INNOVATIVE
AG SERVICES

Holland's 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. R5-2013-0122 Waste Discharge Requirements, General Order for Existing Milk Cow Dairies for July 1, 2024.

(See attached delivery confirmation)

Annual Report

Holland's Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Holland's Dairy
Facility Address	3533 Grangeville Blvd., Hanford CA 93230

Owner/Operator as of 12/31/2023

Operator Name	Arie De Hoop
Operator Phone	(559) 381-1733
Owner Name	Art De Hoop
Owner Phone	(559) 381-8115

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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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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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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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: Art De Hoop 24B7A7E065824A7...
Signature of Operator of Facility	Signature of Owner of Facility
Arie De Hoop	Art De Hoop
Print Name	Print Name
6/25/24	6/20/2024
Title and Date	Title and Date

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Holland's 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	1,246	1,214	Milk Flushed Lane	1,400	30,809.97	438,678.90	75,328.70	101,915.30	800,256.66
Hol Dry Cows	175	170	Flushed	1,450	2,480.66	31,025.00	4,343.50	20,476.50	43,782.48
Hol Heifers(15-24)	640	624	Dry Scrape	1,000	6,513.64	86,548.80	13,665.60	40,996.80	160,707.46
Hol Heifers (7-14)	500	487	Dry Scrape	750	4,683.61	46,216.30	7,821.22	26,663.25	58,792.47
Hol Calves (4-6)	155	151	Dry Scrape	300	523.59	7,716.10	2,204.60	4,409.20	3,615.54
	2,716	**2,646**			**45,011.48**	**610,185.10**	**103,363.62**	**194,461.05**	**1,067,154.61**

* 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)**
12,443,458	302.25	40.48	275.80	2,584.00	31,329.42	4,196.17	28,587.77	267,841.95

* 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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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 1

Wheat, 40 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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			560				
03/15/2023	Ground Water: Well Avg	4.80	Acre Inches		2.47			mg/L			107	0	0	12,088	
03/15/2023	Waste Water: Main Lagoon	0.70	Acre Inches		463.00	58.30	456.00	mg/L		760,320	2,932	369	2,888	20,964	
04/17/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			100	0	0	11,332	
05/17/2023	Harvest	20.90	Tons	64.60	1.44	0.33	1.55	%							8,523
	Acre Inches Applied:	**10.00**						**Totals:**		**760,320**	**3,700**	**369**	**2,888**	**44,384**	**8,523**
Season Nitrogen Ratio: 0.43								**Lbs Per Acre:**			**92**	**9**	**72**	**1,110**	**213**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 1

Corn, 40 Acres Planted on 06/12/2023

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)
05/29/2023	Corral Solids: Main Corral	5.00	Tons	9.58	2.35	0.75	2.93	%	200		8,500	2,709	10,597	0	
06/01/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			89	0	0	10,073	
07/09/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			3,199	0	0	0	
07/09/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			100	0	0	11,332	
07/24/2023	Ground Water: Well Avg	4.80	Acre Inches		2.47			mg/L			107	0	0	12,088	
08/04/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			89	0	0	10,073	
08/14/2023	Ground Water: Well Avg	4.10	Acre Inches		2.47			mg/L			92	0	0	10,325	
08/23/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			89	0	0	10,073	
09/01/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			94	0	0	10,577	
09/10/2023	Ground Water: Well Avg	4.10	Acre Inches		2.47			mg/L			92	0	0	10,325	
09/29/2023	Harvest	28.00	Tons	59.70	1.18	0.34	0.75	%							10,652
	Acre Inches Applied:	**33.70**						**Totals:**	**200**		**12,450**	**2,709**	**10,597**	**84,867**	**10,652**
Season Nitrogen Ratio:	1.17							**Lbs Per Acre:**			**311**	**68**	**265**	**2,122**	**266**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 2

Wheat, 25 Acres Planted on 11/18/2022

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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			350				
03/15/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			63	0	0	7,083	
03/15/2023	Waste Water: Main Lagoon	0.50	Acre Inches		463.00	58.30	456.00	mg/L		339,429	1,309	165	1,289	9,359	
04/19/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			63	0	0	7,083	
05/30/2023	Harvest	20.60	Tons	66.60	1.33	0.34	1.60	%							4,576
	Acre Inches Applied:	**9.50**						**Totals:**		**339,429**	**1,784**	**165**	**1,289**	**23,524**	**4,576**
Season Nitrogen Ratio:	0.39							**Lbs Per Acre:**			**71**	**7**	**52**	**941**	**183**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 2

Corn, 25 Acres Planted on 06/12/2023

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)
05/31/2023	Corral Solids: Main Corral	5.00	Tons	9.58	2.35	0.75	2.93	%	125		5,312	1,693	6,623	0	
06/01/2023	Ground Water: Well Avg	4.15	Acre Inches		2.47			mg/L			58	0	0	6,532	
07/09/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			1,999	0	0	0	
07/09/2023	Ground Water: Well Avg	4.30	Acre Inches		2.47			mg/L			60	0	0	6,768	
07/24/2023	Ground Water: Well Avg	4.80	Acre Inches		2.47			mg/L			67	0	0	7,555	
08/04/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			58	0	0	6,610	
08/14/2023	Ground Water: Well Avg	4.10	Acre Inches		2.47			mg/L			57	0	0	6,453	
08/23/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			58	0	0	6,610	
09/01/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			56	0	0	6,296	
09/10/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			56	0	0	6,296	
09/29/2023	Harvest	28.20	Tons	61.90	1.15	0.35	0.73	%							6,178
	Acre Inches Applied:	**33.75**						**Totals:**	**125**		**7,782**	**1,693**	**6,623**	**53,120**	**6,178**
Season Nitrogen Ratio:	1.26							**Lbs Per Acre:**			**311**	**68**	**265**	**2,125**	**247**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 3

Wheat, 118 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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,652				
01/29/2023	Ground Water: Well Avg	4.60	Acre Inches		2.47			mg/L			303	0	0	34,174	
01/29/2023	Waste Water: Main Lagoon	0.75	Acre Inches		463.00	58.30	456.00	mg/L		2,403,156	9,269	1,167	9,128	66,261	
02/01/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			296	0	0	33,431	
02/01/2023	Waste Water: Main Lagoon	0.50	Acre Inches		463.00	58.30	456.00	mg/L		1,602,104	6,178	778	6,085	44,173	
03/14/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			276	0	0	31,202	
04/22/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			276	0	0	31,202	
05/17/2023	Harvest	21.10	Tons	64.80	1.34	0.34	1.51	%							23,488
	Acre Inches Applied:	**18.75**						**Totals:**		**4,005,259**	**18,251**	**1,945**	**15,214**	**240,442**	**23,488**
Season Nitrogen Ratio:	0.78							**Lbs Per Acre:**			**155**	**16**	**129**	**2,038**	**199**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 3

