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INNOVATIVE
AG SERVICES

Parreira Farms

2023 Annual Report

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

Enclosed are the required documents to be submitted to the Regional Water Quality Control Board Central Valley Region in compliance with Order No. R5-2013-0122 Waste Discharge Requirements, General Order for Existing Milk Cow Dairies for July 1, 2024.

(See attached delivery confirmation)

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Annual Report

Parreira Farms 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Parreira Farms
Facility Address	11021 Avenue 120, Pixley CA 93256

Owner/Operator as of 12/31/2023

Operator Name	Randy Parreira
Operator Phone	(559) 280-2236
Owner Name	Biagio Land Company, L.P.
Owner Phone	(559) 284-6797

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

X No discharges occurred during the reporting period.

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

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

X No discharges occurred during the reporting period.

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

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

__ No.

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

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

X No.

__ Yes, see attached manifests.

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

X Not applicable; no written agreements.

__ No changes in agreement(s).

__ Yes, a new or revised agreement is attached.

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

X Not Applicable.

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

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

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17. Record-Keeping Results

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

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

18. Groundwater Monitoring Section

X Groundwater monitoring results are attached.

__ Monitoring Well results are attached, if applicable.

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

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

19. Storm Water Reporting Section

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

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

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

20. Mortality Management Practices

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

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Parreira Farms 2023

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CENTRAL VALLEY REGION

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

DocuSigned by: Randy Parreira 01C7310D8F7D48B...	DocuSigned by: Dominic Pitigliano BB162E36993B415...
Signature of Operator of Facility	Signature of Owner of Facility
Randy Parreira	Biagio Land Company, L.P.
Print Name	Print Name
6/28/2024	6/28/2024
Title and Date	Title and Date

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Parreira Farms 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 Heifers(15-24)	250	243	Flushed	1,000	2,536.56	33,704.10	5,321.70	15,965.10	62,583.19
Hol Heifers (7-14)	350	341	Flushed	750	3,279.49	32,360.90	5,476.46	18,669.75	41,166.80
	600	**584**			**5,816.05**	**66,065.00**	**10,798.16**	**34,634.85**	**103,749.99**

* 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)**
1,623,827	228.00	22.78	225.25	1,570.00	3,084.04	308.07	3,046.84	21,236.57

* 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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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 3

Tomatoes, 68 Acres Planted on 03/14/2023

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			%			952				
02/20/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,692	
04/03/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
04/15/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,625	0	0	0	
04/15/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
05/06/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
05/14/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
05/31/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
06/13/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,625	0	0	0	
06/13/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
06/30/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,922	
07/10/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,692	
07/22/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,692	
08/02/2023	Harvest	65.00	Tons	**	0.13	0.02	0.24	%							11,492
	Acre Inches Applied:	**18.50**						**Totals:**			**8,259**	**0**	**0**	**45,528**	**11,492**
Season Nitrogen Ratio:	0.72							**Lbs Per Acre:**			**121**	**0**	**0**	**670**	**169**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 3E

Tomatoes, 5 Acres Planted on 03/16/2023

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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			70				
02/19/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			0	0	0	271	
04/02/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
04/14/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			267	0	0	0	
04/14/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
05/05/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
05/13/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
05/30/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
06/12/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			267	0	0	0	
06/12/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
06/29/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			0	0	0	362	
07/09/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			0	0	0	271	
07/21/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			0	0	0	271	
08/02/2023	Harvest	64.80	Tons	**	0.13	0.02	0.24	%							842
	Acre Inches Applied:	**18.50**						**Totals:**			**607**	**0**	**0**	**3,348**	**842**
Season Nitrogen Ratio: 0.72								**Lbs Per Acre:**			**121**	**0**	**0**	**670**	**168**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 4

Tomatoes, 69 Acres Planted on 03/16/2023

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)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			966				
02/03/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,746	
02/19/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,746	
03/28/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
04/12/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,678	0	0	0	
04/12/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
04/30/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
05/06/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
05/16/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			3,678	0	0	0	
05/16/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
06/01/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
06/20/2023	Ground Water: Well Avg	2.00	Acre Inches		0.20		0.00	mg/L			6	0	0	4,994	
07/08/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,746	
07/21/2023	Ground Water: Well Avg	1.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,746	
08/02/2023	Harvest	64.50	Tons	**	0.13	0.02	0.24	%							11,571
	Acre Inches Applied:	**20.00**						**Totals:**			**8,386**	**0**	**0**	**49,944**	**11,571**
Season Nitrogen Ratio:	0.72							**Lbs Per Acre:**			**122**	**0**	**0**	**724**	**168**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 12

