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INNOVATIVE
AG SERVICES

Golden State 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	X	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)

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Annual Report

Golden State Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Golden State Dairy
Facility Address	11425 Road 112, Pixley CA 93256

Owner/Operator as of 12/31/2023

Operator Name	Randy Parreira
Operator Phone	(559) 280-2236
Owner Name	Randy & Arlene Parreira
Owner Phone	(559) 280-2236

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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Golden State Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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

X No discharges occurred during the reporting period.

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

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

X No discharges occurred during the reporting period.

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

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

__ No.

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

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

__ No.

X 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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Golden State Dairy 2023

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CENTRAL VALLEY REGION

17. Record-Keeping Results

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

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

18. Groundwater Monitoring Section

X Groundwater monitoring results are attached.

__ Monitoring Well results are attached, if applicable.

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

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

19. Storm Water Reporting Section

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

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

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

20. Mortality Management Practices

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

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Golden State Dairy 2023

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"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: 01C7310D8E7D48B...	DocuSigned by: 01C7310D8E7D48B...
Signature of Operator of Facility	Signature of Owner of Facility
Randy Parreira	Randy & Arlene Parreira
Print Name	Print Name
6/22/2024	6/22/2024
Title and Date	Title and Date

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Golden State 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	975	950	Milk Flushed Lane	1,400	24,109.94	343,282.50	58,947.50	79,752.50	626,230.50
Hol Dry Cows	110	107	Flushed	1,450	1,561.36	19,527.50	2,733.85	12,888.15	27,557.21
Hol Heifers(15-24)	575	560	Flushed	1,000	5,845.57	77,672.00	12,264.00	36,792.00	144,224.64
Hol Calves (4-6)	132	128	Flushed	300	443.84	6,540.80	1,868.80	3,737.60	3,064.83
	1,792	**1,745**			**31,960.71**	**447,022.80**	**75,814.15**	**133,170.25**	**801,077.18**

* 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)**
8,546,816	422.75	41.78	471.00	4,270.00	30,097.68	2,974.17	33,532.83	304,002.55

* 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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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F1

Wheat, 19 Acres Planted on 11/11/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/18/2022	Corral Solids: Main Corral	5.00	Tons	28.80	2.04	0.69	2.17	%	95		2,760	933	2,936	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			266				
02/20/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			105	0	0	3,546	
02/20/2023	Waste Water: Main Lagoon	0.50	Acre Inches		485.00	56.10	632.00	mg/L		257,966	1,042	120	1,358	8,359	
04/18/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			117	0	0	3,940	
04/18/2023	Waste Water: Main Lagoon	0.60	Acre Inches		485.00	56.10	632.00	mg/L		309,559	1,251	145	1,630	10,031	
05/26/2023	Harvest	17.90	Tons	68.90	2.24	0.45	2.29	%							4,739
	Acre Inches Applied:	**10.60**						**Totals:**	**95**	**567,525**	**5,540**	**1,199**	**5,923**	**25,875**	**4,739**
Season Nitrogen Ratio:	1.17							**Lbs Per Acre:**			**292**	**63**	**312**	**1,362**	**249**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F1

Corn, 19 Acres Planted on 06/17/2023

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)
06/07/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			93	0	0	3,152	
06/26/2023	Ground Water: Well Avg	4.10	Acre Inches		5.43			mg/L			96	0	0	3,230	
07/10/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			100	0	0	3,388	
07/22/2023	Fertilize - UN32	25.00	Gallons		32.00	0.00	0.00	%			1,266	0	0	0	
07/22/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			100	0	0	3,388	
08/11/2023	Ground Water: Well Avg	4.40	Acre Inches		5.43			mg/L			103	0	0	3,467	
08/29/2023	Fertilize - UN32	25.00	Gallons		32.00	0.00	0.00	%			1,266	0	0	0	
08/29/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			105	0	0	3,546	
09/18/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			93	0	0	3,152	
10/10/2023	Harvest	22.00	Tons	72.10	1.02	0.25	1.67	%							2,379
	Acre Inches Applied:	**29.60**						**Totals:**			**3,224**	**0**	**0**	**23,322**	**2,379**
Season Nitrogen Ratio:	1.35							**Lbs Per Acre:**			**170**	**0**	**0**	**1,227**	**125**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F2

Wheat, 43 Acres Planted on 11/11/2022

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	Corral Solids: Main Corral	5.00	Tons	28.80	2.04	0.69	2.17	%	215		6,246	2,113	6,644	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			602				
02/23/2023	Ground Water: Well Avg	4.90	Acre Inches		5.43			mg/L			259	0	0	8,738	
02/23/2023	Waste Water: Main Lagoon	0.45	Acre Inches		485.00	56.10	632.00	mg/L		525,436	2,123	246	2,766	17,026	
04/21/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			264	0	0	8,916	
04/21/2023	Waste Water: Main Lagoon	0.60	Acre Inches		485.00	56.10	632.00	mg/L		700,581	2,830	327	3,688	22,701	
05/26/2023	Harvest	17.75	Tons	68.30	2.48	0.38	2.03	%							12,001
	Acre Inches Applied:	**10.95**						**Totals:**	**215**	**1,226,017**	**12,324**	**2,685**	**13,098**	**57,381**	**12,001**
Season Nitrogen Ratio:	1.03							**Lbs Per Acre:**			**287**	**62**	**305**	**1,334**	**279**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F2

