,036,572	6,566	662	13,216	74,475	
04/14/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
04/14/2023	Waste Water: Main Lagoon	1.00	Acre Inches		451.00	56.30	856.00	mg/L		2,036,572	7,651	955	14,522	86,180	
05/10/2023	Harvest	19.70	Tons	61.80	1.42	0.26	0.92	%							16,029
	Acre Inches Applied:	**17.70**						**Totals:**		**6,109,718**	**20,999**	**2,405**	**43,209**	**308,468**	**16,029**
Season Nitrogen Ratio:	1.31							**Lbs Per Acre:**			**280**	**32**	**576**	**4,113**	**214**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd4

Corn, 75 Acres Planted on 06/19/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
05/24/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
05/24/2023	Waste Water: Main Lagoon	1.00	Acre Inches		451.00	56.30	856.00	mg/L		2,036,572	7,651	955	14,522	86,180	
06/30/2023	Surface Water: Lakeside	5.50	Acre Inches		0.90			mg/L			84	0	0	8,398	
07/13/2023	Surface Water: Lakeside	4.75	Acre Inches		0.90			mg/L			73	0	0	7,252	
07/13/2023	Waste Water: Main Lagoon	1.20	Acre Inches		338.00	45.10	579.00	mg/L		2,443,887	6,880	918	11,787	102,398	
07/26/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			80	0	0	8,016	
08/14/2023	Surface Water: Lakeside	4.80	Acre Inches		0.90			mg/L			74	0	0	7,329	
08/14/2023	Waste Water: Main Lagoon	1.20	Acre Inches		338.00	45.10	579.00	mg/L		2,443,887	6,880	918	11,787	102,398	
08/24/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
09/11/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
09/25/2023	Harvest	30.70	Tons	69.90	1.17	0.35	1.47	%							16,217
	Acre Inches Applied:	**38.70**						**Totals:**		**6,924,346**	**21,952**	**2,791**	**38,096**	**344,875**	**16,217**
Season Nitrogen Ratio:	1.35							**Lbs Per Acre:**			**293**	**37**	**508**	**4,598**	**216**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd5

Wheat, 157 Acres Planted on 11/01/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/15/2022	Surface Water: Lakeside	5.20	Acre Inches		0.00			mg/L			0	0	0	35,086	
10/15/2022	Waste Water: Main Lagoon	0.50	Acre Inches		329.00	46.50	912.00	mg/L		2,131,613	5,842	826	16,195	122,696	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,198				
03/15/2023	Surface Water: Lakeside	5.10	Acre Inches		0.90			mg/L			163	0	0	16,300	
03/15/2023	Waste Water: Main Lagoon	0.55	Acre Inches		387.00	39.00	779.00	mg/L		2,344,774	7,560	761	15,215	85,746	
04/08/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			160	0	0	15,981	
04/08/2023	Waste Water: Main Lagoon	0.50	Acre Inches		451.00	56.30	856.00	mg/L		2,131,613	8,009	1,000	15,199	90,203	
05/10/2023	Harvest	19.20	Tons	65.20	1.39	0.27	0.93	%							29,163
	Acre Inches Applied:	**16.85**						**Totals:**		**6,607,999**	**23,932**	**2,587**	**46,609**	**366,011**	**29,163**
Season Nitrogen Ratio:	0.82							**Lbs Per Acre:**			**152**	**16**	**297**	**2,331**	**186**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd5

Corn, 157 Acres Planted on 06/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
05/23/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			160	0	0	15,981	
05/23/2023	Waste Water: Main Lagoon	0.70	Acre Inches		451.00	56.30	856.00	mg/L		2,984,258	11,211	1,399	21,280	126,283	
06/24/2023	Surface Water: Lakeside	5.50	Acre Inches		0.90			mg/L			176	0	0	17,579	
07/12/2023	Surface Water: Lakeside	4.75	Acre Inches		0.90			mg/L			152	0	0	15,182	
07/12/2023	Waste Water: Main Lagoon	0.85	Acre Inches		338.00	45.10	579.00	mg/L		3,623,741	10,203	1,361	17,477	151,835	
07/25/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			168	0	0	16,780	
08/13/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			166	0	0	16,620	
08/13/2023	Waste Water: Main Lagoon	0.85	Acre Inches		338.00	45.10	579.00	mg/L		3,623,741	10,203	1,361	17,477	151,835	
08/23/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			160	0	0	15,981	
09/02/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			160	0	0	15,981	
09/25/2023	Harvest	28.50	Tons	70.50	1.50	0.38	1.65	%							39,599
	Acre Inches Applied:	**38.10**						**Totals:**		**10,231,740**	**32,761**	**4,121**	**56,234**	**544,057**	**39,599**
Season Nitrogen Ratio:	0.83							**Lbs Per Acre:**			**209**	**26**	**358**	**3,465**	**252**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd6

Corn, 147 Acres Planted on 04/21/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,058				
04/03/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			150	0	0	14,963	
04/03/2023	Waste Water: Main Lagoon	1.00	Acre Inches		451.00	56.30	856.00	mg/L		3,991,682	14,995	1,871	28,462	168,913	
05/06/2023	Surface Water: Lakeside	5.50	Acre Inches		0.90			mg/L			165	0	0	16,460	
05/20/2023	Surface Water: Lakeside	4.75	Acre Inches		0.90			mg/L			143	0	0	14,215	
06/11/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			157	0	0	15,711	
06/11/2023	Waste Water: Main Lagoon	0.79	Acre Inches		338.00	45.10	579.00	mg/L		3,153,429	8,879	1,185	15,209	132,128	
07/09/2023	Surface Water: Lakeside	4.80	Acre Inches		0.90			mg/L			144	0	0	14,365	
07/09/2023	Waste Water: Main Lagoon	0.80	Acre Inches		338.00	45.10	579.00	mg/L		3,193,346	8,991	1,200	15,401	133,801	
07/27/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			150	0	0	14,963	
08/17/2023	Harvest	28.40	Tons	60.40	0.77	0.25	1.26	%							25,591
	Acre Inches Applied:	**32.89**						**Totals:**		**10,338,457**	**35,831**	**4,256**	**59,072**	**525,519**	**25,591**
Season Nitrogen Ratio:	1.40							**Lbs Per Acre:**			**244**	**29**	**402**	**3,575**	**174**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd7

Wheat, 112 Acres Planted on 11/16/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/17/2022	Surface Water: Lakeside	5.20	Acre Inches		0.00			mg/L			0	0	0	25,030	
10/17/2022	Waste Water: Main Lagoon	0.80	Acre Inches		329.00	46.50	912.00	mg/L		2,433,025	6,667	942	18,483	140,046	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,568				
03/17/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			119	0	0	11,856	
03/17/2023	Waste Water: Main Lagoon	0.85	Acre Inches		387.00	39.00	779.00	mg/L		2,585,089	8,334	840	16,775	94,534	
04/11/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			119	0	0	11,856	
04/11/2023	Waste Water: Main Lagoon	0.80	Acre Inches		451.00	56.30	856.00	mg/L		2,433,025	9,140	1,141	17,349	102,957	
05/03/2023	Harvest	18.25	Tons	64.30	1.90	0.33	2.01	%							27,729
	Acre Inches Applied:	**18.05**						**Totals:**		**7,451,140**	**25,947**	**2,923**	**52,608**	**386,279**	**27,729**
Season Nitrogen Ratio:	0.94							**Lbs Per Acre:**			**232**	**26**	**470**	**3,449**	**248**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd8

Wheat, 140 Acres Planted on 11/17/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
12/21/2022	Ground Water: Well Avg	4.80	Acre Inches		8.04			mg/L			1,222	0	0	58,848	
12/21/2022	Waste Water: Main Lagoon	0.80	Acre Inches		329.00	46.50	912.00	mg/L		3,041,282	8,334	1,177	23,104	175,057	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,960				
03/21/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			148	0	0	14,820	
03/21/2023	Waste Water: Main Lagoon	0.70	Acre Inches		387.00	39.00	779.00	mg/L		2,661,121	8,579	865	17,268	97,314	
04/15/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			148	0	0	14,820	
04/15/2023	Waste Water: Main Lagoon	0.70	Acre Inches		451.00	56.30	856.00	mg/L		2,661,121	9,997	1,247	18,976	112,609	
05/19/2023	Harvest	20.00	Tons	62.20	1.55	0.36	2.76	%							32,810
	Acre Inches Applied:	**17.40**						**Totals:**		**8,363,524**	**30,390**	**3,290**	**59,347**	**473,469**	**32,810**
Season Nitrogen Ratio:	0.93							**Lbs Per Acre:**			**217**	**24**	**424**	**3,382**	**234**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd8

Corn, 140 Acres Planted on 06/19/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
05/25/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			148	0	0	14,820	
05/25/2023	Waste Water: Main Lagoon	0.65	Acre Inches		451.00	56.30	856.00	mg/L		2,471,041	9,283	1,159	17,620	104,566	
06/26/2023	Surface Water: Lakeside	5.30	Acre Inches		0.90			mg/L			151	0	0	15,106	
07/14/2023	Surface Water: Lakeside	4.75	Acre Inches		0.90			mg/L			136	0	0	13,538	
07/14/2023	Waste Water: Main Lagoon	1.00	Acre Inches		338.00	45.10	579.00	mg/L		3,801,602	10,703	1,428	18,336	159,286	
07/27/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			150	0	0	14,963	
08/15/2023	Surface Water: Lakeside	5.10	Acre Inches		0.90			mg/L			146	0	0	14,535	
08/15/2023	Waste Water: Main Lagoon	0.75	Acre Inches		338.00	45.10	579.00	mg/L		2,851,202	8,028	1,071	13,752	119,465	
08/25/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			143	0	0	14,251	
09/12/2023	Surface Water: Lakeside	4.75	Acre Inches		0.90			mg/L			136	0	0	13,538	
10/11/2023	Harvest	30.65	Tons	62.10	0.90	0.27	1.80	%							29,436
	Acre Inches Applied:	**37.75**						**Totals:**		**9,123,845**	**29,023**	**3,658**	**49,708**	**484,068**	**29,436**
Season Nitrogen Ratio:	0.99							**Lbs Per Acre:**			**207**	**26**	**355**	**3,458**	**210**

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Nutrient Applications (Attachment B)

Field Name: hd9

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			490				
	Acre Inches Applied:	**0.00**						**Totals:**			**490**				
Season Nitrogen Ratio:								**Lbs Per Acre:**			**14**				