Corn, 118 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)
05/20/2023	Ground Water: Well Avg	4.60	Acre Inches		2.47			mg/L			303	0	0	34,174	
05/20/2023	Waste Water: Main Lagoon	0.50	Acre Inches		209.00	7.83	62.20	mg/L		1,602,104	2,790	105	830	12,225	
07/01/2023	Ground Water: Well Avg	4.60	Acre Inches		2.47			mg/L			303	0	0	34,174	
07/15/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			9,436	0	0	0	
07/15/2023	Ground Water: Well Avg	4.60	Acre Inches		2.47			mg/L			303	0	0	34,174	
07/25/2023	Ground Water: Well Avg	4.30	Acre Inches		2.47			mg/L			283	0	0	31,945	
08/05/2023	Ground Water: Well Avg	4.30	Acre Inches		2.47			mg/L			283	0	0	31,945	
08/14/2023	Ground Water: Well Avg	4.40	Acre Inches		2.47			mg/L			290	0	0	32,687	
08/22/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			276	0	0	31,202	
09/01/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			263	0	0	29,716	
09/10/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			263	0	0	29,716	
09/29/2023	Harvest	27.30	Tons	63.00	1.25	0.30	0.77	%							29,797
	Acre Inches Applied:	**39.50**						**Totals:**		**1,602,104**	**14,795**	**105**	**830**	**301,957**	**29,797**
Season Nitrogen Ratio:	0.50							**Lbs Per Acre:**			**125**	**1**	**7**	**2,559**	**253**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 4

Wheat, 42 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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			588				
02/07/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			105	0	0	11,899	
02/07/2023	Waste Water: Main Lagoon	0.65	Acre Inches		463.00	58.30	456.00	mg/L		741,312	2,859	360	2,816	20,440	
03/11/2023	Ground Water: Well Avg	4.80	Acre Inches		2.47			mg/L			113	0	0	12,692	
05/03/2023	Harvest	21.30	Tons	63.00	0.89	0.19	0.51	%							5,918
	Acre Inches Applied:	**9.95**						**Totals:**		**741,312**	**3,665**	**360**	**2,816**	**45,031**	**5,918**
Season Nitrogen Ratio:	0.62							**Lbs Per Acre:**			**87**	**9**	**67**	**1,072**	**141**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 4

Corn, 42 Acres Planted on 05/29/2023

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)
05/14/2023	Corral Solids: Main Corral	4.00	Tons	9.58	2.35	0.75	2.93	%	168		7,140	2,276	8,901	0	
05/17/2023	Ground Water: Well Avg	4.30	Acre Inches		2.47			mg/L			101	0	0	11,370	
07/01/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			105	0	0	11,899	
07/12/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			105	0	0	11,899	
07/23/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			105	0	0	11,899	
08/04/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			98	0	0	11,106	
08/13/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			98	0	0	11,106	
08/21/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			94	0	0	10,577	
09/01/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			94	0	0	10,577	
09/09/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			94	0	0	10,577	
09/29/2023	Harvest	28.80	Tons	68.80	0.84	0.17	0.56	%							6,325
	Acre Inches Applied:	**38.20**						**Totals:**	**168**		**8,034**	**2,276**	**8,901**	**101,009**	**6,325**
Season Nitrogen Ratio:	1.27							**Lbs Per Acre:**			**191**	**54**	**212**	**2,405**	**151**

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 5

Wheat, 117 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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,638				
02/09/2023	Ground Water: Well Avg	4.65	Acre Inches		2.47			mg/L			303	0	0	34,252	
02/09/2023	Waste Water: Main Lagoon	0.85	Acre Inches		463.00	58.30	456.00	mg/L		2,700,495	10,415	1,312	10,257	74,459	
03/14/2023	Ground Water: Well Avg	4.70	Acre Inches		2.47			mg/L			307	0	0	34,620	
04/24/2023	Ground Water: Well Avg	4.40	Acre Inches		2.47			mg/L			288	0	0	32,410	
05/17/2023	Harvest	21.50	Tons	67.30	1.52	0.43	1.94	%							25,006
	Acre Inches Applied:	**14.60**						**Totals:**		**2,700,495**	**12,951**	**1,312**	**10,257**	**175,741**	**25,006**
Season Nitrogen Ratio:	0.52							**Lbs Per Acre:**			**111**	**11**	**88**	**1,502**	**214**

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 5

Corn, 117 Acres Planted on 06/06/2023

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)
05/21/2023	Corral Solids: Main Corral	3.00	Tons	9.58	2.35	0.75	2.93	%	351		14,916	4,754	18,598	0	
05/25/2023	Ground Water: Well Avg	4.10	Acre Inches		2.47			mg/L			268	0	0	30,201	
07/02/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			6,237	0	0	0	
07/02/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			274	0	0	30,937	
07/20/2023	Ground Water: Well Avg	4.40	Acre Inches		2.47			mg/L			288	0	0	32,410	
07/31/2023	Ground Water: Well Avg	4.25	Acre Inches		2.47			mg/L			277	0	0	31,306	
08/09/2023	Ground Water: Well Avg	4.30	Acre Inches		2.47			mg/L			281	0	0	31,674	
08/17/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			261	0	0	29,464	
08/27/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			261	0	0	29,464	
09/05/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			261	0	0	29,464	
09/29/2023	Harvest	29.30	Tons	68.60	0.78	0.14	0.51	%							16,878
	Acre Inches Applied:	**33.25**						**Totals:**	**351**		**23,324**	**4,754**	**18,598**	**244,921**	**16,878**
Season Nitrogen Ratio:	1.38							**Lbs Per Acre:**			**199**	**41**	**159**	**2,093**	**144**

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 6

Wheat, 69 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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			966				
04/15/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			173	0	0	19,548	
04/15/2023	Waste Water: Main Lagoon	0.50	Acre Inches		463.00	58.30	456.00	mg/L		936,823	3,613	455	3,558	25,830	
05/30/2023	Harvest	20.80	Tons	65.80	1.31	0.30	1.27	%							12,860
	Acre Inches Applied:	**5.00**						**Totals:**		**936,823**	**4,752**	**455**	**3,558**	**45,379**	**12,860**
Season Nitrogen Ratio:	0.37							**Lbs Per Acre:**			**69**	**7**	**52**	**658**	**186**

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 6

Corn, 69 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)
06/01/2023	Corral Solids: Main Corral	3.00	Tons	9.58	2.35	0.75	2.93	%	207		8,797	2,803	10,968	0	
06/05/2023	Ground Water: Well Avg	4.35	Acre Inches		2.47			mg/L			168	0	0	18,897	
07/11/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			5,518	0	0	0	
07/11/2023	Ground Water: Well Avg	4.40	Acre Inches		2.47			mg/L			170	0	0	19,114	
07/25/2023	Ground Water: Well Avg	4.40	Acre Inches		2.47			mg/L			170	0	0	19,114	
08/04/2023	Ground Water: Well Avg	4.20	Acre Inches		2.47			mg/L			161	0	0	18,245	
08/13/2023	Ground Water: Well Avg	4.40	Acre Inches		2.47			mg/L			170	0	0	19,114	
08/22/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			154	0	0	17,376	
08/31/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			154	0	0	17,376	
09/10/2023	Ground Water: Well Avg	4.15	Acre Inches		2.47			mg/L			160	0	0	18,028	
10/04/2023	Harvest	27.80	Tons	62.40	1.01	0.27	0.79	%							14,569
	Acre Inches Applied:	**33.90**						**Totals:**	**207**		**15,621**	**2,803**	**10,968**	**147,263**	**14,569**
Season Nitrogen Ratio:	1.07							**Lbs Per Acre:**			**226**	**41**	**159**	**2,134**	**211**