Corn, 43 Acres Planted on 06/17/2023

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)
06/09/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			212	0	0	7,133	
06/28/2023	Ground Water: Well Avg	4.10	Acre Inches		5.43			mg/L			217	0	0	7,311	
07/12/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			227	0	0	7,668	
07/24/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			3,439	0	0	0	
07/24/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			227	0	0	7,668	
08/13/2023	Ground Water: Well Avg	4.40	Acre Inches		5.43			mg/L			233	0	0	7,846	
08/31/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			3,439	0	0	0	
08/31/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			238	0	0	8,024	
09/21/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			212	0	0	7,133	
10/11/2023	Harvest	31.90	Tons	64.80	1.00	0.26	0.80	%							9,657
	Acre Inches Applied:	**29.60**						**Totals:**			**8,442**	**0**	**0**	**52,782**	**9,657**
Season Nitrogen Ratio:	0.87							**Lbs Per Acre:**			**196**	**0**	**0**	**1,227**	**225**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F3

Wheat, 58 Acres Planted on 11/27/2022

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)
11/07/2022	Corral Solids: Main Corral	7.00	Tons	28.80	2.04	0.69	2.17	%	406		11,794	3,989	12,546	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			812				
02/19/2023	Ground Water: Well Avg	5.20	Acre Inches		5.43			mg/L			371	0	0	12,507	
02/19/2023	Waste Water: Main Lagoon	0.55	Acre Inches		485.00	56.10	632.00	mg/L		866,222	3,500	405	4,561	28,069	
04/17/2023	Ground Water: Well Avg	5.10	Acre Inches		5.43			mg/L			364	0	0	12,266	
04/17/2023	Waste Water: Main Lagoon	0.60	Acre Inches		485.00	56.10	632.00	mg/L		944,970	3,818	441	4,975	30,621	
05/26/2023	Harvest	20.20	Tons	66.00	2.16	0.43	2.26	%							17,209
	Acre Inches Applied:	**11.45**						**Totals:**	**406**	**1,811,192**	**20,658**	**4,835**	**22,081**	**83,463**	**17,209**
Season Nitrogen Ratio:	1.20							**Lbs Per Acre:**			**356**	**83**	**381**	**1,439**	**297**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F3

Corn, 58 Acres Planted on 06/16/2023

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)
06/07/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			285	0	0	9,621	
06/26/2023	Ground Water: Well Avg	4.10	Acre Inches		5.43			mg/L			292	0	0	9,861	
07/10/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			306	0	0	10,343	
07/22/2023	Fertilize - UN32	25.00	Gallons		32.00	0.00	0.00	%			3,865	0	0	0	
07/22/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			306	0	0	10,343	
08/11/2023	Ground Water: Well Avg	4.40	Acre Inches		5.43			mg/L			314	0	0	10,583	
08/29/2023	Fertilize - UN32	25.00	Gallons		32.00	0.00	0.00	%			3,865	0	0	0	
08/29/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			321	0	0	10,823	
09/18/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			285	0	0	9,621	
10/17/2023	Harvest	30.20	Tons	67.80	1.08	0.18	1.02	%							12,183
	Acre Inches Applied:	**29.60**						**Totals:**			**9,840**	**0**	**0**	**71,194**	**12,183**
Season Nitrogen Ratio:	0.81							**Lbs Per Acre:**			**170**	**0**	**0**	**1,227**	**210**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F4

Wheat, 56 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)
10/19/2022	Corral Solids: Main Corral	5.50	Tons	28.80	2.04	0.69	2.17	%	308		8,947	3,026	9,517	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			784				
02/21/2023	Ground Water: Well Avg	4.90	Acre Inches		5.43			mg/L			337	0	0	11,379	
02/21/2023	Waste Water: Main Lagoon	0.65	Acre Inches		485.00	56.10	632.00	mg/L		988,417	3,993	462	5,204	32,028	
04/19/2023	Ground Water: Well Avg	5.10	Acre Inches		5.43			mg/L			351	0	0	11,843	
04/19/2023	Waste Water: Main Lagoon	0.60	Acre Inches		485.00	56.10	632.00	mg/L		912,384	3,686	426	4,803	29,565	
05/26/2023	Harvest	22.50	Tons	62.80	2.33	0.44	2.13	%							21,842
	Acre Inches Applied:	**11.25**						**Totals:**	**308**	**1,900,801**	**18,099**	**3,914**	**19,524**	**84,815**	**21,842**
Season Nitrogen Ratio:	0.83							**Lbs Per Acre:**			**323**	**70**	**349**	**1,515**	**390**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F4

Corn, 56 Acres Planted on 06/18/2023

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)
06/06/2023	Ground Water: Well Avg	4.10	Acre Inches		5.43			mg/L			282	0	0	9,521	
06/25/2023	Ground Water: Well Avg	4.20	Acre Inches		5.43			mg/L			289	0	0	9,754	
07/09/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			296	0	0	9,986	
07/21/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			4,478	0	0	0	
07/21/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			310	0	0	10,450	
08/10/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			310	0	0	10,450	
08/28/2023	Fertilize - UN32	30.00	Gallons		32.00	0.00	0.00	%			4,478	0	0	0	
08/28/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			310	0	0	10,450	
09/17/2023	Ground Water: Well Avg	4.10	Acre Inches		5.43			mg/L			282	0	0	9,521	
10/11/2023	Harvest	30.40	Tons	62.20	0.88	0.27	0.73	%							11,326
	Acre Inches Applied:	**30.20**						**Totals:**			**11,035**	**0**	**0**	**70,132**	**11,326**
Season Nitrogen Ratio:	0.97							**Lbs Per Acre:**			**197**	**0**	**0**	**1,252**	**202**

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Nutrient Applications (Attachment B)

Field Name: F5

Alfalfa, 72 Acres Planted on 11/15/2021

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			%			1,008				
03/10/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			398	0	0	13,436	
04/08/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			442	0	0	14,929	
05/09/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			442	0	0	14,929	
06/07/2023	Ground Water: Well Avg	6.00	Acre Inches		5.43			mg/L			531	0	0	17,914	
07/10/2023	Ground Water: Well Avg	6.00	Acre Inches		5.43			mg/L			531	0	0	17,914	
08/06/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			442	0	0	14,929	
09/09/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			442	0	0	14,929	
10/08/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			398	0	0	13,436	
11/06/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			398	0	0	13,436	
12/01/2023	Harvest	8.50	Tons	7.80	2.98	0.26	2.96	%							33,630
	Acre Inches Applied:	**45.50**						**Totals:**			**5,032**	**0**	**0**	**135,853**	**33,630**
Season Nitrogen Ratio:	0.15							**Lbs Per Acre:**			**70**	**0**	**0**	**1,887**	**467**

