



INNOVATIVE  
AG SERVICES

# FRINGS RANCH #2

## 2023 Annual Report

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|---|---|
| <u><input checked="" type="checkbox"/></u> Report Form  | <u><input type="checkbox"/></u> <i>NH</i> Attachment I                          |
| <u><input checked="" type="checkbox"/></u> Attachment A | <u><input type="checkbox"/></u> <i>NA</i> Attachment J                          |
| <u><input checked="" type="checkbox"/></u> Attachment B | <u><input type="checkbox"/></u> <i>NH</i> Manure Tracking Manifests             |
| <u><input checked="" type="checkbox"/></u> Attachment C | <u><input type="checkbox"/></u> <i>NA</i> New or Revised Waste Water Agreements |
| <u><input checked="" type="checkbox"/></u> Attachment D | <u><input type="checkbox"/></u> Groundwater Monitoring Samples                  |
| <u><input checked="" type="checkbox"/></u> Attachment E | <u><input type="checkbox"/></u> Tissue Monitoring Chain of Custody              |
| <u><input checked="" type="checkbox"/></u> Attachment F | <u><input type="checkbox"/></u> <i>NA</i> Monitoring Well Report                |
| <u><input checked="" type="checkbox"/></u> Attachment G | <u><input type="checkbox"/></u> <i>NA</i> Owner/Operator Change Form            |
| <u><input checked="" type="checkbox"/></u> Attachment H |   |

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Enclosed are the required documents to be submitted to the Regional Water Quality Control Board Central Valley Region in compliance with Order No. R5-2017-0058 Waste Discharge Requirements, General Order for Confined Bovine Feeding Operations for July 1, 2024.

(See attached delivery confirmation)

# Annual Report

## Frings Ranch #2 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Frings Ranch #2
Facility Address	7023 Avenue 216, Tulare CA 93274

Owner/Operator as of 12/31/2023

Operator Name	Frings Ranch
Operator Phone	(559) 686-7663
Owner Name	Frings Ranch
Owner Phone	(559) 686-7663

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:  
 No discharges occurred during the reporting period.  
 Yes. \_\_\_\_\_ Number of discharges occurred (see Attachment H).

## Frings Ranch #2 2023

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION**

**10. Summary of storm water discharges from the production area**

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

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:

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.

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.

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.

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).

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).

## Frings Ranch #2 2023

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION**

### 17. Record-Keeping Results

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

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

### 18. Groundwater Monitoring Section

- 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

- 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.

Frings Ranch #2 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."

**Same as owner**

Signature of Operator of Facility

Frings Ranch

Print Name

Title and Date

DocuSigned by:



82EA6BDFFDC33424...

Signature of Owner of Facility

Frings Ranch

Print Name

6/19/2024

Title and Date



## Frings Ranch #2 2023

### Estimated Manure and Nutrients Generated (Attachment A)

Animal Type	Maximum No. of Head	Average No. of Head*	Maximum No. of AUs	Average No. of AUs	Housing Type	Weight	Total Manure Produced (tons/year)	NITROGEN	PHOSPHORUS	POTASSIUM	SALTS
								Net (LB) Available for Land Application			
Calves (4-12)	2,305	2,247	807	786	Dry Scrape	350	20,503.88	180,434.10	32,806.20	106,620.15	196,837.20
Calves (0-3)	7,579	7,389	1,592	1,552	Calves Dry Scrape	210	25,621.36	53,939.70	26,969.85	107,879.40	53,939.70
	9,884	9,636	2,399	2,338			46,125.23	234,373.80	59,776.05	214,499.55	250,776.90

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

### Estimated Amount of Total Process Wastewater and Nutrients Generated

Total Gallons of Process Wastewater Generated***	Average TKN Concentration (mg/L)*	Average Total Phosphorus Concentration (mg/L)*	Average Potassium Concentration (mg/L)*	Average Total Dissolved Solids (mg/L)*	Total Nitrogen Generated (lb)**	Total Phosphorus Generated (lb)**	Total Potassium Generated (lb)**	Total Salt Generated (lb)**
1,018,286	424.50	39.75	367.00	3,572.50	3,600.75	337.17	3,113.01	30,303.10

\* 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).