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 7

Wheat, 125 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)
10/21/2022	Ground Water: Well Avg	4.00	Acre Inches		1.87			mg/L			211	0	0	31,021	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,750				
04/10/2023	Ground Water: Well Avg	4.25	Acre Inches		2.47			mg/L			296	0	0	33,446	
04/10/2023	Waste Water: Main Lagoon	0.40	Acre Inches		463.00	58.30	456.00	mg/L		1,357,715	5,236	659	5,158	37,435	
05/30/2023	Harvest	21.00	Tons	64.10	1.29	0.30	1.77	%							24,314
	Acre Inches Applied:	**8.65**						**Totals:**		**1,357,715**	**7,494**	**659**	**5,158**	**101,902**	**24,314**
Season Nitrogen Ratio:	0.31							**Lbs Per Acre:**			**60**	**5**	**41**	**815**	**195**

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 7

Corn, 125 Acres Planted on 06/13/2023

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)
06/01/2023	Corral Solids: Main Corral	3.00	Tons	9.58	2.35	0.75	2.93	%	375		15,936	5,079	19,870	0	
06/04/2023	Ground Water: Well Avg	4.80	Acre Inches		2.47			mg/L			335	0	0	37,775	
07/11/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			6,664	0	0	0	
07/11/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			314	0	0	35,414	
07/25/2023	Ground Water: Well Avg	4.70	Acre Inches		2.47			mg/L			328	0	0	36,988	
08/05/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			314	0	0	35,414	
08/14/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			279	0	0	31,479	
08/22/2023	Ground Water: Well Avg	4.10	Acre Inches		2.47			mg/L			286	0	0	32,266	
09/01/2023	Ground Water: Well Avg	4.10	Acre Inches		2.47			mg/L			286	0	0	32,266	
09/11/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			279	0	0	31,479	
10/04/2023	Harvest	27.40	Tons	62.90	1.11	0.26	0.76	%							28,209
	Acre Inches Applied:	**34.70**						**Totals:**	**375**		**25,020**	**5,079**	**19,870**	**273,080**	**28,209**
Season Nitrogen Ratio:	0.89							**Lbs Per Acre:**			**200**	**41**	**159**	**2,185**	**226**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 8

Almonds, 107 Acres Planted on 11/14/2015

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			%			1,498				
01/05/2023	Ground Water: Well Avg	4.00	Acre Inches		2.47			mg/L			239	0	0	26,946	
02/07/2023	Corral Solids: Main Corral	3.00	Tons	14.40	1.33	0.71	2.71	%	321		7,309	3,885	14,893	0	
04/24/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			269	0	0	30,314	
05/19/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			269	0	0	30,314	
06/02/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
06/14/2023	Fertilize - UN32	15.00	Gallons		32.00	0.00	0.00	%			4,278	0	0	0	
06/14/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
06/26/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
07/03/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
07/07/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
07/15/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
07/28/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
08/04/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
08/09/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
08/18/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
09/05/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			120	0	0	13,473	
09/13/2023	Harvest	2.80	Tons	8.65	2.76	0.32	1.67	%							15,107
	Acre Inches Applied:	**35.00**						**Totals:**	**321**		**15,179**	**3,885**	**14,893**	**235,782**	**15,107**
Season Nitrogen Ratio:	1.00							**Lbs Per Acre:**			**142**	**36**	**139**	**2,204**	**141**

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Holland's Dairy 2023

Nutrient Applications (Attachment B)

Field Name: 9

Almonds, 60 Acres Planted on 11/10/2017

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			%			840				
01/19/2023	Ground Water: Well Avg	4.30	Acre Inches		2.47			mg/L			144	0	0	16,243	
04/24/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			151	0	0	16,999	
05/20/2023	Ground Water: Well Avg	4.50	Acre Inches		2.47			mg/L			151	0	0	16,999	
06/04/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
06/15/2023	Fertilize - UN32	9.00	Gallons		32.00	0.00	0.00	%			1,439	0	0	0	
06/15/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
06/27/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
07/01/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
07/09/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
07/14/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
07/27/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
08/02/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
08/11/2023	Ground Water: Well Avg	2.00	Acre Inches		2.47			mg/L			67	0	0	7,555	
09/05/2023	Ground Water: Well Avg	1.50	Acre Inches		2.47			mg/L			50	0	0	5,666	
09/13/2023	Harvest	2.90	Tons	8.50	2.73	0.30	1.60	%							8,693
	Acre Inches Applied:	**32.80**						**Totals:**			**3,380**	**0**	**0**	**123,904**	**8,693**
Season Nitrogen Ratio:	0.39							**Lbs Per Acre:**			**56**	**0**	**0**	**2,065**	**145**

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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	67,909.99	23,198.46	90,451.82	0.00	1,747.00	tons
Process Wastewater	44,601.67	5,368.58	42,009.43	311,144.66	12,443,457.98	gallons
Irrigation Water	17,057.96					
Fertilizer / Total Imports	38,770.72					
Atmospheric Deposition	9,842.00					
Total Nitrogen Applied	**178,182.34**					
Crop Nitrogen Removal	241,094.41					
Nitrogen Balance	**(62,912.07)**					
Nitrogen Ratio	**0.74**					

- **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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Holland's 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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Holland's 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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Land Application Area Description Technical Report (Attachment D)

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
1	x014 x280 x023 x000	40	Both
2	x014 x280 x023 x000	25	Both
3	x014 x280 x017 x000, x014 x280 x018 x000	118	Process Wastewater
4	x014 x270 x026 x000	44	Both
5	x014 x270 x023 x000, x014 x270 x024 x000	117	Both
6	x014 x270 x036 x000	69	Both
7	x014 x270 x035 x000, x014 x270 x036 x000	125	Both
8	x014 x270 x035 x000	107	Manure
9	x014 x270 x039 x000, x014 x270 x040 x000, x014 x270 x041 x000, x014 x270 x042 x000	62	None
		707	

Production Area APN(s): x014 x280 x023 x000

Holland's Dairy 2023

Lab Results Summary (Attachment E)

Process Wastewater

(mgl/ppm unless noted otherwise)