Season Notes: Fallow

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd10

Corn, 100 Acres Planted on 04/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,400				
03/24/2023	Corral Solids: Main Corral	3.80	Tons	26.00	3.01	0.82	0.60	%	380		16,928	4,640	3,346	0	
04/19/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			102	0	0	10,179	
05/10/2023	Fertilize - UN32	15.00	Gallons		32.00	0.00	0.00	%			3,998	0	0	0	
05/10/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			102	0	0	10,179	
05/22/2023	Surface Water: Lakeside	5.10	Acre Inches		0.90			mg/L			104	0	0	10,382	
06/11/2023	Fertilize - UN32	15.00	Gallons		32.00	0.00	0.00	%			3,998	0	0	0	
06/11/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			107	0	0	10,688	
06/21/2023	Surface Water: Lakeside	4.80	Acre Inches		0.90			mg/L			98	0	0	9,772	
07/09/2023	Surface Water: Lakeside	4.70	Acre Inches		0.90			mg/L			96	0	0	9,568	
07/29/2023	Harvest	25.00	Tons	64.60	1.11	0.24	0.51	%							19,647
	Acre Inches Applied:	**29.85**						**Totals:**	**380**		**26,933**	**4,640**	**3,346**	**60,768**	**19,647**
Season Nitrogen Ratio:	1.37							**Lbs Per Acre:**			**269**	**46**	**33**	**608**	**196**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd13

Corn, 75 Acres Planted on 04/10/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,050				
03/25/2023	Corral Solids: Main Corral	5.00	Tons	26.00	3.01	0.82	0.60	%	375		16,706	4,579	3,302	0	
04/20/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
05/11/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,998	0	0	0	
05/11/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			80	0	0	7,940	
05/23/2023	Surface Water: Lakeside	5.10	Acre Inches		0.90			mg/L			78	0	0	7,786	
06/12/2023	Fertilize - UN32	15.00	Gallons		32.00	0.00	0.00	%			2,998	0	0	0	
06/12/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			80	0	0	8,016	
06/22/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
07/10/2023	Surface Water: Lakeside	5.00	Acre Inches		0.90			mg/L			76	0	0	7,634	
07/29/2023	Harvest	29.50	Tons	72.90	1.50	0.23	1.29	%							17,987
	Acre Inches Applied:	**30.55**						**Totals:**	**375**		**25,220**	**4,579**	**3,302**	**46,645**	**17,987**
Season Nitrogen Ratio:	1.40							**Lbs Per Acre:**			**336**	**61**	**44**	**622**	**240**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd14

Corn, 74 Acres Planted on 04/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,036				
03/27/2023	Corral Solids: Main Corral	4.50	Tons	26.00	3.01	0.82	0.60	%	333		14,835	4,066	2,933	0	
04/22/2023	Surface Water: Lakeside	5.10	Acre Inches		0.90			mg/L			77	0	0	7,683	
05/13/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,945	0	0	0	
05/13/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			78	0	0	7,834	
05/25/2023	Surface Water: Lakeside	5.10	Acre Inches		0.90			mg/L			77	0	0	7,683	
06/14/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,945	0	0	0	
06/14/2023	Surface Water: Lakeside	5.25	Acre Inches		0.90			mg/L			79	0	0	7,909	
06/24/2023	Surface Water: Lakeside	4.50	Acre Inches		0.90			mg/L			68	0	0	6,779	
07/12/2023	Surface Water: Lakeside	4.50	Acre Inches		0.90			mg/L			68	0	0	6,779	
07/29/2023	Harvest	28.70	Tons	72.10	1.53	0.34	2.03	%							18,131
	Acre Inches Applied:	**29.65**						**Totals:**	**333**		**24,208**	**4,066**	**2,933**	**44,666**	**18,131**
Season Nitrogen Ratio:	1.34							**Lbs Per Acre:**			**327**	**55**	**40**	**604**	**245**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd1A

Wheat, 18 Acres Planted on 11/21/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/11/2022	Corral Solids: Main Corral	5.00	Tons	13.80	2.39	0.87	1.27	%	90		3,708	1,351	1,970	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			252				
03/26/2023	Surface Water: Lakeside	5.20	Acre Inches		0.90			mg/L			19	0	0	1,905	
03/26/2023	Waste Water: Main Lagoon	0.80	Acre Inches		451.00	56.30	856.00	mg/L		391,022	1,469	183	2,788	16,547	
05/10/2023	Harvest	20.90	Tons	60.70	1.35	0.29	1.26	%							3,992
	Acre Inches Applied:	**6.00**						**Totals:**	**90**	**391,022**	**5,448**	**1,535**	**4,759**	**18,452**	**3,992**
Season Nitrogen Ratio:	1.36							**Lbs Per Acre:**			**303**	**85**	**264**	**1,025**	**222**

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Field Name: hd1B

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			238				
	Acre Inches Applied:	**0.00**						**Totals:**			**238**				
Season Nitrogen Ratio:								**Lbs Per Acre:**			**14**				

Season Notes: Pasture was grazed and not harvested.

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Hollandia Farms Dairy 2023

Nutrient Applications (Attachment B)

Summary of Nutrient Applications, Removal, and Balance

	Total N (Lbs)	Total P (Lbs)	Total K (Lbs)	Total Salts (Lbs)	Total Manure Applied	
Solid Manure	60,005.40	17,489.53	15,711.19	0.00	1,368.00	tons
Process Wastewater	239,281.10	30,214.71	468,501.44	3,280,086.51	75,434,102.31	gallons
Irrigation Water	8,044.07					
Fertilizer / Total Imports	22,882.63					
Atmospheric Deposition	14,882.00					
Total Nitrogen Applied	**345,095.20**					
Crop Nitrogen Removal	322,153.12					
Nitrogen Balance	**22,942.08**					
Nitrogen Ratio	**1.07**					

- **Nutrient applications shown in Attachment B are on a crop year basis.**
- **Lab sample data results for applications are based on the sample taken closest to the application date. Lab sample data results are shown on 100% dry basis for manure applications and harvest events.**
- **Well Avg: Irrigation source representing the average nutrient values of all irrigation wells sampled for the facility during the reporting year.**

**** Book Value: No sample data results were available. For manure applications and plant tissue harvests, the calculations were based off book values.**

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Hollandia Farms Dairy 2023
Nutrient Applications (Attachment B)

FIELD NITROGEN RATIO Calculation:

"Field Nitrogen Ratio" = "Total Nitrogen Applied to Field" / "Total Nitrogen Extracted from Field at Harvest"

ATMOSHERIC DEPOSITION Applied (lbs) Calculation:

"Nitrogen Applied (Lbs)" = "14 Lbs (per year) * "Acres Planted"

HARVEST Nitrogen Extraction (Lbs) Calculation:

"Nitrogen Extracted (Lbs)" = ("Yield" (tons per acre) * 2000) * ((100 - "% Moisture") / 100 * "Lab Sample Data Nitrogen Value" / 100) * "Acres Planted"

IRRIGATION Nitrogen and Salts Applied (Lbs) Calculations:

"Nitrogen Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ("Lab Sample Data Nitrogen Value" * 0.000001) * "Acres Planted"

"Salts Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ("Lab Sample Data TDS Value" * 0.000001) * "Acres Planted"

PROCESS WASTEWATER Nitrogen, Phosphorus, Potassium and Salts Applied (Lbs) Calculations:

Nitrogen Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ("Lab Sample Data Nitrogen Value" * 0.000001) * "Acres Planted"

Phosphorus Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ("Lab Sample Data Phosphorus Value" * 0.000001) * "Acres Planted"

Potassium Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ("Lab Sample Data Potassium Value" * 0.000001) * "Acres Planted"

Salt Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ("Lab Sample Data TDS Value" * 0.000001) * "Acres Planted"

SOLID MANURE (Corral, Separator, or Compost) Nitrogen, Phosphorus, Potassium and Salts Applied (Lbs) Calculations:

Nitrogen Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ((100 - "% Moisture")/100 * "Lab Sample Data Nitrogen Value"/100) * "Acres Planted"

Phosphorus Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ((100 - "% Moisture")/100 * "Lab Sample Data Phosphorus Value"/100) * "Acres Planted"

Potassium Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ((100 - "% Moisture")/100 * "Lab Sample Data Potassium Value"/100) * "Acres Planted"

Salt Applied (Lbs)" = "Lbs Applied per Acre" (see below) * ((100 - "% Moisture")/100 * "Lab Sample Data Ash Value"/100) * "Acres Planted"

"Lbs Applied per Acre" Calculations:

If "Application Units" = Tons, Then "Lbs Applied per Acre" = "Application Amount" (per Acre) * 2000

If "Application Units" = Acres Inches, Then "Lbs Applied per Acre" = "Application Amount" (per Acre) * 8.33 *27,154.3

If "Application Units" = Acre Feet, Then Lbs Applied per Acre" = "Application Amount" (per Acre) * 8.33 * 325,851

If "Application Units" = Gallons, Then "Lbs Applied per Acre" = "Application Amount' (per Acre) * 8.33

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Hollandia Farms Dairy 2023

Estimated Manure and Process Wastewater/Nutrients Transferred Off-Site (Attachment C)

A. ESTIMATED TOTAL MANURE TRANSFERRED OFFSITE

Total Manure Exported (tons)*	Total Nitrogen Exported (lbs)**	Total Phosphorus Exported (lbs)**	Total Potassium Exported (lbs)**	Total Salts Exported (lbs)**

* The Total Manure (tons) should be calculated as the sum of all manure transferred offsite as reported in all the Manure/Process Wastewater Tracking Manifests for the reporting period.
** Total (N, P, K, Salts) (lbs) = Sum of (N, P, K, Salts) for each manure export event based on (Manure(tons) x 2000lb/ton) x ((100-moisture%)/100) x (N, P, K, and Ash) Concentration (%, dry weight) / 100 using the samples closest in date to the export event.

B. ESTIMATED TOTAL PROCESS WASTEWATER TRANSFERRED OFFSITE

Total Process Wastewater Exported (gal)*	Total Nitrogen Exported (lbs)**	Total Phosphorus Exported (lbs)**	Total Potassium Exported (lbs)**	Total TDS Exported (lbs)**

* The Total Manure (gals) should be calculated as the sum of all manure transferred offsite as reported in all the Manure/Process Wastewater Tracking Manifests for the reporting period.
** Total (Nitrogen, Phosphorus, Potassium, TDS) (lbs) = Sum of (Nitrogen, Phosphorus, Potassium, TDS) for each wastewater export event based on (Process Wastewater(gals) x 8.33lb/gal) x (N03-N or TKN, P, K, TDS) x 10-6 using the samples closest in date to the export event.