## Frings Ranch #2 2023

### Nutrient Applications (Attachment B)

Field Name: 3-101

Alfalfa, 93 Acres Planted on 11/15/2021

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data				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	%					1,302				
01/16/2023	Ground Water: Well Avg	4.00	Acre Inches	40.40		mg/L				3,399	0	0	63,950	
02/14/2023	Ground Water: Well Avg	4.20	Acre Inches	40.40		mg/L				3,569	0	0	67,148	
03/18/2023	Surface Water: Tulare	4.30	Acre Inches	0.00		mg/L				0	0	0	2,714	
04/15/2023	Surface Water: Tulare	5.50	Acre Inches	0.00		mg/L				0	0	0	3,471	
05/17/2023	Surface Water: Tulare	5.00	Acre Inches	0.00		mg/L				0	0	0	3,155	
06/19/2023	Surface Water: Tulare	6.00	Acre Inches	0.00		mg/L				0	0	0	3,787	
07/17/2023	Surface Water: Tulare	6.00	Acre Inches	0.00		mg/L				0	0	0	3,787	
08/14/2023	Surface Water: Tulare	5.50	Acre Inches	0.00		mg/L				0	0	0	3,471	
09/16/2023	Surface Water: Tulare	5.00	Acre Inches	0.00		mg/L				0	0	0	3,155	
10/15/2023	Surface Water: Tulare	5.00	Acre Inches	0.00		mg/L				0	0	0	3,155	
11/12/2023	Surface Water: Tulare	5.00	Acre Inches	0.00		mg/L				0	0	0	3,155	
12/01/2023	Harvest	10.24	Tons	11.20	3.67	0.29	1.92	%						62,072
Acre Inches Applied:		55.50		Totals:						8,270	0	0	160,949	62,072
Season Nitrogen Ratio:		0.13		Lbs Per Acre:						89	0	0	1,731	667



## Frings Ranch #2 2023

### Nutrient Applications (Attachment B)

Field Name: 3-102

Wheat, 50 Acres Planted on 11/12/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data					Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/13/2022	Corral Solids: Main Corral	8.00	Tons	61.20	3.16	1.05	3.35	%	400		9,808	3,259	10,398	0	
10/17/2022	Ground Water: Well Avg	4.60	Acre Inches		37.95			mg/L			1,974	0	0	37,718	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			700				
02/15/2023	Surface Water: Tulare	5.60	Acre Inches		0.00			mg/L			0	0	0	1,900	
02/15/2023	Waste Water: Main Lagoon	0.75	Acre Inches	307.00	57.00	370.00	mg/L		1,018,286	2,604	484	3,138	27,228		
04/18/2023	Surface Water: Tulare	5.80	Acre Inches		0.00			mg/L			0	0	0	1,968	
05/11/2023	Harvest	22.40	Tons	66.40	1.53	0.31	1.29	%							11,516
<b>Acre Inches Applied:</b>		<b>16.75</b>		<b>Totals:</b>					<b>400</b>	<b>1,018,286</b>	<b>15,087</b>	<b>3,742</b>	<b>13,537</b>	<b>68,814</b>	<b>11,516</b>
<b>Season Nitrogen Ratio:</b>		<b>1.31</b>		<b>Lbs Per Acre:</b>							<b>302</b>	<b>75</b>	<b>271</b>	<b>1,376</b>	<b>230</b>



## Frings Ranch #2 2023

### Nutrient Applications (Attachment B)

Field Name: 3-102

Corn, 50 Acres Planted on 06/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data				Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)	
				% Moist.	Nitrogen	Phos.	Potass.								
05/22/2023	Corral Solids: Main Corral	8.00	Tons	5.21	1.43	1.10	1.53	%	400		10,844	8,342	11,602	0	
05/26/2023	Surface Water: Tulare	6.00	Acre Inches		0.00			mg/L			0	0	0	2,036	
07/12/2023	Surface Water: Tulare	5.80	Acre Inches		0.00			mg/L			0	0	0	1,968	
07/26/2023	Fertilize - UN32	25.00	Gallons		32.00	0.00	0.00	%			3,332	0	0	0	
07/26/2023	Surface Water: Tulare	6.20	Acre Inches		0.00			mg/L			0	0	0	2,104	
08/17/2023	Surface Water: Tulare	6.50	Acre Inches		0.00			mg/L			0	0	0	2,206	
09/18/2023	Surface Water: Tulare	5.80	Acre Inches		0.00			mg/L			0	0	0	1,968	
10/18/2023	Harvest	31.52	Tons	71.20	1.25	0.25	1.10	%						11,347	
<b>Acre Inches Applied:</b>		<b>30.30</b>							<b>Totals:</b>	<b>400</b>	<b>14,176</b>	<b>8,342</b>	<b>11,602</b>	<b>10,281</b>	<b>11,347</b>
<b>Season Nitrogen Ratio:</b> 1.25				<b>Lbs Per Acre:</b>						<b>284</b>	<b>167</b>	<b>232</b>	<b>206</b>	<b>227</b>	