Sample Date:	TKN	TP	TK	EC (umhos/cm)	NH4N	NO3N	TDS	pH (units)	General Minerals CA	MG	NA	HCO3	CO3	SO4	CL
03/20/2023	463.00	58.30	456.00	4,980	194.00		3,310.00								
06/16/2023	209.00	7.83	62.20	1,380	49.20	0.00	916.00	6.65							
09/26/2023	241.00	41.90	278.00	4,270	237.00		2,840.00								
11/09/2023	296.00	53.90	307.00	4,920	293.00		3,270.00								
Averages:	302.25	40.48	275.80	3,888	193.30	0.00	2,584.00	6.65							

Manure - Corral Solids

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/08/2023	2.35	0.75	2.93	9.58						%
11/09/2023	2.18	0.64	2.35	23.20						%
Averages:	2.26	0.69	2.64	16.39						

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
1	1	Wheat	05/17/2023	28.80	6.60	31.00	64.60	7.71
1	2	Corn	09/29/2023	23.60	6.82	15.02	59.70	4.85

INNOVATIVE AG SERVICES

Holland's 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 (%)
2	1	Wheat	05/30/2023	26.60	6.78	32.00	66.60	8.68
2	2	Corn	09/29/2023	23.00	6.96	14.66	61.90	4.73
3	1	Wheat	05/17/2023	26.80	6.84	30.20	64.80	6.08
3	2	Corn	09/29/2023	25.00	5.98	15.44	63.00	5.20
4	1	Wheat	05/03/2023	17.88	3.86	10.22	63.00	5.83
4	2	Corn	09/29/2023	16.76	3.32	11.28	68.80	5.07
5	1	Wheat	05/17/2023	30.40	8.60	38.80	67.30	7.27
5	2	Corn	09/29/2023	15.68	2.84	10.24	68.60	4.88
6	1	Wheat	05/30/2023	26.20	6.00	25.40	65.80	9.06
6	2	Corn	10/04/2023	20.20	5.34	15.72	62.40	5.68
7	1	Wheat	05/30/2023	25.80	5.98	35.40	64.10	8.68
7	2	Corn	10/04/2023	22.20	5.28	15.12	62.90	5.41
8	1	Almonds	09/13/2023	55.20	6.32	33.40	8.65	8.28
9	1	Almonds	09/13/2023	54.60	6.08	32.00	8.50	9.32

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Holland's 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**
Domestic														
Domestic Well	12/11/2023	17.00		1,130		730.00		73.00	9.00	160.00	360.00	0.00	37.30	79.00
	Averages:	17.00		1,130		730.00		73.00	9.00	160.00	360.00	0.00	37.30	79.00
Irrigation														
Well 1	08/24/2023	12.00		951		680.00	12.10	56.00	8.00	146.00	310.00	0.00	29.40	72.00
Well 2	12/04/2023	1.70		311		310.00	1.70	6.00	0.00	56.00	1.70	90.00	0.00	23.00
Well 3	12/04/2023	0.00		179		110.00	0.00							
Well 4	10/11/2023	0.00		189		140.00	0.00							
Well 5								Out of service						
Well 6								Did not run.						
Well 7	12/11/2023	1.10		431		240.00	1.10							
Well 8	10/11/2023	0.00		310		190.00	1.00	3.00	0.00	67.00	90.00	10.00	3.80	34.00
	Averages:	2.47		395		278.33	2.65	21.67	2.67	89.67	133.90	33.33	11.07	43.00

* NH4N was non-detectable unless a value is shown

Soils

Field	**Sample Date:**	**PO4P (ppm)**
1	10/10/2023	92.00
2	10/10/2023	88.00

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Lab Results Summary (Attachment E)

Soils

Field	Sample Date:	PO4P (ppm)
3	10/27/2023	76.00
4	10/27/2023	64.00
5	10/27/2023	66.00
6	10/27/2023	86.00
7	10/10/2023	56.00
8	10/19/2023	40.00
9	10/19/2023	28.00

INNOVATIVE AG SERVICES

Holland's Dairy 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: 1								
	1	Wheat	40	11/16/2022	05/17/2023	20.8	836.0	20.9
	2	Corn	40	06/12/2023	09/29/2023	27.7	1120.0	28.0
Field: 2								
	1	Wheat	25	11/18/2022	05/30/2023	20.3	515.0	20.6
	2	Corn	25	06/12/2023	09/29/2023	27.9	705.0	28.2
Field: 3								
	1	Wheat	118	11/17/2022	05/17/2023	21.3	2489.8	21.1
	2	Corn	118	06/02/2023	09/29/2023	26.3	3221.4	27.3
Field: 4								
	1	Wheat	42	11/16/2022	05/03/2023	21.7	894.6	21.3
	2	Corn	42	05/29/2023	09/29/2023	28.4	1209.6	28.8
Field: 5								
	1	Wheat	117	11/01/2022	05/17/2023	21.3	2515.5	21.5
	2	Corn	117	06/06/2023	09/29/2023	25.8	3428.1	29.3
Field: 6								
	1	Wheat	69	11/16/2022	05/30/2023	21.2	1435.2	20.8
	2	Corn	69	06/15/2023	10/04/2023	23.4	1918.2	27.8
Field: 7								
	1	Wheat	125	11/16/2022	05/30/2023	20.9	2625.0	21.0
	2	Corn	125	06/13/2023	10/04/2023	26.9	3425.0	27.4
Field: 8								
	1	Almonds	107	11/14/2015	09/13/2023	2.6	299.6	2.8
Field: 9								
	1	Almonds	60	11/10/2017	09/13/2023	3.0	174.0	2.9

INNOVATIVE AG SERVICES

Holland's 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

INNOVATIVE AG SERVICES

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

September 14, 2023

Lab No. : **VI 2345652**
Customer No. : **4018573**
Reference : **41253**

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
Well 1	08/24/2023	08/24/2023	VI 2345652-001	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)

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: 2023-09-15

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

September 14, 2023

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

Description : Well 1
Project : 0112 Holland's Dairy

Lab No. : VI 2345652-001
Customer No. : 4018573
Reference : 41253
Sampled On : August 24, 2023 at 14:15
Sampled By : Alex
Received On : August 24, 2023 at 16:04
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)	250	10	mg/L		1		08/29/2023	10:16	amm	SM 4500-H+B	08/29/2023	13:14	amm
Bicarbonate	310	10	mg/L		1		08/29/2023	10:16	amm	SM 4500-H+B	08/29/2023	13:14	amm
Carbonate	ND	10	mg/L		1	U	08/29/2023	10:16	amm	SM 4500-H+B	08/29/2023	13:14	amm
Hydroxide	ND	10	mg/L		1	U	08/29/2023	10:16	amm	SM 4500-H+B	08/29/2023	13:14	amm
Chloride	72	1	mg/L		1		08/25/2023	10:48	ldm	EPA 300.0	08/26/2023	00:35	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	09/08/2023	09:16	sta	EPA 351.2	09/11/2023	21:53	lcr
Nitrate Nitrogen	12.0	0.1	mg/L		1		08/25/2023	10:48	ldm	EPA 300.0	08/26/2023	00:35	ldm
Nitrogen, Total as Nitrogen	12.1	0.5	mg/L		1	l	09/08/2023	09:16	sta	Calc.	09/11/2023	21:53	lcr
Nitrate + Nitrite as N	12.1	0.1	mg/L		1		08/25/2023	10:48	ldm	EPA 300.0	08/26/2023	00:35	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	09/08/2023	09:16	sta	EPA 351.2	09/11/2023	21:53	lcr
Conductivity	951	1	umhos/cm		1		08/29/2023	10:16	amm	SM 4500-H+B	08/29/2023	13:14	amm
Sulfate Sulfur	29.4	0.17	mg/L		1		08/25/2023	10:48	ldm	EPA 300.0	08/26/2023	00:35	ldm
Solids, Total Dissolved (TDS)	680	20	mg/L		1		08/28/2023	16:10	ctl	SM 2540 C	08/29/2023	12:00	ctl
Calcium	56	1	mg/L		1		08/31/2023	07:12	ejc	EPA 200.7	09/05/2023	22:15	ac
Magnesium	8	1	mg/L		1		08/31/2023	07:12	ejc	EPA 200.7	09/05/2023	22:15	ac
Sodium	146	1	mg/L		1		08/31/2023	07:12	ejc	EPA 200.7	09/05/2023	22:15	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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September 14, 2023
Innovative Ag Services, LLC