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Hollandia Farms Dairy 2023

Land Application Area Description Technical Report (Attachment D)

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
hd2	x028 x204 x012 x000	38	Both
hd3	x028 x204 x012 x000	75	Process Wastewater
hd4	x028 x270 x001 x000	75	Process Wastewater
hd5	x028 x260 x038 x000	157	Process Wastewater
hd6	x028 x260 x038 x000	147	Process Wastewater
hd7	x028 x260 x038 x000	112	Process Wastewater
hd8	x028 x260 x038 x000	140	Process Wastewater
hd9	x028 x260 x025 x000	35	None
hd10	x028 x260 x025 x000	100	Manure
hd13	x028 x203 x013 x000	75	Manure
hd14	x028 x203 x014 x000	74	Manure
hd1A	x028 x204 x008 x000	18	Both
hd1B	x028 x204 x011 x000	17	None
		1,063	

Production Area APN(s): x028 x204 x012 x000

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Hollandia Farms Dairy 2023

Lab Results Summary (Attachment E)

Process Wastewater

(mgl/ppm unless noted otherwise)

									General Minerals						
Sample Date:	TKN	TP	TK	EC (umhos/cm)	NH4N	NO3N	TDS	pH (units)	CA	MG	NA	HCO3	CO3	SO4	CL
02/16/2023	387.00	39.00	779.00	6,610	255.00		4,390.00								
03/17/2023	785.00	136.00	943.00	8,560	414.00		5,690.00								
04/25/2023	451.00	56.30	856.00	7,650	341.00	0.00	5,080.00	7.74							
07/13/2023	338.00	45.10	579.00	7,570	286.00		5,030.00								
07/28/2023	496.00	53.40	386.00	6,890	407.00		4,570.00								
11/07/2023	356.00	38.50	598.00	6,010	349.00		3,990.00								
Averages:	468.83	61.38	690.17	7,215	342.00	0.00	4,791.67	7.74							

Manure - Corral Solids

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/02/2023	3.01	0.82	0.60	26.00						%
11/07/2023	2.39	0.99	2.66	26.10						%
Averages:	2.70	0.91	1.63	26.05						

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)

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Hollandia Farms Dairy 2023

Lab Results Summary (Attachment E)

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)	
hd2	1	Wheat	05/03/2023	39.40	7.48	39.00	61.90	12.40	
hd3	1	Wheat	05/07/2023	35.00	8.44	46.60	73.10	10.10	
hd3	2	Corn	09/01/2023	28.80	6.04	38.40	68.50	8.00	
hd4	1	Wheat	05/10/2023	28.40	5.16	18.42	61.80	8.36	
hd4	2	Corn	09/25/2023	23.40	7.08	29.40	69.90	5.84	
hd5	1	Wheat	05/10/2023	27.80	5.46	18.68	65.20	8.07	
hd5	2	Corn	09/25/2023	30.00	7.60	33.00	70.50	3.16	
hd6	1	Corn	08/17/2023	15.48	4.92	25.20	60.40	5.99	
hd7	1	Wheat	05/03/2023	38.00	6.60	40.20	64.30	11.00	
hd8	1	Wheat	05/19/2023	31.00	7.18	55.20	62.20	8.35	
hd8	2	Corn	10/11/2023	18.10	5.38	36.00	62.10	7.28	
hd9	1	FALLOW							
hd10	1	Corn	07/29/2023	22.20	4.78	10.24	64.60	5.21	
hd13	1	Corn	07/29/2023	30.00	4.68	25.80	72.90	6.91	
hd14	1	Corn	07/29/2023	30.60	6.82	40.60	72.10	9.05	
hd1A	1	Wheat	05/10/2023	27.00	5.84	25.20	60.70	8.31	
hd1B	1	Pasture		30.60	3.40	16.80			BV-H

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Hollandia Farms Dairy 2023
Lab Results Summary (Attachment E)

BV-H: Book Value from CCA Experience / Actual History (As Received basis)

Well / Irrigation Water
(mgl/ppm unless noted otherwise)

								General Minerals						
	Sample Date:	**NO3N**	**TP**	**EC (umhos/cm)**	**NH4N ***	**TDS**	**TN**	**CA**	**MG**	**NA**	**HCO3**	**CO3**	**SO4**	**CL**
Domestic														
ALV	06/23/2023	11.20		805		560.00	11.20	73.00	2.00	87.00	250.00	0.00	35.00	56.00
CV4	02/01/2023	0.00		287		170.00		3.00	0.00	60.00	90.00	0.00	6.50	29.00
JG	12/14/2023	0.40		489		300.00		20.00	0.00	71.00	80.00	0.00	24.50	65.00
TJDH	12/21/2023	5.40		570										
	Averages:	4.25		538		343.33	11.20	32.00	0.67	72.67	140.00	0.00	22.00	50.00

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Hollandia Farms Dairy 2023

Lab Results Summary (Attachment E)

Well / Irrigation Water

(mgl/ppm unless noted otherwise)

							General Minerals						
	Sample Date:	NO3N	TP	EC (umhos/cm)	NH4N *	TDS	TN	CA	MG	NA	HCO3	CO3	SO4	CL
Irrigation														
BV2	11/14/2023	0.00		338		250.00	0.00							
CV1								Did not run.						
CV2	10/11/2023	0.00		338		250.00	0.00							
Eaton 7	12/01/2023	0.00		339		350.00	0.00	2.00	0.00	70.00	110.00	20.00	0.80	29.00
Eaton3								Did not run.						
S3								Out of service.						
S9	12/14/2023	0.20		329		210.00	0.00	7.00	2.00	66.00	90.00	0.00	2.40	44.00
S10								Out of service.						
S11	10/11/2023	45.00		1,400		1,160.00	46.00	126.00	2.00	139.00	60.00	0.00	49.90	200.00
S12	12/04/2023	28.00		1,300		1,080.00	28.00							
S13								Out of service.						
V1								Out of service.						
V2								Did not run.						
	Averages:	12.20		674		550.00	12.33	45.00	1.33	91.67	86.67	6.67	17.70	91.00
Surface Water														
Lakeside (General)	06/28/2023	0.90		158		90.00	0.90							
	Averages:	0.90		158		90.00	0.90							

* NH4N was non-detectable unless a value is shown

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Hollandia Farms Dairy 2023
Lab Results Summary (Attachment E)

Soils

Field	Sample Date:	PO4P (ppm)
hd4	10/04/2023	34.00
hd5	10/04/2023	79.00
hd6	02/17/2023	93.00
hd7	10/04/2023	119.00
hd8	11/03/2023	84.00
hd10	02/17/2023	10.00
hd13	02/17/2023	27.00
hd14	02/17/2023	65.00

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Hollandia Farms Dairy 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: hd2								
	1	Wheat	38	11/20/2022	05/03/2023	20.8	817.0	21.5
Field: hd3								
	1	Wheat	75	11/14/2022	05/07/2023	20.6	1425.0	19.0
	2	Corn	75	06/18/2023	09/01/2023	30.0	2220.0	29.6
Field: hd4								
	1	Wheat	75	11/19/2022	05/10/2023	20.3	1477.5	19.7
	2	Corn	75	06/19/2023	09/25/2023	30.0	2302.5	30.7
Field: hd5								
	1	Wheat	157	11/01/2022	05/10/2023	18.5	3014.4	19.2
	2	Corn	157	06/15/2023	09/25/2023	27.2	4474.5	28.5
Field: hd6								
	1	Corn	147	04/21/2023	08/17/2023	28.6	4174.8	28.4
Field: hd7								
	1	Wheat	112	11/16/2022	05/03/2023	17.4	2044.0	18.2
Field: hd8								
	1	Wheat	140	11/17/2022	05/19/2023	19.8	2800.0	20.0
	2	Corn	140	06/19/2023	10/11/2023	30.0	4291.0	30.6
Field: hd10								
	1	Corn	100	04/15/2023	07/29/2023	23.7	2500.0	25.0
Field: hd13								
	1	Corn	75	04/10/2023	07/29/2023	30.0	2212.5	29.5
Field: hd14								
	1	Corn	74	04/10/2023	07/29/2023	30.0	2123.8	28.7

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Hollandia Farms Dairy 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: hd1A								
	1	Wheat	18	11/21/2022	05/10/2023	20.2	376.2	20.9

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Hollandia Farms Dairy 2023

Weather Data (Attachment G)

Day	January	February	March	April	May	June	July	August	September	October	November	December
1	Light	None	Light	None	None	None	None	None	None	None	None	None
2	Light	None	None	None	None	None	None	None	None	None	None	None
3	None	None	None	None	None	None	None	None	None	None	None	None
4	Light	None	None	None	Light	None	None	None	None	None	None	None
5	Heavy	Light	Light	None	None	None	None	None	None	None	None	None
6	None	None	None	None	None	None	None	None	None	None	None	None
7	None	None	None	None	None	SWP	None	None	None	None	None	None
8	None	None	None	None	None	None	None	None	None	None	None	None
9	SWP	None	Light	None	None	None	None	None	None	None	None	None
10	Light	None	SWP	None	None	None	None	None	None	None	None	None
11	None	None	None	None	None	None	None	None	None	None	None	None
12	None	None	None	None	None	None	None	None	None	None	None	None
13	None	None	None	None	None	None	None	None	None	None	None	None
14	Heavy	None	SWP	None	None	None	None	None	None	None	None	None
15	Light	None	Heavy	None	None	None	None	None	None	None	None	None
16	Heavy	None	None	None	None	None	None	None	None	None	None	None
17	None	None	None	None	None	None	None	None	None	None	None	None
18	None	None	None	None	None	None	None	None	None	None	None	None
19	None	None	Light	None	None	None	None	Light	None	None	None	None
20	None	None	None	None	None	None	None	SWP	None	None	None	None
21	None	None	SWP	None	None	None	None	None	None	None	None	None
22	None	Light	Light	None	None	None	None	None	None	None	None	None
23	None	None	None	None	None	None	None	None	None	Heavy	None	None
24	None	SWP	None	None	None	None	None	None	None	None	None	None
25	None	SWP	None	None	None	None	None	None	None	None	None	None
26	None	None	None	None	None	None	None	None	None	None	None	None
27	None	Light	None	None	None	None	None	None	None	None	None	None
28	None	Heavy	Light	None	None	None	None	None	None	None	None	None
29	Light		Heavy	None	None	None	None	None	None	None	None	None
30	None		Light	None	None	None	None	None	None	None	None	Light
31	None		None		None		None	None		None		None

*Note: SWP = Standing Water Present

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

February 13, 2023

Innovative Ag Services, LLC
1201 Delta View Road Suite 5
Hanford, CA 93230

Lab No. : **VI 2340627**
Customer No. : **4018573**
Reference : **40159**

Laboratory Report

Introduction: This report package contains a total of 4 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
CV4	02/01/2023	02/01/2023	VI 2340627-001	DW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-02-14

