INNOVATIVE
AG SERVICES

L & J Vanderham

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)

Annual Report

L & J Vanderham 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	L & J Vanderham
Facility Address	10772 W. Mount Whitney Avenue, Riverdale CA 93656

Owner/Operator as of 12/31/2023

Operator Name	Luke Vanderham
Operator Phone	(559) 967-2003
Owner Name	Luke Vanderham
Owner Phone	(559) 967-2003

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?

__ 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).

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.

L & J Vanderham 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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

DocuSigned by: Luke Vanderham 038F1ADFA04B412...	DocuSigned by: Luke Vanderham 038F1ADFA04B412...
Signature of Operator of Facility	Signature of Owner of Facility
Luke Vanderham	Luke Vanderham
Print Name	Print Name
6/26/2024	6/26/2024
Title and Date	Title and Date

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L & J Vanderham 2023

Estimated Manure and Nutrients Generated (Attachment A)

Animal Type	Maximum No. of Head	Average No. of Head*	Housing Type	Weight	Total Manure Produced (tons/year)	NITROGEN Net (LB) Available for Land Application	PHOSPHORUS Net (LB) Available for Land Application	POTASSIUM Net (LB) Available for Land Application	SALTS Net (LB) Available for Land Application
Hol Milk Cows	2,700	2,632	Milk Freestall -	1,400	66,797.23	951,073.20	163,315.60	220,956.40	1,734,988.08
Hol Milk Cows	1,165	1,135	Milk Flushed Lane	1,400	28,805.04	410,132.25	70,426.75	95,283.25	748,180.65
Hol Dry Cows	800	780	Flushed	1,450	11,381.85	142,350.00	19,929.00	93,951.00	200,884.32
Hol Heifers(15-24)	155	151	Flushed	1,000	1,576.22	20,943.70	3,306.90	9,920.70	38,889.14
	4,820	**4,698**			**108,560.34**	**1,524,499.15**	**256,978.25**	**420,111.35**	**2,722,942.19**

* 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)**
67,156,826	595.00	112.98	763.00	6,582.50	332,852.73	63,200.06	426,834.68	3,682,358.1

* 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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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 4-1

Pistachios, 159 Acres Planted on 02/01/2015

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,226				
04/27/2023	Surface Water: Westland I.	0.09	Acre Feet		0.00			mg/L			0	0	0	1,165	
05/13/2023	Surface Water: Westland I.	0.01	Acre Feet		0.00			mg/L			0	0	0	129	
05/22/2023	Surface Water: Westland I.	0.06	Acre Feet		0.00			mg/L			0	0	0	778	
06/02/2023	Surface Water: Westland I.	0.07	Acre Feet		0.00			mg/L			0	0	0	906	
06/15/2023	Surface Water: Westland I.	0.29	Acre Feet		0.00			mg/L			0	0	0	3,754	
07/06/2023	Surface Water: Westland I.	0.31	Acre Feet		0.00			mg/L			0	0	0	4,013	
07/20/2023	Surface Water: Westland I.	0.15	Acre Feet		0.00			mg/L			0	0	0	1,941	
07/27/2023	Surface Water: Westland I.	0.29	Acre Feet		0.00			mg/L			0	0	0	3,754	
08/03/2023	Surface Water: Westland I.	0.14	Acre Feet		0.00			mg/L			0	0	0	1,813	
08/17/2023	Surface Water: Westland I.	0.13	Acre Feet		0.00			mg/L			0	0	0	1,684	
08/28/2023	Surface Water: Westland I.	0.09	Acre Feet		0.00			mg/L			0	0	0	1,165	
09/21/2023	Harvest	1.70	Tons	58.60	2.56	0.23	1.84	%							5,729
	Acre Inches Applied:	**19.56**						**Totals:**			**2,226**	**0**	**0**	**21,102**	**5,729**
Season Nitrogen Ratio:	0.39							**Lbs Per Acre:**			**14**	**0**	**0**	**133**	**36**

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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 4-2

Pistachios, 155 Acres Planted on 02/01/2015

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,170				
04/27/2023	Surface Water: Westland I.	0.09	Acre Feet		0.00			mg/L			0	0	0	1,136	
05/13/2023	Surface Water: Westland I.	0.01	Acre Feet		0.00			mg/L			0	0	0	126	
05/22/2023	Surface Water: Westland I.	0.06	Acre Feet		0.00			mg/L			0	0	0	758	
06/02/2023	Surface Water: Westland I.	0.07	Acre Feet		0.00			mg/L			0	0	0	884	
06/15/2023	Surface Water: Westland I.	0.29	Acre Feet		0.00			mg/L			0	0	0	3,660	
07/06/2023	Surface Water: Westland I.	0.31	Acre Feet		0.00			mg/L			0	0	0	3,912	
07/20/2023	Surface Water: Westland I.	0.29	Acre Feet		0.00			mg/L			0	0	0	3,660	
08/03/2023	Surface Water: Westland I.	0.23	Acre Feet		0.00			mg/L			0	0	0	2,903	
08/17/2023	Surface Water: Westland I.	0.13	Acre Feet		0.00			mg/L			0	0	0	1,641	
08/28/2023	Surface Water: Westland I.	0.09	Acre Feet		0.00			mg/L			0	0	0	1,136	
09/21/2023	Harvest	1.70	Tons	59.00	3.34	0.31	2.82	%							7,217
	Acre Inches Applied:	**18.84**						**Totals:**			**2,170**	**0**	**0**	**19,815**	**7,217**
Season Nitrogen Ratio:	0.30							**Lbs Per Acre:**			**14**	**0**	**0**	**128**	**47**

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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 5-1

Wheat, 50 Acres Planted on 11/18/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/03/2022	Corral Solids: Main Corral	5.00	Tons	9.23	2.31	0.82	1.15	%	250		10,484	3,740	5,220	0	
11/04/2022	Ground Water: Well Avg	0.46	Acre Feet		0.01			mg/L			1	0	0	65,894	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			700				
04/24/2023	Harvest	14.50	Tons	37.30	1.74	0.29	1.24	%							15,819
	Acre Inches Applied:	**5.52**						**Totals:**	**250**		**11,185**	**3,740**	**5,220**	**65,894**	**15,819**
Season Nitrogen Ratio: 0.71								**Lbs Per Acre:**			**224**	**75**	**104**	**1,318**	**316**

Field Name: 5-1

Cotton, 100 Acres Planted on 05/20/2023

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)
04/29/2023	Corral Solids: Main Corral	3.00	Tons	45.10	1.60	0.46	0.60	%	300		5,270	1,522	1,973	0	
06/12/2023	Surface Water: Crescent ID	0.85	Acre Feet		0.00			mg/L			0	0	0	6,922	
07/11/2023	Surface Water: Crescent ID	0.70	Acre Feet		0.00			mg/L			0	0	0	5,700	
07/28/2023	Surface Water: Crescent ID	0.53	Acre Feet		0.00			mg/L			0	0	0	4,316	
10/31/2023	Harvest	2.55	Tons	7.98	3.28	0.41	0.88	%							15,393
	Acre Inches Applied:	**24.96**						**Totals:**	**300**		**5,270**	**1,522**	**1,973**	**16,938**	**15,393**
Season Nitrogen Ratio: 0.34								**Lbs Per Acre:**			**53**	**15**	**20**	**169**	**154**

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Nutrient Applications (Attachment B)

Field Name: 6-1

Wheat, 152 Acres Planted on 11/18/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/22/2022	Corral Solids: Main Corral	5.00	Tons	9.23	2.31	0.82	1.15	%	760		31,871	11,368	15,867	0	
11/12/2022	Ground Water: Well Avg	0.52	Acre Feet		0.01			mg/L			3	0	0	226,448	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,128				
04/24/2023	Harvest	17.00	Tons	49.60	1.91	0.32	1.44	%							49,750
	Acre Inches Applied:	**6.24**						**Totals:**	**760**		**34,002**	**11,368**	**15,867**	**226,448**	**49,750**
Season Nitrogen Ratio:	0.68							**Lbs Per Acre:**			**224**	**75**	**104**	**1,490**	**327**

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Nutrient Applications (Attachment B)

Field Name: 22-3

Wheat, 154 Acres Planted on 12/15/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,156				
04/10/2023	Surface Water: Crescent ID	0.16	Acre Feet		0.00			mg/L			0	0	0	2,007	
04/10/2023	Waste Water: Main Lagoon	2.00	Acre Inches		484.00	52.90	850.00	mg/L		8,363,524	33,720	3,685	59,218	424,975	
04/24/2023	Surface Water: Crescent ID	0.13	Acre Feet		0.00			mg/L			0	0	0	1,631	
05/27/2023	Harvest	21.10	Tons	56.30	1.44	0.18	1.53	%							40,896
	Acre Inches Applied:	**5.48**						**Totals:**		**8,363,524**	**35,876**	**3,685**	**59,218**	**428,613**	**40,896**
Season Nitrogen Ratio:	0.88							**Lbs Per Acre:**			**233**	**24**	**385**	**2,783**	**266**

Field Name: 22-3

Sorghum, 154 Acres Planted on 06/06/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
06/13/2023	Surface Water: Crescent ID	2.06	Acre Feet		0.00			mg/L			0	0	0	25,834	
07/01/2023	Waste Water: Main Lagoon	0.11	Acre Feet		784.00	275.00	574.00	mg/L		5,519,916	36,048	12,645	26,393	325,085	
07/29/2023	Surface Water: Crescent ID	1.28	Acre Feet		0.00			mg/L			0	0	0	16,051	
08/25/2023	Surface Water: Crescent ID	0.41	Acre Feet		0.00			mg/L			0	0	0	5,191	
09/05/2023	Surface Water: Crescent ID	0.47	Acre Feet		0.00			mg/L			0	0	0	5,932	
09/18/2023	Surface Water: Crescent ID	0.53	Acre Feet		0.00			mg/L			0	0	0	6,659	
10/25/2023	Harvest	24.00	Tons	73.70	1.32	0.20	1.28	%							25,663
	Acre Inches Applied:	**58.32**						**Totals:**		**5,519,916**	**36,048**	**12,645**	**26,393**	**384,752**	**25,663**
Season Nitrogen Ratio:	1.40							**Lbs Per Acre:**			**234**	**82**	**171**	**2,498**	**167**

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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 22-5

Wheat, 157 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)
10/20/2022	Ground Water: Well Avg	0.67	Acre Feet		0.01			mg/L			3	0	0	301,368	
10/20/2022	Waste Water: Main Lagoon	0.15	Acre Feet		548.00	42.30	680.00	mg/L		7,673,791	35,030	2,704	43,467	558,684	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,198				
04/10/2023	Surface Water: Crescent ID	1.00	Acre Feet		0.00			mg/L			0	0	0	12,785	
04/10/2023	Waste Water: Main Lagoon	0.10	Acre Feet		484.00	52.90	850.00	mg/L		5,115,861	20,625	2,255	36,223	259,953	
05/16/2023	Harvest	27.02	Tons	62.80	1.38	0.28	1.52	%							43,555
	Acre Inches Applied:	**23.04**						**Totals:**		**12,789,652**	**57,856**	**4,958**	**79,690**	**1,132,790**	**43,555**
Season Nitrogen Ratio:	1.33							**Lbs Per Acre:**			**369**	**32**	**508**	**7,215**	**277**

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Nutrient Applications (Attachment B)