Lab No. : VI 2345652
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	08/31/2023:209761EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	113%	85-115	
			MS	mg/L	12.00	66.8%	<¼	406
		(VI 2345631-002)	MSD	mg/L	12.00	81.8%	75-125	
			MSRPD	mg/L		2.7%	≤20.0	
			MS	mg/L	12.00	114%	75-125	
		(CH 2377307-001)	MSD	mg/L	12.00	117%	75-125	
			MSRPD	mg/L		1.5%	≤20.0	
Magnesium	200.7	08/31/2023:209761EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	115%	85-115	
			MS	mg/L	12.00	107%	75-125	
		(VI 2345631-002)	MSD	mg/L	12.00	106%	75-125	
			MSRPD	mg/L		1.3%	≤20	
			MS	mg/L	12.00	116%	75-125	
		(CH 2377307-001)	MSD	mg/L	12.00	117%	75-125	
			MSRPD	mg/L		0.9%	≤20	
Sodium	200.7	08/31/2023:209761EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	111%	85-115	
			MS	mg/L	12.00	31.3%	<¼	406
		(VI 2345631-002)	MSD	mg/L	12.00	57.7%	<1/4	
			MSRPD	mg/L		3.0%	≤20.0	
			MS	mg/L	12.00	117%	75-125	
		(CH 2377307-001)	MSD	mg/L	12.00	120%	75-125	
			MSRPD	mg/L		1.4%	≤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.

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September 14, 2023
Innovative Ag Services, LLC

Lab No. : VI 2345652
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	08/29/2023:209673AMM	ND	umhos/cm		4.59%	5	406
Solids, Total Dissolved	2540CE	08/28/2023:209655CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	103%	90-110	
		(VI 2345653-001)	Dup	mg/L		1.32%	5	
		(VI 2345653-001)	Dup	mg/L		2.13%	5	
Chloride	300.0	08/25/2023:209617LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	100 %	90-110	
			MS	mg/L	50.00	93.1 %	67-117	
		(CH 2376844-006)	MSD	mg/L	50.00	93.2 %	67-117	
			MSRPD	mg/L	10.00	0.08%	≤7	
			MS	mg/L	50.00	93.5 %	67-117	
		(CH 2376844-003)	MSD	mg/L	50.00	92.8 %	67-117	
			MSRPD	mg/L	10.00	0.4%	≤7	
Nitrate + Nitrite as N	300.0	08/25/2023:209617LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	100 %	90-110	
			MS	mg/L	40.00	100 %	86-112	
		(CH 2376844-006)	MSD	mg/L	40.00	100 %	86-112	
			MSRPD	mg/L	10.00	0.1%	≤7	
			MS	mg/L	40.00	98.4 %	86-112	
		(CH 2376844-003)	MSD	mg/L	40.00	97.8 %	86-112	
			MSRPD	mg/L	10.00	0.4%	≤7	
Nitrate Nitrogen	300.0	08/25/2023:209617LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	100 %	90-110	
			MS	mg/L	40.00	100 %	86-112	
		(CH 2376844-006)	MSD	mg/L	40.00	100 %	86-112	
			MSRPD	mg/L	10.00	0.1%	≤7	
			MS	mg/L	40.00	98.4 %	86-112	
		(CH 2376844-003)	MSD	mg/L	40.00	97.8 %	86-112	
			MSRPD	mg/L	10.00	0.4%	≤7	
Sulfate Sulfur	300.0	08/25/2023:209617LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	101 %	90-110	
			MS	mg/L	100.0	97.2 %	18-165	
		(CH 2376844-006)	MSD	mg/L	100.0	97.4 %	18-165	
			MSRPD	mg/L	10.00	0.1%	≤7	
			MS	mg/L	100.0	97.8 %	18-165	
		(CH 2376844-003)	MSD	mg/L	100.0	97.2 %	18-165	
			MSRPD	mg/L	10.00	0.4%	≤7	
Nitrogen, Total Kjeldahl	351.2	09/08/2023:210053STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	93.0%	73-124	
			MS	mg/L	12.00	97.5%	90-110	
		(STK2351641-005)	MSD	mg/L	12.00	82.0%	90-110	435
			MSRPD	mg/L		7.7%	≤20	
			MS	mg/L	12.00	91.6%	90-110	
		(STK2351641-008)	MSD	mg/L	12.00	90.9%	90-110	
			MSRPD	mg/L		0.7%	≤20	

Page 4 of 5

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	
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.

Page 5 of 5

Laboratory Analysis Work Order

Nº 41253

2345652

ID: # 0112

LABORATORY: FGL

SITE NAME: Holland's 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: _____

RCL 19.1c ID# 1H407

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: _____

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: _____

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	Well 1	Irr	W5	8/24 2:15	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		8/24/23 3:20
2nd	EMA	FGL	8/24/23 15:52	
3rd	EMA	FGL		8/24/23 16:04
4th	[illegible]		8/24/23 16:04	

LABORATORY USE ONLY

Logged In By: [illegible] Total Samples: 8/24/23 7 Laboratory #: [illegible]

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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

Lab No. : **VI 2346886**
Customer No. : **4018573**
Reference : **41490**

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
Well 8	10/11/2023	10/11/2023	VI 2346886-001	AGW
Well 4	10/11/2023	10/11/2023	VI 2346886-002	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: 2023-11-02