Wheat, 23 Acres Planted on 11/20/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/15/2022	Corral Solids: Main Corral	5.00	Tons	53.90	2.11	0.84	2.20	%	115		2,237	885	2,333	0	
10/23/2022	Ground Water: Well Avg	4.50	Acre Inches		2.70			mg/L			63	0	0	4,214	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			322				
03/08/2023	Ground Water: Well Avg	4.60	Acre Inches		0.20		0.00	mg/L			5	0	0	3,829	
03/08/2023	Waste Water: Main Lagoon	0.60	Acre Inches		323.00	32.30	318.00	mg/L		374,729	1,008	101	993	5,712	
04/15/2023	Ground Water: Well Avg	4.80	Acre Inches		0.20		0.00	mg/L			5	0	0	3,996	
04/15/2023	Waste Water: Main Lagoon	0.60	Acre Inches		323.00	32.30	318.00	mg/L		374,729	1,008	101	993	5,712	
05/26/2023	Harvest	18.80	Tons	69.30	2.12	0.46	2.26	%							5,629
	Acre Inches Applied:	**15.10**						**Totals:**	**115**	**749,459**	**4,649**	**1,087**	**4,318**	**23,463**	**5,629**
Season Nitrogen Ratio:	0.83							**Lbs Per Acre:**			**202**	**47**	**188**	**1,020**	**245**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 12

Corn, 23 Acres Planted on 06/23/2023

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)
06/02/2023	Corral Solids: Main Corral	5.00	Tons	27.50	1.98	0.90	1.99	%	115		3,302	1,496	3,318	0	
06/09/2023	Ground Water: Well Avg	4.80	Acre Inches		0.20		0.00	mg/L			5	0	0	3,996	
07/12/2023	Ground Water: Well Avg	5.00	Acre Inches		0.20		0.00	mg/L			5	0	0	4,162	
07/24/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			1,226	0	0	0	
07/24/2023	Ground Water: Well Avg	4.70	Acre Inches		0.20		0.00	mg/L			5	0	0	3,912	
08/11/2023	Ground Water: Well Avg	5.10	Acre Inches		0.20		0.00	mg/L			5	0	0	4,245	
08/23/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			1,226	0	0	0	
08/23/2023	Ground Water: Well Avg	4.75	Acre Inches		0.20		0.00	mg/L			5	0	0	3,954	
09/10/2023	Ground Water: Well Avg	4.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,746	
09/21/2023	Ground Water: Well Avg	4.50	Acre Inches		0.20		0.00	mg/L			5	0	0	3,746	
10/10/2023	Harvest	27.40	Tons	71.80	1.23	0.21	1.58	%							4,372
	Acre Inches Applied:	**33.35**						**Totals:**	**115**		**5,788**	**1,496**	**3,318**	**27,761**	**4,372**
Season Nitrogen Ratio:	1.32							**Lbs Per Acre:**			**252**	**65**	**144**	**1,207**	**190**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 13

Wheat, 23 Acres Planted on 11/20/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/16/2022	Corral Solids: Main Corral	5.00	Tons	53.90	2.11	0.84	2.20	%	115		2,237	885	2,333	0	
12/26/2022	Ground Water: Well Avg	4.60	Acre Inches		2.70			mg/L			65	0	0	4,308	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			322				
03/09/2023	Ground Water: Well Avg	4.75	Acre Inches		0.20		0.00	mg/L			5	0	0	3,954	
03/09/2023	Waste Water: Main Lagoon	0.70	Acre Inches		323.00	32.30	318.00	mg/L		437,184	1,176	118	1,158	6,664	
04/16/2023	Ground Water: Well Avg	4.90	Acre Inches		0.20		0.00	mg/L			5	0	0	4,079	
04/16/2023	Waste Water: Main Lagoon	0.70	Acre Inches		323.00	32.30	318.00	mg/L		437,184	1,176	118	1,158	6,664	
05/26/2023	Harvest	19.75	Tons	70.00	2.42	0.44	2.68	%							6,596
	Acre Inches Applied:	**15.65**						**Totals:**	**115**	**874,368**	**4,986**	**1,120**	**4,649**	**25,669**	**6,596**
Season Nitrogen Ratio:	0.76							**Lbs Per Acre:**			**217**	**49**	**202**	**1,116**	**287**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Field Name: 13