Field Name: 22-5

Sorghum, 157 Acres Planted on 07/01/2023

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	Surface Water: Crescent ID	1.21	Acre Feet		0.00			mg/L			0	0	0	15,469	
06/06/2023	Waste Water: Main Lagoon	0.10	Acre Feet		566.00	54.50	921.00	mg/L		5,115,861	24,120	2,322	39,248	310,238	
07/22/2023	Surface Water: Crescent ID	1.37	Acre Feet		0.00			mg/L			0	0	0	17,515	
07/22/2023	Waste Water: Main Lagoon	0.05	Acre Feet		784.00	275.00	574.00	mg/L		2,557,930	16,705	5,859	12,230	150,645	
08/20/2023	Surface Water: Crescent ID	2.22	Acre Feet		0.00			mg/L			0	0	0	28,381	
08/20/2023	Waste Water: Main Lagoon	0.05	Acre Feet		784.00	275.00	574.00	mg/L		2,557,930	16,705	5,859	12,230	150,645	
09/26/2023	Surface Water: Crescent ID	0.18	Acre Feet		0.00			mg/L			0	0	0	2,302	
09/26/2023	Waste Water: Main Lagoon	0.05	Acre Feet		546.00	69.50	707.00	mg/L		2,557,930	11,634	1,481	15,064	125,289	
10/23/2023	Harvest	24.50	Tons	56.90	1.51	0.32	2.39	%							50,067
	Acre Inches Applied:	**62.76**						**Totals:**		**12,789,652**	**69,163**	**15,521**	**78,773**	**800,483**	**50,067**
Season Nitrogen Ratio:	1.38							**Lbs Per Acre:**			**441**	**99**	**502**	**5,099**	**319**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 22-6

Sorghum, 156 Acres Planted on 05/25/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,184				
02/20/2023	Waste Water: Main Lagoon	0.03	Acre Feet		484.00	52.90	850.00	mg/L		1,524,983	6,148	672	10,798	77,488	
05/19/2023	Surface Water: Crescent ID	0.67	Acre Feet		0.00			mg/L			0	0	0	8,511	
05/19/2023	Waste Water: Main Lagoon	0.02	Acre Feet		566.00	54.50	921.00	mg/L		1,016,655	4,794	462	7,800	61,653	
07/05/2023	Surface Water: Crescent ID	1.04	Acre Feet		0.00			mg/L			0	0	0	13,212	
07/05/2023	Waste Water: Main Lagoon	0.03	Acre Feet		784.00	275.00	574.00	mg/L		1,524,983	9,959	3,493	7,291	89,811	
08/07/2023	Surface Water: Crescent ID	1.19	Acre Feet		0.00			mg/L			0	0	0	15,116	
08/07/2023	Waste Water: Main Lagoon	0.05	Acre Feet		784.00	275.00	574.00	mg/L		2,541,638	16,598	5,822	12,152	149,685	
09/18/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00			mg/L			0	0	0	381	
10/21/2023	Harvest	23.90	Tons	69.30	1.28	0.31	1.73	%							29,301
	Acre Inches Applied:	**36.72**						**Totals:**		**6,608,258**	**39,683**	**10,449**	**38,042**	**415,857**	**29,301**
Season Nitrogen Ratio:	1.35							**Lbs Per Acre:**			**254**	**67**	**244**	**2,666**	**188**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 23-5

Wheat, 36 Acres Planted on 10/10/2022

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)
10/31/2022	Ground Water: Well Avg	0.73	Acre Feet		0.01			mg/L			1	0	0	75,292	
10/31/2022	Waste Water: Main Lagoon	1.10	Acre Inches		548.00	42.30	680.00	mg/L		1,075,310	4,909	379	6,091	78,287	
11/09/2022	Ground Water: Well Avg	0.16	Acre Feet		0.01			mg/L			0	0	0	16,502	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			504				
04/12/2023	Surface Water: Crescent ID	1.08	Acre Feet		0.00			mg/L			0	0	0	3,166	
04/12/2023	Waste Water: Main Lagoon	0.97	Acre Inches		484.00	52.90	850.00	mg/L		948,228	3,823	418	6,714	48,182	
05/15/2023	Harvest	27.02	Tons	61.40	1.61	0.28	1.46	%							12,090
	Acre Inches Applied:	**25.71**						**Totals:**		**2,023,538**	**9,237**	**797**	**12,805**	**221,430**	**12,090**
Season Nitrogen Ratio:	0.76							**Lbs Per Acre:**			**257**	**22**	**356**	**6,151**	**336**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 23-5

Sorghum, 36 Acres Planted on 06/20/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
05/29/2023	Surface Water: Crescent ID	1.08	Acre Feet		0.00			mg/L			0	0	0	3,166	
05/29/2023	Waste Water: Main Lagoon	0.33	Acre Inches		566.00	54.50	921.00	mg/L		322,593	1,521	147	2,475	19,563	
07/06/2023	Surface Water: Crescent ID	2.55	Acre Feet		0.00			mg/L			0	0	0	7,475	
07/06/2023	Waste Water: Main Lagoon	0.23	Acre Inches		784.00	275.00	574.00	mg/L		224,838	1,468	515	1,075	13,242	
07/27/2023	Surface Water: Crescent ID	4.06	Acre Feet		0.00			mg/L			0	0	0	11,902	
07/27/2023	Waste Water: Main Lagoon	0.23	Acre Inches		784.00	275.00	574.00	mg/L		224,838	1,468	515	1,075	13,242	
08/22/2023	Surface Water: Crescent ID	3.24	Acre Feet		0.00			mg/L			0	0	0	9,498	
08/22/2023	Waste Water: Main Lagoon	0.23	Acre Inches		784.00	275.00	574.00	mg/L		224,838	1,468	515	1,075	13,242	
09/08/2023	Surface Water: Crescent ID	2.28	Acre Feet		0.00			mg/L			0	0	0	6,684	
10/12/2023	Harvest	19.90	Tons	70.70	1.10	0.27	1.28	%							4,618
	Acre Inches Applied:	**159.54**						**Totals:**		**997,106**	**5,926**	**1,692**	**5,700**	**98,012**	**4,618**
Season Nitrogen Ratio:	1.28							**Lbs Per Acre:**			**165**	**47**	**158**	**2,723**	**128**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 23-6

Wheat, 126 Acres Planted on 11/01/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/28/2022	Ground Water: Well Avg	0.23	Acre Feet		0.01			mg/L			1	0	0	83,028	
11/28/2022	Waste Water: Main Lagoon	0.22	Acre Feet		548.00	42.30	680.00	mg/L		9,032,590	41,232	3,183	51,165	657,610	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,764				
04/24/2023	Surface Water: Crescent ID	1.18	Acre Feet		0.00			mg/L			0	0	0	12,107	
04/24/2023	Waste Water: Main Lagoon	0.08	Acre Feet		484.00	52.90	850.00	mg/L		3,284,578	13,243	1,448	23,257	166,900	
05/24/2023	Harvest	25.25	Tons	65.10	1.84	0.39	2.57	%							40,861
	Acre Inches Applied:	**20.52**						**Totals:**		**12,317,168**	**56,240**	**4,630**	**74,422**	**919,645**	**40,861**
Season Nitrogen Ratio:	1.38							**Lbs Per Acre:**			**446**	**37**	**591**	**7,299**	**324**

Field Name: 23-6

Sorghum, 126 Acres Planted on 06/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
06/20/2023	Surface Water: Crescent ID	0.90	Acre Feet		0.00			mg/L			0	0	0	9,235	
06/20/2023	Waste Water: Main Lagoon	0.05	Acre Feet		566.00	54.50	921.00	mg/L		2,052,861	9,679	932	15,750	124,491	
08/07/2023	Surface Water: Crescent ID	0.86	Acre Feet		0.00			mg/L			0	0	0	8,824	
08/07/2023	Waste Water: Main Lagoon	0.05	Acre Feet		784.00	275.00	574.00	mg/L		2,052,861	13,406	4,702	9,815	120,900	
09/08/2023	Surface Water: Crescent ID	0.88	Acre Feet		0.00			mg/L			0	0	0	9,029	
09/08/2023	Waste Water: Main Lagoon	0.04	Acre Feet		784.00	275.00	574.00	mg/L		1,642,289	10,725	3,762	7,852	96,720	
10/28/2023	Harvest	23.90	Tons	71.60	1.44	0.25	1.49	%							24,630
	Acre Inches Applied:	**33.36**						**Totals:**		**5,748,012**	**33,811**	**9,397**	**33,418**	**369,198**	**24,630**
Season Nitrogen Ratio:	1.37							**Lbs Per Acre:**			**268**	**75**	**265**	**2,930**	**195**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 25-3

Tomatoes, 150 Acres Planted on 05/20/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,100				
04/12/2023	Surface Water: Crescent ID	0.11	Acre Feet		0.00			mg/L			0	0	0	1,344	
05/02/2023	Surface Water: Crescent ID	0.10	Acre Feet		0.00			mg/L			0	0	0	1,221	
05/17/2023	Surface Water: Crescent ID	0.07	Acre Feet		0.00			mg/L			0	0	0	855	
05/24/2023	Surface Water: Crescent ID	0.14	Acre Feet		0.00			mg/L			0	0	0	1,710	
06/02/2023	Surface Water: Crescent ID	0.27	Acre Feet		0.00			mg/L			0	0	0	3,298	
06/19/2023	Surface Water: Crescent ID	0.20	Acre Feet		0.00			mg/L			0	0	0	2,444	
06/26/2023	Surface Water: Crescent ID	0.16	Acre Feet		0.00			mg/L			0	0	0	1,954	
07/03/2023	Surface Water: Crescent ID	0.14	Acre Feet		0.00			mg/L			0	0	0	1,710	
07/10/2023	Surface Water: Crescent ID	0.14	Acre Feet		0.00			mg/L			0	0	0	1,710	
07/15/2023	Surface Water: Crescent ID	0.15	Acre Feet		0.00			mg/L			0	0	0	1,832	
07/21/2023	Surface Water: Crescent ID	0.16	Acre Feet		0.00			mg/L			0	0	0	1,954	
07/28/2023	Surface Water: Crescent ID	0.14	Acre Feet		0.00			mg/L			0	0	0	1,710	
08/02/2023	Surface Water: Crescent ID	0.08	Acre Feet		0.00			mg/L			0	0	0	976	
08/28/2023	Harvest	63.75	Tons	94.00	2.96	0.34	3.40	%							33,966
	Acre Inches Applied:	**22.32**						**Totals:**			**2,100**	**0**	**0**	**22,719**	**33,966**
Season Nitrogen Ratio:	0.06							**Lbs Per Acre:**			**14**	**0**	**0**	**151**	**226**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 25-4

Pistachios, 153 Acres Planted on 09/15/2020

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos. Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			2,142				
05/02/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	499	
05/15/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	124	
05/22/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	373	
06/05/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	373	
06/21/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	373	
07/03/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	499	
07/16/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	373	
07/23/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	373	
08/02/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	191	
08/14/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	347	
09/01/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	283	
	Acre Inches Applied:	**3.72**					**Totals:**			**2,142**	**0**	**0**	**3,810**	
Season Nitrogen Ratio:							**Lbs Per Acre:**			**14**	**0**	**0**	**25**	

Season Notes: Young trees. Did not bear harvest.

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 26-1

Pistachios, 152 Acres Planted on 03/10/2021

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		%			2,128				
04/29/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	248	
05/13/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	123	
05/19/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	371	
06/03/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	371	
06/19/2023	Surface Water: Crescent ID	0.06	Acre Feet		0.00		mg/L			0	0	0	743	
07/04/2023	Surface Water: Crescent ID	0.07	Acre Feet		0.00		mg/L			0	0	0	866	
07/18/2023	Surface Water: Crescent ID	0.13	Acre Feet		0.00		mg/L			0	0	0	1,610	
08/03/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	371	
08/17/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	371	
09/05/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	123	
	Acre Inches Applied:	**5.04**					**Totals:**			**2,128**	**0**	**0**	**5,197**	
Season Nitrogen Ratio:							**Lbs Per Acre:**			**14**	**0**	**0**	**34**	

Season Notes: Young trees. Did not bear harvest.