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Nutrient Applications (Attachment B)

Field Name: F6

Alfalfa, 85 Acres Planted on 11/26/2018

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			%			1,190				
03/07/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			418	0	0	14,100	
04/05/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			522	0	0	17,625	
05/06/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			522	0	0	17,625	
06/04/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			522	0	0	17,625	
07/07/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			522	0	0	17,625	
08/03/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			522	0	0	17,625	
09/06/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			522	0	0	17,625	
10/05/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			418	0	0	14,100	
11/03/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			418	0	0	14,100	
12/01/2023	Harvest	9.00	Tons	8.10	2.62	0.29	3.21	%							36,839
	Acre Inches Applied:	**42.00**						**Totals:**			**5,576**	**0**	**0**	**148,048**	**36,839**
Season Nitrogen Ratio: 0.15								**Lbs Per Acre:**			**66**	**0**	**0**	**1,742**	**433**

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Golden State Dairy 2023
Nutrient Applications (Attachment B)

Field Name: F7

Almonds, 66 Acres Planted on 10/28/2016

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)
11/18/2022	Ground Water: Well Avg	3.00	Acre Inches		9.32			mg/L			418	0	0	10,637	
12/20/2022	Ground Water: Well Avg	3.00	Acre Inches		9.32			mg/L			418	0	0	10,637	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			924				
03/12/2023	Ground Water: Well Avg	3.00	Acre Inches		5.43			mg/L			244	0	0	8,211	
04/09/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			325	0	0	10,948	
05/08/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			325	0	0	10,948	
06/13/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			325	0	0	10,948	
07/10/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			325	0	0	10,948	
08/07/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			325	0	0	10,948	
09/10/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			325	0	0	10,948	
10/06/2023	Harvest	2.62	Tons	10.70	1.86	0.26	1.56	%							5,745
	Acre Inches Applied:	**33.00**						**Totals:**			**3,951**	**0**	**0**	**95,173**	**5,745**
Season Nitrogen Ratio:	0.69							**Lbs Per Acre:**			**60**	**0**	**0**	**1,442**	**87**

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Nutrient Applications (Attachment B)

Field Name: F8

Corn, 74 Acres Planted on 04/21/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,036				
05/07/2023	Ground Water: Well Avg	4.20	Acre Inches		5.43			mg/L			382	0	0	12,889	
06/09/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			409	0	0	13,809	
06/24/2023	Fertilize - UN32	35.00	Gallons		32.00	0.00	0.00	%			6,904	0	0	0	
06/24/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			391	0	0	13,196	
07/11/2023	Ground Water: Well Avg	4.40	Acre Inches		5.43			mg/L			400	0	0	13,502	
07/24/2023	Fertilize - UN32	35.00	Gallons		32.00	0.00	0.00	%			6,904	0	0	0	
07/24/2023	Ground Water: Well Avg	4.80	Acre Inches		5.43			mg/L			437	0	0	14,730	
08/02/2023	Ground Water: Well Avg	4.80	Acre Inches		5.43			mg/L			437	0	0	14,730	
08/22/2023	Harvest	28.20	Tons	61.90	0.88	0.17	0.53	%							13,993
	Acre Inches Applied:	**27.00**						**Totals:**			**17,300**	**0**	**0**	**82,855**	**13,993**
Season Nitrogen Ratio:	1.24							**Lbs Per Acre:**			**234**	**0**	**0**	**1,120**	**189**

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Golden State Dairy 2023

Nutrient Applications (Attachment B)

Field Name: F10

Wheat, 80 Acres Planted on 11/14/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/18/2022	Corral Solids: Main Corral	5.00	Tons	28.80	2.04	0.69	2.17	%	400		11,620	3,930	12,360	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,120				
02/20/2023	Ground Water: Well Avg	5.30	Acre Inches		5.43			mg/L			521	0	0	17,583	
02/20/2023	Waste Water: Main Lagoon	0.70	Acre Inches		485.00	56.10	632.00	mg/L		1,520,641	6,143	710	8,006	49,274	
04/18/2023	Ground Water: Well Avg	5.30	Acre Inches		5.43			mg/L			521	0	0	17,583	
04/18/2023	Waste Water: Main Lagoon	0.70	Acre Inches		485.00	56.10	632.00	mg/L		1,520,641	6,143	710	8,006	49,274	
05/26/2023	Harvest	19.00	Tons	69.00	2.42	0.45	2.30	%							22,806
	Acre Inches Applied:	**12.00**						**Totals:**	**400**	**3,041,282**	**26,068**	**5,351**	**28,371**	**133,715**	**22,806**
Season Nitrogen Ratio:	1.14							**Lbs Per Acre:**			**326**	**67**	**355**	**1,671**	**285**

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Nutrient Applications (Attachment B)