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February 13, 2023

Innovative Ag Services, LLC
1201 Delta View Road Suite 5
Hanford, CA 93230

Description : CV4
Project : 0111 Holandia Farms Dairy

Lab No. : VI 2340627-001
Customer No. : 4018573
Reference : 40159
Sampled On : February 1, 2023 at 13:00
Sampled By : Sean
Received On : February 1, 2023 at 16:00
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	80	10	mg/L		1		02/04/2023	20:41	amm	SM 4500-H+B	02/05/2023	08:47	amm
Bicarbonate	90	10	mg/L		1		02/04/2023	20:41	amm	SM 4500-H+B	02/05/2023	08:47	amm
Carbonate	ND	10	mg/L		1	U	02/04/2023	20:41	amm	SM 4500-H+B	02/05/2023	08:47	amm
Hydroxide	ND	10	mg/L		1	U	02/04/2023	20:41	amm	SM 4500-H+B	02/05/2023	08:47	amm
Chloride	29	1	mg/L	500[2]	1	bl	02/02/2023	14:29	ldm	EPA 300.0	02/03/2023	07:30	ldm
Nitrate Nitrogen	ND	0.1	mg/L	10	1	U	02/02/2023	14:29	ldm	EPA 300.0	02/03/2023	07:30	ldm
Conductivity	287	1	umhos/cm	1600[2]	1		02/04/2023	20:41	amm	SM 4500-H+B	02/05/2023	08:47	amm
Sulfate Sulfur	6.50	0.17	mg/L		1		02/02/2023	14:29	ldm	EPA 300.0	02/03/2023	07:30	ldm
Solids, Total Dissolved (TDS)	170	20	mg/L	1000[2]	1		02/03/2023	11:43	ctl	SM 2540 C	02/06/2023	12:28	ctl
Calcium	3	1	mg/L		1		02/09/2023	05:55	ejc	EPA 200.7	02/10/2023	10:06	ac
Magnesium	ND	1	mg/L		1	J	02/09/2023	05:55	ejc	EPA 200.7	02/10/2023	10:06	ac
Potassium	ND	1	mg/L		1	J	02/09/2023	05:55	ejc	EPA 200.7	02/10/2023	10:06	ac
Sodium	60	1	mg/L		1		02/09/2023	05:55	ejc	EPA 200.7	02/10/2023	10:06	ac

DQF Flags Definition:
- U Constituent results were non-detect.
- b The Blank was positive for constituent but less than the PQL
- l The MS/MSD did not meet QC criteria.
- J Reported value is estimated; detected at a concentration below the RL and above the laboratory MDL.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

February 13, 2023
Innovative Ag Services, LLC

Lab No. : VI 2340627
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	02/09/2023:201433EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.7 %	85-115	
			MS	mg/L	12.00	142 %	<¼	
		(SP 2301880-001)	MSD	mg/L	12.00	114 %	75-125	
			MSRPD	mg/L	0.8000	1.9%	≤20.0	
			MS	mg/L	12.00	91.0 %	75-125	
		(SP 2301817-001)	MSD	mg/L	12.00	120 %	75-125	
			MSRPD	mg/L	0.8000	1.5%	≤20.0	
Magnesium	200.7	02/09/2023:201433EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	102 %	85-115	
			MS	mg/L	12.00	110 %	75-125	
		(SP 2301880-001)	MSD	mg/L	12.00	105 %	75-125	
			MSRPD	mg/L	0.8000	0.9%	≤20	
			MS	mg/L	12.00	81.2 %	75-125	
		(SP 2301817-001)	MSD	mg/L	12.00	95.3 %	75-125	
			MSRPD	mg/L	0.8000	1.4%	≤20	
Potassium	200.7	02/09/2023:201433EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.8 %	85-115	
			MS	mg/L	12.00	115 %	75-125	
		(SP 2301880-001)	MSD	mg/L	12.00	110 %	75-125	
			MSRPD	mg/L	0.8000	1.2%	≤20.0	
			MS	mg/L	12.00	105 %	75-125	
		(SP 2301817-001)	MSD	mg/L	12.00	110 %	75-125	
			MSRPD	mg/L	0.8000	1.9%	≤20.0	
Sodium	200.7	02/09/2023:201433EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.7 %	85-115	
			MS	mg/L	12.00	129 %	<¼	
		(SP 2301880-001)	MSD	mg/L	12.00	110 %	75-125	
			MSRPD	mg/L	0.8000	1.8%	≤20.0	
			MS	mg/L	12.00	913 %	<¼	
		(SP 2301817-001)	MSD	mg/L	12.00	843 %	<¼	
			MSRPD	mg/L	0.8000	2.0%	≤20.0	

Definition

<¼	: High Sample Background - Spike concentration was less than one forth of the sample concentration.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.

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February 13, 2023

Innovative Ag Services, LLC

Lab No. : VI 2340627
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	02/04/2023:201239AMM	ND	mg/L		0.2%	10	
Bicarbonate	2320B	(VI 2340484-001)	Dup	mg/L		0.2%	10	
E. C.	2320B	(VI 2340484-001)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	02/03/2023:201214CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	990.8	104 %	90-110	
		(VI 2340617-001)	Dup	mg/L		1.1%	5	
		(VI 2340617-001)	Dup	mg/L		1.5%	5	
Chloride	300.0	02/02/2023:201219LDM	Blank	mg/L		1	<1	
			LCS	mg/L	25.00	97.6 %	90-110	
			MS	mg/L	50.00	79.6 %	85-121	435
		(CH 2370584-001)	MSD	mg/L	50.00	85.3 %	85-121	
			MSRPD	mg/L	10.00	2.9%	≤19	
			MS	mg/L	50.00	86.7 %	85-121	
		(CH 2370584-002)	MSD	mg/L	50.00	91.1 %	85-121	
			MSRPD	mg/L	10.00	2.5%	≤19	
Nitrate Nitrogen	300.0	02/02/2023:201219LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	96.4 %	90-110	
			MS	mg/L	40.00	94.4 %	85-119	
		(CH 2370584-001)	MSD	mg/L	40.00	102 %	85-119	
			MSRPD	mg/L	10.00	7.3%	≤19	
			MS	mg/L	40.00	98.4 %	85-119	
		(CH 2370584-002)	MSD	mg/L	40.00	104 %	85-119	
			MSRPD	mg/L	10.00	5.0%	≤19	
Sulfate Sulfur	300.0	02/02/2023:201219LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	99.0 %	90-110	
			MS	mg/L	100.0	89.2 %	82-124	
		(CH 2370584-001)	MSD	mg/L	100.0	95.8 %	82-124	
			MSRPD	mg/L	10.00	4.6%	≤23	
			MS	mg/L	100.0	96.1 %	82-124	
		(CH 2370584-002)	MSD	mg/L	100.0	101 %	82-124	
			MSRPD	mg/L	10.00	4.0%	≤23	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Page 4 of 4

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Laboratory Analysis Work Order

Nº 40159

ID: # 011 2340627

SITE NAME: Holandia Farms

Billing: IB

LABORATORY: FGL

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)
W2 EC, NO_3N, TDS, TN (Irr)
W3 NH_4-N (Ammonium)
W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)
W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)
W6 NO_3N, NO_2 (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)
W8 Other: _____

2/1 19.5

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)
L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)
L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S
S2 S1 + CEC, CaCO3, OM, C:N, TN
S3 NO_3N, NH_4N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	CV4	Dom	W4	2/1/23 1:00	SEand	Ø		
2								
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[signature]	IB		2/1/23 3:30
2nd	[signature]	FGL	2-1-23 1530	
3rd	[signature]	FGL		2-1-23 1600
4th	[signature]		2/1/23 1600	

LABORATORY USE ONLY

Logged In By: GLJ Total Samples: 2/1/23 1730 Laboratory #: _____

GLS MC 2/2/23 1140

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

July 11, 2023

Innovative Ag Services, LLC
1201 Delta View Road Suite 5
Hanford, CA 93230

Lab No. : **VI 2344190**
Customer No. : **4018573**
Reference : **40900**

Laboratory Report

Introduction: This report package contains a total of 5 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
ALV	06/23/2023	06/23/2023	VI 2344190-001	DW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-07-11

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

July 11, 2023

Innovative Ag Services, LLC
1201 Delta View Road Suite 5
Hanford, CA 93230

Description : ALV
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2344190-001
Customer No. : 4018573
Reference : 40900
Sampled On : June 23, 2023 at 10:20
Sampled By : Henry
Received On : June 23, 2023 at 11:32
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	210	10	mg/L		1		06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:59	amm
Bicarbonate	250	10	mg/L		1		06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:59	amm
Carbonate	ND	10	mg/L		1	U	06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:59	amm
Hydroxide	ND	10	mg/L		1	U	06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:59	amm
Chloride	56	1	mg/L	500[2]	1	l	06/28/2023	13:39	ldm	EPA 300.0	06/28/2023	17:42	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	07/03/2023	12:54	sta	EPA 351.2	07/07/2023	19:48	lcr
Nitrate Nitrogen	11.2	0.4	mg/L	10	1		06/28/2023	15:30	lfs	SM 4500-NO3 F	06/28/2023	15:58	lfs
Nitrogen, Total as Nitrogen	11.2	0.5	mg/L		1		07/03/2023	12:54	sta	Calc.	07/07/2023	19:48	lcr
Nitrate + Nitrite as N	11.2	0.4	mg/L	10	1		06/28/2023	15:30	lfs	SM 4500-NO3 F	06/28/2023	15:58	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	07/03/2023	12:54	sta	EPA 351.2	07/07/2023	19:48	lcr
Conductivity	805	1	umhos/cm	1600[2]	1		06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:59	amm
Sulfate Sulfur	35.0	0.17	mg/L		1	bI	06/28/2023	13:39	ldm	EPA 300.0	06/28/2023	17:42	ldm
Solids, Total Dissolved (TDS)	560	20	mg/L	1000[2]	1	I	06/27/2023	13:45	ctl	SM 2540 C	06/28/2023	11:35	ctl
Calcium	73	1	mg/L		1		06/26/2023	22:02	ejc	EPA 200.7	06/30/2023	08:38	ac
Magnesium	2	1	mg/L		1		06/26/2023	22:02	ejc	EPA 200.7	06/30/2023	08:38	ac
Sodium	87	1	mg/L		1		06/26/2023	22:02	ejc	EPA 200.7	06/30/2023	08:38	ac

DQF Flags Definition:
- U Constituent results were non-detect.
- l The MS/MSD did not meet QC criteria.
- b The Blank was positive for constituent but less than the PQL
- I The RPD for the laboratory duplicate exceeded laboratory criteria.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

July 11, 2023
Innovative Ag Services, LLC

Lab No. : VI 2344190
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	06/26/2023:207058EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.0%	85-115	
			MS	mg/L	12.00	95.5%	75-125	
		(SP 2310848-001)	MSD	mg/L	12.00	94.8%	75-125	
			MSRPD	mg/L		0.3%	≤20.0	
			MS	mg/L	12.00	100%	75-125	
		(VI 2344199-001)	MSD	mg/L	12.00	97.7%	75-125	
			MSRPD	mg/L		2.0%	≤20.0	
Magnesium	200.7	06/26/2023:207058EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	108%	85-115	
			MS	mg/L	12.00	109%	75-125	
		(SP 2310848-001)	MSD	mg/L	12.00	110%	75-125	
			MSRPD	mg/L		0.8%	≤20	
			MS	mg/L	12.00	114%	75-125	
		(VI 2344199-001)	MSD	mg/L	12.00	111%	75-125	
			MSRPD	mg/L		2.9%	≤20	
Sodium	200.7	06/26/2023:207058EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	102%	85-115	
			MS	mg/L	12.00	85.6%	75-125	
		(SP 2310848-001)	MSD	mg/L	12.00	83.1%	75-125	
			MSRPD	mg/L		0.3%	≤20.0	
			MS	mg/L	12.00	105%	75-125	
		(VI 2344199-001)	MSD	mg/L	12.00	103%	75-125	
			MSRPD	mg/L		1.8%	≤20.0	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND : Non-detect - Result was below the DQO listed for the analyte.