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 26-2

Pistachios, 154 Acres Planted on 01/15/2020

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos. Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			2,156				
04/27/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	502	
05/15/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	251	
05/26/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	125	
06/02/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	502	
06/16/2023	Surface Water: Crescent ID	0.05	Acre Feet		0.00		mg/L			0	0	0	627	
06/27/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	376	
07/04/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	502	
07/11/2023	Surface Water: Crescent ID	0.05	Acre Feet		0.00		mg/L			0	0	0	627	
07/17/2023	Surface Water: Crescent ID	0.05	Acre Feet		0.00		mg/L			0	0	0	627	
07/25/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	376	
07/31/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	502	
08/06/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	125	
08/15/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	502	
08/28/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	251	
	Acre Inches Applied:	**5.64**					**Totals:**			**2,156**	**0**	**0**	**5,894**	
Season Nitrogen Ratio:							**Lbs Per Acre:**			**14**	**0**	**0**	**38**	

Season Notes: Young trees. Did not bear harvest.

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 26-3

Pistachios, 121 Acres Planted on 01/15/2020

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		%			1,694				
04/27/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	394	
05/15/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	197	
05/26/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	98	
06/02/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	295	
06/16/2023	Surface Water: Crescent ID	0.05	Acre Feet		0.00		mg/L			0	0	0	492	
06/27/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	295	
07/04/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	394	
07/11/2023	Surface Water: Crescent ID	0.05	Acre Feet		0.00		mg/L			0	0	0	492	
07/17/2023	Surface Water: Crescent ID	0.05	Acre Feet		0.00		mg/L			0	0	0	492	
07/25/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	295	
07/31/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	394	
08/06/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	98	
08/15/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	394	
08/28/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	197	
	Acre Inches Applied:	**5.52**					**Totals:**			**1,694**	**0**	**0**	**4,531**	
Season Nitrogen Ratio:							**Lbs Per Acre:**			**14**	**0**	**0**	**37**	

Season Notes: Young trees. Did not bear harvest.

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 26-4

Pistachios, 158 Acres Planted on 09/15/2020

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos. Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			2,212				
05/01/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
05/13/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
05/20/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	258	
05/29/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
06/05/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
06/13/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	258	
06/20/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	515	
07/01/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	258	
07/05/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00		mg/L			0	0	0	515	
07/12/2023	Surface Water: Crescent ID	0.09	Acre Feet		0.00		mg/L			0	0	0	1,158	
07/22/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	258	
07/28/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	386	
08/01/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	386	
08/08/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
08/13/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
08/24/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
08/31/2023	Surface Water: Crescent ID	0.01	Acre Feet		0.00		mg/L			0	0	0	128	
	Acre Inches Applied:	**4.68**					**Totals:**			**2,212**	**0**	**0**	**5,013**	
Season Nitrogen Ratio:							**Lbs Per Acre:**			**14**	**0**	**0**	**32**	

Season Notes: Young trees. Did not bear harvest.

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 29-1

Grapes, 154 Acres Planted on 02/01/2017

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,156				
02/22/2023	Ground Water: Well Avg	0.01	Acre Feet		0.00			mg/L			0	0	0	4,806	
03/30/2023	Surface Water: Westland I.	0.02	Acre Feet		0.00			mg/L			0	0	0	251	
04/03/2023	Surface Water: Westland I.	0.06	Acre Feet		0.00			mg/L			0	0	0	753	
04/18/2023	Surface Water: Westland I.	0.12	Acre Feet		0.00			mg/L			0	0	0	1,505	
05/02/2023	Surface Water: Westland I.	0.15	Acre Feet		0.00			mg/L			0	0	0	1,880	
05/15/2023	Surface Water: Westland I.	0.35	Acre Feet		0.00			mg/L			0	0	0	4,389	
05/29/2023	Surface Water: Westland I.	0.33	Acre Feet		0.00			mg/L			0	0	0	4,138	
06/08/2023	Surface Water: Westland I.	0.24	Acre Feet		0.00			mg/L			0	0	0	3,009	
06/19/2023	Surface Water: Westland I.	0.16	Acre Feet		0.00			mg/L			0	0	0	2,007	
06/28/2023	Surface Water: Westland I.	0.26	Acre Feet		0.00			mg/L			0	0	0	3,260	
07/10/2023	Surface Water: Westland I.	0.27	Acre Feet		0.00			mg/L			0	0	0	3,386	
07/21/2023	Surface Water: Westland I.	0.39	Acre Feet		0.00			mg/L			0	0	0	4,891	
08/05/2023	Surface Water: Westland I.	0.24	Acre Feet		0.00			mg/L			0	0	0	3,009	
08/17/2023	Surface Water: Westland I.	0.14	Acre Feet		0.00			mg/L			0	0	0	1,756	
08/29/2023	Surface Water: Westland I.	0.09	Acre Feet		0.00			mg/L			0	0	0	1,129	
09/11/2023	Surface Water: Westland I.	0.03	Acre Feet		0.00			mg/L			0	0	0	376	
09/21/2023	Harvest	9.50	Tons	77.80	0.67	0.03	0.56	%							4,358
	Acre Inches Applied:	**34.32**						**Totals:**			**2,156**	**0**	**0**	**40,545**	**4,358**
Season Nitrogen Ratio:	0.49							**Lbs Per Acre:**			**14**	**0**	**0**	**263**	**28**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 29-2

Tomatoes, 156 Acres Planted on 05/20/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,184				
02/23/2023	Ground Water: Well Avg	0.02	Acre Feet		0.00			mg/L			0	0	0	9,739	
04/19/2023	Surface Water: Westland I.	0.16	Acre Feet		0.00			mg/L			0	0	0	2,033	
05/05/2023	Surface Water: Westland I.	0.22	Acre Feet		0.00			mg/L			0	0	0	2,794	
05/29/2023	Surface Water: Westland I.	0.09	Acre Feet		0.00			mg/L			0	0	0	1,143	
06/02/2023	Surface Water: Westland I.	0.39	Acre Feet		0.00			mg/L			0	0	0	4,955	
06/17/2023	Surface Water: Westland I.	0.37	Acre Feet		0.00			mg/L			0	0	0	4,700	
07/02/2023	Surface Water: Westland I.	0.27	Acre Feet		0.00			mg/L			0	0	0	3,430	
07/17/2023	Surface Water: Westland I.	0.35	Acre Feet		0.00			mg/L			0	0	0	4,446	
08/01/2023	Surface Water: Westland I.	0.39	Acre Feet		0.00			mg/L			0	0	0	4,955	
08/16/2023	Surface Water: Westland I.	0.17	Acre Feet		0.00			mg/L			0	0	0	2,159	
08/28/2023	Harvest	62.00	Tons	94.40	2.92	0.31	3.52	%							31,631
	Acre Inches Applied:	**29.16**						**Totals:**			**2,184**	**0**	**0**	**40,354**	**31,631**
Season Nitrogen Ratio:	0.07							**Lbs Per Acre:**			**14**	**0**	**0**	**259**	**203**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 29-3

Wheat, 125 Acres Planted on 11/15/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,750				
02/13/2023	Ground Water: Well Avg	0.21	Acre Feet		0.00			mg/L			0	0	0	81,939	
02/21/2023	Ground Water: Well Avg	0.13	Acre Feet		0.00			mg/L			0	0	0	50,724	
04/24/2023	Harvest	15.88	Tons	61.10	2.26	0.27	3.39	%							34,901
	Acre Inches Applied:	**4.08**						**Totals:**			**1,750**	**0**	**0**	**132,662**	**34,901**
Season Nitrogen Ratio: 0.05								**Lbs Per Acre:**			**14**	**0**	**0**	**1,061**	**279**

Field Name: 29-3

Tomatoes, 37 Acres Planted on 05/20/2023

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)
04/26/2023	Surface Water: Westland I.	0.06	Acre Feet		0.00			mg/L			0	0	0	181	
05/03/2023	Surface Water: Westland I.	0.87	Acre Feet		0.00			mg/L			0	0	0	2,621	
05/26/2023	Surface Water: Westland I.	0.52	Acre Feet		0.00			mg/L			0	0	0	1,567	
06/01/2023	Surface Water: Westland I.	0.97	Acre Feet		0.00			mg/L			0	0	0	2,923	
06/16/2023	Surface Water: Westland I.	0.79	Acre Feet		0.00			mg/L			0	0	0	2,380	
07/01/2023	Surface Water: Westland I.	0.63	Acre Feet		0.00			mg/L			0	0	0	1,898	
07/19/2023	Surface Water: Westland I.	0.74	Acre Feet		0.00			mg/L			0	0	0	2,230	
08/03/2023	Surface Water: Westland I.	0.27	Acre Feet		0.00			mg/L			0	0	0	814	
08/28/2023	Harvest	83.50	Tons	93.90	3.00	0.26	3.37	%							11,308
	Acre Inches Applied:	**58.20**						**Totals:**			**0**	**0**	**0**	**14,613**	**11,308**
Season Nitrogen Ratio: 0.00								**Lbs Per Acre:**			**0**	**0**	**0**	**395**	**306**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 29-4

Tomatoes, 150 Acres Planted on 05/20/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,100				
02/09/2023	Ground Water: Well Avg	0.04	Acre Feet		0.00			mg/L			0	0	0	18,729	
04/01/2023	Surface Water: Westland I.	0.02	Acre Feet		0.00			mg/L			0	0	0	244	
04/22/2023	Surface Water: Westland I.	0.03	Acre Feet		0.00			mg/L			0	0	0	366	
05/05/2023	Surface Water: Westland I.	0.25	Acre Feet		0.00			mg/L			0	0	0	3,054	
05/25/2023	Surface Water: Westland I.	0.12	Acre Feet		0.00			mg/L			0	0	0	1,466	
06/01/2023	Surface Water: Westland I.	0.36	Acre Feet		0.00			mg/L			0	0	0	4,396	
06/18/2023	Surface Water: Westland I.	0.63	Acre Feet		0.00			mg/L			0	0	0	7,695	
07/03/2023	Surface Water: Westland I.	0.28	Acre Feet		0.00			mg/L			0	0	0	3,420	
07/18/2023	Surface Water: Westland I.	0.33	Acre Feet		0.00			mg/L			0	0	0	4,030	
08/02/2023	Surface Water: Westland I.	0.08	Acre Feet		0.00			mg/L			0	0	0	976	
08/28/2023	Harvest	96.27	Tons	93.70	2.34	0.30	3.53	%							42,576
	Acre Inches Applied:	**25.68**						**Totals:**			**2,100**	**0**	**0**	**44,378**	**42,576**
Season Nitrogen Ratio:	0.05							**Lbs Per Acre:**			**14**	**0**	**0**	**296**	**284**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 30-3