Field Name: F10

Corn, 80 Acres Planted on 06/17/2023

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)
06/09/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			394	0	0	13,270	
06/29/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			394	0	0	13,270	
07/13/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			442	0	0	14,929	
07/25/2023	Fertilize - UN32	35.00	Gallons		32.00	0.00	0.00	%			7,464	0	0	0	
07/25/2023	Ground Water: Well Avg	4.30	Acre Inches		5.43			mg/L			422	0	0	14,266	
08/14/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			491	0	0	16,588	
09/01/2023	Fertilize - UN32	35.00	Gallons		32.00	0.00	0.00	%			7,464	0	0	0	
09/01/2023	Ground Water: Well Avg	4.50	Acre Inches		5.43			mg/L			442	0	0	14,929	
09/21/2023	Ground Water: Well Avg	4.40	Acre Inches		5.43			mg/L			433	0	0	14,597	
10/17/2023	Harvest	29.00	Tons	68.00	1.13	0.21	1.03	%							16,778
	Acre Inches Applied:	**30.70**						**Totals:**			**17,946**	**0**	**0**	**101,849**	**16,778**
Season Nitrogen Ratio:	1.07							**Lbs Per Acre:**			**224**	**0**	**0**	**1,273**	**210**

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Nutrient Applications (Attachment B)

Field Name: F11

Alfalfa, 76 Acres Planted on 01/31/2018

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			%			1,064				
03/07/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			374	0	0	12,607	
04/05/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			467	0	0	15,759	
05/06/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			467	0	0	15,759	
06/04/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			467	0	0	15,759	
07/07/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			467	0	0	15,759	
08/03/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			467	0	0	15,759	
09/06/2023	Ground Water: Well Avg	5.00	Acre Inches		5.43			mg/L			467	0	0	15,759	
10/05/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			374	0	0	12,607	
11/03/2023	Ground Water: Well Avg	4.00	Acre Inches		5.43			mg/L			374	0	0	12,607	
12/01/2023	Harvest	8.60	Tons	8.30	3.71	0.30	2.53	%							44,472
	Acre Inches Applied:	**42.00**						**Totals:**			**4,986**	**0**	**0**	**132,372**	**44,472**
Season Nitrogen Ratio:	0.11							**Lbs Per Acre:**			**66**	**0**	**0**	**1,742**	**585**

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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	41,366.92	13,991.94	44,002.18	0.00	1,424.00	tons
Process Wastewater	34,528.86	3,992.99	44,995.09	276,947.74	8,546,815.92	gallons
Irrigation Water	30,485.31					
Fertilizer / Total Imports	54,833.02					
Atmospheric Deposition	8,806.00					
Total Nitrogen Applied	**170,020.11**					
Crop Nitrogen Removal	265,599.81					
Nitrogen Balance	**(95,579.70)**					
Nitrogen Ratio	**0.64**					

- **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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Golden State 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

Golden State 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)**
4,000	116,198.40	39,302.40	123,603.20	0.00

* 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
F1	x293 x130 x013 xxxx	19	Both
F2	x293 x130 x013 xxxx	43	Both
F3	x293 x130 x013 xxxx	58	Both
F4	x293 x130 x002 xxxx	56	Both
F5	x293 x130 x002 xxxx	72	None
F6	x293 x130 x015 xxxx	85	None
F7	x293 x130 x015 xxxx	66	None
F8	x293 x130 x009 xxxx	74	None
F10	x293 x130 x009 xxxx	80	Both
F11	x293 x140 x024 xxxx	76	None
		629	

Production Area APN(s): x293 x130 x002 xxxx, x293 x130 x013 xxxx

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Golden State 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
03/09/2023	485.00	56.10	632.00	5,860	236.00		3,890.00								
06/16/2023	428.00	41.40	535.00	6,810	359.00	2.00	4,520.00	7.60							
07/10/2023	365.00	32.00	317.00	7,160	350.00		4,750.00								
11/08/2023	413.00	37.60	400.00	5,910	412.00		3,920.00								
Averages:	422.75	41.78	471.00	6,435	339.25	2.00	4,270.00	7.60							

Manure - Corral Solids
(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/14/2023	1.92	0.72	1.91	58.00						%
11/01/2023	2.50	0.77	1.95	43.60						%
Averages:	2.21	0.75	1.93	50.80						

Plant Tissue
(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
F1	1	Wheat	05/26/2023	44.80	9.00	45.80	68.90	13.40
F1	2	Corn	10/10/2023	20.40	5.00	33.40	72.10	7.96

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Golden State 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 (%)
F2	1	Wheat	05/26/2023	49.60	7.60	40.60	68.30	11.01
F2	2	Corn	10/11/2023	20.00	5.20	16.00	64.80	5.67
F3	1	Wheat	05/26/2023	43.20	8.60	45.20	66.00	14.50
F3	2	Corn	10/17/2023	21.60	3.60	20.40	67.80	7.76
F4	1	Wheat	05/26/2023	46.60	8.80	42.60	62.80	14.90
F4	2	Corn	10/11/2023	17.60	5.40	14.60	62.20	5.83
F5	1	Alfalfa	12/01/2023	59.60	5.20	59.20	7.80	11.90
F6	1	Alfalfa	12/01/2023	52.40	5.80	64.20	8.10	12.20
F7	1	Almonds	10/06/2023	37.20	5.20	31.20	10.70	8.83
F8	1	Corn	08/22/2023	17.60	3.40	10.60	61.90	4.96
F10	1	Wheat	05/26/2023	48.40	9.00	46.00	69.00	13.60
F10	2	Corn	10/17/2023	22.60	4.20	20.60	68.00	9.32
F11	1	Alfalfa	12/01/2023	74.20	6.00	50.60	8.30	10.50

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

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Golden State Dairy 2023
Lab Results Summary (Attachment E)

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

	Sample Date:	NO3N	TP	EC (umhos/cm)	NH4N *	TDS	TN	General Minerals CA	MG	NA	HCO3	CO3	SO4	CL
Domestic														
DW#1	12/18/2023	6.30		458										
DW#4	03/28/2023	0.90		431										
	Averages:	3.60		444										
Irrigation														
IW#1	10/11/2023	9.40		381		250.00	9.40							
IW#2							Did not Run							
IW#5	Out of Service						Out of service							
IW#6							Did not Run							
IW#8							Out of service							
IW#9							Out of service							
IW#10							Did not run							
IW#17	04/25/2023	2.60		228		130.00	2.60							
IW#19	08/31/2023	4.30		236		170.00	4.40	13.00	1.00	41.00	80.00	0.00	3.80	12.00
	Averages:	5.43		282		183.33	5.47	13.00	1.00	41.00	80.00	0.00	3.80	12.00