**Frings Ranch #2 2023**  
**Nutrient Applications (Attachment B)**

***Summary of Nutrient Applications, Removal, and Balance***

	<u>Total N (Lbs)</u>	<u>Total P (Lbs)</u>	<u>Total K (Lbs)</u>	<u>Total Salts (Lbs)</u>	<u>Total Manure Applied</u>	
Solid Manure	20,652.50	11,600.50	22,001.00	0.00	800.00	tons
Process Wastewater	2,604.00	483.50	3,138.50	27,228.50	1,018,286.25	gallons
Irrigation Water	8,942.99					
Fertilizer / Total Imports	3,332.00					
Atmospheric Deposition	2,002.00					
<b>Total Nitrogen Applied</b>	<b>37,533.49</b>					
Crop Nitrogen Removal	84,934.42					
<b>Nitrogen Balance</b>	<b>(47,400.93)</b>					
<b>Nitrogen Ratio</b>	<b>0.44</b>					

- 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.

## Frings Ranch #2 2023 Nutrient Applications (Attachment B)

### **FIELD NITROGEN RATIO Calculation:**

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

### **ATMOSPHERIC 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

## Frings Ranch #2 2023

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

#### A. ESTIMATED TOTAL MANURE TRANSFERRED OFFSITE

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

\* The Total Manure (tons) should be calculated as the sum of all manure transferred offsite as reported in all the Manure/Process Wastewater Tracking Manifests for the reporting period.

\*\* Total (N, P, K, Salts) (lbs) = Sum of (N, P, K, Salts) for each manure export event based on (Manure(tons) x 2000lb/ton) x ((100-moisture%)/100) x (N, P, K, and Ash) Concentration (%, dry weight) / 100 using the samples closest in date to the export event.

#### B. ESTIMATED TOTAL PROCESS WASTEWATER TRANSFERRED OFFSITE

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

\* The Total Manure (gals) should be calculated as the sum of all manure transferred offsite as reported in all the Manure/Process Wastewater Tracking Manifests for the reporting period.

\*\* Total (Nitrogen, Phosphorus, Potassium, TDS) (lbs) = Sum of (Nitrogen, Phosphorus, Potassium, TDS) for each wastewater export event based on (Process Wastewater(gals) x 8.33lb/gal) x (NO<sub>3</sub>-N or TKN, P, K, TDS) x 10-6 using the samples closest in date to the export event.

**Frings Ranch #2 2023**  
**Land Application Area Description Technical Report (Attachment D)**

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
3-101	x160 x090 x005 xxxx	93	None
3-102	x160 x100 x001 xxxx, x160 x100 x003 xxxx	50	Both
			143

Production Area APN(s): x160 x100 x001 xxxx



**Frings Ranch #2 2023**  
**Lab Results Summary (Attachment E)**

**Process Wastewater**

(mg/l/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
03/08/2023	307.00	57.00	370.00	4,830	200.00		3,210.00								
04/19/2023	399.00	56.40	350.00	2,530	331.00	0.27	1,680.00	7.10							
07/18/2023	540.00	29.00	468.00	8,240	531.00		5,470.00								
11/02/2023	452.00	16.60	280.00	5,920	448.00		3,930.00								
<b>Averages:</b>	<b>424.50</b>	<b>39.75</b>	<b>367.00</b>	<b>5,380</b>	<b>377.50</b>	<b>0.27</b>	<b>3,572.50</b>	<b>7.10</b>							

**Manure - Corral Solids**

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/14/2023	1.43	1.10	1.53	5.21						%
11/02/2023	2.47	0.62	2.42	33.50						%
<b>Averages:</b>	<b>1.95</b>	<b>0.86</b>	<b>1.98</b>	<b>19.36</b>						