Tomatoes, 156 Acres Planted on 05/20/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,184				
04/07/2023	Surface Water: Westland I.	0.24	Acre Feet		0.00			mg/L			0	0	0	3,048	
05/02/2023	Surface Water: Westland I.	0.11	Acre Feet		0.00			mg/L			0	0	0	1,398	
05/17/2023	Surface Water: Westland I.	0.38	Acre Feet		0.00			mg/L			0	0	0	4,827	
06/02/2023	Surface Water: Westland I.	0.61	Acre Feet		0.00			mg/L			0	0	0	7,749	
06/17/2023	Surface Water: Westland I.	0.36	Acre Feet		0.00			mg/L			0	0	0	4,572	
07/03/2023	Surface Water: Westland I.	0.31	Acre Feet		0.00			mg/L			0	0	0	3,937	
07/18/2023	Surface Water: Westland I.	0.34	Acre Feet		0.00			mg/L			0	0	0	4,320	
08/02/2023	Surface Water: Westland I.	0.16	Acre Feet		0.00			mg/L			0	0	0	2,033	
08/10/2023	Surface Water: Westland I.	0.11	Acre Feet		0.00			mg/L			0	0	0	1,398	
08/28/2023	Harvest	60.00	Tons	93.50	2.77	0.28	3.31	%							33,705
	Acre Inches Applied:	**31.44**						**Totals:**			**2,184**	**0**	**0**	**33,281**	**33,705**
Season Nitrogen Ratio:	0.06							**Lbs Per Acre:**			**14**	**0**	**0**	**213**	**216**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 31-1

Wheat, 121 Acres Planted on 12/09/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,694				
04/12/2023	Ground Water: Well Avg	0.03	Acre Feet		0.00			mg/L			0	0	0	11,330	
04/24/2023	Harvest	13.30	Tons	74.50	2.60	0.24	2.57	%							21,340
	Acre Inches Applied:	**0.36**						**Totals:**			**1,694**	**0**	**0**	**11,330**	**21,340**
Season Nitrogen Ratio:	0.08							**Lbs Per Acre:**			**14**	**0**	**0**	**94**	**176**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 31-2

Cotton, 46 Acres Planted on 04/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			644				
03/02/2023	Surface Water: Crescent ID	1.12	Acre Feet		0.00			mg/L			0	0	0	4,195	
06/20/2023	Surface Water: Crescent ID	0.77	Acre Feet		0.00			mg/L			0	0	0	2,884	
07/25/2023	Surface Water: Crescent ID	0.44	Acre Feet		0.00			mg/L			0	0	0	1,648	
08/17/2023	Surface Water: Crescent ID	0.61	Acre Feet		0.00			mg/L			0	0	0	2,285	
10/31/2023	Harvest	3.20	Tons	7.33	3.16	0.56	0.93	%							8,621
	Acre Inches Applied:	**35.28**						**Totals:**			**644**	**0**	**0**	**11,012**	**8,621**
Season Nitrogen Ratio:	0.07							**Lbs Per Acre:**			**14**	**0**	**0**	**239**	**187**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 31-3

Cotton, 97 Acres Planted on 04/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,358				
03/02/2023	Surface Water: Crescent ID	0.59	Acre Feet		0.00			mg/L			0	0	0	4,660	
03/07/2023	Surface Water: Crescent ID	0.23	Acre Feet		0.00			mg/L			0	0	0	1,817	
04/28/2023	Ground Water: Well Avg	0.16	Acre Feet		0.00			mg/L			0	0	0	48,446	
06/12/2023	Surface Water: Crescent ID	0.65	Acre Feet		0.00			mg/L			0	0	0	5,134	
07/12/2023	Surface Water: Crescent ID	0.57	Acre Feet		0.00			mg/L			0	0	0	4,503	
08/07/2023	Surface Water: Crescent ID	0.48	Acre Feet		0.00			mg/L			0	0	0	3,792	
10/31/2023	Harvest	2.50	Tons	9.49	2.76	0.56	1.13	%							12,115
	Acre Inches Applied:	**32.16**						**Totals:**			**1,358**	**0**	**0**	**68,351**	**12,115**
Season Nitrogen Ratio:	0.11							**Lbs Per Acre:**			**14**	**0**	**0**	**705**	**125**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 31-4

Cotton, 145 Acres Planted on 04/25/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,030				
06/05/2023	Surface Water: Crescent ID	0.92	Acre Feet		0.00			mg/L			0	0	0	10,863	
07/08/2023	Surface Water: Crescent ID	0.27	Acre Feet		0.00			mg/L			0	0	0	3,189	
08/01/2023	Surface Water: Crescent ID	0.55	Acre Feet		0.00			mg/L			0	0	0	6,495	
10/31/2023	Harvest	2.80	Tons	10.80	2.51	0.27	0.66	%							18,180
	Acre Inches Applied:	**20.88**						**Totals:**			**2,030**	**0**	**0**	**20,546**	**18,180**
Season Nitrogen Ratio: 0.11								**Lbs Per Acre:**			**14**	**0**	**0**	**142**	**125**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 31-5

Wheat, 60 Acres Planted on 11/30/2022

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)
11/30/2022	Ground Water: Well Avg	0.56	Acre Feet		0.01			mg/L			1	0	0	96,263	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			840				
04/24/2023	Harvest	11.00	Tons	62.90	2.20	0.27	1.76	%							10,774
	Acre Inches Applied:	**6.72**						**Totals:**			**841**	**0**	**0**	**96,263**	**10,774**
Season Nitrogen Ratio:	0.08							**Lbs Per Acre:**			**14**	**0**	**0**	**1,604**	**180**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 31-6

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			%			672				
	Acre Inches Applied:	**0.00**						**Totals:**			**672**				
Season Nitrogen Ratio:								**Lbs Per Acre:**			**14**				

Season Notes: Fallow

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 32-1

Wheat, 157 Acres Planted on 11/16/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/10/2022	Ground Water: Well Avg	0.25	Acre Feet		0.01			mg/L			2	0	0	112,451	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,198				
02/14/2023	Ground Water: Well Avg	0.05	Acre Feet		0.00			mg/L			0	0	0	24,503	
04/24/2023	Harvest	13.41	Tons	54.40	2.18	0.21	1.74	%							41,858
	Acre Inches Applied:	**3.60**						**Totals:**			**2,200**	**0**	**0**	**136,954**	**41,858**
Season Nitrogen Ratio:	0.05							**Lbs Per Acre:**			**14**	**0**	**0**	**872**	**267**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 32-2

Wheat, 156 Acres Planted on 11/01/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,184				
02/15/2023	Ground Water: Well Avg	0.15	Acre Feet		0.00			mg/L			0	0	0	73,042	
02/21/2023	Ground Water: Well Avg	0.11	Acre Feet		0.00			mg/L			0	0	0	53,564	
04/24/2023	Harvest	15.79	Tons	53.60	2.56	0.22	2.29	%							58,519
	Acre Inches Applied:	**3.12**						**Totals:**			**2,184**	**0**	**0**	**126,606**	**58,519**
Season Nitrogen Ratio: 0.04								**Lbs Per Acre:**			**14**	**0**	**0**	**812**	**375**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 36-7

Cotton, 38 Acres Planted on 04/20/2023

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			%			532				
06/12/2023	Surface Water: Crescent ID	0.57	Acre Feet		0.00			mg/L			0	0	0	1,764	
07/12/2023	Surface Water: Crescent ID	0.41	Acre Feet		0.00			mg/L			0	0	0	1,269	
07/28/2023	Surface Water: Crescent ID	0.37	Acre Feet		0.00			mg/L			0	0	0	1,145	
08/14/2023	Surface Water: Crescent ID	0.40	Acre Feet		0.00			mg/L			0	0	0	1,238	
10/31/2023	Harvest	2.84	Tons	7.14	3.16	0.47	0.96	%							6,333
	Acre Inches Applied:	**21.00**						**Totals:**			**532**	**0**	**0**	**5,415**	**6,333**
Season Nitrogen Ratio:	0.08							**Lbs Per Acre:**			**14**	**0**	**0**	**143**	**167**

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 36-8

Pistachios, 159 Acres Planted on 03/14/2021

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			%			2,226				
05/03/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00			mg/L			0	0	0	259	
05/16/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00			mg/L			0	0	0	388	
06/03/2023	Surface Water: Crescent ID	0.04	Acre Feet		0.00			mg/L			0	0	0	518	
06/20/2023	Surface Water: Crescent ID	0.20	Acre Feet		0.00			mg/L			0	0	0	2,590	
07/03/2023	Surface Water: Crescent ID	0.14	Acre Feet		0.00			mg/L			0	0	0	1,813	
07/19/2023	Surface Water: Crescent ID	0.11	Acre Feet		0.00			mg/L			0	0	0	1,425	
08/02/2023	Surface Water: Crescent ID	0.20	Acre Feet		0.00			mg/L			0	0	0	2,590	
08/16/2023	Surface Water: Crescent ID	0.20	Acre Feet		0.00			mg/L			0	0	0	2,590	
09/05/2023	Surface Water: Crescent ID	0.17	Acre Feet		0.00			mg/L			0	0	0	2,201	
	Acre Inches Applied:	**13.32**						**Totals:**			**2,226**	**0**	**0**	**14,374**	
Season Nitrogen Ratio:								**Lbs Per Acre:**			**14**	**0**	**0**	**90**	

Season Notes: Young trees. Did not bear harvest.

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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 36-9

Pistachios, 157 Acres Planted on 03/20/2021

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		%			2,198				
04/29/2023	Surface Water: Crescent ID	0.02	Acre Feet		0.00		mg/L			0	0	0	256	
05/23/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	383	
06/05/2023	Surface Water: Crescent ID	0.03	Acre Feet		0.00		mg/L			0	0	0	383	
06/19/2023	Surface Water: Crescent ID	0.08	Acre Feet		0.00		mg/L			0	0	0	1,022	
07/03/2023	Surface Water: Crescent ID	0.11	Acre Feet		0.00		mg/L			0	0	0	1,407	
07/18/2023	Surface Water: Crescent ID	0.06	Acre Feet		0.00		mg/L			0	0	0	768	
08/01/2023	Surface Water: Crescent ID	0.20	Acre Feet		0.00		mg/L			0	0	0	2,558	
08/15/2023	Surface Water: Crescent ID	0.26	Acre Feet		0.00		mg/L			0	0	0	3,324	
09/05/2023	Surface Water: Crescent ID	0.20	Acre Feet		0.00		mg/L			0	0	0	2,558	
	Acre Inches Applied:	**11.88**					**Totals:**			**2,198**	**0**	**0**	**12,657**	
Season Nitrogen Ratio:							**Lbs Per Acre:**			**14**	**0**	**0**	**81**	

Season Notes: Young trees. Did not bear harvest.