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July 11, 2023
Innovative Ag Services, LLC

Lab No. : VI 2344190
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	06/27/2023:207096AMM	ND	mg/L		0.6%	10	
Bicarbonate	2320B	(VI 2343954-001)	Dup	mg/L		0.6%	10	
E. C.	2320B	(VI 2343954-001)	Dup	umhos/cm		0.4%	5	
Solids, Total Dissolved	2540CE	06/27/2023:207083CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	993.7	102%	90-110	
		(VI 2344190-001)	Dup	mg/L		4.09%	5	
		(VI 2344190-001)	Dup	mg/L		6.16%	5	440
Chloride	300.0	06/28/2023:207144LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	104 %	90-110	
			MS	mg/L	50.00	94.2 %	85-121	
		(VI 2344206-017)	MSD	mg/L	50.00	92.1 %	85-121	
			MSRPD	mg/L	10.00	1.4%	≤19	
			MS	mg/L	50.00	65.0 %	85-121	435
		(STK2337682-001)	MSD	mg/L	50.00	73.8 %	85-121	435
			MSRPD	mg/L	10.00	2.7%	≤19	
		(STK2337682-001)	Dup	mg/L		0.1%	19	
Sulfate Sulfur	300.0	06/28/2023:207144LDM	Blank	mg/L		1	<0.5	
			LCS	mg/L	50.00	106 %	90-110	
			MS	mg/L	100.0	94.6 %	82-124	
		(VI 2344206-017)	MSD	mg/L	100.0	92.5 %	82-124	
			MSRPD	mg/L	10.00	1.3%	≤23	
			MS	mg/L	100.0	105 %	82-124	
		(STK2337682-001)	MSD	mg/L	100.0	102 %	82-124	
			MSRPD	mg/L	10.00	3.4%	≤23	
		(STK2337682-001)	Dup	mg/L		1.3	0.5	440
Nitrogen, Total Kjeldahl	351.2	07/03/2023:207257STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	102%	73-124	
			MS	mg/L	12.00	89.5%	54-136	
		(VI 2343914-005)	MSD	mg/L	12.00	96.2%	54-136	
			MSRPD	mg/L		6.8%	≤27	
			MS	mg/L	12.00	97.0%	54-136	
		(VI 2343914-006)	MSD	mg/L	12.00	98.6%	54-136	
			MSRPD	mg/L		1.6%	≤27	
Nitrate + Nitrite as N	4500NO3F	06/28/2023:207139LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	96.9%	66-125	
		(SP 2311046-001)	MSD	mg/L	5.609	97.9%	66-125	
			MSRPD	mg/L		0.9%	≤30.4	
Nitrate Nitrogen	4500NO3F	06/28/2023:207139LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	96.9%	66-125	
		(SP 2311046-001)	MSD	mg/L	5.609	97.9%	66-125	
			MSRPD	mg/L		0.9%	≤30.4	

Page 4 of 5

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Definition	
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
Explanation	
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
440	: Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Page 5 of 5

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Laboratory Analysis Work Order

Nº 40900

2344190

ID: #0111

SITE NAME: Hollandia Farms Dairy

Billing: IAS

LABORATORY: FGL

Authorized Copy Release to:

Innovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)
W2 EC, NO_3N, TDS, TN (Irr)
W3 NH_4-N (Ammonium)
W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)
W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)
W6 NO_3N, NO_2 (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)
W8 Other: _____

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)
L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)
L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S
S2 S1 + CEC, CaCO3, OM, C:N, TN
S3 NO_3N, NH_4N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N*	pH	Temp
1	ALV	Dom	W5	10:20 6/23	Henry	—		
2								
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES: 230C GLS 6/24/23 1634

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[signature]	IAS		~~13:00~~ 1132 6/23/23
2nd	MPC	FGL	6/23/23 1132	
3rd	MPC	MPC		6/23/23 1730
4th	GLS	GLS	6/23/23 1730	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: _____ Laboratory #: _____

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

November 2, 2023

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Lab No. : **VI 2346884**
Customer No. : **4018573**
Reference : **41488**

Laboratory Report

Introduction: This report package contains a total of 6 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
S11	10/11/2023	10/11/2023	VI 2346884-001	AGW
CV2	10/11/2023	10/11/2023	VI 2346884-002	AGW

Sampling and Receipt Information:

All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples were received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-11-03

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

November 2, 2023

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : S11
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2346884-001
Customer No. : 4018573
Reference : 41488
Sampled On : October 11, 2023 at 09:45
Sampled By : Zeke
Received On : October 11, 2023 at 16:14
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	50	10	mg/L		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	20:57	amm
Bicarbonate	60	10	mg/L		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	20:57	amm
Carbonate	ND	10	mg/L		1	U	10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	20:57	amm
Hydroxide	ND	10	mg/L		1	U	10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	20:57	amm
Chloride	200	5*	mg/L		5		10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	19:05	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:28	lcr
Nitrate Nitrogen	45.0	0.5*	mg/L		5		10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	19:05	ldm
Nitrogen, Total as Nitrogen	46.0	0.5	mg/L		1	l	10/25/2023	12:24	sta	Calc.	10/29/2023	18:28	lcr
Nitrate + Nitrite as N	46.0	0.1*	mg/L		5		10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	19:05	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:28	lcr
Conductivity	1400	1	umhos/cm		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	20:57	amm
Sulfate Sulfur	49.9	0.17	mg/L		1		10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	04:51	ldm
Solids, Total Dissolved (TDS)	1160	20	mg/L		1		10/16/2023	09:30	ctl	SM 2540 C	10/17/2023	11:00	ctl
Calcium	126	1	mg/L		1		10/16/2023	09:21	ejc	EPA 200.7	10/31/2023	13:36	ac
Magnesium	2	1	mg/L		1		10/16/2023	09:21	ejc	EPA 200.7	10/31/2023	13:36	ac
Sodium	139	1	mg/L		1		10/16/2023	09:21	ejc	EPA 200.7	10/31/2023	13:36	ac

DQF Flags Definition:
U Constituent results were non-detect.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level * RL adjusted for dilution, Dil.=Dilution

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

November 2, 2023

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : CV2
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2346884-002
Customer No. : 4018573
Reference : 41488
Sampled On : October 11, 2023 at 10:10
Sampled By : Zeke
Received On : October 11, 2023 at 16:14
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:30	lcr
Nitrate Nitrogen	ND	0.1	mg/L		1	U	10/12/2023	16:14	ldm	EPA 300.0	10/13/2023	03:54	ldm
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	Calc.	10/29/2023	18:30	lcr
Nitrate + Nitrite as N	ND	0.1	mg/L		1	U	10/12/2023	16:14	ldm	EPA 300.0	10/13/2023	03:54	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:30	lcr
Conductivity	338	1	umhos/cm		1		11/02/2023	09:02	krh	SM 4500-H+B	11/02/2023	14:45	krh
Solids, Total Dissolved (TDS)	250	20	mg/L		1		10/16/2023	10:40	ctl	SM 2540 C	10/17/2023	11:00	ctl

DQF Flags Definition:
U Constituent results were non-detect.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level * RL adjusted for dilution, Dil.=Dilution

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

November 2, 2023
Innovative Ag Services, LLC

Lab No. : VI 2346884
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	10/16/2023:211605EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.7%	85-115	
		(SP 2316498-004)	MSD	mg/L	12.00	5840%	<1/4	
			MSRPD	mg/L		200.0%	≤20.0	435
			MS	mg/L	12.00	105%	75-125	
		(VI 2346886-001)	MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		3.5%	≤20.0	
Magnesium	200.7	10/16/2023:211605EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.3%	85-115	
			MS	mg/L	12.00	-51.4%	<¼	406
		(SP 2316498-004)	MSD	mg/L	12.00	1840%	<1/4	
			MSRPD	mg/L		63.7%	≤20	435
			MS	mg/L	12.00	106%	75-125	
		(VI 2346886-001)	MSD	mg/L	12.00	102%	75-125	
			MSRPD	mg/L		3.7%	≤20	
Sodium	200.7	10/16/2023:211605EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	103%	85-115	
		(SP 2316498-004)	MSD	mg/L	12.00	4800%	<1/4	
			MSRPD	mg/L		200.0%	≤20.0	435
			MS	mg/L	12.00	106%	75-125	
		(VI 2346886-001)	MSD	mg/L	12.00	77.7%	75-125	
			MSRPD	mg/L		4.4%	≤20.0	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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November 2, 2023
Innovative Ag Services, LLC