Corn, 23 Acres Planted on 06/22/2023

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)
06/03/2023	Corral Solids: Main Corral	5.00	Tons	27.50	1.98	0.90	1.99	%	115		3,302	1,496	3,318	0	
06/08/2023	Ground Water: Well Avg	4.75	Acre Inches		0.20		0.00	mg/L			5	0	0	3,954	
07/13/2023	Ground Water: Well Avg	5.20	Acre Inches		0.20		0.00	mg/L			6	0	0	4,328	
07/26/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			1,226	0	0	0	
07/26/2023	Ground Water: Well Avg	4.80	Acre Inches		0.20		0.00	mg/L			5	0	0	3,996	
08/13/2023	Ground Water: Well Avg	5.20	Acre Inches		0.20		0.00	mg/L			6	0	0	4,328	
08/21/2023	Fertilize - UN32	20.00	Gallons		32.00	0.00	0.00	%			1,226	0	0	0	
08/21/2023	Ground Water: Well Avg	4.60	Acre Inches		0.20		0.00	mg/L			5	0	0	3,829	
09/11/2023	Ground Water: Well Avg	4.80	Acre Inches		0.20		0.00	mg/L			5	0	0	3,996	
09/20/2023	Ground Water: Well Avg	4.60	Acre Inches		0.20		0.00	mg/L			5	0	0	3,829	
10/10/2023	Harvest	28.70	Tons	71.30	1.26	0.24	1.42	%							4,774
	Acre Inches Applied:	**33.95**						**Totals:**	**115**		**5,790**	**1,496**	**3,318**	**28,260**	**4,774**
Season Nitrogen Ratio:	1.21							**Lbs Per Acre:**			**252**	**65**	**144**	**1,229**	**208**

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Parreira Farms 2023

Nutrient Applications (Attachment B)

Summary of Nutrient Applications, Removal, and Balance

	Total N (Lbs)	Total P (Lbs)	Total K (Lbs)	Total Salts (Lbs)	Total Manure Applied	
Solid Manure	11,077.72	4,761.92	11,302.20	0.00	460.00	tons
Process Wastewater	4,369.08	436.54	4,301.46	24,753.52	1,623,827.14	gallons
Irrigation Water	341.92					
Fertilizer / Total Imports	20,044.56					
Atmospheric Deposition	2,632.00					
Total Nitrogen Applied	**38,465.28**					
Crop Nitrogen Removal	45,275.92					
Nitrogen Balance	**(6,810.64)**					
Nitrogen Ratio	**0.85**					

- **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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Parreira Farms 2023
Nutrient Applications (Attachment B)

FIELD NITROGEN RATIO Calculation:

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

ATMOSHERIC DEPOSITION Applied (lbs) Calculation:

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

HARVEST Nitrogen Extraction (Lbs) Calculation:

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

IRRIGATION Nitrogen and Salts Applied (Lbs) Calculations:

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

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

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

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

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

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

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

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

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

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

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

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

"Lbs Applied per Acre" Calculations:

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

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

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

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

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Parreira Farms 2023

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

A. ESTIMATED TOTAL MANURE TRANSFERRED OFFSITE

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

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

B. ESTIMATED TOTAL PROCESS WASTEWATER TRANSFERRED OFFSITE

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

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

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Parreira Farms 2023

Land Application Area Description Technical Report (Attachment D)

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
3	x293 x120 x016 xxxx	68	None
3E	x293 x120 x016 xxxx	5	None
4	x293 x120 x017 xxxx	69	None
12	x293 x130 x004 xxxx	23	Both
13	x293 x130 x004 xxxx	23	Both
		188	