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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 26-1c

Oats, 153 Acres Planted on 11/10/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,142				
02/10/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	198,995	
03/18/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	198,995	
04/19/2023	Harvest	10.07	Tons	68.00	2.69	0.29	3.67	%							26,526
	Acre Inches Applied:	**10.00**						**Totals:**			**2,142**	**0**	**0**	**397,990**	**26,526**
Season Nitrogen Ratio:	0.08							**Lbs Per Acre:**			**14**	**0**	**0**	**2,601**	**173**

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L & J Vanderham 2023

Nutrient Applications (Attachment B)

Field Name: 26-2c

Oats, 153 Acres Planted on 11/04/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,142				
02/10/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	198,995	
03/18/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	198,995	
04/18/2023	Harvest	10.84	Tons	69.90	2.66	0.24	3.30	%							26,558
	Acre Inches Applied:	**10.00**						**Totals:**			**2,142**	**0**	**0**	**397,990**	**26,558**
Season Nitrogen Ratio:	0.08							**Lbs Per Acre:**			**14**	**0**	**0**	**2,601**	**174**

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Nutrient Applications (Attachment B)

Field Name: 26-3c

Oats, 157 Acres Planted on 11/06/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,198				
02/10/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	204,197	
03/18/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	204,197	
04/19/2023	Harvest	11.41	Tons	65.30	2.64	0.25	3.39	%							32,821
	Acre Inches Applied:	**10.00**						**Totals:**			**2,198**	**0**	**0**	**408,395**	**32,821**
Season Nitrogen Ratio:	0.07							**Lbs Per Acre:**			**14**	**0**	**0**	**2,601**	**209**

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Nutrient Applications (Attachment B)

Field Name: 26-4c

Oats, 149 Acres Planted on 11/07/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			2,086				
02/10/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	193,792	
03/18/2023	Ground Water: Well Avg	5.00	Acre Inches		0.00			mg/L			0	0	0	193,792	
04/20/2023	Harvest	10.40	Tons	62.00	2.24	0.19	2.45	%							26,380
	Acre Inches Applied:	**10.00**						**Totals:**			**2,086**	**0**	**0**	**387,585**	**26,380**
Season Nitrogen Ratio: 0.08								**Lbs Per Acre:**			**14**	**0**	**0**	**2,601**	**177**

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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	47,625.36	16,629.58	23,059.78	0.00	1,310.00	tons
Process Wastewater	335,029.02	63,774.38	408,459.88	4,036,527.89	67,156,825.89	gallons
Irrigation Water	12.29					
Fertilizer / Total Imports	0.00					
Atmospheric Deposition	63,980.00					
Total Nitrogen Applied	**446,646.67**					
Crop Nitrogen Removal	848,058.45					
Nitrogen Balance	**(401,411.78)**					
Nitrogen Ratio	**0.53**					

- **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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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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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)**
14,768	619,298.20	220,909.83	308,308.63	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
4-1	x060 x060 x11S xxxx, x060 x060 x73S xxxx	159	None
4-2	x060 x060 x73S xxxx, x060 x060 x74S xxxx	155	None
5-1	x004 x010 x006 x000	146	Manure
6-1	x004 x010 x002 x000	152	Manure
22-3	x050 x260 x11S xxxx	154	Process Wastewater
22-5	x050 x260 x11S xxxx	157	Process Wastewater
22-6	x050 x260 x11S xxxx	156	Process Wastewater
23-5	x050 x270 x63S xxxx	36	Process Wastewater
23-6	x050 x270 x63S xxxx	126	Process Wastewater
25-3	x050 x150 x51S xxxx	150	None
25-4	x050 x150 x51S xxxx	153	None
26-1	x050 x150 x08S xxxx, x050 x150 x44S xxxx	152	None
26-2	x050 x150 x90S xxxx	154	None
26-3	x050 x150 x90S xxxx	121	None
26-4	x050 x150 x08S xxxx, x050 x150 x44S xxxx	158	None
29-1	x050 x140 x51S xxxx	154	None
29-2	x050 x140 x50S xxxx, x050 x140 x51S xxxx	156	None
29-3	x050 x140 x50S xxxx, x050 x140 x51S xxxx	155	None
29-4	x050 x140 x51S xxxx	150	None
30-3	x050 x140 xx03 xxxx	156	None
31-1	x053 x100 x40S xxxx	121	None
31-2	x053 x100 x40S xxxx	46	None
31-3	x053 x100 57ST xxxx, x053 x100 x58S xxxx	97	None
31-4	x053 x100 57ST xxxx, x053 x100 x58S xxxx	145	None
31-5	x053 x100 57ST xxxx, x053 x100 x58S xxxx	60	None
31-6	x053 x100 x40S xxxx, x053 x140 x88S xxxx	48	None

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Land Application Area Description Technical Report (Attachment D)

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
32-1	x050 x140 xx17 xxxx	157	None
32-2	x050 x140 xx17 xxxx	156	None
36-7	x050 x150 x72S xxxx	38	None
36-8	x050 x150 x37S xxxx	159	None
36-9	x050 x150 x72S xxxx	157	None
26-1c	x050 x110 x02S xxxx, x050 x110 x03S xxxx	153	None
26-2c	x050 x110 x03S xxxx	153	None
26-3c	x050 x110 x03S xxxx	157	None
26-4c	x050 x110 x03S xxxx	149	None
		4,696	

Production Area APN(s): x050 x270 x62S xxxx, x050 x270 x63S xxxx

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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	484.00	52.90	850.00	9,180	435.00		6,100.00								
06/16/2023	566.00	54.50	921.00	11,000	516.00	0.00	7,280.00	8.01							
07/14/2023	784.00	275.00	574.00	10,700	609.00		7,070.00								
11/09/2023	546.00	69.50	707.00	8,850	544.00		5,880.00								
Averages:	595.00	112.98	763.00	9,932	526.00	0.00	6,582.50	8.01							

Manure - Corral Solids

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/06/2023	1.60	0.46	0.60	45.10						%
11/09/2023	2.71	1.10	2.61	41.00						%
Averages:	2.16	0.78	1.60	43.05						

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
4-1	1	Pistachios	09/21/2023	51.20	4.54	36.80	58.60	11.50
4-2	1	Pistachios	09/21/2023	66.80	6.14	56.40	59.00	18.50

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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 (%)	
5-1	1	Wheat	04/24/2023	34.80	5.88	24.80	37.30	11.60	
5-1	2	Cotton	10/31/2023	65.60	8.18	17.70	7.98	2.83	
6-1	1	Wheat	04/24/2023	38.20	6.38	28.80	49.60	10.70	
22-3	1	Wheat	05/27/2023	28.80	3.50	30.60	56.30	7.60	
22-3	2	Sorghum	10/25/2023	26.40	4.04	25.60	73.70	11.60	
22-5	1	Wheat	05/16/2023	27.60	5.50	30.40	62.80	7.93	
22-5	2	Sorghum	10/23/2023	30.20	6.36	47.80	56.90	13.60	
22-6	1	Sorghum	10/21/2023	25.60	6.12	34.60	69.30	13.20	
23-5	1	Wheat	05/15/2023	32.20	5.52	29.20	61.40	8.81	
23-5	2	Sorghum	10/12/2023	22.00	5.42	25.60	70.70	28.30	
23-6	1	Wheat	05/24/2023	36.80	7.88	51.40	65.10	8.26	
23-6	2	Sorghum	10/28/2023	28.80	4.96	29.80	71.60	10.90	
25-3	1	Tomatoes	08/28/2023	59.20	6.80	68.00	94.00	19.70	
25-4	1	Pistachios		119.80	13.60	149.80			BV-H
26-1	1	Pistachios		119.80	13.60	149.80			BV-H
26-2	1	Pistachios		119.80	13.60	149.80			BV-H
26-3	1	Pistachios		119.80	13.60	149.80			BV-H
26-4	1	Pistachios		119.80	13.60	149.80			BV-H

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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 (%)	
29-1	1	Grapes	09/21/2023	13.42	0.61	11.26	77.80	28.60	
29-2	1	Tomatoes	08/28/2023	58.40	6.20	70.40	94.40	19.60	
29-3	1	Wheat	04/24/2023	45.20	5.44	67.80	61.10	13.50	
29-3	2	Tomatoes	08/28/2023	60.00	5.20	67.40	93.90	22.50	
29-4	1	Tomatoes	08/28/2023	46.80	6.00	70.60	93.70	21.10	
30-3	1	Tomatoes	08/28/2023	55.40	5.60	66.20	93.50	22.10	
31-1	1	Wheat	04/24/2023	52.00	4.82	51.40	74.50	12.90	
31-2	1	Cotton	10/31/2023	63.20	11.10	18.60	7.33	5.61	
31-3	1	Cotton	10/31/2023	55.20	11.10	22.60	9.49	4.88	
31-4	1	Cotton	10/31/2023	50.20	5.48	13.22	10.80	3.24	
31-5	1	Wheat	04/24/2023	44.00	5.32	35.20	62.90	11.50	
31-6	1	FALLOW							
32-1	1	Wheat	04/24/2023	43.60	4.28	34.80	54.40	11.40	
32-2	1	Wheat	04/24/2023	51.20	4.42	45.80	53.60	12.30	
36-7	1	Cotton	10/31/2023	63.20	9.38	19.26	7.14	5.68	
36-8	1	Pistachios		119.80	13.60	149.80			BV-H
36-9	1	Pistachios		119.80	13.60	149.80			BV-H
26-1c	1	Oats	04/18/2023	53.80	5.88	73.40	68.00	13.40	

INNOVATIVE AG SERVICES

L & J Vanderham 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 (%)
26-2c	1	Oats	04/18/2023	53.20	4.78	66.00	69.90	14.50
26-3c	1	Oats	04/18/2023	52.80	4.96	67.80	65.30	14.50
26-4c	1	Oats	04/18/2023	44.80	3.84	49.00	62.00	15.70

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

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

							General Minerals						
	Sample Date:	NO3N	TP	EC (umhos/cm)	NH4N *	TDS	TN	CA	MG	NA	HCO3	CO3	SO4	CL
Domestic														
DW 1	12/08/2023	0.00		951										
DWN	03/08/2023	0.00		1,040										
DWS	03/01/2023	0.00		1,050		610.00		12.00	1.00	246.00	430.00	0.00	0.90	76.00
	Averages:	0.00		1,014		610.00		12.00	1.00	246.00	430.00	0.00	0.90	76.00

INNOVATIVE AG SERVICES

L & J Vanderham 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														
4-2							Out of service.							
5-1	11/20/2023	0.00		747		520.00	0.00							
6-1	11/20/2023	0.00		747		500.00	0.00							
22-3	11/20/2023	0.00		2,660		2,030.00	0.70							
23-5							Out of service							
26-1	09/08/2023	0.00		1,990		1,340.00	0.60							
26-3							Did not run.							
29-4							Out of service.							
30-3							Did not run.							
31-1							Did not run.							
31-4	12/01/2023	0.00		874		670.00	0.00	12.00	1.00	173.00	220.00	0.00	66.60	30.00
32-1							Did not run.							
36-7							Did not run.							
36-8							Did not run.							
23-5b	11/20/2023	0.00		1,020		640.00	0.00							
26-4E							Did not run.							
26-4W							Did not run.							
26-2 N	12/01/2023	0.00		2,770		2,350.00	0.00							
26-2 S							Did not run.							

INNOVATIVE AG SERVICES

L & J Vanderham 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
Irrigation														
	Averages:	0.00		1,544		1,150.00	0.19	12.00	1.00	173.00	220.00	0.00	66.60	30.00
Surface Water														
Crescent ID	07/06/2023	0.00		24		30.00	0.00							
Westland I.D. (General)	07/06/2023	0.00		26		30.00	0.00							
	Averages:	0.00		25		30.00	0.00							

* NH4N was non-detectable unless a value is shown

Soils

Field	Sample Date:	PO4P (ppm)
26-1c	08/31/2023	12.15
26-2c	08/31/2023	14.65
26-3c	08/31/2023	20.90
26-4c	08/31/2023	17.55

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: 4-1								
	1	Pistachios	159	02/01/2015	09/21/2023	0.8	270.3	1.7
Field: 4-2								
	1	Pistachios	155	02/01/2015	09/21/2023	0.9	263.5	1.7
Field: 5-1								
	1	Wheat	50	11/18/2022	04/24/2023	14.0	725.0	14.5
	2	Cotton	100	05/20/2023	10/31/2023	3.0	255.0	2.6
Field: 6-1								
	1	Wheat	152	11/18/2022	04/24/2023	18.0	2584.0	17.0
Field: 22-3								
	1	Wheat	154	12/15/2022	05/27/2023	17.2	3249.4	21.1
	2	Sorghum	154	06/06/2023	10/25/2023	19.6	3696.0	24.0
Field: 22-5								
	1	Wheat	157	11/20/2022	05/16/2023	18.8	4242.1	27.0
	2	Sorghum	157	07/01/2023	10/23/2023	20.2	3846.5	24.5
Field: 22-6								
	1	Sorghum	156	05/25/2023	10/21/2023	20.6	3728.4	23.9
Field: 23-5								
	1	Wheat	36	10/10/2022	05/15/2023	19.8	972.7	27.0
	2	Sorghum	36	06/20/2023	10/12/2023	20.5	716.4	19.9
Field: 23-6								
	1	Wheat	126	11/01/2022	05/24/2023	19.2	3181.5	25.2
	2	Sorghum	126	06/15/2023	10/28/2023	20.5	3011.4	23.9
Field: 25-3								
	1	Tomatoes	150	05/20/2023	08/28/2023	65.0	9562.5	63.8