Lab No. : VI 2346884
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	10/16/2023:211677AMM	ND	mg/L		1.36%	10	435
Bicarbonate	2320B	(VI 2346885-001)	Dup	mg/L		0.8%	10	
Carbonate	2320B	(VI 2346885-001)	Dup	mg/L		2.20%	10	
E. C.	2320B	(VI 2346885-001)	Dup	umhos/cm		0.3%	5	
	2320B	(CC 2383609-002)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	10/16/2023:211599CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	103%	90-110	
		(CC 2383609-001)	Dup	mg/L		2.67%	5	
		(CC 2383609-001)	Dup	mg/L		0.3%	5	
			Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	102%	90-110	
		(CC 2383616-003)	Dup	mg/L		2.89%	5	
		(CC 2383616-003)	Dup	mg/L		1.60%	5	
Chloride	300.0	10/12/2023:211631LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	101%	90-110	
			MS	mg/L	50.00	95.9%	67-117	
		(STK2352938-012)	MSD	mg/L	50.00	95.4%	67-117	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	50.00	97.7%	67-117	
		(STK2352938-013)	MSD	mg/L	50.00	98.0%	67-117	
			MSRPD	mg/L		0.2%	≤7	
Nitrate + Nitrite as N	300.0	10/12/2023:211631LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	101%	90-110	
			MS	mg/L	40.00	102%	86-112	
		(STK2352938-012)	MSD	mg/L	40.00	102%	86-112	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	40.00	99.1%	86-112	
		(STK2352938-013)	MSD	mg/L	40.00	99.3%	86-112	
			MSRPD	mg/L		0.2%	≤7	
	300.0	10/12/2023:211643LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	99.9%	90-110	
			MS	mg/L	40.00	101%	86-112	
		(VI 2346884-002)	MSD	mg/L	40.00	100%	86-112	
			MSRPD	mg/L		1.0%	≤7	
			MS	mg/L	40.00	102%	86-112	
		(STK2354238-001)	MSD	mg/L	40.00	103%	86-112	
			MSRPD	mg/L		1.0%	≤7	
Nitrate Nitrogen	300.0	10/12/2023:211631LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	101%	90-110	
			MS	mg/L	40.00	102%	86-112	
		(STK2352938-012)	MSD	mg/L	40.00	102%	86-112	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	40.00	99.1%	86-112	
		(STK2352938-013)	MSD	mg/L	40.00	99.3%	86-112	
			MSRPD	mg/L		0.2%	≤7	
	300.0	10/12/2023:211643LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	99.9%	90-110	
			MS	mg/L	40.00	101%	86-112	
		(VI 2346884-002)	MSD	mg/L	40.00	100%	86-112	
			MSRPD	mg/L		1.0%	≤7	

Page 5 of 6

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November 2, 2023

Innovative Ag Services, LLC

Lab No. : VI 2346884
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
			MS	mg/L	40.00	102%	86-112	
		(STK2354238-001)	MSD	mg/L	40.00	103%	86-112	
			MSRPD	mg/L		1.0%	≤7	
Sulfate Sulfur	300.0	10/12/2023:211631LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	102%	90-110	
			MS	mg/L	100.0	95.7%	18-165	
		(STK2352938-012)	MSD	mg/L	100.0	95.2%	18-165	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	100.0	94.2%	18-165	
		(STK2352938-013)	MSD	mg/L	100.0	94.6%	18-165	
			MSRPD	mg/L		0.2%	≤7	
Nitrogen, Total Kjeldahl	351.2	10/25/2023:212045STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	85.2%	73-124	
			MS	mg/L	12.00	82.9%	90-110	435
		(VI 2346889-002)	MSD	mg/L	12.00	84.1%	90-110	435
			MSRPD	mg/L		1.4%	≤20	
			MS	mg/L	12.00	80.5%	90-110	435
		(VI 2346889-003)	MSD	mg/L	12.00	83.2%	90-110	435
			MSRPD	mg/L		3.3%	≤20	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Page 6 of 6

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Laboratory Analysis Work Order

Nº 41488

23/6884

ID: # 0111

LABORATORY: FGL

SITE NAME: HOLLANDIA FARMS DAIRY

Authorized Copy Release to:

Billing: IAS

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)
W2 EC, NO_3N, TDS, TN (Irr)
W3 NH_4-N (Ammonium)
W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)
W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)
W6 NO_3N, NO_2 (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)
W8 Other: _____

16.6°C

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)
L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)
L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S
S2 S1 + CEC, CaCO3, OM, C:N, TN
S3 NO_3N, NH_4N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	S11	IRR	W5	10-11 / 9:45	Zeke			
2	CV2	IRR	W2	10-11 / 10:10	Zeke			
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		10-11-23 / 3:00
2nd	AJB	FGL	10/11/23 1557	
3rd	AJB	FGL		10/11/23 1614
4th			10/11/23 1614	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: _____ Laboratory #: _____ 10/11/23 1145

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

November 28, 2023

Lab No. : **VI 2347721**
Customer No. : **4018573**
Reference : **42043**

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Laboratory Report

Introduction: This report package contains a total of 3 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
BV2	11/14/2023	11/14/2023	VI 2347721-001	AGW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-11-28

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

November 28, 2023

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : BV2
Project : 0111 Hollandia Farms

Lab No. : VI 2347721-001
Customer No. : 4018573
Reference : 42043
Sampled On : November 14, 2023 at 10:25
Sampled By : Zeke
Received On : November 14, 2023 at 16:05
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	11/21/2023	14:22	sta	EPA 351.2	11/26/2023	20:05	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	U	11/15/2023	16:15	lfs	SM 4500-NO3 F	11/15/2023	15:24	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	Ul	11/21/2023	14:22	sta	Calc.	11/26/2023	20:05	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	11/15/2023	16:15	lfs	SM 4500-NO3 F	11/15/2023	15:24	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	11/21/2023	14:22	sta	EPA 351.2	11/26/2023	20:05	lcr
Conductivity	338	1	umhos/cm		1		11/17/2023	12:02	krh	SM 4500-H+B	11/17/2023	12:59	krh
Solids, Total Dissolved (TDS)	250	20	mg/L		1		11/16/2023	10:20	ctl	SM 2540 C	11/17/2023	11:00	ctl

DQF Flags Definition:
U Constituent results were non-detect.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

November 28, 2023
Innovative Ag Services, LLC

Lab No. : VI 2347721
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2347762-003)	Dup	umhos/cm		0.4%	5	
Solids, Total Dissolved	2540CE	11/16/2023:213071CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	102%	90-110	
		(SP 2319182-001)	Dup	mg/L		1.50%	5	
		(SP 2319182-001)	Dup	mg/L		0.4%	5	
Nitrogen, Total Kjeldahl	351.2	11/21/2023:213242STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	95.5%	73-124	
			MS	mg/L	12.00	82.4%	90-110	435
		(VI 2347721-001)	MSD	mg/L	12.00	85.9%	90-110	435
			MSRPD	mg/L		4.0%	≤20	
			MS	mg/L	12.00	89.1%	90-110	435
		(VI 2347722-001)	MSD	mg/L	12.00	86.7%	90-110	435
			MSRPD	mg/L		2.7%	≤20	
Nitrate + Nitrite as N	4500NO3F	11/15/2023:213023LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	91.4%	66-125	
		(STK2355877-001)	MSD	mg/L	5.609	92.6%	66-125	
			MSRPD	mg/L		0.5%	≤30.4	
Nitrate Nitrogen	4500NO3F	11/15/2023:213023LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	91.4%	66-125	
		(STK2355877-001)	MSD	mg/L	5.609	92.6%	66-125	
			MSRPD	mg/L		0.5%	≤30.4	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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Laboratory Analysis Work Order

Nº 42043

ID: # 0111

2347721
LABORATORY: FGL

SITE NAME: HOLLANDIA FARMS

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)
W2 EC, NO_3N, TDS, TN (Irr)
W3 NH_4-N (Ammonium)
W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)
W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)
W6 NO_3N, NO_2 (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)
W8 Other: _____

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)
L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)
L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S
S2 S1 + CEC, CaCO3, OM, C:N, TN
S3 NO_3N, NH_4N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	BV2	IRR	W2	11-14/10:25	Zeke			
2								
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES: R01 19.8°C
ID#774407

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[illegible]	IAS		3:25 / 11-14-23
2nd	[illegible]	FGL	11-14-23 15:50	
3rd	[illegible]	FGL		11-14-23 16:05
4th	SRO	FGL	11.14.23 1605	
	SRO	FGL	11.14.23 1730	
		GLS	11.14.23 1730	

LABORATORY USE ONLY

Logged In By: _____ **Total Samples:** _____ **Laboratory #:** _____ 11/15/23 1205

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

December 21, 2023

Lab No. : **VI 2348058**
Customer No. : **4018573**
Reference : **42121**

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Laboratory Report

Introduction: This report package contains a total of 5 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
Eaton 7	12/01/2023	12/01/2023	VI 2348058-001	AGW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-12-22

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

December 21, 2023

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : Eaton 7
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2348058-001
Customer No. : 4018573
Reference : 42121
Sampled On : December 1, 2023 at 14:00
Sampled By : Zeke
Received On : December 1, 2023 at 15:50
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	120	10	mg/L		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	19:35	amm
Bicarbonate	110	10	mg/L		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	19:35	amm
Carbonate	20	10	mg/L		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	19:35	amm
Hydroxide	20	10	mg/L		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	19:35	amm
Chloride	29	1	mg/L		1		12/08/2023	17:06	ldm	EPA 300.0	12/09/2023	04:20	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	15:58	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	U	12/06/2023	11:00	lfs	SM 4500-NO3 F	12/06/2023	14:03	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	Calc.	12/13/2023	15:58	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	12/06/2023	11:00	lfs	SM 4500-NO3 F	12/06/2023	14:03	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	15:58	lcr
Conductivity	339	1	umhos/cm		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	19:35	amm
Sulfate Sulfur	0.80	0.17	mg/L		1	!	12/08/2023	17:06	ldm	EPA 300.0	12/09/2023	04:20	ldm
Solids, Total Dissolved (TDS)	350	20	mg/L		1		12/04/2023	14:45	ctl	SM 2540 C	12/05/2023	11:00	ctl
Calcium	2	1	mg/L		1	l	12/05/2023	01:40	ejc	EPA 200.7	12/06/2023	20:06	ac
Magnesium	ND	1	mg/L		1	U	12/05/2023	01:40	ejc	EPA 200.7	12/06/2023	20:06	ac
Sodium	70	1	mg/L		1		12/05/2023	01:40	ejc	EPA 200.7	12/06/2023	20:06	ac

DQF Flags Definition:
U Constituent results were non-detect.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

December 21, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348058
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	12/05/2023:213681EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	95.5%	85-115	
			MS	mg/L	12.00	73.5%	75-125	435
		(CH 2379823-007)	MSD	mg/L	12.00	79.9%	75-125	
			MSRPD	mg/L		1.6%	≤20.0	
			MS	mg/L	12.00	199%	<¼	
		(SP 2319613-002)	MSD	mg/L	12.00	63.4%	<¼	
			MSRPD	mg/L		6.9%	≤20.0	
Magnesium	200.7	12/05/2023:213681EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	96.0%	85-115	
			MS	mg/L	12.00	66.9%	<¼	
		(CH 2379823-007)	MSD	mg/L	12.00	75.2%	75-125	
			MSRPD	mg/L		1.6%	≤20	
			MS	mg/L	12.00	108%	75-125	
		(SP 2319613-002)	MSD	mg/L	12.00	97.5%	75-125	
			MSRPD	mg/L		7.0%	≤20	
Sodium	200.7	12/05/2023:213681EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	95.6%	85-115	
			MS	mg/L	12.00	42.3%	<¼	
		(CH 2379823-007)	MSD	mg/L	12.00	53.8%	<¼	
			MSRPD	mg/L		1.5%	≤20.0	
			MS	mg/L	12.00	293%	<¼	
		(SP 2319613-002)	MSD	mg/L	12.00	158%	<¼	
			MSRPD	mg/L		6.4%	≤20.0	