**Plant Tissue**

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
3-101	1	Alfalfa	12/01/2023	73.40	5.72	38.40	11.20	8.04
3-102	1	Wheat	05/11/2023	30.60	6.28	25.80	66.40	7.99



**Frings Ranch #2 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 (%)
3-102	2	Corn	10/18/2023	25.00	5.06	22.00	71.20	4.63

**Well / Irrigation Water**

(mg/l/ppm unless noted otherwise)

	Sample Date:	NO3N	TP	EC (umhos/cm)	NH4N *	TDS	TN	General Minerals											
								CA	MG	NA	HCO3	CO3	SO4	CL					
<b>Domestic</b>																			
Dom 1								Not applicable. Samples are pulled according to MRP guidelines.											
<b>Averages:</b>																			
<b>Irrigation</b>																			
Ranch II Well	09/11/2023	40.40		1,120		760.00	40.40												
Silveria Well								Did not run											
		<b>Averages:</b>		40.40		1,120		760.00	40.40										
<b>Surface Water</b>																			
Tulare (General)	06/28/2023	0.00		42		30.00	0.00												
		<b>Averages:</b>		0.00		42		30.00	0.00										

\* NH4N was non-detectable unless a value is shown



**Frings Ranch #2 2023**  
**Planting and Harvest Information (Attachment F)**

Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: 3-101							
	1 Alfalfa	93	11/15/2021	12/01/2023	8.0	952.3	10.2
Field: 3-102							
	1 Wheat	50	11/12/2022	05/11/2023	24.9	1120.0	22.4
	2 Corn	50	06/15/2023	10/18/2023	30.0	1576.0	31.5



## Frings Ranch #2 2023

### Weather Data (Attachment G)

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

\*Note: SWP = Standing Water Present





September 29, 2023

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

**Lab No.** : VI 2346148  
**Customer No.** : 4018573  
**Reference** : 41324

### 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
Ranch 11 Well	09/11/2023	09/11/2023	VI 2346148-001	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



September 29, 2023

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

Description : Ranch 11 Well  
 Project : 0533 Frings Ranch #2

Lab No. : VI 2346148-001  
 Customer No.: 4018573  
 Reference : 41324  
 Sampled On : September 11, 2023 at 13:15  
 Sampled By : Zeke  
 Received On : September 11, 2023 at 15:37  
 Matrix : Ag Water

### Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
							Date	Time	Who	Method	Date	Time	Who
<b>Dairy Analysis</b>													
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U1	09/21/2023	09:23	sta	EPA 351.2	09/25/2023	20:40	lcr
Nitrate Nitrogen	40.4	0.4	mg/L		1		09/12/2023	12:35	lfs	SM 4500-NO3 F	09/12/2023	15:46	lfs
Nitrogen, Total as Nitrogen	40.4	0.5	mg/L		1	1	09/21/2023	09:23	sta	Calc.	09/25/2023	20:40	lcr
Nitrate + Nitrite as N	40.4	0.4	mg/L		1		09/12/2023	12:35	lfs	SM 4500-NO3 F	09/12/2023	15:46	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U1	09/21/2023	09:23	sta	EPA 351.2	09/25/2023	20:40	lcr
Conductivity	1120	1	umhos/cm		1		09/15/2023	09:09	krh	SM 4500-H+B	09/15/2023	10:56	krh
Solids, Total Dissolved (TDS)	760	20	mg/L		1		09/13/2023	10:20	ctl	SM 2540 C	09/14/2023	11:40	ctl

## DQF Flags Definition:

- U Constituent results were non-detect.
- I The MS/MSD did not meet QC criteria.