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: 29-1								
	1	Grapes	154	02/01/2017	09/21/2023	9.8	1463.0	9.5
Field: 29-2								
	1	Tomatoes	156	05/20/2023	08/28/2023	65.0	9672.0	62.0
Field: 29-3								
	1	Wheat	125	11/15/2022	04/24/2023	18.0	1985.0	15.9
	2	Tomatoes	37	05/20/2023	08/28/2023	63.0	3089.5	83.5
Field: 29-4								
	1	Tomatoes	150	05/20/2023	08/28/2023	18.0	14440.5	96.3
Field: 30-3								
	1	Tomatoes	156	05/20/2023	08/28/2023	57.1	9360.0	60.0
Field: 31-1								
	1	Wheat	121	12/09/2022	04/24/2023	18.0	1609.3	13.3
Field: 31-2								
	1	Cotton	46	04/15/2023	10/31/2023	2.9	147.2	3.2
Field: 31-3								
	1	Cotton	97	04/15/2023	10/31/2023	2.9	242.5	2.5
Field: 31-4								
	1	Cotton	145	04/25/2023	10/31/2023	2.5	406.0	2.8
Field: 31-5								
	1	Wheat	60	11/30/2022	04/24/2023	18.0	660.0	11.0
Field: 32-1								
	1	Wheat	157	11/16/2022	04/24/2023	18.0	2105.4	13.4
Field: 32-2								
	1	Wheat	156	11/01/2022	04/24/2023	18.0	2463.2	15.8

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: 36-7								
	1	Cotton	38	04/20/2023	10/31/2023	2.7	107.9	2.8
Field: 26-1c								
	1	Oats	153	11/10/2022	04/19/2023	10.0	1540.7	10.1
Field: 26-2c								
	1	Oats	153	11/04/2022	04/18/2023	10.0	1658.5	10.8
Field: 26-3c								
	1	Oats	157	11/06/2022	04/19/2023	10.0	1791.4	11.4
Field: 26-4c								
	1	Oats	149	11/07/2022	04/20/2023	10.0	1549.6	10.4

INNOVATIVE AG SERVICES

L & J Vanderham 2023

Weather Data (Attachment G)

Day	January	February	March	April	May	June	July	August	September	October	November	December
1	None	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	None	None	None	None	None	None	None	None
5	Heavy	None	Light	None	None	None	None	None	None	None	None	None
6	Light	None	Light	None	None	None	None	None	None	None	None	None
7	None	None	None	None	None	None	None	None	None	None	None	None
8	None	None	None	None	None	None	None	None	None	None	None	None
9	Light	None	Light	None	None	None	None	None	None	None	None	None
10	Light	None	Light	None	None	None	None	None	None	None	None	None
11	None	None	None	None	None	None	None	None	None	None	None	None
12	SWP	None	None	None	None	None	None	None	None	None	None	None
13	Light	None	None	None	None	None	None	None	None	None	None	None
14	SWP	None	None	None	None	None	None	None	None	None	None	None
15	Light	None	Heavy	None	None	None	None	None	None	None	None	None
16	Light	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	Heavy	None	None	None	None	None	None	None	None	Light
20	None	None	None	None	None	None	None	None	None	None	None	SWP
21	None	None	Heavy	None	None	None	None	None	None	None	None	None
22	None	None	Light	None	None	None	None	None	None	None	None	None
23	None	None	None	None	None	None	None	None	None	None	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	None	Light	None	None	None	None	None	None	None	None	None
29	Light		None	None	None	None	None	None	None	None	None	Light
30	None		None	None	None	None	None	None	None	None	None	SWP
31	None		None		None		None	None		None		None

*Note: SWP = Standing Water Present

INNOVATIVE AG SERVICES

DocuSign Envelope ID: D143ADAE-BDD2-4FD7-AEA3-A8A254C27820

ATTACHMENT D

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: Luke Vandersham

Name of Dairy Facility: L + J Vandersham Dairy

Facility Address: 10846 W MT Whitney Riverdale 93656
Number and Street / City / Zip Code

Contact Person Name and Phone Number: Luke 559-967-2003
Name / Phone Number

Manure/Process Wastewater Hauler Information:

Name of Hauling Company/Person: CIDF

Address of Hauling Company /Person: 13406 Rd 24 Corcoran 93212
Number and Street / City / Zip Code

Contact Person: Harvey 909-247-8681
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):

Sandridge Partners 960 N San Antonio Rd 114 Los Altos 94022
Name / Number and Street / City / Zip Code / Phone Number

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

Same
Number and Street / City / Zip Code / Assessor's Parcel Number

Dates Hauled: Jan. 23 – Dec 23

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: 14,767.79 Tons or Cubic Yards (indicate which units used)
Manure Solids Content (if amount reported in tons): 54.9% Corral Solids
Manure Density (if amount reported in cubic yards): _____

DocuSign Envelope ID: D143ADAE-BDD2-4FD7-AEA3-A8A254C27820

Method used to determine amount of manure: Scale

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.

DocuSigned by:
Operator's Signature: Luke Vanderham Date: 6/27/2024
038F1ADFA04B412...

Hauler's Signature: _____ Date: 5/28/24

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

March 9, 2023

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

Lab No. : **VI 2341269**
Customer No. : **4018573**
Reference : **40251**

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
DWS	03/01/2023	03/01/2023	VI 2341269-001	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: 2023-03-14

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FAX: (559)734-8435

March 9, 2023

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

Description : DWS
Project : 0022 L & J Vanderham

Lab No. : VI 2341269-001
Customer No. : 4018573
Reference : 40251
Sampled On : March 1, 2023 at 12:00
Sampled By : Sean
Received On : March 1, 2023 at 16:01
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
							Date	Time	Who	Method	Date	Time	Who
Dairy Analysis													
Alkalinity (as CaCO3)	360	10	mg/L		1		03/06/2023	13:57	amm	SM 4500-H+B	03/07/2023	02:55	amm
Bicarbonate	430	10	mg/L		1		03/06/2023	13:57	amm	SM 4500-H+B	03/07/2023	02:55	amm
Carbonate	ND	10	mg/L		1	U	03/06/2023	13:57	amm	SM 4500-H+B	03/07/2023	02:55	amm
Hydroxide	ND	10	mg/L		1	U	03/06/2023	13:57	amm	SM 4500-H+B	03/07/2023	02:55	amm
Chloride	76	2*	mg/L	500[2]	2		03/02/2023	11:36	ldm	EPA 300.0	03/03/2023	10:49	ldm
Nitrate Nitrogen	ND	0.1	mg/L	10	1	U	03/02/2023	11:36	ldm	EPA 300.0	03/02/2023	19:08	ldm
Conductivity	1050	1	umhos/cm	1600[2]	1		03/06/2023	13:57	amm	SM 4500-H+B	03/07/2023	02:55	amm
Sulfate Sulfur	0.90	0.17	mg/L		1		03/02/2023	11:36	ldm	EPA 300.0	03/02/2023	19:08	ldm
Solids, Total Dissolved (TDS)	610	20	mg/L	1000[2]	1		03/03/2023	12:00	ctl	SM 2540 C	03/06/2023	10:30	ctl
Calcium	12	1	mg/L		1		03/06/2023	02:50	ejc	EPA 200.7	03/06/2023	12:43	ac
Magnesium	1	1	mg/L		1	l	03/06/2023	02:50	ejc	EPA 200.7	03/06/2023	12:43	ac
Potassium	1	1	mg/L		1	l	03/06/2023	02:50	ejc	EPA 200.7	03/06/2023	12:43	ac
Sodium	246	1	mg/L		1	l	03/06/2023	02:50	ejc	EPA 200.7	03/06/2023	12:43	ac

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

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

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March 9, 2023
Innovative Ag Services, LLC

Lab No. : VI 2341269
Customer No. : 4018573

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	03/06/2023:202373EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	110 %	85-115	
			MS	mg/L	12.00	-18.3 %	<¼	
		(SP 2302953-002)	MSD	mg/L	12.00	36.3 %	<¼	
			MSRPD	mg/L	4.000	8.4%	≤20.0	
			MS	mg/L	12.00	-8.3 %	<¼	
		(SP 2302953-004)	MSD	mg/L	12.00	29.9 %	<¼	
			MSRPD	mg/L	4.000	5.8%	≤20.0	
Magnesium	200.7	03/06/2023:202373EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	104 %	85-115	
			MS	mg/L	12.00	-4.5 %	75-125	435
		(SP 2302953-002)	MSD	mg/L	12.00	7.2 %	75-125	435
			MSRPD	mg/L	4.000	7.9%	≤20	
			MS	mg/L	12.00	-2.2 %	75-125	435
		(SP 2302953-004)	MSD	mg/L	12.00	7.0 %	75-125	435
			MSRPD	mg/L	4.000	6.3%	≤20	
Potassium	200.7	03/06/2023:202373EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	101 %	85-115	
			MS	mg/L	12.00	-4.1 %	75-125	435
		(SP 2302953-002)	MSD	mg/L	12.00	6.0 %	75-125	435
			MSRPD	mg/L	4.000	8.6%	≤20.0	
			MS	mg/L	12.00	-2.6 %	75-125	435
		(SP 2302953-004)	MSD	mg/L	12.00	4.1 %	75-125	435
			MSRPD	mg/L	4.000	7.5%	≤20.0	
Sodium	200.7	03/06/2023:202373EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	109 %	85-115	
			MS	mg/L	12.00	-15.3 %	75-125	435
		(SP 2302953-002)	MSD	mg/L	12.00	13.6 %	75-125	435
			MSRPD	mg/L	4.000	8.0%	≤20.0	
			MS	mg/L	12.00	-5.6 %	<¼	
		(SP 2302953-004)	MSD	mg/L	12.00	16.6 %	<¼	
			MSRPD	mg/L	4.000	4.9%	≤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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March 9, 2023

Innovative Ag Services, LLC

Lab No. : VI 2341269
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	03/06/2023:202435AMM	ND	mg/L		1.43%	10	435
Bicarbonate	2320B	(CC 2380676-001)	Dup	mg/L		1.59%	10	
E. C.	2320B	(CC 2380676-001)	Dup	umhos/cm		0%	5	
Solids, Total Dissolved	2540CE	03/03/2023:202349CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	992.0	98.7%	90-110	
		(VI 2341269-001)	Dup	mg/L		1.85%	5	
		(VI 2341269-001)	Dup	mg/L		0.4%	5	
Chloride	300.0	03/02/2023:202364LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	94.3 %	90-110	
			MS	mg/L	50.00	92.4 %	85-121	
		(CH 2371299-001)	MSD	mg/L	50.00	96.0 %	85-121	
			MSRPD	mg/L	10.00	3.5%	≤19	
			MS	mg/L	50.00	95.0 %	85-121	
		(CH 2371298-001)	MSD	mg/L	50.00	101 %	85-121	
			MSRPD	mg/L	10.00	6.0%	≤19	
Nitrate Nitrogen	300.0	03/02/2023:202364LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	94.1 %	90-110	
			MS	mg/L	40.00	94.5 %	85-119	
		(CH 2371299-001)	MSD	mg/L	40.00	98.2 %	85-119	
			MSRPD	mg/L	10.00	3.6%	≤19	
			MS	mg/L	40.00	96.7 %	85-119	
		(CH 2371298-001)	MSD	mg/L	40.00	103 %	85-119	
			MSRPD	mg/L	10.00	5.9%	≤19	
Sulfate Sulfur	300.0	03/02/2023:202364LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	93.8 %	90-110	
			MS	mg/L	100.0	93.2 %	82-124	
		(CH 2371299-001)	MSD	mg/L	100.0	97.0 %	82-124	
			MSRPD	mg/L	10.00	3.9%	≤23	
			MS	mg/L	100.0	95.3 %	82-124	
		(CH 2371298-001)	MSD	mg/L	100.0	102 %	82-124	
			MSRPD	mg/L	10.00	6.4%	≤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