Production Area APN(s): x293 x120 x016 xxxx, x293 x130 x004 xxxx

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Parreira Farms 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	323.00	32.30	318.00	2,750	68.50		1,830.00								
06/16/2023	328.00	31.30	249.00	2,020	49.40	0.00	1,340.00	7.05							
07/10/2023	180.00	27.50	208.00	2,710	51.20		1,800.00								
11/01/2023	81.00	0.00	126.00	1,980	62.10		1,310.00								
Averages:	228.00	22.78	225.25	2,365	57.80	0.00	1,570.00	7.05							

Manure - Corral Solids

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/14/2023	1.98	0.90	1.99	27.50						%
11/01/2023	1.68	0.86	1.78	27.00						%
Averages:	1.83	0.88	1.88	27.25						

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)	
3	1	Tomatoes		2.60	0.40	4.80			BV-W
3E	1	Tomatoes		2.60	0.40	4.80			BV-W

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Parreira Farms 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 (%)	
4	1	Tomatoes		2.60	0.40	4.80			BV-W
12	1	Wheat	05/26/2023	42.40	9.20	45.20	69.30	13.40	
12	2	Corn	10/10/2023	24.60	4.26	31.60	71.80	7.78	
13	1	Wheat	05/26/2023	48.40	8.88	53.60	70.00	15.10	
13	2	Corn	10/10/2023	25.20	4.78	28.40	71.30	7.40	

BV-W: Book Value from Western Fertilizer Handbook, 9th Edition, Table 4-1 (As Received basis)
Tomato samples, lab lost the samples after they measured dry matter.

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														
Domestic Dairy 1	03/28/2023	5.20		433		270.00		45.00	3.00	39.00	150.00	0.00	6.00	33.00
Domestic Dairy 2	Out of Service						Out of service							
	Averages:	5.20		433		270.00		45.00	3.00	39.00	150.00	0.00	6.00	33.00

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Parreira Farms 2023

Lab Results Summary (Attachment E)

Well / Irrigation Water

(mgl/ppm unless noted otherwise)

								General Minerals						
	Sample Date:	**NO3N**	**TP**	**EC (umhos/cm)**	**NH4N ***	**TDS**	**TN**	**CA**	**MG**	**NA**	**HCO3**	**CO3**	**SO4**	**CL**
Irrigation														
Well 2	Out of Service						Out of service							
Well 3	Out of Service						Out of service							
Well 4	12/20/2023	0.20		234		160.00		3.00	0.00	52.00	70.00	20.00	3.50	9.00
	Averages:	0.20		234		160.00		3.00	0.00	52.00	70.00	20.00	3.50	9.00

* NH4N was non-detectable unless a value is shown

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Parreira Farms 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: 3								
	1	Tomatoes	68	03/14/2023	08/02/2023	50.0	4420.0	65.0
Field: 3E								
	1	Tomatoes	5	03/16/2023	08/02/2023	50.0	324.0	64.8
Field: 4								
	1	Tomatoes	69	03/16/2023	08/02/2023	50.0	4450.5	64.5
Field: 12								
	1	Wheat	23	11/20/2022	05/26/2023	19.4	432.4	18.8
	2	Corn	23	06/23/2023	10/10/2023	26.4	630.2	27.4
Field: 13								
	1	Wheat	23	11/20/2022	05/26/2023	19.2	454.2	19.8
	2	Corn	23	06/22/2023	10/10/2023	28.5	660.1	28.7

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Parreira Farms 2023

Weather Data (Attachment G)

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

*Note: SWP = Standing Water Present

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

April 11, 2023

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

Lab No. : **VI 2341852**
Customer No. : **4018573**
Reference : **40355**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
Domestic Dairy 1	03/28/2023	03/28/2023	VI 2341852-001	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)
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: 2023-04-12

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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 : Domestic Dairy 1
Project : 0174 Parreira Farms