* NH4N was non-detectable unless a value is shown

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Golden State Dairy 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: F1								
	1	Wheat	19	11/11/2022	05/26/2023	17.4	340.1	17.9
	2	Corn	19	06/17/2023	10/10/2023	21.9	418.0	22.0
Field: F2								
	1	Wheat	43	11/11/2022	05/26/2023	16.6	763.2	17.8
	2	Corn	43	06/17/2023	10/11/2023	31.4	1371.7	31.9
Field: F3								
	1	Wheat	58	11/27/2022	05/26/2023	20.9	1171.6	20.2
	2	Corn	58	06/16/2023	10/17/2023	29.7	1751.6	30.2
Field: F4								
	1	Wheat	56	11/17/2022	05/26/2023	24.9	1260.0	22.5
	2	Corn	56	06/18/2023	10/11/2023	29.4	1702.4	30.4
Field: F5								
	1	Alfalfa	72	11/15/2021	12/01/2023	8.4	612.0	8.5
Field: F6								
	1	Alfalfa	85	11/26/2018	12/01/2023	8.6	765.0	9.0
Field: F7								
	1	Almonds	66	10/28/2016	10/06/2023	5.5	172.9	2.6
Field: F8								
	1	Corn	74	04/21/2023	08/22/2023	27.9	2086.8	28.2
Field: F10								
	1	Wheat	80	11/14/2022	05/26/2023	18.0	1520.0	19.0
	2	Corn	80	06/17/2023	10/17/2023	28.2	2320.0	29.0
Field: F11								
	1	Alfalfa	76	01/31/2018	12/01/2023	8.0	653.6	8.6

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Golden State 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

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Manure/Process Wastewater Tracking Manifest For Existing Milk Cow Dairies

Instructions:

1) Complete one manifest for each hauling event, for each destination. A hauling event may last for several days, as long as the manure is being hauled to the same destination.
2) If there are multiple destinations, **complete a separate form for each destination.**
3) The operator must obtain the signature of the hauler upon completion of each manure-hauling event.
4) The operator shall submit copies of manure/process wastewater tracking manifest(s) with the Annual Monitoring Report for Existing Milk Cow Dairies.

Operator Information:

Name of Operator: Randy Parreira

Name of Dairy Facility: Golden State Dairy

Facility Address: 11425 Road 112 (Number and Street) Pixley, CA (City) 93256 (Zip Code)

Contact Person Name: Randy Parreira (Name) 559-280-2236 (Phone Number)

Manure/Process Wastewater Hauler Information:

Name of Hauling Company/Person: Cain Trucking, Inc.

Address of Hauling Company /Person: 23004 Road 140 (Number and Street) Tulare (City) 93274 (Zip Code)

Contact Person: Paul Barcellos (Name) (Phone Number)

Destination Information:

(Composting Facility) / Broker / Farmer / Other (identify) _____ (please circle one)

Contact information of : Composting Facility, Broker, Farmer, or Other (as identified above):

Cain Trucking, Inc. (Name) 23004 Road 140 (Number and Street) Tulare (City) 93274 (Zip Code) (Phone Number)

Manure/Process Wastewater Destination Address or Assessor's Parcel Number:

7559 Ave. 152 (Number and Street) Tipton (City) 93272 (Zip Code) (Assessor's Parcel Number)

Dates Hauled: 2/20/2023

Amount Hauled:

Enter the amount of manure hauled in tons or cubic yards (indicate the units used), the manure solids content (if amount reported in tons) or manure density (if amount reported in cubic yards), and the method used to calculate the amount:

- Manure: 4,000 (Tons) or Cubic Yards (indicate which units used)
- Manure Moisture % : 58 % Corral Solids
- Method used to determine amount of manure: _____

Enter the amount of process wastewater hauled in gallons and the method used to determine the amount.

- Process Wastewater: _____ Gallons
- Method used to determine volume of process wastewater: _____

Written Agreement:

Does the Operator have a written agreement (in compliance with Land Application Specification C.2 of Waste Discharge Requirements General Order No. R5-2007-0035) with any party that receives process wastewater from the Operator for its own use? (please check one)

_____ Yes _____ No

If the answer is no, the Operator agrees to have such a written agreement with any such party for any process wastewater transferred after **31 December 2007** to such party.

_____ (Operator shall provide initials here to acknowledge this requirement).

Certification:

I declare under the penalty of law that I personally examined and am familiar with the information submitted in this document, 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 a fine and imprisonment for knowing violations.

Operator's Signature: Randy Parreira Date: 5/31/24

DocuSigned by:

Hauler's Signature: Paul Barcellos 01C7310D8F7D48B... Date: 6/22/2024

DocuSign Envelope ID: 6EB17E51-4CD5-4F33-A9EE-A326B934F767

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

April 11, 2023

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

Lab No. : **VI 2341853**
Customer No. : **4018573**
Reference : **40354**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
DW #4	03/28/2023	03/28/2023	VI 2341853-001	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	
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: 2023-04-12

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

April 11, 2023

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

Description : DW #4
Project : 0657 Golden Star Dairy

Lab No. : VI 2341853-001
Customer No. : 4018573
Reference : 40354
Sampled On : March 28, 2023 at 12:15
Sampled By : Sean
Received On : March 28, 2023 at 15:49
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
Nitrate Nitrogen	0.9	0.4	mg/L		1		03/29/2023	15:00	lfs	SM 4500-NO3 F	03/29/2023	16:55	lfs
Conductivity	431	1	umhos/cm		1		04/03/2023	15:15	amm	SM 4500-H+B	04/03/2023	23:49	amm