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November 2, 2023

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

Description : Well 8
Project : 0112 Holland's Dairy

Lab No. : VI 2346886-001
Customer No. : 4018573
Reference : 41490
Sampled On : October 11, 2023 at 13:45
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)	90	10	mg/L		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	22:07	amm
Bicarbonate	90	10	mg/L		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	22:07	amm
Carbonate	10	10	mg/L		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	22:07	amm
Hydroxide	10	10	mg/L		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	22:07	amm
Chloride	34	1	mg/L		1		10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	04:30	ldm
Nitrogen, Total Kjeldahl	1	0.5	mg/L		1	l	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:58	lcr
Nitrate Nitrogen	ND	0.1	mg/L		1	U	10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	04:30	ldm
Nitrogen, Total as Nitrogen	1	0.5	mg/L		1	l	10/25/2023	12:24	sta	Calc.	10/29/2023	18:58	lcr
Nitrate + Nitrite as N	ND	0.1	mg/L		1	U	10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	04:30	ldm
Kjeldahl Nitrogen	1	0.5	mg/L		1	l	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:58	lcr
Conductivity	310	1	umhos/cm		1		10/16/2023	15:10	amm	SM 4500-H+B	10/16/2023	22:07	amm
Sulfate Sulfur	3.8	0.17	mg/L		1		10/12/2023	10:41	ldm	EPA 300.0	10/13/2023	04:30	ldm
Solids, Total Dissolved (TDS)	190	20	mg/L		1		10/16/2023	09:30	ctl	SM 2540 C	10/17/2023	11:00	ctl
Calcium	3	1	mg/L		1		10/16/2023	09:21	ejc	EPA 200.7	10/31/2023	11:11	ac
Magnesium	ND	1	mg/L		1	U	10/16/2023	09:21	ejc	EPA 200.7	10/31/2023	11:11	ac
Sodium	67	1	mg/L		1		10/16/2023	09:21	ejc	EPA 200.7	10/31/2023	11:11	ac

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

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

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November 2, 2023

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

Description : Well 4
Project : 0112 Holland's Dairy

Lab No. : VI 2346886-002
Customer No. : 4018573
Reference : 41490
Sampled On : October 11, 2023 at 14:00
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	19:00	lcr
Nitrate Nitrogen	ND	0.1	mg/L		1	U	10/12/2023	16:14	ldm	EPA 300.0	10/13/2023	10:53	ldm
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	UlJ	10/25/2023	12:24	sta	Calc.	10/29/2023	19:00	lcr
Nitrate + Nitrite as N	ND	0.1	mg/L		1	J	10/12/2023	16:14	ldm	EPA 300.0	10/13/2023	10:53	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	19:00	lcr
Conductivity	189	1	umhos/cm		1		10/19/2023	09:41	krh	SM 4500-H+B	10/19/2023	14:25	krh
Solids, Total Dissolved (TDS)	140	20	mg/L		1		10/16/2023	09:30	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.
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

Page 3 of 6

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November 2, 2023
Innovative Ag Services, LLC

Lab No. : VI 2346886
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 2346886
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	(VI 2346815-001)	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	
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	
			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	

Page 5 of 6

November 2, 2023

Innovative Ag Services, LLC

Lab No. : VI 2346886
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
			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

Laboratory Analysis Work Order

Nº 41490

23468816

ID: # 0112

LABORATORY: FGL

SITE NAME: HOLLANDS DAIRY

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

Billing: IAS

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: _____

201 Ice.lec Jeff TT405

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	WELL 8	IAR	W5	10/11 / 1:45	Zeke			
2	WELL 4	IAR	W2	10/11 / 2:00	↓			
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:** 10/11/23 1730 **Laboratory #:** _____ 10/11/23 1145

THE PRINTER INC. - 559-992-5127

December 18, 2023

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

Lab No. : **VI 2348144**
Customer No. : **4018573**
Reference : **42129**

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
Well 2	12/04/2023	12/04/2023	VI 2348144-001	AGW
Well 3	12/04/2023	12/04/2023	VI 2348144-002	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)
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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December 18, 2023

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

Description : Well 2
Project : 0112 Hollands Dairy

Lab No. : VI 2348144-001
Customer No. : 4018573
Reference : 42129
Sampled On : December 4, 2023 at 09:45
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
Alkalinity (as CaCO3)	90	10	mg/L		1		12/09/2023	15:04	amm	SM 4500-H+B	12/10/2023	06:36	amm
Bicarbonate	90	10	mg/L		1		12/09/2023	15:04	amm	SM 4500-H+B	12/10/2023	06:36	amm
Carbonate	ND	10	mg/L		1	U	12/09/2023	15:04	amm	SM 4500-H+B	12/10/2023	06:36	amm
Hydroxide	ND	10	mg/L		1	U	12/09/2023	15:04	amm	SM 4500-H+B	12/10/2023	06:36	amm
Chloride	23	1	mg/L		1		12/05/2023	12:25	ldm	EPA 300.0	12/05/2023	22:19	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	16:28	lcr
Nitrate Nitrogen	1.7	0.1	mg/L		1		12/05/2023	12:25	ldm	EPA 300.0	12/05/2023	22:19	ldm
Nitrogen, Total as Nitrogen	1.7	0.5	mg/L		1		12/12/2023	08:00	sta	Calc.	12/13/2023	16:28	lcr
Nitrate + Nitrite as N	1.7	0.1	mg/L		1		12/05/2023	12:25	ldm	EPA 300.0	12/05/2023	22:19	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	16:28	lcr
Conductivity	311	1	umhos/cm		1		12/09/2023	15:04	amm	SM 4500-H+B	12/10/2023	06:36	amm
Sulfate Sulfur	7.9	0.17	mg/L		1		12/05/2023	12:25	ldm	EPA 300.0	12/05/2023	22:19	ldm
Solids, Total Dissolved (TDS)	310	20	mg/L		1		12/06/2023	09:45	ctl	SM 2540 C	12/07/2023	11:00	ctl
Calcium	6	1	mg/L		1		12/12/2023	08:15	ejc	EPA 200.7	12/14/2023	18:13	ac
Magnesium	ND	1	mg/L		1	Uh	12/12/2023	08:15	ejc	EPA 200.7	12/14/2023	18:13	ac
Sodium	56	1	mg/L		1	h	12/12/2023	08:15	ejc	EPA 200.7	12/14/2023	18:13	ac

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

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

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December 18, 2023

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

Description : Well 3
Project : 0112 Hollands Dairy

Lab No. : VI 2348144-002
Customer No. : 4018573
Reference : 42129
Sampled On : December 4, 2023 at 14:00
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	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	16:24	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	U	12/05/2023	13:30	lfs	SM 4500-NO3 F	12/05/2023	15:22	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	Calc.	12/13/2023	16:24	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	12/05/2023	13:30	lfs	SM 4500-NO3 F	12/05/2023	15:22	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	16:24	lcr
Conductivity	179	1	umhos/cm		1		12/07/2023	07:47	krh	SM 4500-H+B	12/07/2023	11:10	krh
Solids, Total Dissolved (TDS)	110	20	mg/L		1		12/06/2023	11:00	ctl	SM 2540 C	12/07/2023	11:00	ctl

DQF Flags Definition:
U Constituent results were non-detect.