Laboratory Analysis Work Order

Nº 40251

2341269

ID: # 0022

LABORATORY: FGL

SITE NAME: L & J VANDERHAM

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

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

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

W6 NO_3N, NO_2 (Dom ILRP, Annually)

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

W8 Other: _____

Process Waste Water (lagoon)

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

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

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

L4 Other: _____

Manure

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

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

M3 Other: _____

Plant Tissue

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

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

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

P4 TN, %M

P5 % Moisture

P6 NIR

P7 Other: _____

Soil

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

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

S3 NO_3N, NH_4N

S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N*	pH	Temp
1	DWS	DOM	W4	3/1/23 11:00	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	[signature]	IAS		3/1/23 2:30
2nd	EMA	FGL	3/1/23 15:25	
3rd	EMA	FGL		3/1/23 16:02
4th	[signature]		3/1/23 1601	

LABORATORY USE ONLY

Logged In By: GV

Total Samples: 7

Laboratory #:

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

December 18, 2023

Lab No. : **VI 2348357**
Customer No. : **4018573**
Reference : **42143**

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

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
DW1	12/08/2023	12/08/2023	VI 2348357-001	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: 2023-12-18

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

December 18, 2023

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

Description : DW1
Project : 0022 L & J Vanderham

Lab No. : VI 2348357-001
Customer No. : 4018573
Reference : 42143
Sampled On : December 8, 2023 at 09:20
Sampled By : Zeke
Received On : December 8, 2023 at 15:51
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	ND	0.4	mg/L	10	1	U	12/15/2023	13:00	lfs	SM 4500-NO3 F	12/15/2023	13:49	lfs
Conductivity	951	1	umhos/cm	1600[2]	1		12/13/2023	08:05	krh	SM 4500-H+B	12/13/2023	09:59	krh

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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December 18, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348357
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(SP 2320394-001)	Dup	umhos/cm		0.3%	5	
Nitrate Nitrogen	4500NO3F	12/15/2023:214153LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	95.6%	80-120	
			MS	mg/L	5.609	92.2%	66-125	
		(STK2356868-001)	MSD	mg/L	5.609	93.9%	66-125	
			MSRPD	mg/L		0.6%	≤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.

Page 3 of 3

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CA ELAP Certification No. 2810

Laboratory Analysis Work Order

Nº 42143

16.8°C ROI
TO# TH407

2348357

ID: # 0022

LABORATORY: FGL

SITE NAME: L&J VANDERHAM

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

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

Process Waste Water (lagoon)

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

Manure

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

Plant Tissue

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

Soil

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

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	DW1	DOM	W1	12-8/9:20	Zeke			
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES: 12/19/23 1250

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		12-8-23 / 2:25
2nd	AJB	FGL	12/8/23 1535	
3rd	AJB	FGL		12/8/23 1551
4th		FGL	12-8-2023 1551	

LABORATORY USE ONLY
Logged In By: GLS Rec'd 12-8-2023 1730 Total Samples: _____ Laboratory #: _____

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

December 28, 2023

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

Lab No. : **VI 2348055**
Customer No. : **4018573**
Reference : **42116**

Laboratory Report

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

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

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
31-4	12/01/2023	12/01/2023	VI 2348055-001	AGW
26-2N	12/01/2023	12/01/2023	VI 2348055-002	AGW

Sampling and Receipt Information:

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

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

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

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

KD: JRD

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

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CA ELAP Certification No. 2810

December 28, 2023

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

Description : 31-4
Project : 0022 L&J Vanderham

Lab No. : VI 2348055-001
Customer No. : 4018573
Reference : 42116
Sampled On : December 1, 2023 at 09:15
Sampled By : Zeke
Received On : December 1, 2023 at 15:50
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	190	10	mg/L		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	21:48	amm
Bicarbonate	220	10	mg/L		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	21:48	amm
Carbonate	ND	10	mg/L		1	J	12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	21:48	amm
Hydroxide	ND	10	mg/L		1	J	12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	21:48	amm
Chloride	30	1	mg/L		1		12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	15:31	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	14:48	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	U	12/06/2023	11:00	lfs	SM 4500-NO3 F	12/06/2023	14:28	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	Calc.	12/13/2023	14:48	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	12/06/2023	11:00	lfs	SM 4500-NO3 F	12/06/2023	14:28	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	14:48	lcr
Conductivity	874	1	umhos/cm		1		12/04/2023	18:05	amm	SM 4500-H+B	12/04/2023	21:48	amm
Sulfate Sulfur	66.6	0.17	mg/L		1		12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	15:31	ldm
Solids, Total Dissolved (TDS)	670	20	mg/L		1		12/05/2023	10:50	ctl	SM 2540 C	12/06/2023	11:00	ctl
Calcium	12	1	mg/L		1	l	12/05/2023	01:40	ejc	EPA 200.7	12/06/2023	20:13	ac
Magnesium	1	1	mg/L		1		12/05/2023	01:40	ejc	EPA 200.7	12/06/2023	20:13	ac
Sodium	173	1	mg/L		1		12/05/2023	01:40	ejc	EPA 200.7	12/06/2023	20:13	ac

DQF Flags Definition:
J Reported value is estimated; detected at a concentration below the RL and above the laboratory MDL.
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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December 28, 2023

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

Description : 26-2N
Project : 0022 L&J Vanderham

Lab No. : VI 2348055-002
Customer No. : 4018573
Reference : 42116
Sampled On : December 1, 2023 at 09:00
Sampled By : Zeke
Received On : December 1, 2023 at 15:50
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	14:41	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	J	12/07/2023	09:00	lfs	SM 4500-NO3 F	12/07/2023	12:40	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	UJ	12/12/2023	08:00	sta	Calc.	12/13/2023	14:41	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	J	12/07/2023	09:00	lfs	SM 4500-NO3 F	12/07/2023	12:40	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	12/12/2023	08:00	sta	EPA 351.2	12/13/2023	14:41	lcr
Conductivity	2770	1	umhos/cm		1		12/07/2023	07:47	krh	SM 4500-H+B	12/07/2023	11:59	krh
Solids, Total Dissolved (TDS)	2350	20	mg/L		1		12/04/2023	14:45	ctl	SM 2540 C	12/05/2023	11:00	ctl

DQF Flags Definition:
U Constituent results were non-detect.
J Reported value is estimated; detected at a concentration below the RL and above the laboratory MDL.

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

Page 3 of 6

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December 28, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348055
Customer No. : 4018573

Quality Control - Metals

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

Definition

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

Explanation

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

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December 28, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348055
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	(CH 2390156-001)	Dup	mg/L		2.68%	10	
Bicarbonate	2320B	(CH 2390156-001)	Dup	mg/L		2.58%	10	
E. C.	2320B	(CH 2390156-001)	Dup	umhos/cm		0.1%	5	
	2320B	(VI 2348057-001)	Dup	umhos/cm		0.3%	5	
Solids, Total Dissolved	2540CE	12/04/2023:213647CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	101%	90-110	
		(SP 2319835-002)	Dup	mg/L		1.66%	5	
		(SP 2319835-002)	Dup	mg/L		1.62%	5	
	2540CE	12/05/2023:213689CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.3%	90-110	
		(SP 2319827-001)	Dup	mg/L		2.66%	5	
		(SP 2319827-001)	Dup	mg/L		1.41%	5	
Chloride	300.0	12/08/2023:213947LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	100%	90-110	
			MS	mg/L	0.000	0.0%	<¼	
		(CH 2373990-001)	MSD	mg/L	0.000	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	0.000	0.0%	<¼	
		(STK2356821-001)	MSD	mg/L	0.000	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
Sulfate Sulfur	300.0	12/08/2023:213947LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	102%	90-110	
			MS	mg/L	0.000	0.0%	<¼	
		(CH 2373990-001)	MSD	mg/L	0.000	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	0.000	0.0%	<¼	
		(STK2356821-001)	MSD	mg/L	0.000	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
Nitrogen, Total Kjeldahl	351.2	12/12/2023:213992STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	94.7%	73-124	
			MS	mg/L	12.00	87.5%	<¼	
		(VI 2348057-001)	MSD	mg/L	12.00	90.6%	90-110	
			MSRPD	mg/L		3.5%	≤20	
			MS	mg/L	12.00	91.1%	90-110	
		(VI 2348057-002)	MSD	mg/L	12.00	87.2%	<¼	
			MSRPD	mg/L		4.5%	≤20	
Nitrate + Nitrite as N	4500NO3F	12/06/2023:213768LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.2%	80-120	
			MS	mg/L	5.609	95.3%	66-125	
		(SP 2320045-001)	MSD	mg/L	5.609	98.8%	66-125	
			MSRPD	mg/L		3.0%	≤30.4	
	4500NO3F	12/07/2023:213812LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	101%	80-120	
			MS	mg/L	5.609	99.0%	66-125	
		(SP 2320111-001)	MSD	mg/L	5.609	99.0%	66-125	
			MSRPD	mg/L		0.0%	≤30.4	
Nitrate Nitrogen	4500NO3F	12/06/2023:213768LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.2%	80-120	
			MS	mg/L	5.609	95.3%	66-125	
		(SP 2320045-001)	MSD	mg/L	5.609	98.8%	66-125	

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December 28, 2023

Innovative Ag Services, LLC

Lab No. : VI 2348055
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
			MSRPD	mg/L		3.0%	≤30.4	
	4500NO3F	12/07/2023:213812LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	101%	80-120	
			MS	mg/L	5.609	99.0%	66-125	
		(SP 2320111-001)	MSD	mg/L	5.609	99.0%	66-125	
			MSRPD	mg/L		0.0%	≤30.4	

Definition

<¼ : High Sample Background - Spike concentration was less than one forth of the sample concentration.

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

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

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

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

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

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

Page 6 of 6

Laboratory Analysis Work Order

Nº 42116

10.7°C Rot 2348055

ID: # 0022 ID# FH407

LABORATORY: FGL

SITE NAME: L&J VANDERHAM

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	31-4	IAR	W5	12-1 / 9:15	Zeke			
2	26-2N	IAR	W2	12-1 / 9:00	Zeke			
3								
4								
5								
6								
7								
8								

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

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

NOTES: AGS 12/2/23 1515

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[signature]	IAS		12-1-23 / 2:45
2nd	[signature]	FGL	12-1-23 15:35	
3rd	[signature]	FGL		12-1-23 15:50
4th	[signature]	FGL	12-1-2023 1550	

LABORATORY USE ONLY

Logged In By: Recd GLS 12-1-2023 1730 Total Samples: _____ Laboratory #: _____

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

December 21, 2023

Lab No. : **VI 2347877**
Customer No. : **4018573**
Reference : **42082**

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

Laboratory Report

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

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(4 pages)	: 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
23-5b	11/20/2023	11/20/2023	VI 2347877-001	AGW
6-1	11/20/2023	11/20/2023	VI 2347877-002	AGW
5-1	11/20/2023	11/20/2023	VI 2347877-003	AGW
22-3	11/20/2023	11/20/2023	VI 2347877-004	AGW

Sampling and Receipt Information:

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

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

Test Summary	
EPA 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)

Discussion of Analytical Results:

Amended to correct spelling of project name.