DQF Flags Definition:

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

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

April 11, 2023
Innovative Ag Services, LLC

Lab No. : VI 2341853
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(STK2333809-004)	Dup	umhos/cm		0.5%	5	
Nitrate Nitrogen	4500NO3F	03/29/2023:203320LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	93.7%	80-120	
			MS	mg/L	5.609	87.3%	66-125	
		(CH 2371986-001)	MSD	mg/L	5.609	89.8%	66-125	
			MSRPD	mg/L	5.609	1.3%	≤30.4	

Definition

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

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

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

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

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

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

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

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

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CA ELAP Certification No. 2810

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Laboratory Analysis Work Order

Nº 40354

ID: # 0657 2341853

LABORATORY: FGL

SITE NAME: GOLDEN STATE 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) Rcl 16.9

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	DW #4	Dom	W1	3/28/23 12:15	SEAN	0		
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

GLS 3/29/23

CDA 1345

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		3/28/23 3:00
2nd		FGL	3/28/23 1500	
3rd		FGL		3/28/23 1549
4th			3/28/23 1549	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: 1 3/28/23 Laboratory #: _____

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

May 15, 2023

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

Lab No. : **VI 2342500**
Customer No. : **4018573**
Reference : **40436**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
IW#17	04/25/2023	04/25/2023	VI 2342500-001	AGW

Sampling and Receipt Information:

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

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

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

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

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-05-17

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

May 15, 2023

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

Description : IW#17
Project : 0657 Golden State Dairy

Lab No. : VI 2342500-001
Customer No. : 4018573
Reference : 40436
Sampled On : April 25, 2023 at 13:00
Sampled By : Sean
Received On : April 25, 2023 at 15:56
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	05/10/2023	13:10	sta	EPA 351.2	05/11/2023	11:35	lcr
Nitrate Nitrogen	2.6	0.4	mg/L		1		04/26/2023	12:30	lfs	SM 4500-NO3 F	04/26/2023	15:21	lfs
Nitrogen, Total as Nitrogen	2.6	0.5	mg/L		1		05/10/2023	13:10	sta	Calc.	05/11/2023	11:35	lcr
Nitrate + Nitrite as N	2.6	0.4	mg/L		1		04/26/2023	12:30	lfs	SM 4500-NO3 F	04/26/2023	15:21	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	05/10/2023	13:10	sta	EPA 351.2	05/11/2023	11:35	lcr
Conductivity	228	1	umhos/cm		1		05/09/2023	18:02	amm	SM 4500-H+B	05/09/2023	20:46	amm
Solids, Total Dissolved (TDS)	130	20	mg/L		1		04/27/2023	16:45	ctl	SM 2540 C	04/28/2023	11:30	ctl

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

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

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

May 15, 2023
Innovative Ag Services, LLC

Lab No. : VI 2342500
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2342595-001)	Dup	umhos/cm		1.18%	5	
Solids, Total Dissolved	2540CE	04/27/2023:204553CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	993.7	103%	90-110	
		(STK2335107-001)	Dup	mg/L		1.07%	5	
		(STK2335107-001)	Dup	mg/L		0.3%	5	
Nitrogen, Total Kjeldahl	351.2	05/10/2023:205052STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	91.9%	73-124	
			MS	mg/L	12.00	86.2%	54-136	
		(CH 2372746-001)	MSD	mg/L	12.00	87.8%	54-136	
			MSRPD	mg/L	12.00	1.8%	≤27	
			MS	mg/L	12.00	87.9%	54-136	
		(CH 2372746-002)	MSD	mg/L	12.00	84.7%	54-136	
			MSRPD	mg/L	12.00	3.6%	≤27	
Nitrate + Nitrite as N	4500NO3F	04/26/2023:204508LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	97.4%	80-120	
			MS	mg/L	5.609	92.9%	66-125	
		(CH 2372732-001)	MSD	mg/L	5.609	95.5%	66-125	
			MSRPD	mg/L	5.609	1.0%	≤30.4	
Nitrate Nitrogen	4500NO3F	04/26/2023:204508LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	97.4%	80-120	
			MS	mg/L	5.609	92.9%	66-125	
		(CH 2372732-001)	MSD	mg/L	5.609	95.5%	66-125	
			MSRPD	mg/L	5.609	1.0%	≤30.4	

Definition

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

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

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

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

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

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

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

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

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Laboratory Analysis Work Order

Nº 40436

2342500

ID: # 0657

SITE NAME: GOLDEN STATE DAIRY

Billing: IAS

LABORATORY: FGL

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr) Rel 1.3

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_4N *	pH	Temp
1	INV #17	IRR	W2	4/25/23 (W)	SEAN	Ø		
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[illegible]	IAS		4/25/23 2:30
2nd	[illegible]	FGL	4-25-23 15:45	
3rd	[illegible]	FGL		4-25-23 15:56
4th	[illegible]		4/25/23 1556	

LABORATORY USE ONLY

Logged In By: EW

Total Samples: 4/25/23 1720

Laboratory #: _____

GLS MC 4/26/23 1120

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

September 14, 2023

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

Lab No. : **VI 2345860**
Customer No. : **4018573**
Reference : **41307**

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
IW19	08/31/2023	08/31/2023	VI 2345860-001	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 FGL AGRICULTURAL
Analytical Chemists