Definition

<¼ : High Sample Background - Spike concentration was less than one forth of the sample concentration.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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December 21, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348058
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	12/04/2023:213680AMM	ND	mg/L		2.68%	10	435
Bicarbonate	2320B	(CH 2390156-001)	Dup	mg/L		2.58%	10	
E. C.	2320B	(CH 2390156-001)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	12/04/2023:213647CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	101%	90-110	
		(SP 2319835-002)	Dup	mg/L		1.66%	5	
		(SP 2319835-002)	Dup	mg/L		1.62%	5	
Chloride	300.0	12/08/2023:213844LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	104%	90-110	
			MS	mg/L	50.00	96.8%	67-117	
		(VI 2348058-001)	MSD	mg/L	50.00	97.0%	67-117	
			MSRPD	mg/L		0.2%	≤7	
			MS	mg/L	50.00	104%	67-117	
		(STK2356641-013)	MSD	mg/L	50.00	105%	67-117	
			MSRPD	mg/L		0.2%	≤7	
Sulfate Sulfur	300.0	12/08/2023:213844LDM	Blank	mg/L		0.70200	0.5	
			LCS	mg/L	50.00	103%	90-110	
			MS	mg/L	100.0	104%	18-165	
		(VI 2348058-001)	MSD	mg/L	100.0	104%	18-165	
			MSRPD	mg/L		0.3%	≤7	
			MS	mg/L	100.0	103%	18-165	
		(STK2356641-013)	MSD	mg/L	100.0	104%	18-165	
			MSRPD	mg/L		0.3%	≤7	
Nitrogen, Total Kjeldahl	351.2	12/12/2023:213992STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	95.8%	73-124	
			MS	mg/L	12.00	91.8%	90-110	
		(SP 2319783-001)	MSD	mg/L	12.00	90.7%	90-110	
			MSRPD	mg/L		1.2%	≤20	
			MS	mg/L	12.00	84.4%	<¼	
		(VI 2348053-002)	MSD	mg/L	12.00	84.3%	<¼	
			MSRPD	mg/L		0.1%	≤20	
Nitrate + Nitrite as N	4500NO3F	12/06/2023:213768LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.2%	80-120	
			MS	mg/L	5.609	95.3%	66-125	
		(SP 2320045-001)	MSD	mg/L	5.609	98.8%	66-125	
			MSRPD	mg/L		3.0%	≤30.4	
Nitrate Nitrogen	4500NO3F	12/06/2023:213768LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.2%	80-120	
			MS	mg/L	5.609	95.3%	66-125	
		(SP 2320045-001)	MSD	mg/L	5.609	98.8%	66-125	
			MSRPD	mg/L		3.0%	≤30.4	

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Definition

<¼	: High Sample Background - Spike concentration was less than one forth of the sample concentration.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.

Explanation

435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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Laboratory Analysis Work Order

234 8058

10.7°C ID# ROI TH407

Nº 42121

ID: # D111

LABORATORY: FGL

SITE NAME: Hollandia Farms Dairy

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)
W2 EC, NO_3N, TDS, TN (Irr)
W3 NH_4-N (Ammonium)
W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)
W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)
W6 NO_3N, NO_2 (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)
W8 Other: _____

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)
L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)
L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S
S2 S1 + CEC, CaCO3, OM, C:N, TN
S3 NO_3N, NH_4N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N*	pH	Temp
1	EATON 7	IRR	W5	12-1 / 2:00	Zeke			
2								
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES: GLS 12/2/23 1515

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[illegible]	IAS		12-1-23 / 3:00
2nd	[illegible]	FGL	12-1-23 15:35	
3rd	[illegible]	FGL		12-1-23 15:50
4th	[illegible]	FGL	12-1-2023 1550	

LABORATORY USE ONLY

Rec'd: 12-1-2023 1730

Logged In By: GLS Total Samples: _____ Laboratory #: _____

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

December 18, 2023

Lab No. : **VI 2348141**
Customer No. : **4018573**
Reference : **42124**

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Laboratory Report

Introduction: This report package contains a total of 3 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
S12	12/04/2023	12/04/2023	VI 2348141-001	AGW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-12-18

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

December 18, 2023

Innovative Ag Services, LLC
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Suite 5
Hanford, CA 93230

Description : S12
Project : 0111 Hollandia Farms

Lab No. : VI 2348141-001
Customer No. : 4018573
Reference : 42124
Sampled On : December 4, 2023 at 07:30
Sampled By : Zeke
Received On : December 4, 2023 at 16:10
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	12/14/2023	07:10	lcr	EPA 351.2	12/17/2023	17:52	lcr
Nitrate Nitrogen	28.0	0.4	mg/L		1		12/05/2023	13:30	lfs	SM 4500-NO3 F	12/05/2023	15:24	lfs
Nitrogen, Total as Nitrogen	28.0	0.5	mg/L		1	l	12/14/2023	07:10	lcr	Calc.	12/17/2023	17:52	lcr
Nitrate + Nitrite as N	28.0	0.4	mg/L		1		12/05/2023	13:30	lfs	SM 4500-NO3 F	12/05/2023	15:24	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	12/14/2023	07:10	lcr	EPA 351.2	12/17/2023	17:52	lcr
Conductivity	1300	1	umhos/cm		1		12/07/2023	07:47	krh	SM 4500-H+B	12/07/2023	11:53	krh
Solids, Total Dissolved (TDS)	1080	20	mg/L		1		12/06/2023	09:45	ctl	SM 2540 C	12/07/2023	11:00	ctl

DQF Flags Definition:
U Constituent results were non-detect.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

December 18, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348141
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2348057-001)	Dup	umhos/cm		0.3%	5	
Solids, Total Dissolved	2540CE	12/06/2023:213726CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	103%	90-110	
		(SP 2320049-001)	Dup	mg/L		1.91%	5	
		(SP 2320049-001)	Dup	mg/L		0.3%	5	
Nitrogen, Total Kjeldahl	351.2	12/14/2023:214086LCR	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	91.0%	73-124	
			MS	mg/L	12.00	82.9%	<¼	406
		(VI 2348210-001)	MSD	mg/L	12.00	86.4%	<1/4	
			MSRPD	mg/L		4.2%	≤20	
			MS	mg/L	12.00	85.6%	90-110	435
		(VI 2348215-001)	MSD	mg/L	12.00	84.4%	90-110	435
			MSRPD	mg/L		1.5%	≤20	
Nitrate + Nitrite as N	4500NO3F	12/05/2023:213707LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	96.6%	80-120	
			MS	mg/L	5.609	93.5%	66-125	
		(VI 2348086-001)	MSD	mg/L	5.609	95.9%	66-125	
			MSRPD	mg/L		2.5%	≤30.4	
Nitrate Nitrogen	4500NO3F	12/05/2023:213707LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	96.6%	80-120	
			MS	mg/L	5.609	93.5%	66-125	
		(VI 2348086-001)	MSD	mg/L	5.609	95.9%	66-125	
			MSRPD	mg/L		2.5%	≤30.4	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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Laboratory Analysis Work Order

Nº 42124

2348141

ID: # 0111

LABORATORY: FGL

SITE NAME: Holland Farms

Authorized Copy Release to:

Billing: IAS

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)
W2 EC, NO_3N, TDS, TN (Irr)
W3 NH_4-N (Ammonium)
W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)
W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)
W6 NO_3N, NO_2 (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)
W8 Other: _____

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)
L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)
L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S
S2 S1 + CEC, CaCO3, OM, C:N, TN
S3 NO_3N, NH_4N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	S12	IAR	W2	12-4 / 7:30	Zoke			
2								
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		12-4-23 / 2:55
2nd		FGL	12-4-23 15:50	
3rd		FGL		12-4-23 16:10
4th			12/4/23 1610	

LABORATORY USE ONLY

Logged In By: GLL **Total Samples:** 12/4/23 1730 **Laboratory #:**

GLS MK 12/5/23 1155

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

January 2, 2024

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Lab No. : **VI 2348783**
Customer No. : **4018573**
Reference : **42241**

Laboratory Report

Introduction: This report package contains a total of 3 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
TJDH	12/21/2023	12/21/2023	VI 2348783-001	DW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2024-01-03

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

January 2, 2024

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : TJDH
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2348783-001
Customer No. : 4018573
Reference : 42241
Sampled On : December 21, 2023 at 15:00
Sampled By : Alex
Received On : December 21, 2023 at 15:57
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrate Nitrogen	5.4	0.4	mg/L	10	1		12/22/2023	12:30	lfs	SM 4500-NO3 F	12/22/2023	15:30	lfs
Conductivity	570	1	umhos/cm	1600[2]	1		12/28/2023	09:35	krh	SM 4500-H+B	12/28/2023	11:12	krh

DQF Flags Definition:

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348783
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2348743-001)	Dup	umhos/cm		0.6%	5	
Nitrate Nitrogen	4500NO3F	12/22/2023:214459LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.5%	80-120	
			MS	mg/L	5.609	99.8%	66-125	
		(VI 2348765-001)	MSD	mg/L	5.609	99.1%	66-125	
			MSRPD	mg/L		0.7%	≤30.4	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

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Laboratory Analysis Work Order

Nº 42241

ID: # 0111 2348783

LABORATORY: FGL

SITE NAME: Hollandia Farms Dairy

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)

W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)

W6 NO_3N, NO_2 (Dom ILRP, Annually)

W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)

W8 Other: _____

RO 10:30 IDH THU

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)

L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)

L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)

L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)

M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)

M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)

P2 TN, P, K (Mid-season - Corn)

P3 TN, TP, TK, Ash, %M (At Harvest)

P4 TN, %M

P5 % Moisture

P6 NIR

P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S

S2 S1 + CEC, CaCO3, OM, C:N, TN

S3 NO_3N, NH_4N

S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N*	pH	Temp
1	IJDH	Dom	W1	12/21 3:00	Alex	—		
2								
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[illegible]	IAS		12/21/23 3:30
2nd	ASB	FGL	12/21/23 1535	
3rd	ASB	FGL		12/21/23 1557
4th	[illegible]		12/21/23 1557	

LABORATORY USE ONLY

Logged In By: [illegible] Total Samples: 12/21/23 17 Laboratory #: [illegible] 12/21/23 1111

DocuSign Envelope ID: BD89A8FE-1FC9-4AEE-A872-B7750335C8B0

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

January 2, 2024

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Lab No. : **VI 2348570**
Customer No. : **4018573**
Reference : **42182**