Lab No. : VI 2341852-001
Customer No. : 4018573
Reference : 40355
Sampled On : March 28, 2023 at 12:30
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
Alkalinity (as CaCO3)	130	10	mg/L		1		04/05/2023	17:38	amm	SM 4500-H+B	04/05/2023	22:04	amm
Bicarbonate	150	10	mg/L		1		04/05/2023	17:38	amm	SM 4500-H+B	04/05/2023	22:04	amm
Carbonate	ND	10	mg/L		1	U	04/05/2023	17:38	amm	SM 4500-H+B	04/05/2023	22:04	amm
Hydroxide	ND	10	mg/L		1	U	04/05/2023	17:38	amm	SM 4500-H+B	04/05/2023	22:04	amm
Chloride	33	1	mg/L		1	l	03/29/2023	16:07	ldm	EPA 300.0	03/30/2023	07:10	krh
Nitrate Nitrogen	5.2	0.1	mg/L		1		03/29/2023	16:07	ldm	EPA 300.0	03/30/2023	07:10	krh
Conductivity	433	1	umhos/cm		1		04/05/2023	17:38	amm	SM 4500-H+B	04/05/2023	22:04	amm
Sulfate Sulfur	6.00	0.17	mg/L		1		03/29/2023	16:07	ldm	EPA 300.0	03/30/2023	07:10	krh
Solids, Total Dissolved (TDS)	270	20	mg/L		1		03/30/2023	10:25	ctl	SM 2540 C	03/31/2023	12:00	ctl
Calcium	45	1	mg/L		1	h	04/03/2023	02:12	ejc	EPA 200.7	04/03/2023	15:19	ac
Magnesium	3	1	mg/L		1	h	04/03/2023	02:12	ejc	EPA 200.7	04/03/2023	15:19	ac
Potassium	1	1	mg/L		1	h	04/03/2023	02:12	ejc	EPA 200.7	04/03/2023	15:19	ac
Sodium	39	1	mg/L		1	h	04/03/2023	02:12	ejc	EPA 200.7	04/03/2023	15:19	ac

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

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

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

April 11, 2023
Innovative Ag Services, LLC

Lab No. : VI 2341852
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	04/03/2023:203482EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.6 %	85-115	
			MS	mg/L	12.00	265 %	<¼	
		(VI 2341854-001)	MSD	mg/L	12.00	343 %	<¼	
			MSRPD	mg/L	0.8000	9.0%	≤20.0	
			MS	mg/L	12.00	158 %	75-125	435
		(STK2333843-005)	MSD	mg/L	12.00	145 %	75-125	435
			MSRPD	mg/L	0.8000	7.9%	≤20.0	
Magnesium	200.7	04/03/2023:203482EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	98.3 %	85-115	
			MS	mg/L	12.00	141 %	75-125	435
		(VI 2341854-001)	MSD	mg/L	12.00	155 %	75-125	435
			MSRPD	mg/L	0.8000	7.6%	≤20	
			MS	mg/L	12.00	156 %	75-125	435
		(STK2333843-005)	MSD	mg/L	12.00	145 %	75-125	435
			MSRPD	mg/L	0.8000	7.4%	≤20	
Potassium	200.7	04/03/2023:203482EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	96.6 %	85-115	
			MS	mg/L	12.00	133 %	75-125	435
		(VI 2341854-001)	MSD	mg/L	12.00	145 %	75-125	435
			MSRPD	mg/L	0.8000	8.2%	≤20.0	
			MS	mg/L	12.00	152 %	75-125	435
		(STK2333843-005)	MSD	mg/L	12.00	142 %	75-125	435
			MSRPD	mg/L	0.8000	6.7%	≤20.0	
Sodium	200.7	04/03/2023:203482EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	98.2 %	85-115	
			MS	mg/L	12.00	240 %	<¼	
		(VI 2341854-001)	MSD	mg/L	12.00	308 %	<¼	
			MSRPD	mg/L	0.8000	9.6%	≤20.0	
			MS	mg/L	12.00	153 %	75-125	435
		(STK2333843-005)	MSD	mg/L	12.00	142 %	75-125	435
			MSRPD	mg/L	0.8000	7.7%	≤20.0	

Definition

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

Explanation

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

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April 11, 2023
Innovative Ag Services, LLC