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

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December 18, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348144
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	12/12/2023:213971EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	98.3%	85-115	
			MS	mg/L	12.00	186%	<¼	406
		(SP 2320268-001)	MSD	mg/L	12.00	190%	<1/4	
			MSRPD	mg/L		0.6%	≤20.0	
			MS	mg/L	12.00	308%	<¼	406
		(SP 2320269-001)	MSD	mg/L	12.00	180%	<1/4	
			MSRPD	mg/L		11.2%	≤20.0	
Magnesium	200.7	12/12/2023:213971EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	105%	85-115	
			MS	mg/L	12.00	150%	75-125	435
		(SP 2320268-001)	MSD	mg/L	12.00	152%	75-125	435
			MSRPD	mg/L		0.5%	≤20	
			MS	mg/L	12.00	199%	75-125	435
		(SP 2320269-001)	MSD	mg/L	12.00	147%	75-125	435
			MSRPD	mg/L		10.4%	≤20	
Sodium	200.7	12/12/2023:213971EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	102%	85-115	
			MS	mg/L	12.00	169%	75-125	435
		(SP 2320268-001)	MSD	mg/L	12.00	172%	75-125	435
			MSRPD	mg/L		0.6%	≤20.0	
			MS	mg/L	12.00	310%	<¼	406
		(SP 2320269-001)	MSD	mg/L	12.00	186%	<1/4	
			MSRPD	mg/L		10.9%	≤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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December 18, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348144
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	12/09/2023:213884AMM	ND	mg/L		0.9%	10	435
Bicarbonate	2320B	(STK2356690-002)	Dup	mg/L		0.8%	10	
E. C.	2320B	(VI 2348142-001)	Dup	umhos/cm		0.2%	5	
	2320B	(STK2356690-002)	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	
			Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	101%	90-110	
		(CC 2384245-003)	Dup	mg/L		2.09%	5	
		(CC 2384245-003)	Dup	mg/L		0.3%	5	
Chloride	300.0	12/05/2023:213763LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	98.1%	90-110	
			MS	mg/L	50.00	93.5%	67-117	
		(SP 2319967-001)	MSD	mg/L	50.00	93.3%	67-117	
			MSRPD	mg/L		0.1%	≤7	
			MS	mg/L	50.00	89.2%	67-117	
		(SP 2319925-001)	MSD	mg/L	50.00	88.7%	67-117	
			MSRPD	mg/L		0.3%	≤7	
Nitrate + Nitrite as N	300.0	12/05/2023:213763LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	98.0%	90-110	
			MS	mg/L	40.00	101%	86-112	
		(SP 2319967-001)	MSD	mg/L	40.00	100%	86-112	
			MSRPD	mg/L		0.2%	≤7	
			MS	mg/L	40.00	102%	86-112	
		(SP 2319925-001)	MSD	mg/L	40.00	101%	86-112	
			MSRPD	mg/L		0.3%	≤7	
Nitrate Nitrogen	300.0	12/05/2023:213763LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	98.0%	90-110	
			MS	mg/L	40.00	101%	86-112	
		(SP 2319967-001)	MSD	mg/L	40.00	100%	86-112	
			MSRPD	mg/L		0.2%	≤7	
			MS	mg/L	40.00	102%	86-112	
		(SP 2319925-001)	MSD	mg/L	40.00	101%	86-112	
			MSRPD	mg/L		0.3%	≤7	
Sulfate Sulfur	300.0	12/05/2023:213763LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	99.7%	90-110	
			MS	mg/L	100.0	93.3%	18-165	
		(SP 2319967-001)	MSD	mg/L	100.0	93.1%	18-165	
			MSRPD	mg/L		0.1%	≤7	
			MS	mg/L	100.0	88.5%	18-165	
		(SP 2319925-001)	MSD	mg/L	100.0	88.0%	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	406

Page 5 of 6

December 18, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348144
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
		(VI 2348053-002)	MSD	mg/L	12.00	84.3%	<1/4	
			MSRPD	mg/L		0.1%	≤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.

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.

Page 6 of 6

Laboratory Analysis Work Order

Nº 42129

2348144

ID: # 0112

LABORATORY: FGL

SITE NAME: Hollands 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	Well 2	IRR	W5	12-4 / 9:45	Zeke			
2	Well 3	IRR	W2	12-4 / 2:00	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		12-4-23 / 3:10
2nd		FGL	12-4-23 15:50	
3rd		FGL		12-4-23 16:10
4th			12/4/23 16:10	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: 12/4/23 17:30 Laboratory #: _____

GLS 12/5/23 11:55

THE PRINTER INC. - 559-992-5127

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

January 2, 2024

Lab No. : **VI 2348409**
Customer No. : **4018573**
Reference : **42151**

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

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
Well 7	12/11/2023	12/11/2023	VI 2348409-001	AGW
Domestic Well	12/11/2023	12/11/2023	VI 2348409-002	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)
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: 2024-01-02

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CA ELAP Certification No. 2810

January 2, 2024

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

Description : Well 7
Project : 0112 Holland's Dairy

Lab No. : VI 2348409-001
Customer No. : 4018573
Reference : 42151
Sampled On : December 11, 2023 at 11:35
Sampled By : Zeke
Received On : December 11, 2023 at 15:35
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	U	12/21/2023	17:10	lcr	EPA 351.2	12/23/2023	21:27	lcr
Nitrate Nitrogen	1.1	0.4	mg/L		1		12/12/2023	13:00	lfs	SM 4500-NO3 F	12/12/2023	19:36	lfs
Nitrogen, Total as Nitrogen	1.1	0.5	mg/L		1		12/21/2023	17:10	lcr	Calc.	12/23/2023	21:27	lcr
Nitrate + Nitrite as N	1.1	0.4	mg/L		1		12/12/2023	13:00	lfs	SM 4500-NO3 F	12/12/2023	19:36	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/21/2023	17:10	lcr	EPA 351.2	12/23/2023	21:27	lcr
Conductivity	431	1	umhos/cm		1		12/15/2023	08:07	krh	SM 4500-H+B	12/15/2023	11:09	krh
Solids, Total Dissolved (TDS)	240	20	mg/L		1		12/13/2023	13:20	ctl	SM 2540 C	12/14/2023	11:30	ctl

DQF Flags Definition:
U Constituent results were non-detect.