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 **David Terz, B.A., M.B.A.** Digitally signed by David Terz, B.A., M.B.A.
Title: QA Director
Date: 2023-12-21

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December 21, 2023

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

Description : 23-5b
Project : 0022 L & J Vanderham

Lab No. : VI 2347877-001
Customer No. : 4018573
Reference : 42082
Sampled On : November 20, 2023 at 09:00
Sampled By : Zeke
Received On : November 20, 2023 at 16:00
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:07	lfs
Nitrate Nitrogen	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	15:50	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	Calc.	11/27/2023	13:07	lfs
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	15:50	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:07	lfs
Conductivity	1020	1	umhos/cm		1		11/27/2023	09:13	krh	SM 4500-H+B	11/27/2023	12:59	krh
Solids, Total Dissolved (TDS)	640	20	mg/L		1		11/21/2023	16:10	ctl	SM 2540 C	11/22/2023	11:20	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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December 21, 2023

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

Description : 6-1
Project : 0022 L & J Vanderham

Lab No. : VI 2347877-002
Customer No. : 4018573
Reference : 42082
Sampled On : November 20, 2023 at 09:20
Sampled By : Zeke
Received On : November 20, 2023 at 16:00
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:10	lfs
Nitrate Nitrogen	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	15:52	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	Calc.	11/27/2023	13:10	lfs
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	15:52	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:10	lfs
Conductivity	747	1	umhos/cm		1		11/27/2023	09:13	krh	SM 4500-H+B	11/27/2023	11:34	krh
Solids, Total Dissolved (TDS)	500	20	mg/L		1		11/21/2023	16:10	ctl	SM 2540 C	11/22/2023	11:20	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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December 21, 2023

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

Description : 5-1
Project : 0022 L & J Vanderham

Lab No. : VI 2347877-003
Customer No. : 4018573
Reference : 42082
Sampled On : November 20, 2023 at 09:25
Sampled By : Zeke
Received On : November 20, 2023 at 16:00
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:12	lfs
Nitrate Nitrogen	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	15:55	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	Calc.	11/27/2023	13:12	lfs
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	15:55	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:12	lfs
Conductivity	747	1	umhos/cm		1		11/27/2023	09:13	krh	SM 4500-H+B	11/27/2023	11:37	krh
Solids, Total Dissolved (TDS)	520	20	mg/L		1		11/21/2023	16:10	ctl	SM 2540 C	11/22/2023	11:20	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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December 21, 2023

Innovative Ag Services, LLC
1201 Delta View Road
Suite 5
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Description : 22-3
Project : 0022 L & J Vanderham

Lab No. : VI 2347877-004
Customer No. : 4018573
Reference : 42082
Sampled On : November 20, 2023 at 09:50
Sampled By : Zeke
Received On : November 20, 2023 at 16:00
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	0.7	0.5	mg/L		1	l	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:14	lfs
Nitrate Nitrogen	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	16:27	lfs
Nitrogen, Total as Nitrogen	0.7	0.5	mg/L		1	l	11/22/2023	14:20	sta	Calc.	11/27/2023	13:14	lfs
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	11/21/2023	13:30	lfs	SM 4500-NO3 F	11/21/2023	16:27	lfs
Kjeldahl Nitrogen	0.7	0.5	mg/L		1	l	11/22/2023	14:20	sta	EPA 351.2	11/27/2023	13:14	lfs
Conductivity	2660	1	umhos/cm		1		11/27/2023	09:13	krh	SM 4500-H+B	11/27/2023	11:39	krh
Solids, Total Dissolved (TDS)	2030	20	mg/L		1		11/21/2023	16:10	ctl	SM 2540 C	11/22/2023	11:20	ctl

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

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

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December 21, 2023
Innovative Ag Services, LLC

Lab No. : VI 2347877
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2347877-002)	Dup	umhos/cm		0.3%	5	
		(VI 2347909-001)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	11/21/2023:213264CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	99.6%	90-110	
		(SP 2319405-001)	Dup	mg/L		0.6%	5	
		(SP 2319405-001)	Dup	mg/L		2.22%	5	
Nitrogen, Total Kjeldahl	351.2	11/22/2023:213297STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	93.9%	73-124	
			MS	mg/L	12.00	86.1%	90-110	435
		(CH 2379092-004)	MSD	mg/L	12.00	89.1%	90-110	435
			MSRPD	mg/L		3.3%	≤20	
			MS	mg/L	12.00	85.6%	90-110	435
		(CH 2379092-005)	MSD	mg/L	12.00	88.0%	90-110	435
			MSRPD	mg/L		2.8%	≤20	
Nitrate + Nitrite as N	4500NO3F	11/21/2023:213268LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	97.2%	80-120	
			MS	mg/L	5.609	93.2%	66-125	
		(STK2356123-001)	MSD	mg/L	5.609	94.7%	66-125	
			MSRPD	mg/L		0.6%	≤30.4	
Nitrate Nitrogen	4500NO3F	11/21/2023:213268LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	97.2%	80-120	
			MS	mg/L	5.609	93.2%	66-125	
		(STK2356123-001)	MSD	mg/L	5.609	94.7%	66-125	
			MSRPD	mg/L		0.6%	≤30.4	

Definition

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

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

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

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

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

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

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

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

Explanation

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

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Laboratory Analysis Work Order

Nº 42082

ID: # 0022 2347877

LABORATORY: FGL

SITE NAME: L&J VANDERHAM

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) 8.2, 0.1 C Test TN 407
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	23-5b	TDR	W2	11-20	9:00	Zeke			
2	6-1	|	|	|	9:20	|			
3	5-1	|	|	|	9:25	|			
4	22-3	|	|	|	9:50	|			
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		11-20-23 / 2:45
2nd		FGL	11-20-23 15:45	
3rd		FGL		11-20-23 16:00
4th			11/20/23 1600	

LABORATORY USE ONLY

Logged In By: GLS 11/21/23 1221

Total Samples: 11/20/23 17

Laboratory #: _____

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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

September 29, 2023

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

Lab No. : **VI 2346111**
Customer No. : **4018573**
Reference : **41321**

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
26-1	09/08/2023	09/08/2023	VI 2346111-001	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: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-09-29

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September 29, 2023

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

Description : 26-1
Project : 0022 L & J Vanderham

Lab No. : VI 2346111-001
Customer No. : 4018573
Reference : 41321
Sampled On : September 8, 2023 at 13:25
Sampled By : Not Legible
Received On : September 8, 2023 at 15:55
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	0.6	0.5	mg/L		1	l	09/21/2023	09:23	sta	EPA 351.2	09/25/2023	21:06	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	U	09/13/2023	10:00	lfs	SM 4500-NO3 F	09/13/2023	12:21	lfs
Nitrogen, Total as Nitrogen	0.6	0.5	mg/L		1	l	09/21/2023	09:23	sta	Calc.	09/25/2023	21:06	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	09/13/2023	10:00	lfs	SM 4500-NO3 F	09/13/2023	12:21	lfs
Kjeldahl Nitrogen	0.6	0.5	mg/L		1	l	09/21/2023	09:23	sta	EPA 351.2	09/25/2023	21:06	lcr
Conductivity	1990	1	umhos/cm		1		09/14/2023	09:03	krh	SM 4500-H+B	09/14/2023	11:37	krh
Solids, Total Dissolved (TDS)	1340	20	mg/L		1		09/13/2023	10:20	ctl	SM 2540 C	09/14/2023	11:40	ctl

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

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

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September 29, 2023
Innovative Ag Services, LLC

Lab No. : VI 2346111
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2346087-007)	Dup	umhos/cm		0.09%	5	
Solids, Total Dissolved	2540CE	09/13/2023:210246CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	100%	90-110	
		(VI 2346111-001)	Dup	mg/L		0.4%	5	
		(VI 2346111-001)	Dup	mg/L		0.6%	5	
Nitrogen, Total Kjeldahl	351.2	09/21/2023:210595STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	91.7%	73-124	
			MS	mg/L	12.00	89.3%	90-110	435
		(STK2352400-001)	MSD	mg/L	12.00	88.1%	90-110	435
			MSRPD	mg/L		1.2%	≤20	
			MS	mg/L	12.00	89.7%	90-110	435
		(STK2352400-004)	MSD	mg/L	12.00	93.6%	90-110	
			MSRPD	mg/L		3.8%	≤20	
Nitrate + Nitrite as N	4500NO3F	09/13/2023:210275LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	96.0%	80-120	
			MS	mg/L	5.609	99.6%	66-125	
		(SP 2315400-001)	MSD	mg/L	5.609	95.0%	66-125	
			MSRPD	mg/L		4.0%	≤30.4	
Nitrate Nitrogen	4500NO3F	09/13/2023:210275LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	96.0%	80-120	
			MS	mg/L	5.609	99.6%	66-125	
		(SP 2315400-001)	MSD	mg/L	5.609	95.0%	66-125	
			MSRPD	mg/L		4.0%	≤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.

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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TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

Laboratory Analysis Work Order

Nº 41321

ID: # 0022 2346111

LABORATORY: F&L

SITE NAME: L&J VANDERHAM

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	26-1	IRR	W2	9-8 / 1:25				
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: 9/9/23 1445

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		9-8-23 / 2:40
2nd		F&L	9-8-23 15:45	
3rd		F&L		9-8-23 15:55
4th			9/8/23 1:55	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: 9/8/23 Laboratory #: _____

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

March 21, 2023

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

Lab No. : **VI 2341448**
Customer No. : **4018573**
Reference : **40253**

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
DWN	03/08/2023	03/08/2023	VI 2341448-001	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: 2023-03-21

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Santa Paula, CA 93060
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Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
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Chico, CA 95926
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FAX: (530)343-3807
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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

March 21, 2023

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

Description : DWN
Project : 0022 L & J Vanderham Dairy

Lab No. : VI 2341448-001
Customer No. : 4018573
Reference : 40253
Sampled On : March 8, 2023 at 13:00
Sampled By : Sean
Received On : March 8, 2023 at 16:20
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	ND	0.4	mg/L	10	1	U	03/09/2023	13:30	lfs	SM 4500-NO3 F	03/09/2023	14:14	lfs
Conductivity	1040	1	umhos/cm	1600[2]	1		03/15/2023	16:12	amm	SM 4500-H+B	03/15/2023	17:57	amm

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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March 21, 2023
Innovative Ag Services, LLC

Lab No. : VI 2341448
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(STK2332731-001)	Dup	umhos/cm		1.84%	5	
Nitrate Nitrogen	4500NO3F	03/09/2023:202614LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	97.5%	80-120	
			MS	mg/L	5.609	73.4%	66-125	
		(CC 2380747-001)	MSD	mg/L	5.609	74.5%	66-125	
			MSRPD	mg/L	5.609	0.4%	≤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.

Page 3 of 3

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Laboratory Analysis Work Order

Nº 40253

ID: # 0022 2341448

LABORATORY: FGL

SITE NAME: L & J Vanderham 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) PO 15.4

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	DWN	Dom	W1	3/8/23 1:00	SEAN	✓		
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		3/8/23 2:45
2nd	EMA	FGL	3/8/23 16:05	
3rd	EMA	FGL		3/8/23 16:20
4th			3/8/23 1620	

LABORATORY USE ONLY

Logged In By: GLS Total Samples: 8 Laboratory #: _____

GLS MC 3/9/23 1220

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