Lab No. : VI 2341852
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	04/05/2023:203616AMM	ND	mg/L		0.6%	10	435
Bicarbonate	2320B	(SP 2304480-001)	Dup	mg/L		0.7%	10	
E. C.	2320B	(SP 2304480-001)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	03/30/2023:203363CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.1	102%	90-110	
		(SP 2304556-001)	Dup	mg/L		2.50%	5	
		(SP 2304556-001)	Dup	mg/L		2.05%	5	
Chloride	300.0	03/29/2023:203510LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	101 %	90-110	
			MS	mg/L	50.00	90.6 %	85-121	
		(VI 2341789-002)	MSD	mg/L	50.00	88.1 %	85-121	
			MSRPD	mg/L	100.0	1.4%	≤19	
			MS	mg/L	50.00	84.7 %	85-121	
		(VI 2341788-004)	MSD	mg/L	50.00	83.5 %	85-121	435
			MSRPD	mg/L	100.0	0.6%	≤19	
Nitrate Nitrogen	300.0	03/29/2023:203510LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	98.5 %	90-110	
			MS	mg/L	40.00	103 %	85-119	
		(VI 2341789-002)	MSD	mg/L	40.00	99.9 %	85-119	
			MSRPD	mg/L	100.0	2.7%	≤19	
			MS	mg/L	40.00	101 %	85-119	
		(VI 2341788-004)	MSD	mg/L	40.00	99.0 %	85-119	
			MSRPD	mg/L	100.0	1.8%	≤19	
Sulfate Sulfur	300.0	03/29/2023:203510LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	99.1 %	90-110	
			MS	mg/L	100.0	96.2 %	82-124	
		(VI 2341789-002)	MSD	mg/L	100.0	93.6 %	82-124	
			MSRPD	mg/L	100.0	1.8%	≤23	
			MS	mg/L	100.0	94.6 %	82-124	
		(VI 2341788-004)	MSD	mg/L	100.0	93.2 %	82-124	
			MSRPD	mg/L	100.0	1.0%	≤23	

Definition

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

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

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

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

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

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

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

Explanation

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

Page 4 of 4

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Laboratory Analysis Work Order

Nº 40355

2341852

ID: # 0174

LABORATORY: FGL

SITE NAME: PALREIRA FARMS

Authorized Copy Release to:

Billing: IAS

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

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

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

W6 NO_3N, NO_2 (Dom ILRP, Annually)

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

W8 Other: _____

Del 16.9

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	DAIRY 1	Dom	WH	3/28/23 8:30	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:

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

Laboratory #: _____

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

January 2, 2024

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

Lab No. : **VI 2348752**
Customer No. : **4018573**
Reference : **42223**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
Well 4	12/20/2023	12/20/2023	VI 2348752-001	DW

Sampling and Receipt Information:

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

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

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

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

KD: 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 : Well 4
Project : 0174 Parreira Farms

Lab No. : VI 2348752-001
Customer No. : 4018573
Reference : 42223
Sampled On : December 20, 2023 at 13:20
Sampled By : Cris
Received On : December 20, 2023 at 16:04
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	90	10	mg/L		1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	03:02	amm
Bicarbonate	70	10	mg/L		1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	03:02	amm
Carbonate	20	10	mg/L		1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	03:02	amm
Hydroxide	20	10	mg/L		1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	03:02	amm
Chloride	9	1	mg/L	500[2]	1		12/21/2023	11:42	ldm	EPA 300.0	12/21/2023	19:06	ldm
Nitrate Nitrogen	0.2	0.1	mg/L	10	1		12/21/2023	11:42	ldm	EPA 300.0	12/21/2023	19:06	ldm
Conductivity	234	1	umhos/cm	1600[2]	1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	03:02	amm
Sulfate Sulfur	3.5	0.17	mg/L		1		12/21/2023	11:42	ldm	EPA 300.0	12/21/2023	19:06	ldm
Solids, Total Dissolved (TDS)	160	20	mg/L	1000[2]	1		12/22/2023	11:00	ctl	SM 2540 C	12/26/2023	11:00	ctl
Calcium	3	1	mg/L		1		12/22/2023	06:00	ac	EPA 200.7	12/23/2023	20:20	ac
Magnesium	ND	1	mg/L		1	U	12/22/2023	06:00	ac	EPA 200.7	12/23/2023	20:20	ac
Potassium	ND	1	mg/L		1	U	12/22/2023	06:00	ac	EPA 200.7	12/23/2023	20:20	ac
Sodium	52	1	mg/L		1		12/22/2023	06:00	ac	EPA 200.7	12/23/2023	20:20	ac