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



September 29, 2023  
**Innovative Ag Services, LLC**

Lab No. : VI 2346148  
 Customer No. : 4018573

### Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Wet Chem</b>								
E. C.	2320B	(VI 2346608-002)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	09/13/2023:210246CTL (VI 2346141-005) (VI 2346141-005)	Blank LCS Dup Dup	mg/L mg/L mg/L mg/L	991.5	ND 101% 1.75% 2.07%	<20 90-110 5 5	
Nitrogen, Total Kjeldahl	351.2	09/21/2023:210595STA (STK2352400-001) (STK2352400-004)	Blank LCS MS MSD MSRPD MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00	ND 91.7% 89.3% 88.1% 1.2% 89.7% 93.6% 3.8%	<0.5 73-124 90-110 435 90-110 435 ≤20 90-110 435 90-110 435 ≤20	
Nitrate + Nitrite as N	4500NO3F	09/12/2023:210228LFS (CH 2377709-001)	Blank LCS MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L	11.22 5.609 5.609 5.609 5.609	ND 98.4% 101% 102% 1.1%	<0.4 80-120 66-125 66-125 ≤30.4	
Nitrate Nitrogen	4500NO3F	09/12/2023:210228LFS (CH 2377709-001)	Blank LCS MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L	11.22 5.609 5.609 5.609 5.609	ND 98.4% 101% 102% 1.1%	<0.4 80-120 66-125 66-125 ≤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 analyte. 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.



# Laboratory Analysis Work Order

Nº 41324

ID: # 0533

2346148

LABORATORY: FGL

SITE NAME: FRINGS RANCH #2

Billing: IAS

**ANALYSIS TO BE COMPLETED:**
**Irrigation/Ground Water (ELAP Standards)**
W1 EC, NO<sub>3</sub>N (Dom)W2 EC, NO<sub>3</sub>N, TDS, TN (Irr)W3 NH<sub>4</sub>-N (Ammonium)W4 EC, NO<sub>3</sub>N, Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl, TDS (Dom, GM)W5 EC, NO<sub>3</sub>N, TDS, TN, Ca, Mg, Na, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl (Irr, GM)W6 NO<sub>3</sub>N, NO<sub>2</sub> (Dom ILRP, Annually)W7 Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>, Cl + Lab Filtering (GWM)

W8 Other: \_\_\_\_\_

**Plant Tissue**
P1 TN, NO<sub>3</sub>N, PO<sub>4</sub>P, 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<sub>4</sub>N, TKN, TP, TK, TDS (Quarterly)L2 EC, NO<sub>3</sub>N, NH<sub>4</sub>N, TKN, TP, TK, TDS, pH (Annually)L3 L1 + Ca, Mg, Na, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, 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<sub>3</sub>N, PO<sub>4</sub>P, K-AA, Zn, Mn, Fe, Cu, SO<sub>4</sub>SS2 S1 + CEC, CaCO<sub>3</sub>, OM, C:N, TNS3 NO<sub>3</sub>N, NH<sub>4</sub>N

S4 Other: \_\_\_\_\_

Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS		
					NH <sub>3</sub> N *	pH	Temp
1 Ranch 11 well	IRR	W2	9-11 / 11:15	Zek			
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 &amp; 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 samples, please note below.

NOTES:

**CHAIN OF CUSTODY RECORDING**

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 <sup>st</sup>	<i>[Signature]</i>	IAS		9-11-23 / 3:00
2 <sup>nd</sup>	AJS	FGL	9/11/23 1525	
3 <sup>rd</sup>	AJS	FGL		9/11/23 1537
4 <sup>th</sup>	Zek		9/11/23 1537	

LABORATORY USE ONLY

Logged In By: *[Signature]*

Total Samples: 11 Laboratory #: 730

GLS Inc 9/12/23 12:17



# Laboratory Analysis Work Order

Nº 40539

ID: # Q533SITE NAME: Frips 2Billing: IAS**ANALYSIS TO BE COMPLETED:****Irrigation/Ground Water (ELAP Standards)**W1 EC, NO<sub>3</sub>N (Dom)W2 EC, NO<sub>3</sub>N, TDS, TN (Irr)W3 NH<sub>4</sub>-N (Ammonium)W4 EC, NO<sub>3</sub>N, Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl, TDS (Dom, GM)W5 EC, NO<sub>3</sub>N, TDS, TN, Ca, Mg, Na, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl (Irr, GM)W6 NO<sub>3</sub>N, NO<sub>2</sub> (Dom ILRP, Annually)W7 Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>, Cl + Lab Filtering (GWM)

W8 Other: \_\_\_\_\_

**Plant Tissue**P1 TN, NO<sub>3</sub>N, PO<sub>4</sub>P, 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: \_\_\_\_\_

Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS		
					NH <sub>3</sub> N *	pH	Temp
1	Ranch 2	wheat	P3	5-11	Henry		
2							
3							
4							
5							
6							
7							
8							

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

All samples are to follow the procedures noted in the Sampling &amp; 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 samples, please note below.