Laboratory Report

Introduction: This report package contains a total of 6 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
S9	12/14/2023	12/14/2023	VI 2348570-001	AGW
JG	12/14/2023	12/14/2023	VI 2348570-002	DW

Sampling and Receipt Information:

All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples were received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary	
EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2024-01-03

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

January 2, 2024

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : S9
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2348570-001
Customer No. : 4018573
Reference : 42182
Sampled On : December 14, 2023 at 08:50
Sampled By : Zeke
Received On : December 14, 2023 at 15:50
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	90	10	mg/L		1		12/19/2023	17:12	amm	SM 4500-H+B	12/20/2023	00:08	amm
Bicarbonate	90	10	mg/L		1		12/19/2023	17:12	amm	SM 4500-H+B	12/20/2023	00:08	amm
Carbonate	ND	10	mg/L		1	U	12/19/2023	17:12	amm	SM 4500-H+B	12/20/2023	00:08	amm
Hydroxide	ND	10	mg/L		1	U	12/19/2023	17:12	amm	SM 4500-H+B	12/20/2023	00:08	amm
Chloride	44	1	mg/L		1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	01:37	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	12/23/2023	17:02	sta	EPA 351.2	12/28/2023	23:37	lcr
Nitrate Nitrogen	0.2	0.1	mg/L		1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	01:37	ldm
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	U	12/23/2023	17:02	sta	Calc.	12/28/2023	23:37	lcr
Nitrate + Nitrite as N	0.2	0.1	mg/L		1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	01:37	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/23/2023	17:02	sta	EPA 351.2	12/28/2023	23:37	lcr
Conductivity	329	1	umhos/cm		1		12/19/2023	17:12	amm	SM 4500-H+B	12/20/2023	00:08	amm
Sulfate Sulfur	2.4	0.17	mg/L		1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	01:37	ldm
Solids, Total Dissolved (TDS)	210	20	mg/L		1		12/18/2023	11:45	ctl	SM 2540 C	12/19/2023	10:45	ctl
Calcium	7	1	mg/L		1	h	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:25	ac
Magnesium	2	1	mg/L		1		12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:25	ac
Sodium	66	1	mg/L		1	hl	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:25	ac

DQF Flags Definition:
U Constituent results were non-detect.
h The MS/MSD did not meet QC criteria.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

January 2, 2024

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
Hanford, CA 93230

Description : JG
Project : 0111 Hollandia Farms Dairy

Lab No. : VI 2348570-002
Customer No. : 4018573
Reference : 42182
Sampled On : December 14, 2023 at 09:10
Sampled By : Zeke
Received On : December 14, 2023 at 15:50
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	60	10	mg/L		1		12/19/2023	17:12	amm	SM 4500-H+B	12/19/2023	23:59	amm
Bicarbonate	80	10	mg/L		1		12/19/2023	17:12	amm	SM 4500-H+B	12/19/2023	23:59	amm
Carbonate	ND	10	mg/L		1	U	12/19/2023	17:12	amm	SM 4500-H+B	12/19/2023	23:59	amm
Hydroxide	ND	10	mg/L		1	U	12/19/2023	17:12	amm	SM 4500-H+B	12/19/2023	23:59	amm
Chloride	65	1	mg/L	500[2]	1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	03:22	ldm
Nitrate Nitrogen	0.4	0.1	mg/L	10	1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	03:22	ldm
Conductivity	489	1	umhos/cm	1600[2]	1		12/19/2023	17:12	amm	SM 4500-H+B	12/19/2023	23:59	amm
Sulfate Sulfur	24.5	0.17	mg/L		1		12/15/2023	14:32	ldm	EPA 300.0	12/16/2023	03:22	ldm
Solids, Total Dissolved (TDS)	300	20	mg/L	1000[2]	1		12/18/2023	11:45	ctl	SM 2540 C	12/19/2023	10:45	ctl
Calcium	20	1	mg/L		1	h	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:31	ac
Magnesium	ND	1	mg/L		1	U	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:31	ac
Potassium	ND	1	mg/L		1	U	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:31	ac
Sodium	71	1	mg/L		1	hl	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:31	ac

DQF Flags Definition:
U Constituent results were non-detect.
h The MS/MSD did not meet QC criteria.
l The MS/MSD did not meet QC criteria.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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Office & Laboratory
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CA ELAP Certification No. 2810

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January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348570
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	102%	85-115	
			MS	mg/L	12.00	135%	<¼	406
		(VI 2348243-001)	MSD	mg/L	12.00	108%	75-125	
			MSRPD	mg/L		4.0%	≤20.0	
			MS	mg/L	12.00	153%	75-125	435
		(VI 2348281-001)	MSD	mg/L	12.00	88.7%	75-125	
			MSRPD	mg/L		15.2%	≤20.0	
Magnesium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	98.7%	85-115	
			MS	mg/L	12.00	102%	75-125	
		(VI 2348243-001)	MSD	mg/L	12.00	95.7%	75-125	
			MSRPD	mg/L		5.1%	≤20	
			MS	mg/L	12.00	114%	75-125	
		(VI 2348281-001)	MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		6.0%	≤20	
Potassium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	101%	85-115	
			MS	mg/L	12.00	105%	75-125	
		(VI 2348243-001)	MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		4.9%	≤20.0	
			MS	mg/L	12.00	111%	75-125	
		(VI 2348281-001)	MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		5.0%	≤20.0	
Sodium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	95.8%	85-115	
			MS	mg/L	12.00	130%	<¼	406
		(VI 2348243-001)	MSD	mg/L	12.00	91.8%	75-125	
			MSRPD	mg/L		4.4%	≤20.0	
			MS	mg/L	12.00	154%	75-125	435
		(VI 2348281-001)	MSD	mg/L	12.00	69.1%	75-125	435
			MSRPD	mg/L		18.5%	≤20.0	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348570
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	(VI 2348619-001)	Dup	mg/L		0.6%	10	
Bicarbonate	2320B	(VI 2348619-001)	Dup	mg/L		0.5%	10	
E. C.	2320B	(VI 2348619-001)	Dup	umhos/cm		0.4%	5	
Solids, Total Dissolved	2540CE	12/18/2023:214216CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	99.9%	90-110	
		(VI 2348568-001)	Dup	mg/L		0.2%	5	
		(VI 2348568-001)	Dup	mg/L		2.01%	5	
Chloride	300.0	12/15/2023:214302LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	101%	90-110	
			MS	mg/L	50.00	90.2%	67-117	
		(VI 2348570-001)	MSD	mg/L	50.00	89.6%	67-117	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	50.00	88.1%	67-117	
		(VI 2348570-002)	MSD	mg/L	50.00	89.1%	67-117	
			MSRPD	mg/L		0.5%	≤7	
Nitrate + Nitrite as N	300.0	12/15/2023:214302LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	102%	90-110	
			MS	mg/L	40.00	104%	86-112	
		(VI 2348570-001)	MSD	mg/L	40.00	103%	86-112	
			MSRPD	mg/L		0.3%	≤7	
			MS	mg/L	40.00	102%	86-112	
		(VI 2348570-002)	MSD	mg/L	40.00	102%	86-112	
			MSRPD	mg/L		0.3%	≤7	
Nitrate Nitrogen	300.0	12/15/2023:214302LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	102%	90-110	
			MS	mg/L	40.00	104%	86-112	
		(VI 2348570-001)	MSD	mg/L	40.00	103%	86-112	
			MSRPD	mg/L		0.3%	≤7	
			MS	mg/L	40.00	102%	86-112	
		(VI 2348570-002)	MSD	mg/L	40.00	102%	86-112	
			MSRPD	mg/L		0.3%	≤7	
Sulfate Sulfur	300.0	12/15/2023:214302LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	102%	90-110	
			MS	mg/L	100.0	104%	18-165	
		(VI 2348570-001)	MSD	mg/L	100.0	103%	18-165	
			MSRPD	mg/L		0.3%	≤7	
			MS	mg/L	100.0	91.1%	18-165	
		(VI 2348570-002)	MSD	mg/L	100.0	91.6%	18-165	
			MSRPD	mg/L		0.3%	≤7	
Nitrogen, Total Kjeldahl	351.2	12/23/2023:214458STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	97.0%	73-124	
			MS	mg/L	12.00	100%	90-110	
		(STK2357016-010)	MSD	mg/L	12.00	89.3%	<1/4	
			MSRPD	mg/L		11.4%	≤20	
			MS	mg/L	12.00	96.5%	90-110	
		(STK2357016-009)	MSD	mg/L	12.00	95.6%	90-110	
			MSRPD	mg/L		0.8%	≤20	

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Definition

Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

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Laboratory Analysis Work Order

Nº 42182

2348570

ID: # 0111

LABORATORY: FGL

SITE NAME: Hollandia Farms Dairy

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

W4 EC, NO_3N, Ca, Mg, Na, K, HCO_3, CO_3, SO_4S, Cl, TDS (Dom, GM)

W5 EC, NO_3N, TDS, TN, Ca, Mg, Na, HCO_3, CO_3, SO_4S, Cl (Irr, GM)

W6 NO_3N, NO_2 (Dom ILRP, Annually)

W7 Ca, Mg, Na, K, HCO_3, CO_3, SO_4, Cl + Lab Filtering (GWM)

W8 Other: _____

Process Waste Water (lagoon)

L1 EC, NH_4N, TKN, TP, TK, TDS (Quarterly)

L2 EC, NO_3N, NH_4N, TKN, TP, TK, TDS, pH (Annually)

L3 L1 + Ca, Mg, Na, HCO_3,CO_3, SO_4S, Cl (Biennially)

L4 Other: _____

Manure

M1 TN, TP, TK, %M (2/year)

M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)

M3 Other: _____

Plant Tissue

P1 TN, NO_3N, PO_4P, K (Mid Season - Wheat)

P2 TN, P, K (Mid-season - Corn)

P3 TN, TP, TK, Ash, %M (At Harvest)

P4 TN, %M

P5 % Moisture

P6 NIR

P7 Other: _____

Soil

S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO_3N, PO_4P, K-AA, Zn, Mn, Fe, Cu, SO_4S

S2 S1 + CEC, CaCO3, OM, C:N, TN

S3 NO_3N, NH_4N

S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS: NH_3N *	pH	Temp
1	S9	IRR	W5	12-14 / 8:50	Zeke			
2	J6	DOM	W4	12-14 / 9:10	Zeke			
3								
4								
5								
6								
7								
8								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of sampes, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		12-14-23 / 3:05
2nd	SOR	FGL	12-14-23 15:50	
3rd		FGL		12-14-23 16:28
4th			12/14/23 1608	

LABORATORY USE ONLY

Logged In By: GLS

Total Samples: 12/14/23 173

Laboratory #: 1155

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