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

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 2348752
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	12/22/2023:214433AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	89.3%	85-115	
			MS	mg/L	12.00	76.3%	75-125	
		(VI 2348755-001)	MSD	mg/L	12.00	92.9%	75-125	
			MSRPD	mg/L		5.2%	≤20.0	
			MS	mg/L	12.00	99.9%	75-125	
		(VI 2348752-001)	MSD	mg/L	12.00	98.7%	75-125	
			MSRPD	mg/L		1.0%	≤20.0	
Magnesium	200.7	12/22/2023:214433AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.7%	85-115	
		(VI 2348755-001)	MSD	mg/L	12.00	91.5%	75-125	
			MSRPD	mg/L		200.0%	≤20	435
			MS	mg/L	12.00	94.8%	75-125	
		(VI 2348752-001)	MSD	mg/L	12.00	95.0%	75-125	
			MSRPD	mg/L		0.2%	≤20	
Potassium	200.7	12/22/2023:214433AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	88.9%	85-115	
			MS	mg/L	12.00	97.8%	75-125	
		(VI 2348755-001)	MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		5.1%	≤20.0	
			MS	mg/L	12.00	100%	75-125	
		(VI 2348752-001)	MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		0.4%	≤20.0	
Sodium	200.7	12/22/2023:214433AC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	90.5%	85-115	
			MS	mg/L	12.00	-125%	<¼	406
		(VI 2348755-001)	MSD	mg/L	12.00	-10.2%	<1/4	
			MSRPD	mg/L		5.6%	≤20.0	
			MS	mg/L	12.00	100%	75-125	
		(VI 2348752-001)	MSD	mg/L	12.00	72.9%	<1/4	
			MSRPD	mg/L		5.2%	≤20.0	

Definition

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

Explanation

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

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January 2, 2024
Innovative Ag Services, LLC

Lab No. : VI 2348752
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	(STK2357472-005)	Dup	mg/L		0.8%	10	
Bicarbonate	2320B	(STK2357472-005)	Dup	mg/L		0.8%	10	
E. C.	2320B	(STK2357472-005)	Dup	umhos/cm		0.5%	5	
Solids, Total Dissolved	2540CE	12/22/2023:214452CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	101%	90-110	
		(VI 2348755-001)	Dup	mg/L		0.08%	5	
		(VI 2348755-001)	Dup	mg/L		0.8%	5	
Chloride	300.0	12/21/2023:214427LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	98.7%	90-110	
			MS	mg/L	50.00	98.5%	67-117	
		(SP 2320887-001)	MSD	mg/L	50.00	98.5%	67-117	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	50.00	98.8%	67-117	
		(STK2356641-006)	MSD	mg/L	50.00	99.0%	67-117	
			MSRPD	mg/L		0.2%	≤7	
Nitrate Nitrogen	300.0	12/21/2023:214427LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	98.5%	90-110	
			MS	mg/L	40.00	99.6%	86-112	
		(SP 2320887-001)	MSD	mg/L	40.00	99.6%	86-112	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	40.00	101%	86-112	
		(STK2356641-006)	MSD	mg/L	40.00	101%	86-112	
			MSRPD	mg/L		0.1%	≤7	
Sulfate Sulfur	300.0	12/21/2023:214427LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	99.9%	90-110	
			MS	mg/L	100.0	98.6%	18-165	
		(SP 2320887-001)	MSD	mg/L	100.0	98.7%	18-165	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	100.0	101%	18-165	
		(STK2356641-006)	MSD	mg/L	100.0	101%	18-165	
			MSRPD	mg/L		0.2%	≤7	

Definition

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

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

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

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

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

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

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Laboratory Analysis Work Order

Nº 42223

2348752

ID: # 0174

LABORATORY: FGL

SITE NAME: Parreira Farms

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

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

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

W6 NO_3N, NO_2 (Dom ILRP, Annually)

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

W8 Other: _____

8.01 17.5°C

Process Waste Water (lagoon)

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

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

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

L4 Other: _____

Manure

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

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

M3 Other: _____

Plant Tissue

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

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

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

P4 TN, %M

P5 % Moisture

P6 NIR

P7 Other: _____

Soil

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

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

S3 NO_3N, NH_4N

S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	Ranch Domestic	Dom	W4	12/20 1:20	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		12/20 3:20
2nd	ADB	FGL	12/20/23 1532	
3rd	ADB	FGL		12/20/23 1604
4th			12/20/23 1604	

LABORATORY USE ONLY

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