September 14, 2023

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

Description : IW19
Project : 0657 Golden State Dairy

Lab No. : VI 2345860-001
Customer No. : 4018573
Reference : 41307
Sampled On : August 31, 2023 at 12:30
Sampled By : Frank
Received On : August 31, 2023 at 16:08
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)	80	10	mg/L		1		09/05/2023	15:53	amm	SM 4500-H+B	09/05/2023	22:24	amm
Bicarbonate	80	10	mg/L		1		09/05/2023	15:53	amm	SM 4500-H+B	09/05/2023	22:24	amm
Carbonate	ND	10	mg/L		1	UI	09/05/2023	15:53	amm	SM 4500-H+B	09/05/2023	22:24	amm
Hydroxide	ND	10	mg/L		1	UI	09/05/2023	15:53	amm	SM 4500-H+B	09/05/2023	22:24	amm
Chloride	12	1	mg/L		1		09/01/2023	14:36	ldm	EPA 300.0	09/01/2023	22:45	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	09/12/2023	09:41	sta	EPA 351.2	09/13/2023	17:19	lcr
Nitrate Nitrogen	4.3	0.1	mg/L		1		09/01/2023	14:36	ldm	EPA 300.0	09/01/2023	22:45	ldm
Nitrogen, Total as Nitrogen	4.4	0.5	mg/L		1	l	09/12/2023	09:41	sta	Calc.	09/13/2023	17:19	lcr
Nitrate + Nitrite as N	4.4	0.1	mg/L		1		09/01/2023	14:36	ldm	EPA 300.0	09/01/2023	22:45	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	09/12/2023	09:41	sta	EPA 351.2	09/13/2023	17:19	lcr
Conductivity	236	1	umhos/cm		1		09/05/2023	15:53	amm	SM 4500-H+B	09/05/2023	22:24	amm
Sulfate Sulfur	3.80	0.17	mg/L		1		09/01/2023	14:36	ldm	EPA 300.0	09/01/2023	22:45	ldm
Solids, Total Dissolved (TDS)	170	20	mg/L		1		09/05/2023	15:20	ctl	SM 2540 C	09/06/2023	11:00	ctl
Calcium	13	1	mg/L		1		09/05/2023	06:45	ejc	EPA 200.7	09/05/2023	18:26	ac
Magnesium	1	1	mg/L		1		09/05/2023	06:45	ejc	EPA 200.7	09/05/2023	18:26	ac
Sodium	41	1	mg/L		1		09/05/2023	06:45	ejc	EPA 200.7	09/05/2023	18:26	ac

DQF Flags Definition:
U Constituent results were non-detect.
I The RPD for the laboratory duplicate exceeded laboratory criteria.
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 2345860
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	09/05/2023:209882EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	103%	85-115	
			MS	mg/L	12.00	0.500%	<¼	406
		(SP 2314959-001)	MSD	mg/L	12.00	16.6%	<1/4	
			MSRPD	mg/L		0.7%	≤20.0	
			MS	mg/L	12.00	113%	75-125	
		(STK2351734-001)	MSD	mg/L	12.00	123%	75-125	
			MSRPD	mg/L		4.8%	≤20.0	
Magnesium	200.7	09/05/2023:209882EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	105%	85-115	
			MS	mg/L	12.00	63.7%	<¼	406
		(SP 2314959-001)	MSD	mg/L	12.00	65.6%	<1/4	
			MSRPD	mg/L		0.2%	≤20	
			MS	mg/L	12.00	114%	75-125	
		(STK2351734-001)	MSD	mg/L	12.00	146%	<1/4	
			MSRPD	mg/L		4.7%	≤20	
Sodium	200.7	09/05/2023:209882EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.4%	85-115	
			MS	mg/L	12.00	-5.17%	<¼	406
		(SP 2314959-001)	MSD	mg/L	12.00	10.7%	<1/4	
			MSRPD	mg/L		0.8%	≤20.0	
			MS	mg/L	12.00	144%	<¼	406
		(STK2351734-001)	MSD	mg/L	12.00	284%	<1/4	
			MSRPD	mg/L		6.1%	≤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 2345860
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	09/05/2023:209945AMM	ND	mg/L		0.6%	10	406
Bicarbonate	2320B	(SP 2315027-001)	Dup	mg/L		0.5%	10	
Carbonate	2320B	(SP 2315027-001)	Dup	mg/L		11.8%	10	440
E. C.	2320B	(SP 2315027-001)	Dup	umhos/cm		0%	5	
Solids, Total Dissolved	2540CE	09/05/2023:209936CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	102%	90-110	
		(CH 2377296-005)	Dup	mg/L		0.5%	5	
		(CH 2377296-005)	Dup	mg/L		0.3%	5	
Chloride	300.0	09/01/2023:209915LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	106 %	90-110	
			MS	mg/L	50.00	67.0 %	67-117	
		(STK2351807-001)	MSD	mg/L	50.00	71.1 %	67-117	
			MSRPD	mg/L	10.00	1.6%	≤7	
			MS	mg/L	50.00	101 %	67-117	
		(CH 2377359-008)	MSD	mg/L	50.00	101 %	67-117	
			MSRPD	mg/L	10.00	0.2%	≤7	
Nitrate + Nitrite as N	300.0	09/01/2023:209915LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	105 %	90-110	
			MS	mg/L	40.00	96.5 %	86-112	
		(STK2351807-001)	MSD	mg/L	40.00	96.2 %	86-112	
			MSRPD	mg/L	10.00	0.2%	≤7	
			MS	mg/L	40.00	89.6 %	86-112	
		(CH 2377359-008)	MSD	mg/L	40.00	89.7 %	86-112	
			MSRPD	mg/L	10.00	0.02%	≤7	
Nitrate Nitrogen	300.0	09/01/2023:209915LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	105 %	90-110	
			MS	mg/L	40.00	96.5 %	86-112	
		(STK2351807-001)	MSD	mg/L	40.00	96.2 %	86-112	
			MSRPD	mg/L	10.00	0.2%	≤7	
			MS	mg/L	40.00	89.6 %	86-112	
		(CH 2377359-008)	MSD	mg/L	40.00	89.7 %	86-112	
			MSRPD	mg/L	10.00	0.02%	≤7	
Sulfate Sulfur	300.0	09/01/2023:209915LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	108 %	90-110	
			MS	mg/L	100.0	102 %	18-165	
		(STK2351807-001)	MSD	mg/L	100.0	103 %	18-165	
			MSRPD	mg/L	10.00	0.1%	≤7	
			MS	mg/L	100.0	104 %	18-165	
		(CH 2377359-008)	MSD	mg/L	100.0	104 %	18-165	
			MSRPD	mg/L	10.00	0.2%	≤7	
Nitrogen, Total Kjeldahl	351.2	09/12/2023:210201STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	93.2%	73-124	
			MS	mg/L	12.00	88.4%	90-110	435
		(CH 2377291-007)	MSD	mg/L	12.00	88.0%	90-110	435
			MSRPD	mg/L		0.4%	≤20	
			MS	mg/L	12.00	91.8%	90-110	
		(CH 2377291-009)	MSD	mg/L	12.00	85.4%	90-110	435
			MSRPD	mg/L		6.3%	≤20	