NOTES: \_\_\_\_\_

**CHAIN OF CUSTODY RECORDING**

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 <sup>st</sup>		IAS		5-11-23
2 <sup>nd</sup>		VT	5-11-23 12:00	
3 <sup>rd</sup>				
4 <sup>th</sup>				

LABORATORY USE ONLY

Logged In By: AHTotal Samples: 1Laboratory #: H50481



# Laboratory Analysis Work Order

Nº 41620

ID: # 0533SITE NAME: Fring Ranch #2Billing: IAS**ANALYSIS TO BE COMPLETED:****Irrigation/Ground Water (ELAP Standards)****W1** EC, NO<sub>3</sub>N (Dom)**W2** EC, NO<sub>3</sub>N, TDS, TN (Irr)**W3** NH<sub>4</sub>-N (Ammonium)**W4** EC, NO<sub>3</sub>N, Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl, TDS (Dom, GM)**W5** EC, NO<sub>3</sub>N, TDS, TN, Ca, Mg, Na, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl (Irr, GM)**W6** NO<sub>3</sub>N, NO<sub>2</sub> (Dom ILRP, Annually)**W7** Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>, Cl + Lab Filtering (GWM)**W8** Other: \_\_\_\_\_**Plant Tissue****P1** TN, NO<sub>3</sub>N, PO<sub>4</sub>P, K (Mid Season - Wheat)**P2** TN, P, K (Mid-season - Corn)**P3** N, TP, TK, Ash, %M (At Harvest)**P4** TN, %M**P5** % Moisture**P6** NIR**P7** Other: \_\_\_\_\_

Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS		
					NH <sub>3</sub> N *	pH	Temp
1 <b>3-102</b>	Corn	P3	10/18	Frank			
2							
3							
4							
5							
6							
7							
8							

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

All samples are to follow the procedures noted in the Sampling &amp; 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 samples, please note below.

NOTES: \_\_\_\_\_

**CHAIN OF CUSTODY RECORDING**

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 <sup>st</sup>	<u>SC</u>	<u>IAS</u>		10/18/23 3:00
2 <sup>nd</sup>	<u>JML</u>	<u>Valley Tr</u>	10/18/23 3:50 p	
3 <sup>rd</sup>				
4 <sup>th</sup>				

**LABORATORY USE ONLY**Logged In By: FrankTotal Samples: 1Laboratory #: H70863



# Laboratory Analysis Work Order

Nº 42212

ID: # 0533

SITE NAME: Frings Ranch #2

Billing: IAS

**ANALYSIS TO BE COMPLETED:**
**Irrigation/Ground Water (ELAP Standards)**

- W1** EC, NO<sub>3</sub>N (Dom)  
**W2** EC, NO<sub>3</sub>N, TDS, TN (Irr)  
**W3** NH<sub>4</sub>-N (Ammonium)  
**W4** EC, NO<sub>3</sub>N, Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl, TDS (Dom, GM)  
**W5** EC, NO<sub>3</sub>N, TDS, TN, Ca, Mg, Na, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>S, Cl (Irr, GM)  
**W6** NO<sub>3</sub>N, NO<sub>2</sub> (Dom ILRP, Annually)  
**W7** Ca, Mg, Na, K, HCO<sub>3</sub>, CO<sub>3</sub>, SO<sub>4</sub>, Cl + Lab Filtering (GWM)  
**W8** Other: \_\_\_\_\_

**Plant Tissue**

- P1** TN, NO<sub>3</sub>N, PO<sub>4</sub>P, 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: \_\_\_\_\_

	Sample ID	Description	Analysis	Date/Time	Sampled by
1	3-101	Alfalfa	P3	12/1	Frank
2					
3					
4					
5					
6					
7					
8					

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

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

NOTES: \_\_\_\_\_

**CHAIN OF CUSTODY RECORDING**

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 <sup>st</sup>		IAS		12/18/23 3:30
2 <sup>nd</sup>		VT	12/21/23 11:16	
3 <sup>rd</sup>				
4 <sup>th</sup>				

LABORATORY USE ONLY

Logged In By:

AJ

Total Samples:

1

Laboratory #:

H74531