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

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January 2, 2024

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

Description : Domestic Well
Project : 0112 Holland's Dairy

Lab No. : VI 2348409-002
Customer No. : 4018573
Reference : 42151
Sampled On : December 11, 2023 at 11:25
Sampled By : Zeke
Received On : December 11, 2023 at 15:35
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)	300	10	mg/L		1		12/13/2023	17:00	amm	SM 4500-H+B	12/14/2023	00:39	amm
Bicarbonate	360	10	mg/L		1		12/13/2023	17:00	amm	SM 4500-H+B	12/14/2023	00:39	amm
Carbonate	ND	10	mg/L		1	U	12/13/2023	17:00	amm	SM 4500-H+B	12/14/2023	00:39	amm
Hydroxide	ND	10	mg/L		1	U	12/13/2023	17:00	amm	SM 4500-H+B	12/14/2023	00:39	amm
Chloride	79	1	mg/L	500[2]	1		12/12/2023	11:49	ldm	EPA 300.0	12/12/2023	23:01	ldm
Nitrate Nitrogen	17	0.1	mg/L	10	1	l	12/12/2023	11:49	ldm	EPA 300.0	12/12/2023	23:01	ldm
Conductivity	1130	1	umhos/cm	1600[2]	1		12/13/2023	17:00	amm	SM 4500-H+B	12/14/2023	00:39	amm
Sulfate Sulfur	37.3	0.17	mg/L		1		12/12/2023	11:49	ldm	EPA 300.0	12/12/2023	23:01	ldm
Solids, Total Dissolved (TDS)	730	20	mg/L	1000[2]	1		12/13/2023	13:20	ctl	SM 2540 C	12/14/2023	11:30	ctl
Calcium	73	1	mg/L		1		12/13/2023	03:55	ejc	EPA 200.7	12/13/2023	13:00	ac
Magnesium	9	1	mg/L		1		12/13/2023	03:55	ejc	EPA 200.7	12/13/2023	13:00	ac
Potassium	ND	1	mg/L		1	U	12/13/2023	03:55	ejc	EPA 200.7	12/13/2023	13:00	ac
Sodium	160	1	mg/L		1		12/13/2023	03:55	ejc	EPA 200.7	12/13/2023	13:00	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
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348409
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	12/13/2023:214008EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	93.6%	85-115	
			MS	mg/L	12.00	96.1%	75-125	
		(CH 2390218-003)	MSD	mg/L	12.00	96.9%	75-125	
			MSRPD	mg/L		0.5%	≤20.0	
			MS	mg/L	12.00	93.0%	75-125	
		(CH 2390218-002)	MSD	mg/L	12.00	107%	75-125	
			MSRPD	mg/L		3.9%	≤20.0	
Magnesium	200.7	12/13/2023:214008EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	94.0%	85-115	
			MS	mg/L	12.00	94.1%	75-125	
		(CH 2390218-003)	MSD	mg/L	12.00	93.6%	75-125	
			MSRPD	mg/L		0.4%	≤20	
			MS	mg/L	12.00	95.1%	75-125	
		(CH 2390218-002)	MSD	mg/L	12.00	99.7%	75-125	
			MSRPD	mg/L		2.8%	≤20	
Potassium	200.7	12/13/2023:214008EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	93.2%	85-115	
			MS	mg/L	12.00	95.6%	75-125	
		(CH 2390218-003)	MSD	mg/L	12.00	95.1%	75-125	
			MSRPD	mg/L		0.5%	≤20.0	
			MS	mg/L	12.00	99.5%	75-125	
		(CH 2390218-002)	MSD	mg/L	12.00	103%	75-125	
			MSRPD	mg/L		2.9%	≤20.0	
Sodium	200.7	12/13/2023:214008EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	92.3%	85-115	
			MS	mg/L	12.00	96.8%	75-125	
		(CH 2390218-003)	MSD	mg/L	12.00	97.1%	75-125	
			MSRPD	mg/L		0.2%	≤20.0	
			MS	mg/L	12.00	99.6%	75-125	
		(CH 2390218-002)	MSD	mg/L	12.00	106%	75-125	
			MSRPD	mg/L		3.6%	≤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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January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348409
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 2348413-004)	Dup	mg/L		0.2%	10	
Bicarbonate	2320B	(VI 2348413-004)	Dup	mg/L		0.2%	10	
E. C.	2320B	(VI 2348413-004)	Dup	umhos/cm		0.2%	5	
	2320B	(VI 2348428-001)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	12/13/2023:214037CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	99.8%	90-110	
		(VI 2348409-002)	Dup	mg/L		0.5%	5	
		(VI 2348409-002)	Dup	mg/L		0.3%	5	
Chloride	300.0	12/12/2023:214041LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	98.1%	90-110	
			MS	mg/L	50.00	85.9%	67-117	
		(CH 2390217-006)	MSD	mg/L	50.00	90.5%	67-117	
			MSRPD	mg/L		2.9%	≤7	
			MS	mg/L	50.00	101%	67-117	
		(CH 2390218-003)	MSD	mg/L	50.00	101%	67-117	
			MSRPD	mg/L		0.2%	≤7	
Nitrate Nitrogen	300.0	12/12/2023:214041LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	98.3%	90-110	
			MS	mg/L	40.00	61.8%	86-112	435
		(CH 2390217-006)	MSD	mg/L	40.00	70.6%	86-112	435
			MSRPD	mg/L		3.2%	≤7	
			MS	mg/L	40.00	103%	86-112	
		(CH 2390218-003)	MSD	mg/L	40.00	103%	86-112	
			MSRPD	mg/L		0.1%	≤7	
Sulfate Sulfur	300.0	12/12/2023:214041LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	99.5%	90-110	
			MS	mg/L	100.0	93.9%	18-165	
		(CH 2390217-006)	MSD	mg/L	100.0	97.5%	18-165	
			MSRPD	mg/L		3.0%	≤7	
			MS	mg/L	100.0	102%	18-165	
		(CH 2390218-003)	MSD	mg/L	100.0	102%	18-165	
			MSRPD	mg/L		0.1%	≤7	
Nitrogen, Total Kjeldahl	351.2	12/21/2023:214421LCR	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	106%	73-124	
			MS	mg/L	12.00	97.8%	90-110	
		(STK2356930-002)	MSD	mg/L	12.00	101%	90-110	
			MSRPD	mg/L		2.5%	≤20	
			MS	mg/L	12.00	95.8%	90-110	
		(STK2356930-004)	MSD	mg/L	12.00	102%	90-110	
			MSRPD	mg/L		6.0%	≤20	
Nitrate + Nitrite as N	4500NO3F	12/12/2023:214004LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	88.1%	66-125	
		(VI 2348370-001)	MSD	mg/L	5.609	90.1%	66-125	
			MSRPD	mg/L		0.6%	≤30.4	
Nitrate Nitrogen	4500NO3F	12/12/2023:214004LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	88.1%	66-125	
		(VI 2348370-001)	MSD	mg/L	5.609	90.1%	66-125	
			MSRPD	mg/L		0.6%	≤30.4	

Page 5 of 6

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.

Explanation

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

Page 6 of 6

Laboratory Analysis Work Order

Nº 42151

ID: # 0112

2348409
LABORATORY: FGL

SITE NAME: Holcanos 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	Well 7	IRR	W2	12-11 / 11:35	Zeke			
2	Domestic Well	Dom	W4	12-11 / 11:25	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: R01 8.9°C ID#TTH407

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[illegible]	IAS		12-11-23 / 1:00
2nd	AJB	FGL	12/11/23 1535	
3rd	AJB	FGL		12/11/23 1554
4th	SRG SRG	FGL	12·11·23 1654	
		~~FGL~~ GLS	~~12·11·23 1730~~ 12·11·23 1730	

LABORATORY USE ONLY

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

GLS MC 12/12/23 1013

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