Page 4 of 5

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Definition

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

Explanation

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

Page 5 of 5

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Laboratory Analysis Work Order

Nº 41307

2345860

ID: # 0657

LABORATORY: FGL

SITE NAME: Golden State 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: _____

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	IW19	Irr	W5	12:30 8/31	Frank	—		
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[signature]	IAS		8/31/23 3:00
2nd	ADB	FGL	8/31/23 1540	
3rd	ADB	FGL		8/31/23 1608
4th	SRO	FGL	8.31.23 1608	
	SRO	FGL	8.31.23 1730	
		GLS	8.31.23 1730	
		GLS	9/1/23 1235	
		CDA		

LABORATORY USE ONLY

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

R01 7.8°C ID# TH407

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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 2346888**
Customer No. : **4018573**
Reference : **41538**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
IW #1	10/11/2023	10/11/2023	VI 2346888-001	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 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

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

KD: JRD

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

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

November 2, 2023

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

Description : IW #1
Project : 0657 Golden State Dairy

Lab No. : VI 2346888-001
Customer No. : 4018573
Reference : 41538
Sampled On : October 11, 2023 at 10:35
Sampled By : Cris
Received On : October 11, 2023 at 16:14
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:35	lcr
Nitrate Nitrogen	9.4	0.1	mg/L		1		10/12/2023	16:14	ldm	EPA 300.0	10/13/2023	06:34	ldm
Nitrogen, Total as Nitrogen	9.4	0.5	mg/L		1	l	10/25/2023	12:24	sta	Calc.	10/29/2023	18:35	lcr
Nitrate + Nitrite as N	9.4	0.1	mg/L		1		10/12/2023	16:14	ldm	EPA 300.0	10/13/2023	06:34	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	10/25/2023	12:24	sta	EPA 351.2	10/29/2023	18:35	lcr
Conductivity	381	1	umhos/cm		1		11/02/2023	09:02	krh	SM 4500-H+B	11/02/2023	14:31	krh
Solids, Total Dissolved (TDS)	250	20	mg/L		1		10/16/2023	10:40	ctl	SM 2540 C	10/17/2023	11:00	ctl

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

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

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

November 2, 2023
Innovative Ag Services, LLC

Lab No. : VI 2346888
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(CC 2383609-002)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	10/16/2023:211599CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	102%	90-110	
		(CC 2383616-003)	Dup	mg/L		2.89%	5	
		(CC 2383616-003)	Dup	mg/L		1.60%	5	
Nitrate + Nitrite as N	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	10/12/2023:211643LDM	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	
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.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

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

Page 3 of 3

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Laboratory Analysis Work Order

Nº 41538

ID: # 0657 2346889

SITE NAME: Golden State Dairy

Billing: IAS

LABORATORY: FGL

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

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

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	IW#1	IRR	W2	10-11 10:35	Cris			
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

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

LABORATORY USE ONLY

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

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

January 2, 2024

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

Lab No. : **VI 2348634**
Customer No. : **4018573**
Reference : **42199**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
DW#1	12/18/2023	12/18/2023	VI 2348634-001	DW

Sampling and Receipt Information:

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

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

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

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

KD: JRD

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

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

January 2, 2024

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

Description : DW#1
Project : 0657 Golden State Dairy

Lab No. : VI 2348634-001
Customer No. : 4018573
Reference : 42199
Sampled On : December 18, 2023 at 10:20
Sampled By : Zeke
Received On : December 18, 2023 at 15:55
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrate Nitrogen	6.3	0.4	mg/L	10	1		12/19/2023	14:30	lfs	SM 4500-NO3 F	12/19/2023	17:19	lfs
Conductivity	458	1	umhos/cm	1600[2]	1		12/22/2023	09:20	krh	SM 4500-H+B	12/22/2023	13:00	krh

DQF Flags Definition:

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

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348634
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2348744-001)	Dup	umhos/cm		0.2%	5	
Nitrate Nitrogen	4500NO3F	12/19/2023:214315LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	95.2%	80-120	
			MS	mg/L	5.609	95.4%	66-125	
		(STK2357261-001)	MSD	mg/L	5.609	92.6%	66-125	
			MSRPD	mg/L		1.4%	≤30.4	

Definition

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

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

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

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

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

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

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

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

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Laboratory Analysis Work Order 2848634 N° 42199

ID: # 0657

SITE NAME: Golden State Dairy

Billing:

LABORATORY: FGL

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

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

PCL 6.5U DDF THCL

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	DW#1	DOM	W1	12-18/10:20	Zdc			
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		12-18-23 / 11:45
2nd		FGL	12-18-23 15:58	
3rd		FGL		12-18-23 15:55
4th			12/18/23 1555	

LABORATORY USE ONLY

Logged In By: GLS Total Samples: Laboratory #:

GLS 12/19/23 1424

JAW

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